

State of California
AIR RESOURCES BOARD

Resolution 98-51

October 22, 1998

Agenda Item No.: 98-11-3

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the Board or ARB) 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, section 43013 of the Health and Safety Code authorizes the Board to adopt standards and regulations to control emissions from off-road or nonvehicle engine categories;

WHEREAS, section 43018 of the Health and Safety Code directs 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;

WHEREAS, the State Implementation Plan (SIP) adopted by the Board in November, 1994, which establishes the state strategy for attaining the national ambient air quality standards for ozone in all areas of the state by 2010 as required by federal law, includes control measure M11 which directs staff to develop emission control regulations specifically for spark-ignition engines above 25 horsepower;

WHEREAS, it became evident during the SIP's development that reducing emissions of Oxides of Nitrogen (NO_x) and Reactive Organic Compounds (ROG) from off-road engines and equipment operating within the state is imperative;

WHEREAS, SIP Measures M11 and M12 were developed in 1994 with the assumption that manufacturers would be able to use closed-loop, three-way catalysts that would result in reducing the large spark-ignition (LSI) engine hydrocarbon (HC) inventory by 75 percent, and the LSI engine NO_x inventory by 50 percent;

WHEREAS, knowledge regarding the emissions inventory from large spark-ignited engines has grown significantly since the adoption of the 1994 SIP, as has the knowledge of the percent of total HC+NO_x emissions for which the preempt engines are responsible;

WHEREAS, the 1994 SIP Measures M11 and M12 did not address the issue of deterioration of engines over their useful life, which might possibly lead to significant emission increases;

WHEREAS, the staff proposes the Board to adopt title 13, California Code of Regulations, Article 4.5, “New 2001 and Later Off-Road Large Spark-Ignition Engines (25 and Greater Horsepower) ” containing section 2430, “Applicability”; section 2431 “Definitions”; section 2432 “Test Procedures”; section 2433 “Exhaust Emissions Standards and Test Procedures-Off-Road Large Spark-Ignition Engines”; section 2434 “Emission Control Labels-2001 and Later Off-Road Large Spark-Ignition Engines”; section 2435 “Defects Warranty Requirements for 2001 and Later Off-Road Large Spark-Ignition Engines”; section 2436 “Emission Control System Warranty Statement”; section 2437 “New Engine Compliance and Production Line Testing-New Off-Road Large Spark-Ignition Engines Selections, Evaluation, and Enforcement Action”; section 2438 “In-Use Testing Program”; and section 2439 “Procedures for In-Use Engine Ordered Recalls”;

WHEREAS, the proposed adoption of new regulations in the California Code of Regulations, title 13, sections 2430 through 2439, are like previously adopted on-road and off-road regulations and have been proven effective in controlling exhaust emission from similar engine technologies;

WHEREAS, the proposed California Code of Regulations, title 13, sections 2430 and 2431, defines the applicability and the definitions for these off-road large spark-ignition engines;

WHEREAS, the proposed California Code of Regulations, title 13, sections 2432 and 2433, specify the test procedures and emission standards for off-road large spark-ignition engines;

WHEREAS, the proposed California Code of Regulations, title 13, sections 2435 and 2436 specify an engine manufacturer’s warranty responsibilities, and sections 2437, 2438, and 2439 specify an engine manufacturer’s requirements for emission compliance after certification. Section 2435 through section 2439 are effective compliance programs as proven in similar on-road compliance programs;

WHEREAS, the Board has adopted title 13, California Code of Regulations, Article 3, “Off-Highway Recreational Vehicles and Engines” containing section 2410 “Applicability”; section 2411 “Definitions”; section 2412 “Emission Standards and Test Procedures for New Off-Highway Recreational Vehicles and Engines”; section 2413 “Emission Control Labels for New Off-Highway Recreational Vehicles”; and section 2414 “New Off-Highway Recreational Vehicle Engine Emission Standards, Enforcement and Recall Provisions, Warranty, Quality Audit, and New Engine Testing”;

WHEREAS, the large spark-ignition engines used in specialty vehicles are identical to those large spark-ignition engines used in other applications;

WHEREAS, the staff has proposed amendments to sections 2410 through 2414 of title 13, California Code of Regulations and the documents incorporated by reference therein, which

would eliminate specialty vehicle engines under 25 horsepower produced on or after January 1, 1995 from regulation under title 13, Chapter 9, Article 3, California Code of Regulations;

WHEREAS, section 209(e)(1) of the federal Clean Air Act preempts the State of California and the local districts from adopting or enforcing emission standards or other requirements relating to the control of emissions (other than in-use operational controls) of new nonroad engines less than 175 horsepower primarily used in farm and construction equipment and vehicles;

WHEREAS, section 209(e)(2) requires that California seek authorization from the United States Environmental Protection Agency (U.S. EPA) prior to enforcing emission standards or other requirements relating to the control of emissions (other than in-use operational controls) from nonroad engines (of which large spark-ignition engines are a subpart), not otherwise preempted by section 209(e)(1);

WHEREAS, section 209(e) of the federal Clean Air Act, as amended in 1990, requires that the ARB receive authorization from the U.S. EPA Administrator to adopt and enforce standards relating to the control of emissions from nonroad engines or vehicles;

WHEREAS, because the federal Clean Air Act Amendments of 1990 preempt California control of emissions from farm and construction equipment under 175 horsepower, ARB staff and the U.S. EPA have worked together to develop a harmonized national program in order to attain the standards in the SIP;

WHEREAS, staff has attempted to harmonize its proposal with the federal rule expected to be proposed by EPA to minimize administrative burden, complexity, and expenses that could result from different state and federal requirements for non-preempt engines;

WHEREAS, alignment with the U.S. EPA's program for large spark-ignition engines would reduce the compliance burden placed on the large spark-ignition industry;

WHEREAS, in response to industry's concerns, expressed through numerous meetings, with the technological and commercial feasibility of the originally proposed regulations, staff has proposed amendments to the originally proposed regulations;

WHEREAS, staff has provided added flexibility to implement standards to ease into in-use emission compliance program by providing a higher initial in-use standard for three years after implementation of the Tier 2 emission standards;

WHEREAS, staff has provided additional lead time, less stringent emission standards, and alignment with the Small Off-Road Engine (SORE) regulatory program for smaller LSI engine categories (1.0 liter engine displacement engines) because of the similarities in technologies with the small off-road engine;

WHEREAS, the proposal, by separating the large spark-ignition engines into two categories— that of small (1 liter or less displacement) and large (greater than 1 liter displacement)— effectively separates those engines that are typically derived from automotive engines from those that are not;

WHEREAS, optional emission standards have been shown to provide an incentive for developing emission controls that perform beyond mandatory standards;

WHEREAS, compliance with and promotion of optional emission standards may aid engine and equipment manufacturers in their marketing of less-polluting products, thus harnessing competitive forces to spur research and development of cleaner technology;

WHEREAS, ARB regulations generally may spur a given industry's technological development beyond staff's assumptions in proposing such regulations, and conversely, technological development may lag behind that assumed in proposed regulations;

WHEREAS, periodic reviews of industry's progress, both in meeting current ARB regulatory requirements and in striving to meet requirements with future effective dates, have helped the Board determine whether it needs to reevaluate those requirements;

WHEREAS, the California Environmental Quality Act and Board regulations require that no project that may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, the Board has considered the effects of the proposed standards 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:

Despite advances in reducing emissions from motor vehicles, California still has the most severe air pollution problems in the United States;

To meet Federal and California Clean Air Act emission reductions requirements, ARB must continue to seek proportional and incremental reductions from all sources under its authority, including large off-road spark-ignition engines;

The proposed 2004 Tier 2 standards address emission deterioration;

An in-use testing program would ensure that certified engines meet the standards

throughout their useful lives;

Implementation of the Tier 1 standards will allow industry to develop engine technology and performance before implementation of the durability requirement of Tier 2;

The proposed certification and production line testing meet alignment concerns because the separation of large spark-ignition engines into two categories—that of small (1 liter or less displacement) and large (greater than 1 liter displacement)—effectively separates those engines that are typically derived from automotive engines from those that are not;

Adoption of procedures in alignment with the U.S. EPA will simplify the processes of certification and production line testing for industry;

Adoption of an emission reductions credits program will provide industry with greater flexibility in complying with the emission standards while achieving the overall emission reduction goals of the proposed amended regulations;

Allowing industry to voluntarily certify engines to optional emission standards more stringent than required and to promote that certification level on equipment could aid consumers seeking lower emitting engines and aid in reducing emissions;

While the combination of current technology and the lead time built into the proposed regulations make both the Tier 1 standards and the Tier 2 in-use standards technologically feasible, ARB should review the industry's progress in meeting the standards and assess the degree to which ARB and U.S. EPA have been able to achieve the goal of harmonization;

Acknowledging manufacturers' concerns regarding separate federal and California Tier 2 in-use testing programs, ARB expressly intends to have, and to work with EPA to ensure, one harmonized nationwide in-use test program;

The economic and cost impacts of the amendments have been analyzed as required by California law, and the conclusions and supporting documentation for this analysis are set forth in the Initial Statement of Reasons;

The cost of control under the proposed regulations would be at worst case \$0.38 per pound of HC+NO_x reduced.

The cost effectiveness values above are similar to the values associated with other control measures adopted in furtherance of Health & Safety Code sections 43013 and 43018 and SIP measures; and,

The proposed large spark-ignition engine regulations are necessary, cost-effective, and technologically feasible to carry out the purposes of the state and federal clean air laws.

WHEREAS, the Board further finds that:

The proposed large spark-ignition engine regulations and procedures for emission control labels, warranties, enforcement procedures, and compliance testing are necessary to adequately enforce the emission standards and test procedures of the off-highway vehicle regulation, and will independently help to reduce emissions from such engines;

The proposed regulation establishes uniform, consistent and reasonable emission standards for large spark-ignition engines and associated equipment;

Adoption of the proposed standards and test procedures would result in a reduction of approximately 55.1 tons per day of combined hydrocarbons and oxides of nitrogen emissions statewide in 2010;

The proposed regulations would have no adverse impact on the environment;

Although the proposed regulations would not achieve the SIP goal of a 75 % HC reduction, the proposal would achieve more than the mandated NO_x reduction and the combined HC+NO_x reduction would essentially meet the SIP performance standard commitment; and,

No alternative considered would be more effective in carrying out the purpose for which the regulation is proposed or would be as effective or less burdensome to affected private persons.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the following sections of title 13, California Code of Regulations, and the documents incorporated by reference therein: Chapter 9, Off-Road Vehicles and Engines Pollution Control Devices; Article 4.5, Large Spark-Ignition Engines; sections 2430-2439, and the incorporated "California Exhaust Emission Standards and Test Procedures for New 2001 and Later Off-Road Large Spark-Ignition Engines" (Parts I and II); and amendment of the following sections of title 13, California Code of Regulations, and the documents incorporated by reference therein: Chapter 9, Off-Road Vehicles and Engines Pollution Control Devices; Article 3, Off-Highway Recreational Vehicles and Engines; sections 2411-2414, and the incorporated "California Exhaust Emission Standards and Test Procedures for 1995 and Later Off-Highway Recreational Vehicles and Engines," all as set forth in Attachment F hereto, with the modifications described in Attachment G hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt the above amendments as set forth in Attachment F hereto, with the modifications set forth in Attachment G hereto and such other conforming modifications and technical amendments as may be appropriate, after making the modified regulatory language and additional supporting documents and information available for public comment for a period of 15 days, provided that the Executive Officer shall consider such written comments regarding the modification and additional documents supporting and information as may be submitted during this period, shall make modifications as may be appropriate in light of the comments 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 permits the Executive Officer to add to the modifications set forth in Attachment G hereto optional emissions standards and associated mechanisms for promoting engines meeting such standards if he determines that staff and affected manufacturers can reach consensus on such standards and mechanisms in a manner and time frame appropriate for proposing 15-day modifications;

BE IT FURTHER RESOLVED that the Board hereby determines that the regulations adopted herein will not cause the California 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 emission standards and test procedures are necessary to meet compelling and extraordinary conditions.

BE IT FURTHER RESOLVED that the Board finds that the California emission standards and test procedures as adopted herein will not cause the California requirements to be inconsistent with the Federal Clean Air Act, as amended, and raise no new issues affecting previous waiver determinations of the Administrator of the Environmental Protection Agency pursuant to section 209 of the Clean Air Act.

BE IT FURTHER RESOLVED that the board directs staff to seek full harmonization of its in-use testing program with EPA's so long as manufacturers do not seek to undermine EPA's adoption of its in-use program.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to conduct technology reviews of Tier 1 and Tier 2 standards in 2000 and 2002, such reviews to include an assessment of the overall feasibility of the standards—including the stringency of the emission limits, the length of the useful life period, and the degree of harmonization with U.S. EPA—which will also provide industry with an opportunity to provide their own assessment of these issues to the Board, and in such reviews staff may consider additional information.

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Identification of Attachments to the Resolution

- Attachment F:** Proposed Amendments to sections title 13, sections 2410-2414 and sections 2430-2439, as set forth in Appendix A to the Staff Report: Public Hearing to Consider Adoption of Emission Standards and Test Procedures for New 2001 and Later Large Spark-Ignition Engines (released September 4, 1998); and the incorporated “California Exhaust Emission Standards and Test Procedures for New 2001 and Later Off-Road Large Spark-Ignition Engines” (Parts I and II) and “California Exhaust Emission Standards and Test Procedures for 1995 and Later Off-Highway Recreational Vehicles and Engines,” as set forth in Attachment B to the Staff Report: Public Hearing to Consider Adoption of Emission Standards and Test Procedures for New 2001 and Later Large Spark-Ignition Engines (released September 4, 1998).
- Attachment G:** Staff’s Suggested Changes to the Original Proposal (distributed at the Board hearing on October 22, 1998).