

**State of California  
California Environmental Protection Agency  
AIR RESOURCES BOARD**

**PUBLIC HEARING TO ADOPT CALIFORNIA'S HEAVY-DUTY DIESEL IN-USE  
COMPLIANCE REGULATION**

**FINAL STATEMENT OF REASONS**

**July 26, 2007**

State of California  
AIR RESOURCES BOARD

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

**PUBLIC HEARING TO ADOPT CALIFORNIA'S HEAVY-DUTY DIESEL  
IN-USE COMPLIANCE REGULATION**

Public Hearing Date: September 28, 2007  
Agenda Item No.: 06-8-5

**I. General**

The Staff Report: Initial Statement of Reasons for Rulemaking ("Staff Report"), entitled "Public Hearing to Adopt California's Heavy-Duty Diesel In-Use Compliance Regulation," released August 11, 2006, is incorporated by reference herein.

In this rulemaking, the Air Resources Board (ARB or Board) amended California's existing heavy-duty diesel engine (HDDE) regulations and test procedures. Through these amendments a new HDDE in-use compliance program would be created for vehicles with gross vehicle weight ratings greater than 8,500 pounds equipped with 2007 and subsequent model year engines. The HDDE in-use compliance program would ensure that new heavy-duty diesel vehicles meet the applicable certification emission standards over their regulatory useful life and is identical to a comparable program enacted by the United States Environmental Protection Agency (U.S. EPA).

The main components of this rulemaking are as follows:

The HDDE in-use compliance program would start in 2007 for gaseous emissions and in 2009 for particulate emissions. Each year, the ARB and the U.S. EPA would jointly designate up to 25 percent of a manufacturer's total number of medium- and heavy-duty diesel engine families for testing. The HDDE manufacturers would conduct the required testing. Specifically, the manufacturers would screen, procure, and test the vehicles. The testing would be based on the Not-to-Exceed (NTE) requirements, required for all 2005 and later model year HDDEs. Testing would be conducted during normal over-the-road vehicle operation using portable emission measurement systems (PEMS) for gaseous and particulate matter emissions.

Manufacturers are to report test data and other relevant in-use test information to ARB on a quarterly basis, for all engines tested during that quarter, no later than 30 days after the quarter ends. Both test data and test reports would be comprehensive in nature and would be submitted in an electronic format jointly developed by ARB, U.S. EPA, and the engine manufacturers.

At the conclusion of the hearing, on September 28, 2006, the Board adopted resolution 06-27, approving California's Heavy-Duty Diesel In-Use Compliance Regulation amendments as proposed with one minor modification. The minor modification added a California provision to the Heavy-Duty Diesel Engine Test procedures, allowing alternative label content and formats for 2007 and later model year heavy-duty diesel engines with advance Executive Officer approval. This modified amendment made California's alternate labeling provision consistent with the U.S. EPA's. The text of the suggested modification was contained in a 2-page document entitled "ARB Staff's Suggested Modifications to the Original Proposal," which was distributed at the hearing and was Attachment D to Resolution 06-27.

In accordance with section 11346.8 of the Government Code, the Resolution directed the ARB Executive Officer to incorporate the modification into the proposed regulatory text, with such other conforming modifications as may be appropriate, and to make the modified text available for a supplemental comment period of at least 15 days. The Executive Officer was then directed either to adopt the amendments with such additional modifications as may be appropriate in light of the comments received, or to present the regulations to the Board for further consideration if warranted in light of the comments. Resolution 06-27 and its Attachments are available at ARB's Internet web page for this rulemaking:

<http://www.arb.ca.gov/regact/inuse06/inuse06.htm>

The text of all the modifications to the originally proposed amendments to the regulations and incorporated documents was made available for a supplemental 15-day comment period by issuance of a "Notice of Public Availability of Modified Text." This Notice, a copy of the Resolution 06-27, and the Attachment document entitled "Staff's Proposed 15-Day Notice Modifications to Original Proposal," were mailed on March 16, 2007 to all parties identified in section 44(a), title 1, California Code of Regulations (CCR), and to other persons generally interested in the ARB's rulemaking concerning requirements applicable to heavy-duty diesel engines/vehicles. The "Notice of Public Availability of Modified Text" listed the ARB internet site from which interested parties could obtain the complete text of the incorporated documents that would be affected by the modifications to the original proposal, with all of the modifications clearly indicated. These documents were also published on ARB's Internet web page (<http://www.arb.ca.gov/regact/inuse06/inuse.htm>) for this rulemaking on March 15, 2007. No written comments were received during the 15-day comment period.

Since no comments were received during the 15-day comment period, the Executive Officer issued Executive Order R-07-003, adopting the amendments to title 13, CCR and to the incorporated documents.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text, including nonsubstantial modifications and clarifications made after

the close of the 15-day comment period. The FSOR also contains a summary of the comments received by the Board on the proposed regulatory amendments and ARB's responses to those comments.

**Incorporation of Test Procedures and Federal Regulations.** The amended test procedures are incorporated by reference in title 13, CCR sections 1956.1 and 1956.8. The test procedures in turn incorporate heavy-duty highway engines test procedures adopted by U.S. EPA and are contained in title 40, Code of Federal Regulations (CFR), Part 86, and Part 1065.

Title 13, CCR sections 1956.1 and 1956.8 identify the incorporated ARB documents by title and date. The ARB documents are readily available from the ARB upon request and were made available in the context of this rulemaking in the manner specified in Government Code section 11346.5(b). The CFR is published by the Office of the Federal Register, National Archives and Records Administration, and is therefore reasonably available to the affected public from a commonly known source.

The test procedures are incorporated by reference because it would be impractical to print them in the CCR. Existing ARB administrative practice has been to have the test procedures incorporated by reference rather than printed in the CCR because these procedures are highly technical and complex. They include the "nuts and bolts" engineering protocols and laboratory practices required for certification of regulated engines and equipment, and have a very limited audience. Because ARB has never printed complete test procedures in the CCR, the affected public is accustomed to the incorporation format utilized therein. The ARB's test procedures as a whole are extensive and it would be both cumbersome and expensive to print these lengthy, technically complex procedures with a limited audience in the CCR. Printing portions of the ARB's test procedures that are incorporated by reference would be unnecessarily confusing to the affected public.

The test procedures incorporate portions of the CFR because the ARB requirements are substantially based on the federal regulations. Manufacturers typically certify vehicles and engines to a version of the federal emission standards and test procedures that have been modified by state requirements. Incorporation of the federal regulations by reference makes it easier for manufacturers to know when the two sets of requirements are identical and when they differ. Each of the incorporated CFR provisions is identified by date in ARB's test procedure documents.

**Fiscal Impacts.** 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 costs or savings to state or local agencies.

The Executive Officer has determined that this regulatory action will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons. Any cost impacts are expected to be minimal and will be absorbed by all affected HDDE manufacturers, none of whom are located in California, and this regulation makes California requirements consistent with the federal law. There may be a slight positive impact on PEMS manufacturers that are located in California.

In accordance with Government Code section 11346.3, the Executive Officer has determined that this amendment will not affect the creation or elimination of jobs within the State of California, the creation of new businesses and the elimination of existing businesses within the State of California, or the expansion of businesses currently doing business within the State of California. Any impact on business in California is expected to be slight and positive.

The Executive Officer has determined, pursuant to title 1, CCR, section 4, that the proposed regulatory action will not affect small businesses as there will be no incremental costs associated with this regulation in addition to those already needed to comply with federal regulation.

**Consideration of Alternatives.** The amendments and new regulatory language proposed in this rulemaking were the result of extensive discussions and meetings involving ARB staff, U.S. EPA staff, HDDE manufacturers, and PEMS manufacturers over a 4 year period. In the Staff Report, released and made available to the public on August 11, 2006, staff evaluated and ultimately rejected three potential alternatives which included: (1) ARB to continue conducting in-use compliance testing of HDDEs under its current in-use compliance regulations, resulting in an estimated cost of \$4.5 million annually if ARB were to conduct compliance testing of the same number of engine families, (2) ARB to conduct the HDDE in-use compliance testing program on its own and without any HDDE manufacturer involvement, resulting in an estimated cost of \$1.8 million annually if ARB were to conduct compliance testing of the same number of engine families, and (3) ARB to conduct compliance testing utilizing a chassis dynamometer resulting in an estimated cost of \$3.6 million annually if ARB were to conduct compliance testing of the same number of engine families.

For the reasons set forth in the Staff Report, and based on staff's comments and responses at the hearing, the Board determined that no alternative considered by the agency or brought to the attention of 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.

## II. MODIFICATIONS TO THE ORIGINAL PROPOSAL

### A. MODIFICATIONS APPROVED BY THE BOARD AT THE PUBLIC HEARING AND IDENTIFIED IN THE 15-DAY PUBLIC COMMENT PERIOD

As previously discussed, during the September 28, 2006 public hearing, the Board approved the adoption of the originally proposed amendments with one minor modification. The modification approved by the Board, as well as other suggested clarifying modifications identified subsequent to the Board hearing, was explained in detail in the Notice of Public Availability of Modified Text that was issued for a 15-day public comment period that began on March 16, 2007, and ended on March 31, 2007. In order to provide a complete FSOR for this rulemaking, these modifications and clarifications are also described below by section number.

Staff's original proposal included amendments to the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," and an amendment to the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines" on alternate labeling contents and formats for 2007 and later model-year diesel and otto-cycle engines.

Subsequent to the Board hearing, staff discovered that on August 30, 2006, U.S. EPA had published a new Direct Final Rule (71 Fed.Reg. 51481, 51487) that included adding a new paragraph "(j)" to 40 CFR section 86.007-35 (Labeling) specifically containing the alternate labeling language that U.S. EPA had intended to add in December 2005. Since the alternative labeling language is now expressly contained in the federal regulation, staff concluded there is no need to have a separate California provision. Changing the date of the incorporated federal labeling provisions to August 30, 2006 is all that is needed to fulfill the intent of staff's modifications presented at the September 28, 2006 Board hearing.

Accordingly, staff drafted conforming modifications that eliminate the originally proposed California language on alternative labels in the Heavy-Duty Otto-Cycle Engine Test Procedures. In both those Test Procedures the modified text incorporates the federal labeling provisions for 2007 and later engines in section 86.007-35 as amended August 30, 2006. These modifications have the same effect as those presented at the September 28, 2006 hearing.

Shown below are the proposed modifications to the originally proposed amendments to these two documents. Only provisions being modified are shown. The text of the amendments originally proposed in the Staff Report: Initial Statement of Reasons is shown in single underline to indicate additions and ~~single strikeout~~ to indicate deletions. The 15-Day modifications to the originally proposed amendments are shown in double underline for additions and ~~double strikeout~~ for deletions.

**A. CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY DIESEL-ENGINES AND VEHICLES**

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**35. Labeling. §86.xxx-35,**

**A. Federal Provisions.**

1. **§86.001-35** ~~January 18, 2004~~ April 6, 1994.

\* \* \* \* \*

2. **§86.007-35** ~~January 18, 2004~~ ~~July 13, 2005,~~ August 30, 2006

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**B. CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY OTTO-CYCLE ENGINES**

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**35. Labeling. §86.xxx-35,**

**A. Federal Provisions.**

1. **§86.001-35** April 6, 1994.

\* \* \* \* \*

2. **§86.007-35** ~~January 18, 2001~~ ~~June 29, 2004,~~ August 30, 2006

**B. California Provisions**

\* \* \* \* \*

2. ~~For 2007 and later model year engines, the Executive Officer may approve in advance other label content and formats provided the alternative label contains information consistent with this section 35.~~

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**III. SUMMARY OF COMMENTS AND AGENCY RESPONSE**

The ARB received several written comments during the 45-day comment period prior to the Board hearing in response to the August 11, 2006, public hearing notice. No comments were received during the 15-day comment period in response to the notice of proposed modified text made available for comment on March 16, 2007. Listed below are the names of persons and organizations that submitted comments.

During the 45-day comment period, the Board received written comments from:

	<b>Name and Affiliation (If Any)</b>	<b>Written Comment Date Received</b>
1	Barry R. Wallerstein, South Coast Air Quality Management District (SCAQMD)	9/27/06
2	Timothy A. French, Engine Manufacturers Association	9/25/2006

At the September 28, 2006, Board hearing, the ARB received written or oral comments from:

	<b>Name and Affiliation (If Any)</b>	<b>Written Comment (Date Received)</b>	<b>Oral Testimony</b>
1	Thomas Mayfield, Stanislaus County Board of Supervisors	9/26/2006 (9/28/2006)	No
2	Lisa Stegnink, Engine Manufacturers Association (EMA)	9/28/2006	YES
3	Chung S. Liu, South Coast Air Quality Management District Association (ATA)	No	YES

Set forth below is a summary of each objection or recommendation made regarding the specific regulatory action proposed, together with an explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for making no change. Comments not related to this rulemaking are not included in the discussions.

The majority of comments were in support of the HDIUT regulation. These comments are not summarized below, unless they are relevant to another comment or response.

1. **Comment:** AQMD believes that because manufacturers would be solely implementing the selection, screening, and emission testing portion of the heavy-duty in-use compliance testing program, ARB and U.S. EPA run the risk of engine manufacturers pre-selecting unrepresentative vehicles that have the highest potential of passing in-use emission testing. AQMD suggests that the heavy-duty in-use compliance testing program be modified to allow ARB oversight and approval authority for vehicle selection and emission testing. **(AQMD)**

**Agency Response:** ARB agrees that steps need to be in place to ensure that vehicles tested are not chosen preferentially to have the highest potential of passing in-use testing. Pursuant to the proposed regulations, each year by June 1<sup>st</sup>, ARB and U.S. EPA would designate up to 25% of a manufacturer's total number of trucks for testing. Manufacturers would select test vehicles from designated engine families for that given year in accordance with the May 2006 published guidance



document for vehicle selection, “Manufacturer-run Heavy-duty In-use Testing Program: Vehicle Screening Guidance.” Details of the screening guidance document can be viewed at (<http://www.epa.gov/otaq/cert/dearmfr/cisd06010.pdf>). The guidance document clearly specifies the criteria manufacturers must follow for accepting and rejecting vehicles into/from the program based on maintenance, operation, fuel quality, operation history, and other relevant factors.

ARB believes that the criteria specified in the guidance document for vehicle selection, acceptance, or rejection, along with the ability to have staff present during testing, provides sufficient protection and assurance that only truly representative vehicles would be used in the program. In addition, should ARB staff suspect any wrong doing on the part of a manufacturer, ARB can perform its own confirmatory testing on selected engine families.

- 2. Comment:** AQMD believes that remote sensing technology has been sufficiently developed and demonstrated to be capable of measuring in-use emissions from HDDEs very accurately. AQMD recommends that ARB evaluate and implement remote sensing technology as a supplement to PEMS-based HDDE in-use compliance testing. **(AQMD)**

**Agency Response:** The commenter suggests using remote sensing technology to assess the in-use emissions performance of medium and heavy-duty trucks. ARB believes that this would be inappropriate. Remote sensing instruments are capable of measuring exhaust emission concentrations in parts per million (ppm). Heavy-duty truck engines are certified to meet emission standards expressed in units of pollutant mass per unit of work of the engine (i.e., grams per brake horsepower-hour); they must comply with these standards when new and for their full useful life. Thus, assessing in-use compliance by comparing ppm measurements with the grams per brake horsepower-hour standard would be meaningless (i.e., an “apples and oranges” comparison). In order to convert a ppm measurement to grams per brake horsepower-hour value, the engine’s torque, speed, and the exhaust flow rate, must be known. This is not possible with current remote sensing systems.

- 3. Comment:** AQMD recommends that the proposed heavy-duty in-use testing protocol also include provisions for detection of deliberate emission control malfunction/failures and hardware- and software-based defeat devices. **(AQMD)**

**Agency Response:** This comment raises valid concerns. However, emission control malfunctions/failures will be detected by the vehicle’s on-board diagnostic system (adopted by ARB in 2005, to be implemented in 2010). Moreover, because the proposed in-use compliance program would assess how the engine performs in virtually all driving/operating conditions, it too would identify these malfunctions/failures as well as detect the use of any defeat devices.

- 4. Comment:** EMA feels that ARB has no authority to compel manufacturers to conduct emissions testing of in-use, used (non-new) motor vehicles and engines. EMA feels that outside of a duly-initiated enforcement or recall action, ARB’s

statutory authority to impose emission testing requirements on manufacturers is limited to the testing of new motor vehicles and new motor vehicle engines during certification process or assembly line testing (See Health and Safety Code, sections 43104, 43105, 43202, 43203 and 43210). **(EMA)**

**Agency Response:** ARB disagrees with the commenter's assertion. Pursuant to California's Health and Safety Code section 43013 (Standards for Control of Air Contaminants), ARB has the authority to adopt and implement motor vehicle emission standards and in-use performance standards for the control of air contaminants and sources of air pollution which ARB finds necessary, cost-effective, and technologically feasible, unless preempted by federal law. The above Health and Safety Code section also provides ARB with the authority to require post-production testing of vehicles by manufacturers to provide a means of monitoring emissions performance of vehicles driven under real-world conditions. Authority aside, it is perhaps more important for the purpose of this rulemaking, to recognize that the affected industry, U.S. EPA, and ARB already mutually agree with all elements and requirements of the proposed in-use compliance program, as well as our respective roles and responsibilities. Thus, from a practical perspective, the commenter's assertion has little bearing on the proposed regulations since the program is already underway and all parties are working together cooperatively. It should also be noted that while the ARB could have elected to pursue the adoption of regulations requiring manufacturers to conduct a separate in-use compliance program for California, this approach was rejected. This is because ARB recognizes that an in-use compliance program for interstate-type trucks can best be conducted on a national level. Thus, the proposed program is essentially identical to the in-use compliance program recently adopted by the U.S. EPA (see related Agency Response to Comment # 5 below).

5. **Comment:** The EMA feels that the in-use testing program must be implemented and administered on a uniform nationwide basis. Due to the significant (in fact, unprecedented) challenges that engine manufacturers will face in implementing the proposed HDIUT program, it is vital that the in-use program be administered on a uniform, and nationwide basis, without any unique or special provisions for particular jurisdictions, including California. The EMA feels that the HDIUT regulatory program was developed jointly and collaboratively with the U.S. EPA and EMA, and documented with a 10-page "HDIUT outline" in May 2003. Based on this HDIUT outline ARB and EMA also entered into a Statement of Agreement and Accord (SAA) in 2003. U.S. EPA has published a final rule (EPA HDIUT Rule) establishing a manufacturer-run in-use NTE testing program based upon and consistent with the HDIUT outline. Therefore, it is important that ARB's HDIUT regulation remain fully consistent with the program the manufacturers have agreed to implement in accordance with the HDIUT outline and the EPA HDIUT Rule. **(EMA)**

**Agency Response:** ARB agrees that when at all possible, manufacturers be subjected to a consistent national in-use NTE testing program. The proposed regulation, for all intents and purposes subjects manufacturers to a consistent in-use compliance program that is identical to the U.S. EPA's in-use compliance rule.

Specifically, the engine family selection, test vehicle selection, testing protocol, test data collection and reporting, pass/fail criteria, etc., are all identical to the U.S. EPA's rule. The commenter's specific concern apparently relates to whether ARB will pursue remedial action via ARB's own interpretation/assessment of the test results. As with every other program ARB has authority to enforce, ARB believes it is appropriate to render its own decision on whether to pursue remedial action. The U.S. EPA, in their Preamble to their final rule, acknowledged this as well. It states, "California's involvement in the development of this program was critical in assuring that engine manufacturers are subject to a consistent national in-use NTE test program. CARB intends to adopt an identical program soon. EPA and CARB expect to coordinate in the annual selection of engine families to be in-use tested and to work together in determining whether Phase 2 testing is warranted for families where the number of passing engines in Phase 1 does not automatically lead to no further testing. CARB has its own authority and decision process in determining remedial action for failing families, but CARB expects to work with EPA and the manufacturers in this process" (June 14, 2005, Federal Register, Vol. 70, No. 113, page 34598).

6. **Comment:** Currently, Stanislaus County, California, is subjected to the requirements for public agencies under Sections 2022 and 2022.1 of title 13 of the California Code of Regulations (CCR). In addition, for Stanislaus County, compliance with California's heavy-duty diesel in-use compliance regulation is expected to cost in excess of \$350,000. As a result of this regulation, the County will be faced with the decision of replacing the existing vehicles altogether or installing a control device that can cost in the range of \$10,000 - \$20,000 depending on the age and type of vehicle. The cost that will need to be absorbed by Stanislaus County will be substantial for the county. The county also has strong concerns regarding how the referenced regulation was developed. The county also feels that the regulation does not differentiate between existing and new vehicles and unfairly targets public agencies and utilities that have suffered fiscally over the last decade. **(Stanislaus County)**

**Agency Response:** The commenter is apparently misinformed. The proposed in-use compliance regulations are applicable only to 2007 and newer heavy-duty diesel vehicles, and all in-use compliance testing, under these regulations, would be conducted by the diesel engine manufacturers. All testing related expenses would be borne by the diesel engine manufacturers. The commenter is likely concerned with requirements pursuant to title 13 sections 2022 and 2022.1 of the CCR, Diesel Particulate Matter Control Measure for Municipality or Utility On-Road Heavy-Duty Diesel-Fueled Vehicles. These measures require the installation of best available control technology (BACT) for controlling diesel particulate matter emissions from on-road heavy-duty diesel-fueled vehicles according to a specified implementation schedule, and would apply to any county that owns, leases, or operates an on-road diesel fueled heavy-duty vehicle with a 1960 to 2006 model year heavy-duty engine and manufacturers' gross vehicle weight rating greater than 14,000 pounds. These particulate matter control measures are not connected in any way to the proposed regulations.