

## TITLE 13. CALIFORNIA AIR RESOURCES BOARD

### **NOTICE OF PUBLIC HEARING TO CONSIDER AMENDMENTS TO OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS: 2000 AND LATER EMISSION STANDARDS, COMPLIANCE REQUIREMENTS AND TEST PROCEDURES**

The Air Resources Board (the "Board" or "ARB") will conduct a public hearing at the time and place noted below to consider amendments to regulations specifying both mandatory and optional reduced-emission standards for 2000 and subsequent model year off-road compression-ignition (CI) engines. In addition, provisions to allow manufacturers of California-certified off-road CI engines to participate in the federal Averaging, Banking, and Trading (ABT) program will be considered. Finally, new warranty, maintenance, useful life and rebuild requirements will be presented to the Board for consideration and adoption.

DATE: January 27, 2000

TIME: 9:30 a.m.

PLACE: South Coast Air Quality Management District  
Auditorium  
21865 E. Copley Drive  
Diamond Bar, California 91765

This item will be considered at a two-day meeting of the Board, which will commence at 9:30 a.m., January 27, 2000, and may continue at 8:30 a.m., January 28, 2000. This item may not be considered until January 28, 2000. Please consult the agenda for the meeting, which will be available at least 10 days before January 27, 2000, to determine the day on which this item will be considered.

This facility is accessible to persons with disabilities. If accommodation is needed, please contact the Clerk of the Board at (916) 322-5594 or TDD (916) 324-9531 or (800) 700-8326 for TDD calls from outside the Sacramento area, 14 days before January 27, 2000.

### **INFORMATIVE DIGEST OF PROPOSED ACTION**

Sections Affected: Amendment of the following sections of title 13, California Code of Regulations and the documents incorporated by reference therein: sections 2111, 2112, and Appendix A to Article 2.1; sections 2137, 2139, 2140, 2141, 2400, 2401, 2403, 2420, 2421, 2423, 2424, 2425, 2426, and 2427; and "California Exhaust Emission Standards and Test Procedures for New 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines," and "California Smoke Test Procedures for New 1996 and

Later Heavy-Duty Off-Road Diesel Cycle Engines," which are incorporated by reference in section 2423, and the document "California Exhaust Emission Standards and Test Procedures for 1995 and Later Small Off-Road Engines," which is incorporated by reference in section 2403.

The California Clean Air Act as codified in the Health and Safety Code sections 43013 and 43018 grants the ARB authority to regulate off-road mobile source categories. Included are marine vessels, locomotives, utility engines, off-road motorcycles, and off-highway vehicles.

In 1992, the ARB approved regulations to control exhaust emissions from heavy-duty off-road CI engines 175 horsepower (130 kilowatts) and above. In 1994, the Air Resources Board approved a State Implementation Plan (SIP) for ozone. The SIP contains measures M-9 and M-10, which call for new state and national emission standards for off-road CI engines beginning in 2005. In August 1996, the ARB, the United States Environmental Protection Agency (U.S. EPA), and the manufacturers of off-road CI engines signed a statement of principles (SOP) calling for harmonization of ARB and U.S. EPA off-road CI engine regulations. The SOP is a cooperative agreement between ARB, U.S. EPA, and the engine manufacturers that recognizes the technological feasibility of significant emission reductions from those engines, and may be downloaded from the internet at [www.arb.ca.gov/msprog/macmail/msc9802/att\\_g.wpd](http://www.arb.ca.gov/msprog/macmail/msc9802/att_g.wpd). The U.S. EPA promulgated new emission standards, along with changes to the existing federal averaging, banking, and trading program, and changes to useful life and maintenance requirements for nonroad CI engines (63 Fed. Reg. 56,968 (Oct. 23, 1998)). The proposed amendments to existing California emission standards and test procedures are designed to harmonize as closely as possible with the federal program, while still maintaining the emission reduction benefits of the current California program. The coordinated efforts of ARB, U.S. EPA, and the engine manufacturers to introduce lower-emission off-road CI engines nationwide will result in substantial air quality benefits in California and the rest of the country.

## **STAFF PROPOSAL**

The heart of the proposal is a set of emission standards for new off-road CI engines which would be implemented beginning in 2000. The standards would limit emissions of oxides of nitrogen (NO<sub>x</sub>) and non-methane hydrocarbons (NMHC). Rather than a single standard for all engine sizes, the proposal consists of different standards partitioned by the power produced by the engine. All standards are identical to those adopted by the U.S. EPA, which appear at 40 C.F.R. Part 89; the standards are shown in Table 1.

**Table 1**  
**Proposed California emissions standards**  
**(grams per kilowatt-hour )**

Maximum Rated Horsepower (hp)	Tier	Model Year	NOx	Hydrocarbons	NMHC+ NOx	Carbon Monoxide	Particulate Matter
kW<8 <sup>a</sup>	Tier 1	2000-2004	—	—	10.5	8.0	1.0
	Tier 2	2005 and later	—	—	7.5	8.0	0.80
8≤kW<19 <sup>a</sup>	Tier 1	2000-2004	—	—	9.5	6.6	0.80
	Tier 2	2005 and later	—	—	7.5	6.6	0.80
19≤kW<37	Tier 1	2000-2003	—	—	9.5	5.5	0.80
	Tier 2	2004 and later	—	—	7.5	5.5	0.60
37≤kW<75	Tier 1	2000-2003	9.2	—	—	—	—
	Tier 2	2004-2007	—	—	7.5	5.0	0.40
	Tier 3	2008 and later	—	—	4.7	5.0	—
75≤kW<130	Tier 1	2000-2002	9.2	—	—	—	—
	Tier 2	2003-2006	—	—	6.6	5.0	0.30
	Tier 3	2007 and later	—	—	4.0	5.0	—
130≤kW<225	Tier 1 <sup>b</sup>	2000-2002	9.2	1.3	—	11.4	0.54
	Tier 2 <sup>c</sup>	2003-2005	—	—	6.6	3.5	0.20
	Tier 3	2006 and later	—	—	4.0	3.5	—
225≤kW<450	Tier 1 <sup>b</sup>	2000	9.2	1.3	—	11.4	0.54
	Tier 2 <sup>c</sup>	2001-2005	—	—	6.4	3.5	0.20
	Tier 3	2006 and later	—	—	4.0	3.5	—

**Table 1, continued**  
**Proposed California emissions standards**  
**(grams per kilowatt-hour )**

Maximum Rated Horsepower (hp)	Tier	Model Year	NOx	Hydrocarbons	NMHC+ NOx	Carbon Monoxide	Particulate Matter
450≤kW≤560	Tier 1 <sup>b</sup>	2000-2001	9.2	1.3	—	11.4	0.54
	Tier 2 <sup>c</sup>	2002-2005	—	—	6.4	3.5	0.20
	Tier 3	2006 and later	—	—	4.0	3.5	—
kW>560	Tier 1 <sup>b,c</sup>	2000-2005	9.2	1.3	—	11.4	0.54
	Tier 2	2006 and later	—	—	6.4	3.5	0.20

Notes:

- a. The Tier 1 and Tier 2 emission standards for less than 25 horsepower (19 kilowatt) compression-ignition engines were already adopted as part of the 1998 small off-road engine rulemaking.
- b. Tier 1 emission standards were already adopted as part of the 1992 heavy-duty off-road diesel cycle engine rulemaking.
- c. This regulation will modify existing emission standards.

In addition to the emissions standards, this proposal mirrors adopted federal requirements for durability, maintenance intervals, recordkeeping, warranties, test procedures, certification test fuel, and engine useful life. The proposal also includes provisions for implementation flexibility for post-manufacture marinizers (i.e., those who produce marine engines by modifying engines purchased from other engine manufacturers) and optional reduced-emission standards and labeling requirements for compression-ignition engines (“Blue Sky Series”). As a package, these requirements would protect the air quality benefits of the proposed standards and help ensure that the engines remain cleaner longer. This proposal is designed to harmonize as closely as possible with the federal program, while still maintaining the emission reduction benefits of the California program. Some of the more significant features of the proposal are noted below.

1. The proposal would remove the existing California quality-audit testing requirement and the California new engine compliance testing program. In their place, the proposal would provide for a California-administered version of the federal Selective Enforcement Audit program. Additionally, off-road CI engines would be incorporated into California's existing in-use compliance program, with the federal recall testing periods and useful life definitions. The in-use compliance program is described in title 13, California Code of Regulations and the documents incorporated by reference therein: sections 2100-2149.

2. The proposal provides compliance flexibility to equipment manufacturers by allowing the continued use of engines meeting the current standards for up to seven years. The proposal also provides additional flexibilities for small-volume equipment manufacturers.

3. The proposal would move model year 2000 and later off-road CI engines below 25 horsepower (19 kilowatts) from regulation under sections 2400-2409 as part of the small off-road engine category and include them with other off-road CI engines in sections 2420-2427. This consolidation would help harmonization with the federal program.

4. The proposal would amend two documents now incorporated by reference in section 2423(c) by making them three documents and would add an additional document to be incorporated by reference. The amended documents are as follows:

"California Exhaust Emission Standards and Test Procedures for New 1996-1999 Heavy-Duty Off-Road Compression-Ignition Engines, Part I-A, Adopted: May 12, 1993, Amended: [date of amendment]";

"California Exhaust Emission Standards and Test Procedures for New 1996 and Later Off-Road Compression-Ignition Engines, Part II, Adopted: May 12, 1993, Amended: [date of amendment]";

"California Smoke Test Procedures for New 1996 -1999 Off-Road Compression-Ignition Engines, Part III, Adopted: May 12, 1993, Amended: [date of amendment]"; and

Proposed "California Exhaust Emission Standards and Test Procedures for New 2000 and Later Off-Road Compression-Ignition Engines, Part I-B, Adopted: [date of adoption]" would be incorporated by reference in section 2421.

In addition, the following documents are also incorporated by reference:

"California Exhaust Emission Standards and Test Procedures for 1995 and Later Small Off-Road Engines, Adopted: March 20, 1992, and last amended [date of amended];

40 CFR Part 85, Subpart T (July 1, 1999);

40 CFR Part 86, Subparts A, D, I, and N (July 1, 1999); and

40 CFR Part 89 (July 1, 1999), as modified in the test procedure documents.

As noted above, SIP measure M9 calls for new emission standards beginning in 2005.

This proposal does not reach the 2.5 g/bhp-hr (3.4 g/kW-hr) NO<sub>x</sub> level called for in the SIP, but is implemented beginning in 2000, with the earlier start-date allowing greater fleet turnover by the SIP deadlines. Using the same assumptions used for calculating the emissions impact of the SIP, the staff's proposal meets the 1994 SIP commitment to achieve 86 tons per day of ROG and NO<sub>x</sub> reductions from off-road compression-ignition engines in the South Coast Air Basin. Additionally, the staff's proposal provides some emissions benefits in SIP areas with 2005 attainment dates (Sacramento and Ventura Air Basins). This measure will also provide emission reductions in the San Joaquin Valley Air Basin in 2005 -- the San Joaquin Valley will not meet their attainment date of 1999 and must submit a new plan demonstrating attainment by 2005.

## **RELATED FEDERAL ACTIONS**

The U.S. EPA has adopted regulations for off-road CI engines to satisfy the requirements of SIP measure M10 (63 Fed. Reg. 56,967 (Oct. 23, 1998)). The staff's proposal in large measure aligns with the U.S. EPA action. The differences that remain between the two programs are justified by the benefit to human health, public welfare, and the environment. In addition, the differences from the federal program are authorized by Health and Safety Code sections 43013 and 43018.

## **BENEFITS OF THE PROPOSAL**

The staff analysis of the proposal indicates that the proposal, in conjunction with the federal proposal, will reduce approximately 91 tons per day of NO<sub>x</sub> and 19 tons per day of NMHC statewide in 2010, using the updated proposed emissions inventory. The reductions would cost less than \$ 0.32 per pound reduced, well below the ARB's traditional cost-effectiveness threshold of \$11.00 per pound.

## **AVAILABILITY OF DOCUMENTS AND CONTACT PERSON**

The Board staff has prepared the Staff Report: Initial Statement of Reasons (Staff Report) for the proposed action that includes a summary of the environmental impacts of the proposal. The staff report and the full text of the proposed regulatory language may be obtained from the Board's Public Information Office, 2020 L Street, Sacramento, California 95814, (916) 322-2990 at least 45 days before the scheduled hearing. The ARB staff has compiled a record which includes all information upon which the proposal is based. This material is available for inspection upon request to the contact person identified below. Copies of the documents may also be obtained from the Public Information Office at the address above.

To obtain this document in an alternative format, please contact the Air Resources Board ADA Coordinator at (916) 322-4505, TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area.

Further inquiries regarding this matter should be directed to Ms. Jackie Lourenco, Manager, Off-Road Controls Section at (626) 575-6676 of the Air Resources Board, Mobile Source Control Division, 9528 Telstar Avenue, El Monte, California 91731.

## **COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED**

The determination of the Board's Executive Officer concerning the costs or savings necessarily incurred in reasonable compliance with the proposed regulations are presented below.

The Executive Officer has determined that the proposed 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 imposed upon local agencies. However, the Air Resources Board may incur additional implementation or enforcement costs at some future time.

In developing this regulatory proposal, the ARB staff evaluated the potential economic impacts on private persons and businesses:

The Executive Officer has determined, pursuant to Government Code section 11346.5(a)(3)(B), that the regulation will not affect small business because the proposed emission standards would be the same as the federal standards.

The Executive Officer has also determined, in accordance with Government Code section 11346.5(a)(8), 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.

The Executive Officer has 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 resulting from the proposed action.

Finally, in accordance with Government Code section 11346.3, the Executive Officer 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 businesses or elimination of existing businesses within California, or the expansion of businesses currently doing business within California.

Assessment of the economic impacts of the proposed regulatory action can be found in the staff report.

Before taking final action on the proposed regulatory action, the Board must determine that no alternative considered by the agency would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

### **SUBMISSION OF COMMENTS**

A written report and oral statements will be presented by staff at the meeting. Interested members of the public may also present comments orally or in writing. To be considered by the Board, written comments must be filed with the Clerk of the Board, Air Resources Board, P.O. Box 2815, Sacramento, California 95812, no later than 12:00 noon, January 27, 2000, or received by the Clerk of the Board at the hearing.

It is requested but not required that twenty-five copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing so that the Board members and ARB staff have time to fully consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modifications of the proposed regulatory action.

### **STATUTORY AUTHORITY AND HEARING PROCEDURES**

This regulatory action is proposed under the authority granted in Health and Safety Code sections 39600, 39601, 43013, 43018, 43101, 43102, 43104, and 43105. This action is proposed to implement, interpret, and make specific Health and Safety Code sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5, and 43210-43212.



The public hearing will be conducted in accordance with the California Administrative Procedure Act, Title 2, Division 3, Part 1, Chapter 3.5 (commencing with section 11340) of the Government Code.

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with nonsubstantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language as modified could result from the proposed regulatory action; in such event the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15 days before it is adopted. The public may request a copy of the modified regulatory text from the Board's Public Information office, 2020 L Street, Sacramento, California 95814, (916) 322-2990.

CALIFORNIA AIR RESOURCES BOARD

Michael P. Kenny  
Executive Officer

Date: November 30, 1999