

State of California  
AIR RESOURCES BOARD

Resolution 05-57

November 17, 2005

Agenda Item No.: 05-11-3

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or Board) 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(a) of the Health and Safety Code authorizes the Board to adopt and implement emission standards and in-use performance standards for the control of air contaminants and sources of pollution which the Board has found to be necessary, cost-effective, and technologically feasible;

WHEREAS, section 43013(b) of the Health and Safety Code authorizes the Board, consistent with section 43013(a), to adopt emission standards and regulations for marine engines and vessels (to the extent permitted by federal law);

WHEREAS, section 43018 of the Health and Safety Code authorizes the Board to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to accomplish the attainment of the state standards for ambient air quality at the earliest practicable date;

WHEREAS, sections 43101, 43102, 43104, 43105, and 44036.2 of the Health and Safety Code authorize the Board to adopt emission standards and test procedures to certify, control air pollution caused by, and get service information concerning, motor vehicles, and effective emission control regulations must apply these sections to other ARB-regulated mobile source categories such as marine spark-ignited engines;

WHEREAS, the State Implementation Plan (SIP) for ozone, adopted by the Board in 1994 and approved by the United States Environmental Protection Agency (U.S. EPA) in 1995, established the state strategy for attaining the ambient air quality standards for ozone in all areas of the state by 2010, as required by federal law;

WHEREAS, the SIP included mobile source control measure M16, entitled "Pleasure Craft," which outlined the emissions inventory from recreational boats and personal watercraft and directed U.S. EPA to develop an appropriate control strategy;

WHEREAS, because ARB's assessment subsequent to SIP approval determined that pleasure craft contributed much more significantly to the total emissions inventory, the

Board, in 1998, approved regulations to control exhaust emissions from spark-ignition personal watercraft and outboard marine engines more stringent than U.S. EPA requirements;

WHEREAS, in furtherance of and as a result of ongoing assessment, on July 26, 2001, the Board adopted amendments to the California regulations for recreational marine spark-ignition engines to include inboard and sterndrive pleasure craft, which included a combined hydrocarbon and oxides of nitrogen (HC+NOx) exhaust emission standard for them beginning in 2003;

WHEREAS, the 2001 amendments included a second, more stringent tier of inboard-sterndrive standards with a 5.0 grams per kilowatt-hour HC+NOx exhaust emissions standard (Tier II Inboard-Sterndrive) scheduled to be introduced on 45 percent of inboard and sterndrive engines sold during the 2007 model year;

WHEREAS, on October 28, 2004, staff returned to the Board with a non-regulatory item presenting findings of a test program – jointly sponsored by industry, U.S. EPA, and ARB – to evaluate catalytic converter safety and durability in a fresh-water environment, at which the Board accepted staff's findings that catalysts remained feasible for meeting the 5.0 g/kW-hr standard, but directed staff to monitor and work with industry regarding progress in developing the technology to comply with the existing Inboard/Sterndrive regulation;

WHEREAS, there is industry concern that staggered implementation of the Tier II Inboard-Sterndrive standard could result in catalyst-equipped boats competing with less expensive non-catalyst equipped boats, which industry believes could result in all companies' failure to sell products designed and intended in good faith to meet the requirements of the regulations;

WHEREAS, the emissions performance of inboard and sterndrive engines greater than 373 kilowatts in power is more difficult and expensive for manufacturers to assess due to the limited availability of test facilities capable of evaluating high-performance engines;

WHEREAS, engines greater than 373 kilowatts are typically designed for racing and competition with limited consideration focused on durability;

WHEREAS, engines greater than 373 kilowatts represent less than one half of a percent of total inboard and sterndrive engines sold in California;

WHEREAS, no adverse effects have been observed regarding the performance of inboard or sterndrive engines equipped with catalysts and other emission control components according to ARB's fresh water demonstration program, which concluded in September, 2004;

WHEREAS, no adverse effects have been observed regarding the performance of inboard or sterndrive engines equipped with catalysts and other emission control components according to ARB's ongoing saltwater demonstration program, which commenced in July 2005;

WHEREAS, the Tier II Inboard-Sterndrive emissions standard could be postponed if the predetermined emission benefits are maintained through other means;

WHEREAS, staff has presented evidence to demonstrate that the incorporation of readily-available evaporative low-permeation fuel supply/return hoses, which are constructed from material(s) designed to limit the seepage of hydrocarbon from the inside to the outside of the hoses, would completely compensate – on a boat-by-boat basis – for the loss of emission benefits due to the postponement of standards as in Option 2 of staff's proposal;

WHEREAS, inboard and sterndrive marine engine manufacturers have requested additional lead time to comply with the Tier II Inboard-Sterndrive standard;

WHEREAS, inboard and sterndrive marine engine manufacturers have requested relief for the certification of high-performance engines with rated power greater than 373 kilowatts beginning in 2009;

WHEREAS, the fresh water testing revealed that no issues regarding the use of catalysts on boats provided that the exhaust system is properly designed; the salt-water testing to date has substantiated that finding, and manufacturers have their own research and development programs for catalyst systems and on-board diagnostics;

WHEREAS, the Inboard-Sterndrive regulations adopted in 2001 by the Board would reduce emissions of approximately 56 tons per weekend summer day of combined hydrocarbons and oxides of nitrogen emissions statewide in 2020;

WHEREAS, U.S. EPA is currently studying evaporative emissions requirements for inboard and sterndrive engines and vessels, but will not be able to finalize those regulations in time to affect production of 2007 model year engines;

WHEREAS, marine engine manufacturers must finalize product plans expeditiously to ensure complying products are available in 2007 and 2008;

WHEREAS, in conjunction with a public hearing notice dated September 20, 2005, ARB staff proposes that the Board adopt the proposed amendments to the Spark-Ignition Marine Engine sections and related in-use compliance and test procedures sections of title 13, California Code of Regulations as set forth in Attachment A hereto, and amendments to the incorporated test procedures as set forth in Attachment B hereto;

WHEREAS, the Board has considered the effects of the proposed regulatory requirements on the economy of the state;

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

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 and other mobile sources, California still has one of the most severe air pollution problems in the United States;

To meet Federal and California Clean Air Act emissions reductions requirements, ARB must continue to seek reductions from all sources under its authority, including spark-ignition marine engines;

Industry representatives have stated that retention of the existing Tier II Inboard-Sterndrive standard implementation schedule could result in failure for companies to sell products designed and intended in good faith to meet the requirements of the regulations, which could result in a substantial lowering of the expected 56 tons per weekend summer day of HC+NOx emission reductions in 2020;

Adoption of Option 2 in the proposed amendments would address industry's uncertainty over its ability to meet the current Tier II Inboard-Sterndrive standard phase-in schedule;

The incorporation of readily-available evaporative low-permeation fuel supply/return hoses will more than offset any potential loss of emission benefits due to the postponement of standards as in Option 2 of staff's proposal, even if every affected manufacturer chooses Option 2;

The California regulations for recreational marine engines can therefore be amended substantially as manufacturers have requested to provide substantially the relief they have requested, without losing the emission benefits assumed in the 2001 Inboard/Sterndrive Amendments;

It is necessary and appropriate that the proposed amended regulations provide a choice of implementation options whereby under the provisions of option 1 engine manufacturers may choose to certify engines according to a corporate-averaging program for 2003-2008 model year inboard and sterndrive engines, or under the provisions of option 2 they may choose to certify engines according to

a corporate averaging program for 2003-2007 model year inboard and sterndrive engines;

It is necessary and appropriate that the proposed amended regulations require the introduction of catalyst-based emission standards for inboard and sterndrive engines, either beginning with partial implementation (45 percent phase-in) for the 2007 model year and full implementation (100 percent phase-in) for the 2009 model year under option 1, or with full implementation (100 percent phase-in) in the 2008 model year and all model years thereafter under option 2;

It is necessary and appropriate that the proposed amended regulations require under option 2 the incorporation of a low-permeation evaporative control fuel supply/return hose, or alternative equivalent-performing emissions reduction technology, to more than offset the emission benefits that would otherwise be lost due to the postponement of the 5.0 grams per kilowatt-hour HC+NO<sub>x</sub> standard in 2007;

It is necessary and appropriate that the proposed amended regulations permit the averaging of certification emission levels for high performance engines with rated power greater than 373 kilowatts together with those from engines with rated power less than or equal to 373 kilowatts;

It is necessary and appropriate that the proposed amended regulations permit the use of a default emissions certification value of 30.0 grams per kilowatt-hour in lieu of actual emissions test data for engines with rated power greater than 485 kilowatts;

Successful implementation of catalyst-equipped boats would not require additional testing conducted by the Board;

It is necessary and appropriate that the proposed amended regulations continue to require engine manufacturers to certify inboard and sterndrive engines sold in California to the adopted mandatory hydrocarbon plus oxides of nitrogen emission (HC+NO<sub>x</sub>) standards;

It is necessary and appropriate that the proposed amended regulations continue to require an in-use testing program to ensure that certified engines meet the standards throughout their useful lives;

It is necessary and appropriate that the proposed amended regulations continue to require defects warranty and repair to ensure that the engines have emission-related components that are reliable, durable and capable of complying with the applicable emission standards;

It is necessary and appropriate that the proposed amended regulations continue to require on-board diagnostic systems to ensure that the engines and emission-related components are reliable, durable and continue to function;

It is necessary and appropriate that the proposed amended regulations continue to require other programs in the current Inboard-Stern-drive regulations such as engine labeling to ensure that the regulations can be enforced properly;

It is necessary and appropriate that the proposed amended regulations continue to incorporate emission test procedures to implement the regulations;

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, as supplemented by the staff's presentation at the public hearing on this item;

The cost of controlling inboard and stern-drive marine engines under the option 1 2007 emission standards or the option 2 2008 emission standards of the proposed amended regulation would not significantly change from those projected in 2001 for the original Inboard-Stern-drive Amendments to the Marine Spark-Ignition Engine regulations, and would range from a high of \$3.39 to a low of \$2.08 per pound of HC+NO<sub>x</sub> reduced, depending on whether Research and Development costs are calculated against California sales only or against all sales nationwide, respectively;

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

Based on the above, the Staff Report/Initial Statement of Reasons, and the information provided during the public hearing of this item, the proposed amended spark-ignition marine 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 amended spark-ignition marine engine regulations and procedures are necessary to ensure the realization of the emission benefits projected for the original 2001 inboard and stern-drive regulation for 2007 and later spark-ignition model year engines;

The proposed amended spark-ignition marine engine regulations and procedures facilitate the ability of inboard and stern-drive engine manufacturers to comply with the catalyst-based Tier II Inboard-Stern-drive standard;

The adoption of the proposed amendments to the standards and test procedures would not affect the emission reductions estimated for the original 2001 regulation of approximately 56 tons per weekend summer day of combined hydrocarbons and oxides of nitrogen emissions statewide in 2020;

The adoption of the regulations approved herein will not have a significant adverse environmental impact and the regulations are projected to have either no impact or a slight but positive air quality impact;

The adoption of the regulations approved herein will not create costs or savings 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 adoption of the regulations approved herein 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;

The adoption of the regulations approved herein 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 the State of California, or the expansion of businesses currently doing business within the State of California;

The adoption of the regulations approved herein will not affect small businesses because there will be no incremental cost, or an insignificant cost, associated with staff's proposal; and

No alternative considered by the Board would be more effective in carrying out the purpose for which the regulations are proposed or would be as effective and less burdensome to affected private persons.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the proposed amendments to sections 2111, 2112, 2441, 2442, 2444.2, 2445.1, 2445.2 and 2446, of title 13, California Code of Regulations, as set forth in Attachment A hereto, and the proposed amendments to the "California Exhaust Emission Standards and Test Procedures for 2001 and Later Spark-Ignition Marine Engines," which is incorporated by reference in section 2441, as set forth in Attachment B hereto, with the modifications set forth in Attachment C hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to incorporate into the approved regulations and test procedures the modifications set forth in Attachment C, with such other conforming modifications as may be appropriate, and then to adopt the amended regulations and test procedures as modified, after making the modified regulatory language available for public comment for a period of 15 days,

provided that the Executive Officer shall consider such written comments regarding the modifications 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 the Executive Officer determines that this is warranted.

BE IT FURTHER RESOLVED that the Board hereby determines that the regulations approved 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 approved herein will not cause the California requirements to be inconsistent with federal Clean Air Act section 209(e)(1) and raise no new issues affecting previous authorizations of the Administrator of the U.S. EPA issued pursuant to federal Clean Air Act section 209(e)(2).

BE IT FURTHER RESOLVED that the Executive Officer shall, upon adoption, forward the regulations to the U.S. EPA with a request for authorization or confirmation that the regulations are within the scope of an existing authorization pursuant to Federal Clean Air Act section 209(e)(2), as appropriate.

I hereby certify that the above is a true and correct copy of Resolution 05-57, as adopted by the Air Resources Board.

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Lori Andreoni, Clerk of the Board

Resolution 05-57

November 17, 2005

**Identification of Attachments to the Board Resolution**

- Attachment A:** Proposed Amendments to the California Regulations for New 2007 and Later Spark-Ignition Inboard/Stern-drive Pleasurecraft, sections 2111, 2112, 2441, 2442, 2444.2, 2445, 2445.1, 2445.2 and 2446, title 13, California Code of Regulations, as set forth in Attachment A to the Initial Statement of Reasons, released September 30, 2005.
- Attachment B:** Proposed Amendments to the “California Exhaust Emission Standards and Test Procedures for 2001 and Later Spark-Ignition Marine Engines,” which is incorporated by reference in section 2441, title 13, California Code of Regulations, as set forth in Attachment B to the Initial Statement of Reasons, released September 30, 2005.
- Attachment C:** Staff’s Suggested Modifications to the Original Proposal, as distributed at the November 17, 2005 Board hearing.