

State of California
Environmental Protection Agency
AIR RESOURCES BOARD

**EMISSION STANDARDS AND TEST PROCEDURES
FOR NEW 2001 AND LATER MODEL YEAR
SPARK-IGNITION MARINE ENGINES**

FINAL STATEMENT OF REASONS

October 1999

State of California
AIR RESOURCES BOARD

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

**PUBLIC HEARING TO CONSIDER THE ADOPTION OF EMISSION
STANDARDS AND TEST PROCEDURES FOR NEW 2001 AND LATER
MODEL YEAR SPARK-IGNITION MARINE ENGINES**

Public Hearing Date: **December 10, 1998**
Agenda Item No.: **98-14-2**

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I. INTRODUCTION AND BACKGROUND

This rulemaking was initiated by the publication on October 23, 1998 of a notice of public hearing to consider the adoption of emission standards and test procedures for new 2001 and later Model Year Spark-Ignition Marine Engines. Concurrently, the Staff Report entitled *Initial Statement of Reasons for Rulemaking* (Initial Statement of Reasons for Proposed Rulemaking, hereafter “Staff Report”), including the regulatory language as proposed by the staff and a statement of the rationale for the proposal, was made available upon public request from ARB as required by Government Code SS 11346.2.

On December 10, 1998, the Air Resources Board (ARB or Board) conducted a public hearing to establish emission regulations for outboard engines and personal watercraft. At the conclusion of the hearing, the Board unanimously adopted Resolution 98-63 approving the adoption of the “Spark-Ignition Marine Engines Regulations”. This regulatory action as originally proposed is described in detail in the Staff Report released to the public on October 23, 1998. At the hearing, the Board approved the proposed regulations with various modifications to the originally proposed language. These revisions were incorporated into the regulatory language by way of two separate 15-day notices (Mailouts 99-15 and 99-20), which were publicly available on June 28, 1999, and August 2, 1999, respectively. These notices centered on finalizing the environmental label design and correcting minor editorial and other non-substantive text.

Appendix A to Resolution 98-63 describes the amendments to Title 13, California Code of Regulations, as suggested by the staff and approved by the Board. In accordance with section 11346.8 of the Government Code, the Board in Resolution 98-63 directed the Executive Officer to make the text of the modified regulations available to the public for a supplemental written comment period of 15 days. He 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.

The text of regulatory modifications was made available to the public for a 15-day comment period by issuance of a “Public Notice to Consider Amendments to the Spark-Ignition Marine Engines” on June 28, 1999 (Mailout No. 99-15). The modifications discussed in that notice included finalized environmental label designs, an option for engine manufacturers to certify engine families directly to the emission standards rather than on a corporate average basis, removal of the maximum allowable family emission limit (FEL) for model year 2001, and options to the defects warranty hour meter requirements. Staff also made other modifications throughout the regulations and test

procedures to correct errors, increase alignment with the U.S. EPA regulations, and improve clarity. All comments received regarding the modifications to the original proposal are discussed separately in Section III and IV in this Final Statement of Reasons (FSOR). During this 15-day comment period, 447 written comments were received. After considering the comments, a second "Public Notice to Consider Amendments to the Spark-Ignition Marine Engines" was issued with further modifications on August 2 1999 (Mailout No. 99-20). The second notice provided further clarification of the environmental label language. An additional 115 written comments were received during the 15-day comment period for the Second Notice of Modified Text.

A complete description of the proposed regulatory action and its rationale is contained in the Staff Report and the information made available in the supplemental 15-day Notices. These documents are incorporated by reference herein. This FSOR updates the Staff Report by identifying and addressing comments received regarding the originally proposed regulations and the associated modifications that were proposed in the 15-day mailouts.

Incorporation of Test Procedures and Federal Regulations. The amended test procedures are incorporated by reference in Title 13, CCR, Sections 2440 through 2448. The amended test procedures, in turn, incorporate test procedures adopted by the United States Environmental Protection Agency, Control of Air Pollution; Final Rule for New Gasoline Spark-Ignition Marine Engines; Exemptions for New Nonroad Compression-Ignition Engines at or Above 37 Kilowatts and New Nonroad Spark Ignition Engines at or Below 19 Kilowatts, Title 40, Code of Federal Regulations Parts 89, 90 and 91, October 4, 1996 has been incorporated by reference. This document primarily contains the test procedures, which were retained by ARB for harmonization purposes.

Title 13, CCR Sections 2440 through 2448 identifies the incorporated ARB documents by title and date. The ARB documents are readily available from the ARB upon request and were made available during the subject rulemaking in the manner specified in Government Code Section 11346.7(a). 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. The 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 required for certification of vehicles and have a very limited audience. Because the ARB has never printed complete test procedures in the CCR, the directly 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 for a limited audience in the CCR.

Economic and Fiscal Impact. In developing the regulatory proposal the ARB staff evaluated the potential impacts on private persons and businesses. As with any other regulatory item, staff acknowledges that there could be potential impacts associated with this program. These impacts were fully disclosed and discussed in the Staff Report (pp. 66-72). Any business which involves manufacturing, sale, distribution, servicing, or use of outboard marine, personal watercraft, and jet boat engines, boats or supplies could potentially be affected by the proposed regulations. However, the proposed regulations are not expected to impose a significant cost burden on these companies or on consumers. Further, the proposed regulatory action will not have a significant adverse economic impact on the ability of California businesses to compete with businesses in other states.

The cost-effectiveness of this proposal ranges from \$0.32 to \$3.57 per pound of hydrocarbon plus oxides of nitrogen (HC + NOx) reduced. This corresponds to average price increases ranging from approximately \$150 to \$2,300 per new engine to comply with this regulation. For the 1998 model year, the typical average suggested retail price for a personal watercraft is \$6,700. The average cost of an outboard engine in 1997 was \$6,600, with a range of \$600 to \$20,000 across the diverse horsepower ranges. The higher end of the estimate of the cost per engine applies to these higher horsepower outboard engines. The cost-effectiveness of the proposal is well within the range of other mobile source measure costs.

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code]. The regulations apply only to engine manufacturers. Therefore, no state agency, local agency, or school district will incur costs in reasonable compliance with this regulation.

Consideration of Alternatives. The proposed rulemaking was the result of extensive discussions and meetings involving staff and the directly affected parties (i.e., spark-ignition marine engine manufacturers). Staff considered all of the alternatives proposed by industry, and was able to incorporate many of their suggestions in the rulemaking effort. The Board rejected several major alternatives for the reasons described in the Staff Report at pages 73-76, and in the responses in Section II (H). A number of modifications proposed during the comment periods were incorporated into the final regulations. The Board has further 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.

Comparison to Federal Regulations. In 1996 the United States Environmental Protection Agency (U.S. EPA) adopted federal exhaust emission standards for outboard marine and personal watercraft engines (Title 40, Code of Federal Regulations, sections 89 through 91, October 4, 1996). Although the federal regulations are intended to reduce HC + NOx emissions from outboard and personal watercraft engines by 75 percent, that goal will not be reached until the year 2025. Because the federal program is not sufficient to meet California's State Implementation Plan (SIP) requirements or air quality goals, a more progressive program was necessary. The staff analysis of the California proposal indicates that it will reduce emissions from ozone precursors in a cost-effective manner, beyond what would be accomplished by the existing federal rule. Thus, the cost of the separate California program is justified by both the State and Federal Clean Air Acts and is based on the benefit to human health, public welfare, and the environment. In addition, Health and Safety Code sections 43013 and 43018 authorize the differences from the federal program.

Overview of Comments. At the December 10, 1998 hearing, oral testimony was received from 42 individuals. Of the entities providing oral testimony, 19 submitted written comments as well. Additional written comments received by the hearing date were submitted by other organizations. Form letters and unique comments were also received from numerous individuals. During the public comment period, the Board received a total of 1292 written comments addressing concerns with the proposal, in the form of both letters and electronic mail. The majority of the written correspondences were form letters. The comments from these and the ARB's responses are listed below. A complete list of all commenters is included in Section VI.

Approximately 1050 oral and written comments consisted of commendations or support of the process in developing the regulations. These commenters included three manufacturers and many environmental organizations, as well as over one thousand individuals. These commendations and other statements of support from oral and written comments are generally not summarized below, unless the comment has relevance to another comment or response.

In addition, 124 comments arrived after the end of the 45-day comment period. To a great extent, those comments reflected the same issues noted in the comments that did arrive prior to or at the hearing. Therefore, staff did not include separate responses to those late comments in this document.

Set forth below is a summary of each objection or recommendation made regarding the specific regulatory actions 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. The comments have been grouped by topic, whenever possible. Comments not involving objections or recommendations specifically directed toward the rulemaking or to the procedures followed by the ARB in this rulemaking are not summarized below.

II. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES – COMMENTS PRIOR TO OR AT THE HEARING

This section, II, summarizes and responds to comments that the ARB received during the period required by Government Code Section 11346.4. It addresses oral comments made at the December 10, 1998, public hearing and written comments not duplicative of comments given orally.

1. A. Emission Standards

1. Adequacy of National Standards

- Comment:** The federal standards and timetable are adequate to meet California's needs and should not be changed. (Anti-Acceleration, Anti-Acceleration group letter, Anti-Acceleration/MTBE, Anglers Marine, Mountain Motorsports, Water Resorts Inc, Michael Howard, BBAC (reporting that Riehl has 3,140 signatures on a petition supporting the U.S. EPA regulations as an appropriate goal nationwide))

The federal timetable should not be accelerated. (Anglers Marine, Mountain Motorsports, Water Resorts Inc, Steve McKee)

Why do we need to exceed the federal requirements by 65 percent?
(Kenneth R Butler)

Agency Response: The ARB is required to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to attain state standards at the earliest practicable date (HSC Section 43018). Because most of the State does not meet air quality standards, and a 65 percent reduction beyond the federal program was both technically feasible and cost-effective, staff presented the most cost-effective proposal to the Board for its approval. The Board nevertheless recognizes the need to ease as much as possible the burdens that stricter controls impose upon manufacturers. Thus, the ARB adopted the federal 2006 standards for its Tier 1 standard. The time-line is accelerated to 2001 but the controls are otherwise equivalent. Preparations that manufacturers have already made to meet the federal

standards will, therefore, have immediate application to standards in California. Standards for later years (2004 and 2008 model years for Tier 2 and Tier 3) are progressively more stringent than the federal program, a reflection of California's need to meet compelling and extraordinary conditions. As a result, ARB's program will reduce emissions of hydrocarbon plus oxides of nitrogen (HC + NOx) beyond reductions from the federal program alone by an additional 110 tons/per summer week-end day reduction in 2010 and 161 tons in 2020 (Staff Report, p. 62).

2. Lead Time

2. **Comment:** The proposed timetable is not attainable. (United Outdoorsmen, NCMA, SVMA, CMDA, Better Way Marine, Premier Yachts, Mikelson Yachts, Ron's Marine Service Center, Steve McKee)

It is crucial that ARB recognize the substantial lead times associated with development and manufacture of sophisticated low emission engines. OMC's available resources are fully engaged in the process of implementing its new technology engines. (OMC)

Dealers say that two years is an inadequate time for them to tool up and supply the demand for clean engines. (Parks & Recreation Organizations)

Two years is not enough time for a full range of products to be developed. (NCMA)

The ARB should reconsider industry arguments and adjust the effective dates to allow adequate time to develop and perfect the needed technology. (Mom & Pop, Mountain Motorsports, Mikelson Yachts, Galey's Marine Supply, Ultimate Watercraft)

Agency Response: The ARB disagrees that the timetable for outboard marine engines is not adequate. Four-stroke outboard motors have been manufactured since the early 1970's and new direct fuel injected 2-stroke engines have been commercially available for several years. Between the two technologies, a full range of horsepower ratings can be achieved (2-130 horsepower for 4-stroke and up to 200 horsepower for direct injection 2-stroke) with emissions characteristics that can meet the 2001 and 2004 standards today; some of these engines can even meet the 2008 standards. See the Staff Report p. 34 for the range available. Moreover, the fact that industry proposed the 2004 implementation date and standards during the rulemaking process indicates a confidence in their ability to meet those standards seamlessly. In addition, the ARB will conduct a technology review in 2005 to assess industry progress towards

achieving emissions reductions and the technological feasibility of complying with the 2008 Tier 3 standards.

3. **Comment:** Engine revisions typically require a two-year lead time. Significant engine modifications require lead times on the order of three to five years. We need the 2001 standard delayed to 2002. (Bombardier)

Without an additional year (or more) lead time for Tier 1, we will not have any personal watercraft for sale in California in 2001. (Yamaha)

The proposed timetable is not attainable. (Polaris)

ARB staff acknowledges that a catalyst alone cannot meet the proposed Tier 1 standard for personal watercraft. Kawasaki has already delayed the introduction date of its first catalyst-equipped personal watercraft from 1999 to 2000, and does not expect to have a model that can meet the proposed Tier 1 standards until the 2002 model year at the earliest. (Kawasaki)

Personal watercraft manufacturers will need to adjust the engine size to provide additional horsepower when developing complying engines. This may change the engine placement in the hull and require other R & D efforts. More time is needed to accomplish this. (Kawasaki)

The compliance date for the Tier 1 standard must be delayed at least one year, and a technical assessment between ARB and the personal watercraft distributors/manufacturers scheduled in 2000 to assess progress towards achievement of the standard. (Kawasaki)

personal watercraft manufacturers cannot comply with the Tier 1 requirements of implementing the U.S. EPA standards 5 years earlier than they agreed to with the U.S. EPA. The technology does not even exist yet to comply with the U.S. EPA's earlier requirements. (B&B Cycles)

Agency Response: The ARB carefully considered industry's arguments and provided an adequate lead time for personal watercraft manufacturers to develop and refine the required technology to meet Tier 1 standards. As evidence of this, many marine engines including a personal watercraft that are on the market today not only meet upcoming U.S. EPA standards, but already meet the 2001 Tier 1 standards and some marine engines, both two- and four-strokes, even meet the 2008 Tier 3 standards. One line of evidence that personal watercraft manufacturers will in general be able to meet ARB's Tier 1 standards is the certification in 1999 by Polaris Inc. of a personal watercraft that complies with the requisite emissions controls. This was done two years

ahead of schedule and is proof that the 2001 Tier 1 standards are technically feasible within the allotted timeframe. The technology selected was that of a two-stroke direct-injection engine similar to those available on outboards for the last two years. In addition to advanced two-stroke designs, some manufacturers are developing four-stroke personal watercraft that should reach the market within the next two years. Although the ARB believes that some manufacturers may not be able to provide a full range of products for the 2001 model year, we are confident that the industry as a whole will provide an adequate supply of personal watercraft in all horsepower ranges for consumers to purchase in 2001. See the Staff Report pp. 49-51.

4. **Comment:** Retailers still have remaining 1998 inventory. They need sufficient time to sell existing inventory so funds will be available to buy new products. The proposed timetable is too aggressive. (Existing Inventory, Angler's Marine, Ecto Marine)

Agency Response: The regulations do not prohibit the sales of existing inventory. Existing inventory can be sold at any rate the market is willing to absorb. In particular, dealers are not restricted in the sale of pre-2001 model personal watercraft or marine engines.

5. **Comment:** The phase-in schedule the ARB has proposed is so accelerated that development costs will be higher than need be. (Mercury Marine)

Any acceleration of the transition period will come only at additional research and retooling costs, which will not produce any additional air quality benefit. (SCMA)

Agency Response: The ARB disagrees that the adopted timetable will not produce any additional air quality benefit. Air quality benefits are significant and immediate with the introduction of these new products. Moreover, their long useful life makes it essential that the introduction of cleaner products be done at the earliest practical date. The ARB staff acknowledges that there may be additional research and retooling costs. As discussed in the Staff Report (pp. 53-72) however, these regulations are a cost-effective approach towards achieving better air quality.

The phase-in schedule is appropriate because of California air quality and the knowledge that marine engines in most classifications are already commercially available to meet the Tier 1 standards to be instituted in 2001. Lead times are adequate for later implementation times so manufacturers can, if they wish, spread developmental costs over the next decade. The ARB also believes that the industry will be able to pass

much of these costs onto the consumer who will be well aware of the air quality improvements and fuel economy savings inherent in the new products. It is therefore likely that the consumer will accept justifiable increases in the cost structure. Finally, because marine engines have a long useful life, it is very important that cleaner products be introduced into the market as soon as possible.

The ARB disagrees with the assertion that development costs will be unnecessarily high. Although staff agrees that there will be some accelerated development costs, as mentioned above, manufacturers' assertions of unnecessarily high development costs are based on a comparison between the adoption of no regulations at all or regulations that would not be sufficient to meet California's air quality requirements. Staff believes the adopted regulations are cost-effective and technologically feasible and will not have a significant impact on the boating industry as a whole over time.

6. **Comment:** The timetable will result in product shortages, especially in 2001. (Mom & Pop, Bert's, John's Custom Marine, Tim Rice, Jim Segel Yacht Sales, Galey's Marine Supply, Mikelson Yachts, Ron's Marine Service Center, CDMA, NCMA, SCMA, Best Management, Product Line, California B.A.S.S. Federation)

It is unlikely that all types of outboard and personal watercraft engines can comply with the proposed regulations. (Assemblymember Dennis Cordoza letter, Assemblyman Rico Oller letter)

The engine manufacturers cannot deliver a stable or adequate supply of new low emission engines by 2001. Product shortages will be devastating to the retailers, who are often small businesses. (Ultimate Watercraft)

If the 2001 standards are adopted, OMC will be unable to supply its dealers with a full line of low emission engines and will therefore suffer direct sales losses in a number of engine horsepower ranges. Funding of new technology engines comes directly from the sale of existing technology engines. If a regulation is put into effect before a full line of low emission engines is available, it will reduce existing revenues and will further delay both the implementation and improvement of the new technology engines. It will also result in needless economic impacts for dealers, including the possibility of layoffs and/or business closures. The ARB has not adequately taken these factors into consideration. (OMC, Bombardier)

If manufacturers do not have enough time to build new low emission engines in numbers suitable to satisfy the needs of California's boaters, and retailers can't sell conventional outboards, they will be forced out of business. (Kenneth R Butler, Malcolm Smith)

Our dealer members will face the initial impact of higher prices and predictable product shortages if the proposed time frame is attained. (SCMA)

The regulations will produce product shortages, higher costs, and customer confusion resulting in lost sales and potential employee layoffs. (SCMA, NCMA, CCSB)

The outboard proposal is overly restrictive, confusing, will lower sales, and cause us to go out of business. (Galaxie Marine, Bert's)

Product shortages will add significant costs and adversely affect the boating (sales) industry. (SCMA, John's Custom Marine, Specialty Marine Co, Galaxie Marine, Better Way Marine)

The acceleration of federal standards to 2001 will crush the boating industry, closing the doors of small business due to high prices and a lack of customers. (Specialty Marine Co)

Agency Response: Given that there are examples of marine engines in most classes already capable of meeting Tier 1 standards, the ARB does not believe that product shortages or higher prices will be a serious problem for Tier 1 engines (see also response to Comment 2 regarding outboard engines and Comment 3 with respect to personal watercraft). The ARB agrees that it is unlikely that all types of outboard and personal watercraft engines can comply with the proposed regulations by 2001 and, therefore, some product line limitations will occur. However, most dealerships market several brands of watercraft and other recreational products. This allows them to stock products from multiple manufacturers, and should allow a consumer to purchase a watercraft engine or product that meets their needs. Those marine engines that can not meet California's emissions requirements will join other products including certain automobiles, lawnmowers, and consumer products that are available in other states or countries but are prohibited from sale in California because of excessive emissions. If the Board were continued to allow manufacturers to import engines into California that do not meet the applicable emission standards, they would not be seeking the maximum emissions reductions possible from this source category. This would be contrary to California's Health and Safety Code.

Because there should be good availability for most engine classes, ARB does not believe that significantly higher prices or business closures will occur. These issues are further addressed in the responses to comments in sections C and D.

7. **Comment:** We believe that because ARB has not sufficiently analyzed how increased manufacturer and dealer costs will lead to the unavailability of many makes and models of engines in California, ARB has not satisfied statutory prerequisites to proposing these regulations. (NMMA)

Agency Response: The record shows that the ARB analyzed the issue raised by NMMA, but came to a different conclusion regarding the extent and effect of the cost/availability connection. This is discussed extensively in the Staff Report on pp. 45-52 and 66-70.

8. **Comment:** The time frame to meet the demands of the market and the needs of the environment are very doable. (Freedom Motors)

The lead time for the 2008 standards is generous compared to what has been imposed on the rest of the mobile source sector. The ARB staff and Board have an understanding of where the technology is and where the industry is capable of going. (Sierra Club)

The Tier 3 standards do not take effect for ten years. That is an enormous lead time. (MECA, Earth Island Institute)

There are already engines for sale that meet the 2008 standards. The proposed lead time is more than adequate. (Coalition for Clean Air)

Agency Response: The ARB agrees that the lead time for technology development prior to the 2008 Tier 3 standards is adequate. In the event that development rates are overly optimistic, the technology review scheduled for 2005 should point out such shortfalls in time for appropriate Board action.

3. Technological Feasibility

a. Technological Feasibility of California-specific Standards

9. **Comment:** The proposed emissions standards are not technologically feasible because they rely on unknown and unproven marine engine technologies, contrary to the ARB's mandate to achieve technologically feasible emissions reductions at the earliest practicable date. (NMMA)

Agency Response: The ARB disagrees. The implication of the comment seems to be that technologically feasible standards must be based on known or existing technologies that have already been proven commercially viable. This suggestion contradicts a bedrock principle governing standard-setting in the environmental field: Agencies may adopt technology-forcing regulations provided that in the agency's judgment there is sufficient "lead time" for affected parties to meet the standard.

Obviously, setting future effective standards based on and limited by existing commercially proven technology would be an exercise in futility (see *NRDC v. U.S.* 655 F.2d 318 (D.C. Cir.)). As Congress intended in the Clean Air Act, ARB's standards typically, and here specifically, force technology beyond that required nationally.

Contrary to the commenter's outdated definition of "practicable" as capable of being done with available means, practicable in this context is equivalent to technologically feasible, or the synonym "possible" (Webster's Collegiate Dictionary, 10th Ed. 1995) under the circumstances. Here, the circumstances are the need to achieve maximum emissions reductions. There is abundant evidence in the record supporting the lead time given in this regulation (Staff Report at pp. 33-52). At least one marine engine manufacturer testified in favor of the lead time provided (Transcript at p. 212-220).

In addition, at least some of the technologies that the standards rely upon are known and are under development. For example, one manufacturer brought to market one of the commenter's "unproven" technologies - catalysts - before the Board's action and nearly 10 years ahead of the time staff thought would be necessary. Finally, ARB need not ensure that there will be product availability across every product line as each standard is implemented in order for the standard to be technologically feasible. Some degree of product unavailability, while undesirable, is a possible and sometimes unavoidable consequence of setting an emissions target effective at a future date.

10. **Comment:** The proposed standards are not technologically feasible because the Clean Air Act authorized U.S. EPA to set standards that would achieve the greatest degree of emission reduction achievable giving appropriate consideration to the cost of applying such technology. (NMMA)

Agency Response: The ARB disagrees. The Clean Air Act and established principles governing waivers of federal preemption clearly permit California to adopt standards more stringent and therefore

potentially more costly than the federal standards. Congress rejected this type of argument by passing both the initial on-road waiver provisions and the extension of those provisions to nonroad sources in the 1990 Clean Air Act Amendments. Indeed, a federal waiver of preemption requires that California's standards be at least as stringent in the aggregate as the federal standards. To limit California to standards no more stringent than and as cost-effective as the federal standards would be to render the Clean Air Act's California waiver provisions a nullity.

When California adopts its standards and then seeks a waiver of federal preemption, the U.S. EPA follows an established procedure to determine whether it will waive federal preemption of California standards. That procedure does not permit U.S. EPA to assess relative differences in cost between the federal and state regulations. Finally, even if ARB was inappropriately confined to U.S. EPA's cost-effectiveness assumptions, figures and methodology, these were calculated several years ago and would arguably warrant the kind of updating ARB has done in this rulemaking.

The remainder of the commenter's arguments on this subject address federal rulemaking procedures not relevant to the California regulations at issue here. However, staff does not foresee any cause for U.S. EPA to deny authorization under CAA Title II, Section 209(e)(2).

b. Technological Feasibility of Tier 1 and Tier 2 Standards

11. **Comment:** The standards proposed by the ARB are too stringent, and perhaps even unattainable. (Best Management, Parks and Recreation, John's Custom Marine, Bert's, Ron's Marine Service Center, Boat/Accessory Manufacturers, Anglers, Mom & Pop, United Outdoorsmen, Polaris, Ben Tadano, BBAC, Assemblymember Dennis Cardoza letter)

There remains significant doubt as to whether the requirements can be achieved for all types of engines and horsepower ranges even if cost were not an issue. (Congressman George Radanovich)

The technology does not exist to reach the levels mandated by the regulations. (John Lemek)

The ARB should set doable standards, not "impractical, or unproductive, or useless regulations proposed by environmental zealots which are intended to harass, or punish, the boating industry rather than improve California's air quality. (SCMA)

Meeting the standards in 2001 is beyond the technological capabilities of industry. (NCMA, CMDA)

The technology does not now exist to reach the second phase emission levels mandated by the regulations. (Mom & Pop, Bert's, Mikelson Yachts, Ron's Marine Service Center, Steve McKee)

Agency Response: The ARB disagrees. With all due respect to these commenters, the ARB is in a better position to assess manufacturers' ability to meet the proposed standards. Tier 1 and 2 standards can already be met by a wide variety of marine engines. Most of the 4-stroke outboard engines currently produced today meet the 2004 standards and many even meet the 2008 standards. Similarly, all of the direct injection 2-stroke engines on the market meet the 2001 standards and most meet the 2004 standards. The ARB acknowledges that the personal watercraft industry may face a slightly greater challenge when meeting the standards, but believes that the lead time is adequate for them to develop complying product as well, in part because they should be able to adapt technologies developed for outboard marine engines.

12. **Comment:** The technology exists to reduce smoke emissions from 2-stroke engines, by using clean burning smokeless oils. Such oils simply replace mineral oil, which is noncombustible in a 2-stroke engine, with a combustibile synthetic oil, polyisobutylene (PIB), which decomposes into isobutylene gas upon induction into the combustion chamber of a 2-stroke engine. PIB is non-toxic to humans, fish, and wildlife, reduces engine deposits, and results in lower emissions. (Torco)

Agency Response: The ARB agrees that low smoke oils are a potential means of reducing 2-stroke engine emissions. Currently there is not enough information on low smoke oils to evaluate the remainder of the commenter's claims. Staff will continue to monitor this issue and will make future recommendations as information is gathered.

13. **Comment:** Polaris and Tiger Shark have announced 1999 models using direct injection 2-stroke engines but neither has yet appeared. The ARB cannot simply assume these engines will meet the U.S. EPA 2006 standards. Kawasaki suspects that they do not; therefore, ARB cannot rely on the introduction of these models to determine that the proposed Tier 1 standard is feasible in model year 2001. (Kawasaki)

ARB cannot set standards based on the presentation by one R & D firm that has no experience meeting personal watercraft customer expectations in the marketplace. This represents nothing more than a

bench prototype that says nothing about the crucial considerations of performance, handling, power output, and engine durability. (Kawasaki)

Agency Response: The ARB disagrees, having based their 2001 model year standards on information supplied by many manufacturers and other sources. The Polaris Genesis model has been certified to meet the U.S. EPA 2006 emission standards. Its federal certification level is below that of the ARB's 2001 Tier 1 standard. Compliance was achieved using existing technology that in most cases has been licensed or offered for license to all other manufacturers. The manufacturer has announced the release of the Tiger Shark model, which utilizes the same direct-injection fuel system as the Polaris engine. Although ARB has no emission numbers for this unit, it is expected that it will be capable of meeting the 2001 emission levels by the required timeframe.

14. **Comment:** To make a 4-stroke personal watercraft that performs reasonably, at least 150 horsepower are needed, corresponding to an engine size of at least 1100 cc. Such an engine would produce its maximum horsepower at about 10000 rpm. However, the jet pump impeller in personal watercraft has an effective maximum of about 7000 rpm, beyond which the impeller blades will cavitate, losing power and producing vibrations. To overcome this limitation and allow for maximum power to be delivered to the pump, it will be necessary to incorporate a reduction gear system from the engine output shaft to allow the pump to operate at 7000 rpm while the engine operates at maximum horsepower output (10,000 rpm). The only real alternative is to develop a much larger engine, perhaps 1600 cc, which would theoretically be able to produce 150 horsepower at 7000 rpm. This avoids the need for a reduction gear, but increases weight substantially along with size, affecting the center of gravity and hence, vessel handling. Under either approach, hull modifications would be necessary to accommodate the larger 4-stroke engine. (Kawasaki)

Board hearing testimony asserted that changing to four-stroke technology would produce severe cost increases. The reason for these increases is the use of three or four cylinder engines and a reduction gear in the rear of the engine. Maxsym's engines employ only two cylinders and no gear box, and yet still achieve the performance levels required by the market. Maxsym has absolute confidence that its engines will meet or exceed the performance of two-stroke engines. (Maxsym)

Agency Response: Staff acknowledges the differences between 2- and 4-stroke engines for personal watercraft. However, we believe most of the concerns expressed above can be mitigated as evidenced by the prototype Maxsym 4-stroke personal watercraft that was on display at the

Board Hearing. Further personal watercraft of the recent past functioned very well utilizing engines with less than 100 horsepower. These personal watercraft could easily utilize a smaller four-stroke engine with modest refinements. Because watercraft have increased substantially in size and now include much less efficient hull designs, manufacturers have found it necessary to equip their products with larger engines. These larger watercraft should be able to easily accommodate a larger displacement engine with minimal effort.

The ARB acknowledges Maxsym's comment as support for standards that may be most easily achieved with 4-stroke engines, and further notes that it is expected that multiple technology paths will lead to compliance.

15. **Comment:** The proposed regulation would likely force a hasty commitment of resources to the pursuit and possible implementation of unknown, undeveloped and ultimately unsuccessful outboard engine technologies, such as exhaust catalysts for outboard motors. (OMC)

Agency Response: As noted in the responses to Comment 11, Tier 1 and 2 standards can already be met without catalysts by a wide variety of outboard marine engines. Many of the 4-stroke outboard engines currently produced today even meet the 2008 standards. With research and development, 2-stroke technology may also be able to reach these goals. In fact, one major manufacturer has stated that their direct injection 2-stroke engines will meet the 2008 standards by the year 2001 (seven years ahead of schedule). It is ARB's position that manufacturers have adequate time to develop alternate technologies that will meet the Tier 3 standards. The ARB has scheduled a technology review for 2005 to confirm that technology is developing on schedule, and to take appropriate action in the event that additional time is needed.

c. Technological Feasibility of Tier 3 Standards

16. **Comment:** The Tier 3 standard is not technologically feasible. (NMMA, Assemblymember Dennis Cardoza letter)

The technology does not exist to meet the 2008 standards and/or the 2008 standard is unachievable. (Assemblyman Rico Oller letter, Tim Rice)

Suzuki's 1998 and 1999 model year 40-70 horsepower engines outboards utilize the same state of the art automotive technology that the company is using in passenger cars and light-duty trucks certified to California's law emission standards. These engines are certified at 40-45 percent below the U.S. EPA's 2006 model-year curve, but fall short of ARB's 2008

standards and would, therefore, fail to qualify for Tier 3 labels. Suzuki believes that the ARB's proposed standard in 2008 of 65 percent below the U.S. EPA 2006 model year curve are too stringent. (Suzuki)

Staff's proposal is relying on the availability of four-stroke engines or catalyst technology to meet the 2008 limits. It is evident that the Tier 3 standard is not based on commercially demonstrated technology, certainly not over the full range of horsepower requirements found in the marine industry. (OMC)

The Tier 3 standards should not be adopted at this time. (Congressman George Radanovich, SCMA)

The Tier 3 standard should be dropped. (Russell Anders, CMDA, Jim Contzen, Hooked on Fishing, Governor Thompson of Wisconsin, Assemblymember Dennis Cordoza letter, Assemblyman Rico Oller letter, John Jay, OMC, NCMA/CCSB, NMMA, Jacobson-MCMA, SCMA, Suzuki, Yamaha)

Agency Response: Many of the gains in air quality in California over the last two decades can be traced to technology-forcing regulations of emissions from passenger cars and other source categories that could never have been achieved with the use of best available technologies from the 1970s. Defining *future* emissions standards based solely on demonstrated capabilities for *current* technologies would inevitably lead to little progress in emissions benefits because there would be little incentive to either develop new technologies or enhance the use of existing technology.

The ARB considered industry's arguments and provided adequate lead time to develop and perfect the needed technology. As evidence of this, engines currently on the market already meet the 2001 standards, the 2004 implementation date and standards were proposed by industry during the rulemaking process, and some engines currently on the market meet the 2008 standards. Clearly, currently available technologies are capable of meeting ARB standards for many types of spark-ignited marine engines. Other engine classes may require new technologies or significant improvements in the use of existing technologies. However, similar to other previously regulated products, ARB has provided the necessary timetable for the development and implementation of these new technologies.

The ARB appreciates the achievements of Suzuki in certifying engines to U.S. EPA 2006 standards more than 7 years in advance of the U.S. EPA's requirements. We believe that with continuing effort, Suzuki will have no

difficulty over the next 9 years in meeting the ARB's 2008 requirements. Nevertheless, the ARB recognizes the possibility that Tier 3 emissions standards could outpace future developments in engine technology. A technology review will be conducted in 2005 so that Tier 3 emission levels and implementation time scale can be changed if necessary to reflect the technologies of that time.

17. **Comment:** It is premature to establish a Tier 3 standard for personal watercraft because of the technical challenges with regard to meeting the Tier 1 and Tier 2 standards. The ARB's view that use of 2-stroke direct injection engines can achieve this level is pure speculation given the complex challenges that are faced to adapt such technology. (Kawasaki)

The proposed Tier 3 personal watercraft standard relies on four-stroke technology, which is not currently refined and commercially available. Regulations should not be based on technology that may or may not evolve over the next few years. (CMDA)

The 2008 standard is clearly a theoretical target with unknown control strategies. The technology to combine the 2008 standards with market requirements is yet to be identified, let alone developed. (Bombardier)

The Tier 3 standards are not achievable for personal watercraft. (CMDA)

Agency Response: In order to achieve cleaner air, California has long been adopting technology-forcing standards. See response to Comments 9 and 16.

18. **Comment:** The ARB's proposed 2008 model year standard puts industry's investment in direct-injection technology at risk. (NMMA)

Agency Response: The ARB believes the 2008 model year standard allows industry to continue recouping its direct-injection investment for the outboard sector, as well provide sufficient time to refine or adapt that investment for personal watercraft. Furthermore, at least one manufacturer has publicly stated a belief that its direct-injection engines are capable of meeting the 2008 standards. Because manufacturers are allowed to corporate average the emission levels of their fleet, it is possible that manufacturers will be able to utilize this type of technology beyond the 2008 timeframe.

19. **Comment:** The ARB asserts that boat buyers would be willing to pay higher prices for engines that are more fuel efficient and require less maintenance. However, for personal watercraft, performance is a much more important issue, and to the extent that there are substantial

performance tradeoffs involved, consumers may well not be willing to pay anything for the new, more expensive vessels. (Kawasaki)

Agency Response: The ARB agrees that consumers of personal watercraft are sensitive to performance. However, personal watercraft powered by 135 horsepower direct fuel injection engines are already commercially available, suggesting that performance degradation will not be an issue for Tier 1 compliance. Based on the manufacturers' support for Tier 2 standards, the ARB also expects that high performance personal watercraft will, in fact, be available in 2004. The technology that manufacturers will choose to comply with Tier 3 standards has yet to be determined but given the long lead time, the ARB expects that manufacturers will meet the standards with no loss in performance. The technologies to be selected will no doubt be discussed at the scheduled 2005 technology review.

20. **Comment:** Moving to a 4-stroke design means not only higher prices, but also boat redesigns to accommodate the heavier weights. (Jim Contzen)

The larger engines above 130 horsepower are all two-stroke, to minimize the weight. Even if 4-stroke engines in the larger horsepower ranges were available, they would weigh too much for the boat. (BBAC)

Agency Response: These two comments comprise three interlocking issues. First, it is important to note that 4-stroke spark-ignited marine engines already compete successfully in the marketplace even with higher weights than comparable 2-stroke engines. Consumers have, therefore, clearly decided that 4-stroke engines are not inherently more expensive nor that they weigh too much. It is true that the initial purchase price is generally higher for a 4-stroke engine than it is for a 2-stroke engine of the same rating but the cost savings due to fuel efficiency over the lifetime of the engine are considerable. The boating public comprises a generally sophisticated segment of the population and these knowledgeable consumers factor lifetime costs into purchasing decisions.

Second, the assumption that only 4-stroke technologies are capable of meeting Tier 3 standards essentially assumes that no innovations in 2-stroke technology can occur over the next decade. The recent introduction of direct injection 2-stroke engines with a substantial decrease in emissions implies that industry is in fact capable of improving 2-stroke technology and the ARB believes that 2-stroke engines may well receive Tier 3 labels in a few years.

Finally, with regard to engines in higher horsepower range, where the weight differential is more significant, it is important to first remember that

these engines currently represent only about 8% of the fleet. The ARB expects that higher horsepower range engines compatible with Tier 3 standards will be available to fill the needs of the vast majority of the boating public. Also it is worth noting that stern drive inboard engines are currently available for many high horsepower applications. If developments in low emission 2-stroke and/or 4-stroke outboard engines prove infeasible for some applications involving high horsepower ranges, and stern drive engines are unable to meet the needs of the market, then the technology review in 2005 should allow modifications in the standards or time frames commensurate with the technology available and/or projected at that time. The U.S. EPA and ARB commonly schedule such reviews both in on-road and off-road contexts. The review in no way undermines the Board's current feasibility determination.

21. **Comment:** Catalysts are not a viable emission control technology for outboard motors, due to excessive vibrations encountered during over-the-road transport, salt saturation on the catalyst substrate, and other reasons. (Suzuki)

Catalyst applications on personal watercraft will be much more challenging than applications on utility engines and mopeds due to water ingestion issues. (Kawasaki)

We have a catalyst on a personal watercraft. If it was easy, and we could do it right away, we would have them on all of them. The catalyst is only 50 percent effective, weighs 72 pounds, and costs \$600. (Yamaha Motors)

There are several technological pathways to achieve the Tier 3 standards, including the use of catalysts. Catalyst application on marine engines does involve a special challenge. The solution is going to require cooperative efforts and development between the engine manufacturers and the control manufacturers to develop a complete system, but, with the proper effort, it can be done. (MECA)

Direct injection technology greatly facilitates the use of catalyst technology. (MECA)

Agency Response: Based on the ARB's experience with catalyst development in both on-road and off-road contexts, the ARB believes that catalysts are a viable option for meeting Tier 3 and earlier standards. It is important, however, to provide industry with as much flexibility as possible regarding the manner in which emissions reductions are achieved. When developing regulations, the ARB sets emission standards but makes no conclusions regarding the specific technology that industry will use to

comply and certainly makes no attempt to impose a particular solution. Catalysts represent only one of many possible approaches to reducing emissions from marine engines. The fact catalysts have technical difficulties to be overcome does not constitute a basis for ignoring the potential of catalysts for reducing emissions. In one case, a manufacturer may simply choose a technology that does not require a catalyst. In another, the manufacturer may believe that overcoming technological barriers to catalyst use is the most economical approach. These are decisions that will be made manufacturer by manufacturer and product by product. The ARB believes that this freedom of choice is a key component to successfully reducing emissions.

22. **Comment:** We will probably be able to build engines for Tier 3 in 2008. But Honda is a bit of a unique player in this market. We have always had 4-stroke engines. So compliance with the standard is certainly a different case for us than for the industry as a whole. (Honda)

Freedom Motors fully supports ARB and the proposed standards for 2001 and later marine engines. We believe that all proposed standards are easily obtained in the stated time frames. We further believe that no technology breakthroughs are necessary to give industry an alternative that meets the requirements of the personal watercraft market in both cost and performance. (Freedom Motors)

The charged-cooled rotary engine has performance and cost comparable to two-stroke engines. It is capable of achieving the proposed 2008 levels without the use of any add-on technologies. (Freedom Motors)

Four-stroke technology is the best solution to meet the requirements of all the stakeholders, including end users, manufacturers, and regulators. The benefits of four-stroke technology are well established and include the benefits of fuel consumption, refinement, low cost of ownership, and most importantly emission performance. The Maxsym Ecotwin utilizes a two-cylinder conventional 4-stroke engine. It is no larger than most 2-strokes, and weighs no more than 2-stroke engines found in personal watercraft. The engine incorporates motor sport technology developed in Europe that overcomes other technical problems such as water and gas and oil system problems, and operating in rough conditions at sea. Exhaust temperature concerns were readily overcome with a simple water-jacketed system. (Maxsym)

Engines complying with the 2008 standard are on the market today. (Earth Island Institute)

Agency Response: Staff appreciates the efforts of the above companies for their future thinking and capabilities to produce a more environmentally friendly product. While the ARB makes no determination regarding the “best” technology to meet the standards, staff concurs that it will significantly easier for those companies that currently use advanced clean technologies to comply with the regulations.

23. **Comment:** MECA fully supports adoption of the proposed exhaust emission standards and test procedures for 2001 and later spark-ignited marine engines. We believed the program is technologically feasible and will result in significant and cost-effective emission reductions. The Tier 3 standard will create the regulatory incentive for our members, as well as many others with different technologies, to make the necessary R & D investments to bring forward the technologies and control strategies that can achieve cleaner emission engines. (MECA)

Without the 2008 standard or with a weaker standard, manufacturers will have no incentive to continue the R & D efforts towards development of even cleaner craft. The 2008 standard is an absolutely crucial element to ARB's proposed regulation. The 2008 standard provides ten years for industry to push technology development for cleaner motors. These technologies include catalytic converters, like the one that Yamaha put on a personal watercraft and the four-stroke and rotary-powered personal watercraft we saw today. (BWN)

The three-tier approach, in addition to the scheduled 2005 review period, will allow plenty of time for development of needed technologies and will allow the ARB to review technologies on time and make any midcourse corrections if needed. Most of these technologies, such as catalytic converters, have already been developed for other applications. (SCAQMD)

We believe very confidently that there are several technology pathways to achieve these standards. We do not believe that the necessary technology developments will occur, absent a target in place. (MECA, Earth Island Institute)

The Tier 3 standard is necessary, and can be met with existing technology. (CMC)

Agency Response: The ARB concurs.

24. **Comment:** As a company, we fully endorse the ARB proposal. No technological step changes are required. The technology exists today to go a lot further than you're proposing and we believe it's technically

feasible, in fact, to bring the tiers forward so the Tier 2 could be introduced in 2001 and Tier 3 in 2004. (Maxsym)

We believe that the emission goals are moderate given current technology, but we support the standard as stated to accommodate manufacturing cost. (Earth Island Institute)

The 2008 standard is equivalent to today's four-stroke marine engines. That is not that big of a jump. In fact, since four-stroke motors have been on the market for over a quarter of a century in small horsepower sizes, one could argue that a future standard should have gone much farther than what ARB proposed for 2008. Realistically, ARB could have insisted upon a 2008 standard that is 90 percent better than U.S. EPA, not just 65 percent better. (BWN)

In evaluating this proposal, no one disagrees with making the objective of the regional water quality boards the goal, that being that the water shall not contain oils, greases, waxes or other materials in concentrations which result in a visible film or coating on the surface of the water. If you translate that goal into an emission value, you end up with something that roughly equates to the ARB 2008 levels. The Tier 2 requirements alone are not adequate. (Freedom Motors)

Agency Response: The ARB agrees that the proposed standards are feasible and that the emission reductions to be gained are significant and necessary. We further agree that they will likely lead to technological innovation. More stringent standards would likely lead to greater emissions benefits, but this possibility had to be balanced against increased development costs to the industry. The ARB has chosen the balance point proposed.

25. **Comment:** A 4th tier label should be added as an industry incentive. The 4th tier should be set at a level that is not currently achievable. (Freedom Motors)

Agency Response: Since the majority of currently available spark-ignited marine engines do not meet Tier 3 standards, the third tier already provides significant incentive for industry. Establishing a formal fourth tier would require an extended time line and the ARB believes that it would be more appropriate to consider emission standards for 2009 and later model years after or in conjunction with the technical review to be conducted in 2005. This would allow for staff to develop a proposal based upon an additional seven years of advancement in marine engine technology.

4. Technology Review

26. **Comment:** The ARB's recommendation for a technology review for the proposed Tier 3 standard in 2006 would serve no purpose; such a review would be appropriate in 2004 to determine whether, and if so what, standard should be set for the 2008 model year. (Kawasaki)

The 2006 technology review will occur too late to avoid market dislocations and should occur in 2004. The review should include the issue of the affordability of Tier 3. If Tier 3 is adopted and it has the sales impact that we are concerned about, then fleet turnover declines, and neither industry nor the environment benefits. (NMMA)

As amended at the Board hearing, the technology review for this rule is scheduled for the year 2005, which is late enough that ARB will be able to carefully scrutinize the latest advances in engine technology prior to making any final decisions regarding further tightening of the future standards. If the technology review is any earlier than 2005, the most promising products may not yet be available for review. (BWN)

We support the staff's suggestion for a technology review in 2005. (MECA)

Agency Response: As noted at the Board hearing, the ARB agreed to change the date of the scheduled 2006 technology review to 2005. This should provide sufficient lead time for the production of 2008 model year engines that comply with either Tier 3 standards as written in the current regulation or with standards modified as a consequence of the technology review. In the 2005 technology review, the ARB will not lightly consider either a delay or an easing of the 2008 standard. However, it remains within the ARB's discretion to do so. The commenter's proposed 2004 alternative, which would occur in the same year as NMMA's proposed 2004 standard, will occur too early to determine if sufficient progress has been made to warrant the 2008 Tier 3 standard. Should the ARB decide in a 2005 technology review that the 2008 standard remains feasible and cost-effective, ARB believes that industry will have sufficient time to continue its progress in developing technology and meeting that standard.

27. **Comment:** The technical review for the 2008 standards should allow the ARB to tighten, but not weaken the standards. (Sierra Club, EDC, Coalition for Clean Air, Earth Island Institute)

The ARB should open the technical review to potentially tightening the standards. (EHC)

Agency Response: If future air quality concerns grow, and cost-effective regulations of marine engines proved to be feasible due to rapid emission control developments for the marine environment, then the ARB may need to consider a new rulemaking with more stringent standards as a result of the 2005 technology review. The technology review will provide the necessary information to provide a foundation for those decisions. It is possible that the technology review in 2005 will help define appropriate standards for spark-ignited marine engines that will take effect some time after 2008 although its primary goal is to provide an assessment of the probability that Tier 3 standards can in fact be met by 2008.

B. Harmonization

28. **Comment:** Because of low volume sales for each of a variety of engine families, designed to meet a wide variety of applications and various different load demands, the industry's ability to spread out technology development cost over many engine families is extremely limited. Therefore, they must produce one engine line for both national and international sales. Discussions with ARB staff and Board Members between 1992 and 1994 led to a SIP that allowed us to have confidence that this standard would be harmonized, not only here but internationally. Measure M-16 harmonizes with U.S. EPA. Industry's half a billion-dollar investment into direct injection technology, which obviously is still valuable, is not perhaps as efficient economically an approach as we might have taken if we knew then only a few years ago what we know now. Nothing materially has changed since the Board decided to harmonize with the U.S. EPA. Every issue you are discussing today was discussed in the September 23, 1994 meeting. (NMMA)

The ARB agreed to harmonize California's program with the federal one in the early/mid-90s. The 1994 SIP indicates that the federal program "satisfies the State's need for emission reductions from the recreational marine category." (Assemblymember Dennis Cordoza letter, Assemblyman Rico Oller letter)

The 1994 California State Implementation Plan reflects ARB's determination, reached after discussions with NMMA, that ARB would not seek emissions reductions from pleasure craft beyond the federal standards then proposed. (NMMA, Congressman George Radanovich)

Relying on ARB's assurance and the 1994 SIP, the marine industry committed itself to researching, developing, and implementing new technologies, such as direct-injection two-stroke engines, to comply with the federal regulations. The ARB has reversed its position and proposed

standards that would render the industry's investment useless in many cases. (NMMA)

The 2004 and the 2008 standards require different technology commitments than agreed upon during the 1996 U.S. EPA Marine Rulemaking. This commitment directed engine manufacturers to research and develop clean-burning direct-injection two-cycle technology. Bombardier has committed development resources based on this previous ARB agreement. Any changes in engine technology development must consider a significant time to establish a high level of reliability required by a product that can be operated well offshore and in vast water bodies. (Bombardier)

California made a commitment to the industry that is dependent upon a harmonized program, since the industry cannot afford to waste its investment or to incur the additional cost that would be required to meet the proposed 2008 standard. (Congressman George Radanovich)

During the course of the U.S. EPA marine engine regulation rule development process, NMMA met on behalf of its member companies with ARB staff and obtained assurance that the agency had no basis or plans to develop a California-specific rule. This allowed OMC to move forward with confidence to announce an investment of an unprecedented \$100M to develop the FICHT technology. Every available resource within OMC is now focused on meeting that challenge. (OMC)

The ARB indicated agreement with the federal standards and should not renege on that agreement. (SCMA)

Our company relied on ARB's commitment to U.S. EPA standards and timetable. (Mercury Marine)

Agency Response: The ARB made no determination or promise in the 1994 SIP that there would be no California modifications or amendments to the federal controls on marine engines. The ARB regrets any industry misunderstanding in this area. The ARB neither discussed with NMMA the adequacy of nor reached a determination regarding the federal proposal before adopting the 1994 SIP and submitting it to U.S. EPA. In addition, the 1994 SIP cannot and does not contain a commitment not to revisit the pleasure craft source category later. Indeed, the ARB has determined that marine engine emissions are much higher than was believed in 1994. This is especially true on summer weekends, which coincide with the highest ozone concentrations. Once the ARB realized that marine engine emissions are much higher than they were believed to

be in 1994, it became important to address this source category from the perspective of air quality in California.

The proposed regulations significantly accelerates the federal program while harmonizing as closely as possible to the U.S. EPA rule in order to reduce the burden to the manufacturers. Staff has proposed emission standards that are a percentage of the U.S. EPA 2006 compliance curve and has incorporated the federal test procedures, in-use compliance program, and reporting requirements. NMMA submitted a proposal for ARB's consideration wherein U.S. EPA's 2006 standard would be met in 2004, at a level 20 percent cleaner than the U.S. EPA requires. There was support expressed by industry and boating groups in favor of various components of the NMMA proposal. It follows that manufacturers are in a position to meet an accelerated time frame for 2001 Tier 1 standards.

In addition, the ARB's technological feasibility and cost-effectiveness analyses did not find that the regulations would "render the industry's investment useless" (Staff Report pp. 33-58 and Transcript pp. 117 – 119). In fact, the ARB wishes to build upon industry efforts. One of the guiding principles in establishing the Tier 3 standards was ARB's belief that they can be met with modest modifications to marine engines in which the industry has already invested. Thus, the substantial investments made by some manufacturers to this point can be maintained at the same time that new technologies are being encouraged.

Finally, the ARB is not unaware that other states and countries often follow California's lead in environmental issues. On average, about 10% of domestic sales by manufacturers of marine engines are made in California, which in itself is not an inconsequential proportion of total production. The percentage of a manufacturer's total production that conforms to "California" standards is, however, likely to increase with time if other entities adopt ARB standards.

29. **Comment:** OMC urges the ARB to simplify the administrative burden associated with the proposed California rule. OMC's administrative cost of compliance will double with the California rules, just to serve a market that represents about 2 percent of our sales. There are numerous opportunities for ARB to take better advantage of the inherent efficiencies that can be gained by maximizing administrative harmony with the existing federal regulations. (OMC)

ARB's proposal contains compliance requirements inconsistent with the U.S. EPA program. A unique California model will be required, which is an uneconomic option given the low California market volumes. These

inconsistencies offer no significant additional environmental benefit.
(Bombardier)

We want the staff to harmonize this rule in every other respect with the U.S. EPA's. So, when one certifies and warrants engines, we do not have two different submittals, because there are extraordinary costs associated with those differences. The changes in warranty and useful life make an extraordinarily different cost. (NMMA)

Agency Response: Staff acknowledges that California's program puts an additional burden upon manufacturers. However, we maintain that ARB did harmonize with the U.S. EPA wherever possible and that any inconsistencies with the federal program were necessary for our program to be successful. We further disagree that that these additional requirements offer no significant environmental benefit. The watercraft program was modeled after both on- and off-road programs that have existed and proven successful for more than thirty years. Further, staff believes that the U.S. EPA would be willing to accept California's additional warranty and useful life requirements, thereby allowing manufacturers to meet just one reporting requirement.

C. Cost and Cost-Effectiveness

1. Cost Methodology

30. **Comment:** The ARB has not conducted the requisite economic analysis.
(NMMA)

Application of cost data from other industries does not take into account the uniqueness of the marine industry. The unique circumstances of the marine industry has been pointed out to, but not considered by, ARB staff.
(Kawasaki)

The Staff Report assumes a constant marginal cost, contrary to NERA and EPA results. (NERA)

We never received an analysis showing how the ARB staff used the industry's cost data in their calculations. We do not understand how the costs and benefits were calculated. (NMMA)

Agency Response: As described in the Staff Report (pp. 53-59; 66-72), the ARB has met its California Administrative Procedure Act requirements for economic analysis. In addition, NMMA implies that the economic analysis provided in the Staff Report needs to have been made publicly

available before October 23, 1998, which preceded the December 10, 1998 hearing on this item by 48 days. The ARB disagrees with this implication, as it obviously met the statutory 45-day requirement of Government Code section 11346.4(a).

ARB agrees that it has to consider information provided by affected industries before making its economic analysis publicly available via the 45-day Notice and accompanying Staff Report. Staff did such an analysis in this rulemaking; however staff did not agree with all the information provided by industry. Staff also held a public workshop over three months prior to publishing the Staff Report. During this workshop, preliminary economic impact results were discussed. The workshop notice and accompanying materials distributed prior to and at the workshop specifically asked affected industries for economic impact information. Staff received such information from numerous parties, including from the commenter, and carefully considered such information in framing its final proposal for public hearing (Staff Report at pp. 53-72).

NMMA appears to demand that the Staff Report reflect affected industries' analysis of and conclusions regarding the information it submitted to ARB. Government Code sections 11346.2 and 11346.3 require only that ARB consider such information. The ARB did so. They do not bind the expert state agency to accept industry-supplied conclusions regarding its submittals.

The cost-benefit analysis used to support the marine program is detailed in the Initial Statement of Reasons (pp. 53-72) which was made publicly available on October 23, 1998 and continues to be readily available to interested parties. The unique nature of the industry is implicit in the ARB's analysis. With regards to the cost data submitted by the industry, staff assessed this data and found it to greatly overstate the likely costs of compliance. For this reason this data was not used in the analysis.

31. **Comment:** The ARB's price estimates do not fully reflect actual costs, because the effect of these regulations is to require a reduction in our profitability simply to attain compliance with the proposed standards. We control both the price and cost of our product, and the difference between cost and our price is our profitability. We provided all available cost data to staff, yet this data was not acknowledged in the Staff Report. (Mercury Marine)

The Staff Report researched the current price differences between two- and four-stroke engines, and used these price differences to estimate the cost of an engine complying with Tier 3 standards. The assumption this employs is that the added cost will remain constant in the future, thereby

ignoring cost variability. There is an enormous amount of variability, both in costs but also in the emission rates that are achieved with a given technology. The currently available 4-stroke engines are likely to be the least expensive, because those are the ones that were done first. The additional control options are going to be more expensive. (NERA)

Agency Response: The ARB's estimate for the increase in price per engine associated with implementation of the Federal 2006 regulations is based on the cost of actual engines in today's market that already meet those standards. There is no major dispute over the cost structure for implementing Tier 1 and Tier 2, and the industry clearly believes that price increases for these engines can be passed along to the consumer because NMMA members support the 2004 Tier 2 standard. The fundamental approach used for the Tier 3 estimate, as described in the Staff Report (pp. 55-59) was to take a Tier 2 engine, one for which current prices are available, and add a catalytic converter of about 50 percent efficiency. Such an arrangement would comply with Tier 3 standards. The catalytic converter costs about \$200 in today's market but mark ups for research and development, overhead, dealer profits, and warranty costs would add generously about \$550 for a 100 horsepower engine. This is the only cost used in the ARB analysis that did not come directly from the pricing of engines in the market place today.

Regardless of the overall final distribution of costs between manufacturers and consumers, the costs of the proposed regulation are reasonable ones due to the cost-effective nature of the regulation. The ARB does acknowledge and regrets that manufacturers may have their profitability reduced in order to comply with the new standards. However, as presented in the Staff Report (pp. 53-59), the overall cost-effectiveness of these standards is within the range of \$0.32 to \$3.57 per pound of pollution reduced, in line with previous rulemaking cost-benefit estimates. The ARB has little information regarding cost variability but notes that even if this variability were to result in a doubling of compliance costs, the proposed regulations would still be well within the cost-effectiveness limits of recent ARB regulations. In addition, staff did take into account manufacturers' submissions regarding costs. However, manufacturers' costs did not correlate at all with the cost differential of engines currently on the market that met the adopted standards. For this reason we chose to go with the actual cost differential of engines that are currently on the market, where available, for our estimates.

2. Cost of Tier 1 and Tier 2 Standards

32. **Comment:** NERA conducted a detailed study with the NMMA on the economic impacts of the staff's proposed standards and estimates the

average incremental cost per ton for the Tier 1 standards at approximately \$560 per ton. The Tier 1 costs are actually lower than ARB estimates, and are equivalent to the cost of the final U.S. EPA requirements. Our Tier 2 cost-effectiveness estimates of approximately \$10,000 a ton are considerably higher than those in the Staff Report, but may not be considered dramatically higher. (NERA)

Agency Response: The ARB agrees that the cost estimates of NERA and the ARB differ significantly for the Tier 2 standards. The ARB disagrees with NERA's estimates as discussed during the Board hearing (Transcript pp. 103-107). The cost effectiveness was described in the Staff Report (pp. 53-59). For outboard engines, actual incremental costs are \$1140 per ton for Tier 1, \$3620 per ton for Tier 2 and \$4160 per ton for Tier 3. The corresponding cost-effectiveness estimates for personal watercraft are very similar as those for outboards. Staff believes that personal watercraft manufacturers will be able to go directly from an uncontrolled engine to a Tier 2 engine by the use of a 2-stroke direct-injection fuel system. Staff estimates this cost to be \$760 per ton for Tier 2. Manufacturers may decide to add a catalyst to a 2-stroke direct-injection fuel system to achieve the Tier 3 emission standards or they may produce high horsepower four-stroke engines. Staff estimates the cost of achieving the 2008 Tier 3 standard at \$2160 per ton.

33. **Comment:** The marine industry has a wide variety of engines, engine types, and applications. These engines must be designed to meet a wide variety of applications and load demands. They are sold in small volumes, so the industry's ability to spread technology development cost over the engine families designed is extremely limited. Manufacturers of these engines have extremely limited resources relative to others that are often regulated. Therefore, they must produce national engines. They cannot produce engines specifically for California. (NMMA)

Agency Response: Staff recognizes and agrees that the marine industry has a wide variety of engines, engine types, and applications, and that many of these engines are sold in small volumes. However, we do not agree that the marine industry has extremely limited resources relative to others that are often regulated. In most cases the marine industry faces no more challenges than any other off-road category and may even be ahead of other industries when they were first regulated. Currently, most manufacturers have engines that meet the 2001 and 2004 standards. This allows them to manufacture those engines up through the year 2007. Further, some manufacturers have been producing engines for several years that are capable of meeting our 2008 standards for several years. Because California has the worst air quality in the nation, the ARB is permitted to adopt emission control regulations that are more progressive

than those required by the federal government. Without this ability, there would be very little progress in the improvement of air quality beyond that provided by the federal programs. In order to meet both federal and State mandates for safe air quality, it is necessary for California to require cleaner engines than required for the rest of the nation. These new engines can be, and in most cases are, sold as national engines. The ARB agrees that it is unfortunate that these engines can not be built specifically for California, but notes that the entire United States will benefit from use of these engines on a nationwide basis.

34. **Comment:** The ARB does not include any cost estimate for redesigning and repackaging the engine as personal watercraft engines move from 2 cylinder to 3 cylinder configurations. Nor do they account for the added cost to modify hull configurations to accommodate the new, larger engines to comply with the Tier 1 and Tier 2 requirements. (Kawasaki)

Agency Response: Because engines and hulls need to be redesigned every few years to remain competitive in the market, these costs are considered a normal cost of business and it is therefore inappropriate to include them in a cost-effectiveness calculation. Moreover, in order to comply with emission control regulations previously promulgated by the U.S. EPA, manufacturers would be required to utilize much of the same engine technologies as they will be using for the California market. For this reason, they would need to make many of the same alterations to engine and hull designs anyway. See also Comment 22 where Maxsym describes the Ecotwin four-stroke prototype with two cylinders and response to Comment 14 regarding the personal watercraft hull's ability to accommodate Tier 1 and Tier 2 engines.

35. **Comment:** The replacement of outboard motors with new technology will increase engine costs by 10 to 15 percent. (BBAC)

A 14 percent increase in the cost of engines appears to be a large increase. However, according to the ARB staff, this 14 percent increase is a small price increase. (James Haussener)

Hydro Stream Performance Boats is a small, custom manufacturer of outboard boats. When this company was founded in the 1970s, the average price for a boat was \$6,000. Current prices for a similar boat are \$30,000. The Board estimates that the new regulations will add \$2300 to the price of a boat. (Jim Contzen)

The charge-cooled rotary engine will deliver performance at a cost that is less than or equal to that of current marine power plants once in full production. (Freedom Motors)

Agency Response: So that each manufacturer can establish its own path to cleaner engines, the ARB takes no position on which technology is the most appropriate for meeting emissions standards. Indeed the ARB expects the reductions established by the marine program to be achievable from multiple technological directions. The price of new marine engines was calculated to increase by approximately 14 percent. This corresponds to a cost of between \$0.32 to \$3.57 per pound of pollutant reduced. The ARB notes that a \$2300 increase on a \$30,000 boat is 8 percent, in line with staff expectations and consistent with staff's cost-benefit analysis as presented in the Staff Report (pp. 60-72). Staff believes their estimate is high because it did not factor in the cost of the U.S. EPA's regulations (which would result in many of the same investment requirements, increased product costs, and potential product shortages that may result with ARB's regulations). Further, the ARB's regulations will also offer consumers a better technology engine, offering as much as a 30 percent increase in fuel economy for the initial tiers which may completely offset the increased cost of the new products.

3. Cost of Tier 3 Standards

36. **Comment:** NERA's analysis shows that the cost-effectiveness of these regulations exceeds the upper \$5 per pound limit suggested by the proposed new federal ambient air quality standards. (NMMA)

NERA's estimates and the ARB's estimates of the cost of Tier 3 standards differ greatly. According to our estimates, the Tier 3 standard will cost \$174 million more than the Tier 2 standard. (NERA)

The information presented by NERA indicates that the cost/benefit ratio of the proposed 2008 limit is far beyond the acceptable range associated with good rulemaking practice. (OMC)

Compliance costs will exceed \$10,000/ton, which is the highest amount any source should bear in meeting new health standards, according to President Clinton in his July 1998 Directive to the U.S. EPA. (Assemblymember Dennis Cordoza letter, Congressman George Radanovich)

The 2008 standard constitutes an unjustified economic burden to California dealers and engine manufacturers alike. (Bombardier)

Agency Response: The ARB disagrees. First, although the \$5.00 per pound limit is cited in a Presidential Memo announcing new air quality standards, the limit was and is only a non-regulatory, non-binding

suggestion toward which states and the federal EPA are encouraged to work. Even if the suggestion was binding, ARB determined that the cost-effectiveness of the most stringent Tier 3 standards would be approximately \$0.32-\$3.57 per pound of HC + NOx reduced from outboard engines, and approximately \$1.08 per pound from personal watercraft engines. Each figure is well within the new suggested federal maximum cited. Even if ARB had calculated costs at higher than the federally suggested maximum, it is within California's authority to regulate at a higher cost than might otherwise occur under federal regulations alone.

Staff has studied the NERA Tier 3 cost estimate in detail and believes it greatly overstates the cost of compliance, as discussed in part during the Board hearing (Transcript pp. 103-107). Two reasons for this are as follows:

(1) NERA assumed that manufacturers would produce California-compliant engines on a national basis, and then ascribed the entire national cost of compliance to only those engines sold in California. This assumption overstates the actual California cost of compliance by a factor of nearly 10 to 1. In contrast, the ARB assigned only the cost of California compliant engines on a statewide basis. See the Staff Report pp. 53-57 for a description of estimated costs for Tier 1, 2 and 3 and pp. 66-72 for a discussion of potential economic impacts.

(2) NERA calculated the lifetime emissions benefits using an emission discounting technique that has not been used in cost-effectiveness calculations for previous ARB regulations and hence is inappropriate for computing and comparing the cost-effectiveness of this regulation. The ARB estimates lifetime emissions benefits by comparing baseline emissions and controlled emissions over the life of the engine, without discounting. This is more appropriate because cost-benefit calculations for previous ARB rulemakings have not used discounting. Appropriate computations and comparisons of cost-effectiveness require equivalent methodologies.

37. **Comment:** The cost-effectiveness of the Tier 3 standards is roughly \$15 per pound or \$30,000 per ton, and we expect a huge sales loss due to the price increases. What confidence does the Board have that Tier 3 standards are the proper action to take? (NMMA)

Agency Response: The commenter is relying on a NERA assessment of the costs of the Tier 3 standard, which the ARB believes to greatly overstate the costs (see response to Comment 36). The ARB's analysis does not indicate a dramatic decline in the cost-effectiveness of the Tier 3

standards relative to those of Tier 1 or Tier 2. The average cost-effectiveness of Tier 3 standards as stated in the Staff Report (pp. 57-59) is \$2.08 per pound of HC + NO_x for outboards and \$1.08 per pound of HC + NO_x for personal watercraft. While marine engine sales may be temporarily reduced by the proposed regulations, the ARB believes that the industry will be able to pass most of the costs along to the consumer and that the proposed regulations are a feasible and cost-effective means of reducing emissions. Given the ARB's proven track record in forecasting cost absorption, the ARB considers the proposed regulations as proper action.

38. **Comment:** The fuel savings ascribed to this regulation will be achieved by the Tier 2 standards and will not apply to the Tier 3 standards. The cost of the Tier 3 standard is huge. (NMMA)

Agency Response: The ARB agrees with the assertion that there may be little or no fuel savings associated with the transition from Tier 2 to Tier 3. This is similar to other regulated engines when highly advanced emission controls including aftertreatment are employed. As a consequence, there are no assumptions about fuel economy savings connecting Tier 2 and Tier 3 engines. Even if possible fuel savings are not considered, the incremental cost of the Tier 3 standard is estimated to be 14 percent of the base engine price. When this cost increase is factored in with the emission benefit, the cost/benefit ratio is consistent with that of other ARB regulations.

39. **Comment:** With regards to cost-effectiveness, four-stroke engines for sale currently will not incur additional costs in order to comply with the proposed standards. These motors will comply with the 2008 standard. In the past year, the market share of four-stroke engines has doubled, now comprising approximately 10 percent of current sales. Consumers are aware that four-stroke engines produce less pollution, and are already choosing to purchase these engines. (BWN)

The cost of the staff's proposal, while by no means trivial, is no more significant than that of light duty vehicle proposals or nearly any other regulatory proposal. (Union of Concerned Scientists)

Agency Response: The ARB agrees with the commenters' assertions.

4. Price Elasticity

40. **Comment:** Marine engines are a discretionary recreational product, with many other recreational alternatives for consumers if these engines become too expensive. Therefore, this market is enormously sensitive to

changes in price, and the proposed regulations will have a huge impact on sales. (NMMA)

Marine engines are discretionary purchases. (SCMA)

Being discretionary purchases, marine products are extremely sensitive to cost. Even small increases in price cause consumers to consider other forms of recreation. The luxury tax, which applied only to limited boats, caused industry sales to decline 80 percent. (Congressman George Radanovich)

The 2001 compliance date requirement will be as destructive as the luxury tax. (SCMA, NCMA)

The Staff Report fails to address the price-sensitivity of the marine product market, including its historical sensitivity to government action such as the federal luxury tax and the federally proposed weekend boating ban. (NMMA)

Agency Response: The ARB agrees with the commenters that marine engines are discretionary recreational products with many alternatives for consumers. Staff also agrees it is also possible that the proposed regulations will have an impact on sales of some product lines for marine engines. However, staff disagrees with the assertion that the regulations will have a huge impact on sales. An assessment of sales patterns nationally and in California suggests that there is to date no significant impact that can be attributed specifically to the ARB's marine program since California's sales trends are similar to those at the national level. The ARB will, however, continue to monitor sales data for evidence of negative economic impacts on dealerships and others not incurring costs directly in reasonable compliance with the regulations. In the end, however, the ARB is required by law to "endeavor to achieve the maximum degree of emission reduction possible from vehicular and other sources" (Health and Safety Code [Section 43018](#)). The ARB finds the marine program to be a cost-effective means of reducing emissions.

The effect of the ARB's regulations would not be expected to parallel the effect of the luxury tax. First, the luxury tax raised revenues for the federal government without providing a corresponding direct benefit to the consumers being taxed. Further, it was instituted just prior to a recession. The luxury tax also had the effect of increasing the marginal cost of domestically produced products relative to those that were being imported, which led to sales declines for some domestic producers. The ARB's marine program provides health benefits to the consumer, and any producer in the United States or elsewhere who wishes to sell marine

engines in California will have to meet the same applicable emissions requirements.

Although the ARB acknowledges the price sensitivity of this market, staff did not find price-sensitivity to be an overriding issue with respect to this regulation. Staff did look at new technology engines that were currently on the market. These engines carried an increased price of about 8 to 18 percent over the similar low technology engines. At that time, dealers were having no shortage of consumers willing to pay the extra cost for these engines and in most cases, dealers could not keep these engines in stock due to the demand.

41. **Comment:** OMC believes that the commitment of resources for the purpose of future development of new products is a successful long-term strategy. However, the market must be given time to respond to new product offerings and manufacturers must be given time to allow them to regain profitability. The 1994 NERA study reported a long run price elasticity of outboard motors of -2.3 , which means that a 23 percent loss of sales would result from a 10 percent price increase. Results of a more recent NERA study provided to the ARB indicated that the 2008 standard would require much more than the ARB's predicted 14 percent price increase. These data clearly indicate that OMC and others will be unable to sustain future sales at levels necessary to ensure profitability if these regulations are put in place as written. (OMC)

This is an industry that faces very high price elasticity; when prices increase, sales decrease by a substantial amount. We have used that price elasticity estimate and our estimate of what the average cost and price increase would be to estimate the effect of the cost on sales. We find that the impact of the Tier 3 requirement would be to reduce the sales by approximately 80 percent, because the price increase is so large. (NERA)

ARB's assertion that price increases of more than \$1000 per vessel would not significantly dampen demand ignores the NERA price elasticity study. Using the ARB's own cost estimates, the NERA price elasticity calculations indicate that Kawasaki may lose up to 36 percent of its personal watercraft sales. (Kawasaki)

Marine spending is discretionary and has poor price elasticity. The proposed regulations will result in at least a 50 percent sales reduction and cause businesses to close. (Better Way Marine)

Agency Response: The ARB agrees that the Tier 3 requirement may result in some reductions in sales relative to those that would have

occurred without Tier 3 controls, but it is highly unlikely that any decrease will remotely approach the 80 percent reported by the commenter. The elasticity according to the industry is approximately 2.3 so that a 14 per cent increase in price, which is the expectation for Tier 3 controls, would on the face of it lead to a decrease in sales of 32 per cent. However, the impact is likely to be much less severe for three reasons. First, increases in regional income and inflation are not taken into account. Second, the consumer is sensitive to lifetime costs such as maintenance routines and fuel economy that will improve over the next decade. Third, there is pent-up demand for advanced technology that would be released upon promulgation of the ARB's marine program. The ARB believes that the industry will succeed in passing the increased cost structure associated with Tier 3 compliance on to the consumer.

D. Economic Impacts

1. Effect on Manufacturers

42. **Comment:** The ARB's conclusion pursuant to Cal. Gov. Code § 11346.5(a)(9) that the proposed regulations will have no more than an insignificant cost impact on the marine engine industry is insupportable, and is not supported by evidence in the record pursuant to Cal. Gov. Code § 11346.5(a)(8). (NMMA)

Agency Response: The ARB disagrees, because ARB's conclusion is clearly supportable and because ARB relied upon substantial evidence in the record to support this statement. By stating that ARB's statement is "insupportable", the commenter appears to argue that under no circumstances could the ARB find support or justification for its conclusion that there will be no more than an insignificant cost impact on the marine engine industry. Obviously, such an argument impermissibly pre-judges ARB's ability to support the economic impact analysis involved.

At the time the notice was published, staff estimated that the proposed regulations are not expected to have a noticeable adverse impact on affected manufacturers. Manufacturers have already invested in the development of cleaner-burning marine engine technology to meet U.S. EPA requirements. Also, as stated in the Staff Report (pp. 68-69), manufacturers have the ability to pass on the cost increase to consumers in the long run. Further, because most manufacturers already produced products that meet Tier 1 and Tier 2 requirements and they needed to reach this level of control for U.S. EPA in the future, it was determined that there would only be a small impact on most manufacturers. After reviewing the Staff Report and additional evidence entered on the record,

the Board found that economic and cost impacts were properly analyzed, and that all three tiers of emission standards were cost-effective (Resolution at pp. 5-6).

43. **Comment:** Evidence in the rulemaking record demonstrates the significant adverse economic impact these regulations will create. (NMMA)

Agency Response: The commenter appears to imply that the ARB could only conclude that there will be significant cost impacts. Although the commenter's consultant, National Economic Research Associates (NERA), has introduced evidence in the record, the ARB, based on substantial evidence in the record, has rebutted NERA's conclusions. The commenter's specific arguments regarding cost impacts on the marine industry and cost-effectiveness that NERA identified were considered during the hearing and are also addressed in response to comments 30, 31, 32, 36, and 37. As described in response to Comment 42, the Board concluded based on other, substantial evidence, that the proposed regulations will not have a significant cost impact on the marine engine industry. The primary difference between NERA's analysis and ARB's was that NERA relied on speculative cost and market responses to the increased price of the new technology engines, whereas ARB compared the price of engines that were already on the market that meet the adopted standards. By this process, we were able to show the actual price increase between similar complying and non-complying products. From this type of analysis, ARB staff was also able to show that the public was willing and able to purchase these new technology engines and that the increased price made little difference to the consumer.

44. **Comment:** Our products are relatively low volume and diverse, making a product line change very expensive and complicated. (Mercury Marine)

Agency Response: The ARB agrees that modification of low sales-volume products to meet the proposed regulations will be comparatively more expensive. However, product line changes are a natural part of the marine engine business due to the competitive nature of the industry. Also, if product line changes for cleaner-burning engines are needed, these changes will already be implemented because of the U.S. EPA requirements. Additionally, there is sufficient lead time to distribute the costs and refine available technology (see also response to Comments 2, 3, and 5. Overall, the ARB does not expect these costs to significantly impact marine engine manufacturers.

45. **Comment:** We believe there are no environmental reasons to lower emissions standards beyond the second tier standards but that there will

be extraordinary economic consequences should the third tier standards be adopted. The cost estimates that NMMA has presented are equivalent to the U.S. EPA's estimates two years ago, when the U.S. EPA concluded that to lower standards beyond the Tier 1 levels would devastate this industry economically. Both jobs and businesses may be affected by this regulation, and we believe it is extremely important to have confidence in the assessment of the economic impact of this decision. (NMMA)

Agency Response: The emission benefits of the marine program are significant, leading statewide to an emissions benefits of 110 tons of HC plus NOx per summer weekend day in 2010. This will rise to 161 tons per summer weekend day in 2020, as the fleet becomes comprised of mainly Tier 3 engines. Nor will these standards result in extraordinary or unreasonable economic consequences. The cost-effectiveness of these regulations is well within the range for previous emissions control regulations and range from \$0.32-\$3.57 per pound of emissions reduced for Tier 3 controls (Staff Report pp. 57-59).

46. **Comment:** The ARB must consider the economic impact of the regulations on the accessories manufacturers. The ARB must balance environmental needs with economic needs. (Boat/Accessories Manufacturers)

Agency Response: There is currently a high demand for the newer marine engines, which have greatly increased fuel economy and are quieter than older engines. Manufacturers of boating accessories are likely, therefore, to experience little, if any short term declines in sales as a result of the marine program. Staff does recognize that for those manufacturers who produce performance aftermarket engine accessories, there will now be additional costs for certification and for engine testing. These manufacturers will now be required to certify that their products do not cause the engine's emissions to exceed those produced by an unaltered engine. This certification is identical to that required of all automobile aftermarket parts manufacturers and is no way specific to this rulemaking.

47. **Comment:** This regulation will impose monetary hardship on manufacturers doing business in California. (Thomas G Jones)

Agency Response: The ARB determined that there will be a monetary impact, but that it will not be significant (see Staff Report pp.53-59; 66-72). Further, staff notes that such an impact is based on a comparison between implementing ARB's regulation versus not introducing new emission control requirements for marine engines. The watercraft regulations are similar if not identical to other on- and off-road emission

control requirements in that they require monetary investments by the interested parties.

48. **Comment:** Industry will quit doing business in California. (Sunset Marine)

Agency Response: The ARB disagrees. California makes up approximately 10 percent of the nationwide watercraft sales, represents the second largest market in the country, and is generally the leader for new product development. Further, the emission control technology required for California regulations is likely to be required in other states and countries in the future making it important for manufacturers to maintain a product line compatible with California standards.

49. **Comment:** Boston Whaler supports a wide range of environmental efforts at the local and national levels. Most boat manufacturers do. A negative economic impact from drastic regulations from ARB would result in decreased revenue and a decrease in funds to support a clean environment. Putting people out of work or restricting the waterways does not seem to be in anyone's best interest. (Boston Whaler)

Agency Response: The ARB appreciates Boston Whalers support of environmental efforts. Currently, there are outboard engines on the market capable of meeting ARB's 2008 standards for most of Boston Whaler boats. The ARB agrees that "drastic regulations" could lead to decreased financial support by the boating industry for environmental programs but views the proposed regulation as falling far short of drastic. This regulation does not restrict access to waterways.

50. **Comment:** These regulations would result in two groups who profit (manufacturers and the State, who gains new sales tax and registration fees) and one group who pays (the resident who must purchase and register new equipment). It is suspicious that one of the "profit" groups is trying to force this into law. (Lonnie P Vanley)

Agency Response: The ARB disagrees. First, the manufacturers are on average unlikely to profit directly from this regulation because there are developmental costs associated with meeting the emission standards that they will have to pass onto the consumer. Because the industry is competitive and sells to sophisticated buyers, attempts to raise prices by more than the manufacturer cost of meeting the standards will in all likelihood fail. Indeed, the manufacturers are concerned about a decrease in sales with a consequent pressure on profits and would probably prefer that the marine program not exist at all. Second, it is uncertain whether tax revenues for California will increase or decrease as

a consequence of the marine program but it is clear that the people of California will reap a significant benefit in improved air quality. Third, this regulation is formulated in a way that uses normal fleet turnover as the driving force. Under this regulation, consumers will replace their existing marine engines at a rate not greatly different from what would have occurred in the absence of the marine program.

2. Effect on Businesses

51. **Comment:** The ARB disregards the economic health of the recreational boating industry. The impacts on small business were ignored; only the impact to manufacturers was considered. The ARB should carefully consider the economic impact of these regulations. (SCMA, NCMA)

ARB's economic analysis did not indicate any economic impact on small businesses. We believe this is inaccurate. (MOAA, SCMA, NCMA)

The executive officer's findings regarding cost or savings to government agencies, small business and private parties are inaccurate. (BBAC)

Agency Response: The ARB's economic analysis properly focused on impacts to parties directly affected by the regulations, i.e., those manufacturers that would incur costs in reasonable compliance with the regulations. Nonetheless, the ARB did evaluate indirect impacts to small businesses. These impacts may include a loss in sales due to increased product cost and a possible shortage of product. At the time staff completed its economic analysis, new technology engines capable of meeting both the Tier 1 and 2 standards and in some cases even Tier 3 standards were commercially available to the public. Marine engine dealers indicated strong demand for the clean technology engines. Information gathered by staff indicated that consumers were willing to absorb the increased cost of these new technology engines. In addition, because most dealers carried several product lines, any shortage in one manufacturer's product line could be made up for by product from another manufacturer. For these reasons, staff did not believe these issues posed any significant economic hardship on small businesses.

52. **Comment:** The decision to ban personal watercraft will have a drastic financial impact on my dealership. (B&B Cycles)

Agency Response: This regulation does not ban any watercraft including personal watercraft.

53. **Comment:** Even large boats may be affected by these regulations. Large boats have dinghies with outboards. If people think they cannot get outboards, they will not buy new boats. (Beneteau)

Agency Response: Although it is true that the proposed regulations will impact dinghy-sized motors, the ARB believes that outboards suitable for dinghies will be readily available. For this reason, it is unlikely that members of the public will be restricted from purchasing new boats because of a lack of outboards for associated dinghies. At this time Mercury Marine, Honda, and Yamaha offer 4 horsepower 4-stroke engines, and Honda also offers a 2 horsepower 4-stroke engine. These constitute the smallest sizes of engines typically used with a small dinghy that may be stored on a large boat. All of these engines have emission levels below Tier 1 and Tier 2 emission standards and some emit lower than Tier 3 emission standard levels.

54. **Comment:** Boating and related businesses account for the employment of nearly 200,000 Californians and contribute \$11 billion annually to the State's economy. Serious economic hardships will result if ARB's current proposed regulation is adopted. (OMC)

Agency Response: The ARB agrees that boating and related businesses are a significant contributor to the California economy but disagrees with the assessment that there will be serious economic hardship resulting from the marine program. The ARB believes that while some added cost and reduction in sales may result from the Tier 1, 2, and 3 standards, these effects will not strongly impact California consumers and businesses. For a complete discussion of ARB's analysis of economic impacts see the Staff Report (pp. 66 – 72). See also response to Comments 42 and 47 regarding impacts on manufacturers, Comment 51 on impacts to small businesses, and Comment 59 regarding impacts on dealerships.

55. **Comment:** The outboard manufacturers have expressed concern that they will be unable to meet California's demand for new technology by 2001. The manufacturers will have fewer engines for sale, which will reduce boat sales. This sales loss will negatively impact small businesses located in rural communities near lakes and reservoirs. (BBAC)

If the manufacturers are correct in predicting that a short supply of engines will result from the proposed regulations, then total sales will be reduced. This would likely impact boat sales personnel and support staff of small and large marine businesses. This impact would appear in both the recreational boating industry (currently valued at \$11 billion) and in

boating-associated businesses such as motels, restaurants, and service stations. (BBAC)

There will be an indirect economic impact of unpredictable strength on accessory service and supply companies. We believe the economic impact study prepared by staff is seriously flawed because the effect on dealer and service firms was not evaluated. Any action that blocks or delays the sale of a boat has an adverse impact later on purchases of marine goods and services. We see serious consequences for the many small marine businesses in the State and request that the Board reconsider the regulatory proposal. (SCMA)

The impact on small business could be very serious due primarily to reductions in sales volumes from limited product availability, higher prices, and/or customer confusion. (Sunset Marine, Anglers Marine, Specialty Marine, Galaxie Marine, Bert's, Mountain Motorsports, Galey's Marine Supply, Mikelson Yachts, California B.A.S.S. Federation, BBAC, Mom & Pop, Product Line)

Agency Response: The ARB agrees that manufacturers may indeed have fewer base engines for sale but that products in each class of interest will be available. Manufacturers expressed concern that they will have trouble meeting California's demand based on their current distribution allocation. However, manufacturers certainly make enough products to meet California's demand if they choose to alter their distribution efforts. Given California's unique air quality problems, staff does not believe this to be an overriding hardship to manufacturers, especially since net profits on engines redirected to California should be similar to profits from out-of-state sales.

Since consumers spend an average of six months researching the purchase of a new marine engine, they are clearly not entering into the decision lightly and are making a substantial commitment to the purchase long before the actual acquisition. It is likely that such consumers will respond to a temporary industry-wide shortage in the product of their choice by deferring the purchase or accepting a waiting list status rather than by abandoning the sale. Thus, a temporary supply shortage could lead to a temporary decrease in total sales but integrated sales taken across the shortage would not strongly suffer. A similar behavior would be expected for boating associated accessories. Since there are no restrictions on the use of existing watercraft imposed by these regulations, the ARB does not expect that boating-associated businesses around the waterways (such as motels, restaurants, and service stations) would be impacted in any substantial way. See also response to Comment 51 regarding effects on small businesses.

56. **Comment:** Within the last two years we have observed a decrease in the sales of outboard motors relative to 1992-1997 levels. Sales had been increasing by 15 to 30 percent per year. In 1997, this increase disappeared, and in 1998, sales dropped between 15 to 20 percent. These sales decreases closely corresponded to the economic concerns detailed in others' comments regarding the proposal. (Craig Jacobsen)

AB 2439 has already caused a dramatic sales drop this year for outboards. Further regulations may cause small companies to go out of business. (Ron's Marine Service Center)

It is inevitable that there will be a significant decline in sales when the new emission laws are implemented. This approach is too draconian. (Steve Long)

Agency Response: The decline in outboard sales in California during the last year is part of a national trend separate from the ARB's marine program. Prior to the ARB marine program, data from the Department of Motor Vehicles shows that new boat sales of registered vessels in California have been decreasing since 1997. These declines may reflect a variety of factors including demographic trends, economics, and market saturation. It is anticipated that some sales losses may in fact occur as the emission standards are implemented due to the cost of meeting them but, even assuming that the industry's current elasticity is pertinent, such losses should be moderate. The ARB is aware that consumer confusion can affect sales and has actively pursued and will continue to pursue opportunities to inform the public concerning the importance and nature of the marine program. Since there are commercially available marine engines in most classifications that can already meet Tier 1 standards, the ARB believes that although there may be shortages in specific product lines, consumers will be able to acquire a suitable marine engine for their recreational use in a timely manner.

57. **Comment:** The proposed Tier 3 standards will be very expensive and will cause major reductions in California sales of outboard motors and personal watercraft. These sales reductions will strongly impact California consumers and dealerships. (NERA)

The typical OMC dealership in California is a small business employing less than 10 people, selling less than \$100,000 in outboard motors (generally under 50 horsepower) each year. Two recent surveys conducted by OMC of its 132 California dealers and its 7500 registered owners show that a large number of dealers anticipate employee layoffs or business closures if outboard sales are reduced by 50 percent for two

years. In addition, many of our customers indicated that if the proposed regulations negatively impact the purchase experience, either due to higher prices, reduced product choice, or uncertainty regarding waterway access, they will likely forego the purchase of a new outboard. (OMC)

Agency Response: Staff disagrees that the added cost for Tier 3 engines will cause major reductions in watercraft sales. There are engines currently on the market that are capable of meeting the Tier 3 standards. There seems to be no problem with the cost of these engines with respect to the customers purchasing them. In addition, staff has already committed to a technology review in the 2005 timeframe which will take a closer look at manufacturers progress at meeting the standards as well as the market conditions and impacts to California businesses. See also response to Comments 55 and 59 regarding product availability and consumer purchasing considerations.

58. **Comment:** Anglers contribute more than \$3 billion for goods and services in the state and the implementation of regulations that restrict two-stroke engines would result in a loss of revenue for those small businesses we patronize. I hope that the Board will carefully consider the enormous economic consequences of its actions before a final decision is made. (Anglers)

Agency Response: The ARB agrees that anglers make a significant contribution to the state's economy. However, the marine program does not restrict the use of existing two-stroke engines so that small businesses patronized by anglers owning two-stroke engines can have a reasonable expectation that the anglers will continue to fish over the next decade whether or not they choose to purchase a new outboard engine.

59. **Comment:** The marine proposal will put most marine dealers out of business. (Craig Clinkenbeard)

Agency Response: Staff disagrees. Staff assumes this is in response to marine dealers concern of lack of product or high product cost. Most manufacturers currently have products that meet the 2001 and 2004 standards. In the upcoming years, staff expects a significant amount of additional complying products to be available from all manufacturers. With regard to increased cost, new cleaner burning outboard engines have been on the market for over two years and clean four-stroke engines have been on the market for years. Initial contacts with boat dealers indicate that the public has had little problem with the increased cost and in most cases there is a waiting list to receive these new engines.

60. **Comment:** Restricting the resale of two-stroke outboards will slow manufacturers' ability to produce new technology engines and force small businesses to close. (Ecto Marine)

Agency Response: This regulation does not restrict the resale of two-stroke engines nor of the sale of new two-stroke engines that comply with California's marine program emission standards.

61. **Comment:** Boating restrictions and/or the public perception of boating as polluting will be detrimental to my business. (Boat/Accessories Manufacturers, Premier Marine)

Regulations leading to boating restrictions or creating a negative public perception of boating will have a detrimental effect on marine lending. (Finance Companies)

Agency Response: Almost all activities involving the use of internal combustion engines are inherently polluting. The consumer recognizes and accepts this provided that there is effort over time to reduce the deleterious effects of operation. The fact that every passenger car pollutes does not prevent the vast majority of Californians from owning and operating cars. The marine program should help foster public perception of boating as a recreational activity that is both healthful and friendly to the environment.

ARB notes that this regulation does not restrict any boating usage and does not dictate public perception. To help alleviate any public confusion or misunderstanding, ARB has developed an extensive public outreach program for watercraft. In addition, ARB is working extensively with the water agencies to correct any misconceptions regarding this regulation. Furthermore, since most waterways in the state will continue to be accessible to all marine engines, the ARB does not expect that financing for marine engines will become more restrictive as a result of this regulation.

62. **Comment:** The average marina is family-owned and operated with a very small profit margin. Approximately 11 percent of all marina revenues come from the sale of boats, and an additional 31.7 percent from slip rentals. Of these slip rentals, 28 percent are for outboard motor powered boats. Additional revenues are gained through boat and personal watercraft rentals. The more difficult it is to boat, the more people will leave this sport to do something that is easier and requires far less preparation. (MOAA)

The profit margin for marinas is small. Marinas make a significant portion of their income through outboard rentals. Regulations need to be “workable” and not impose an undue burden on marina operators. (Marina Operators)

Agency Response: The ARB agrees that if members of the boating public believe that they cannot use their boats at their usual marinas, the marinas may be adversely impacted. The most important safeguard against this type of economic impact is the distribution of pertinent facts to the boating public. The ARB began and is continuing to be heavily involved with an outreach program at local boat shows and similar events. Information can also be obtained through the extensive materials available on our website (www.arb.ca.gov/regact/marine). It is important to note, however, that the ARB’s marine program does not restrict the use of existing marine engines and, therefore, businesses that rely on rentals will be able to continue doing so, provided that no water agency has imposed restrictions on their use.

63. **Comment:** Small businesses cannot withstand extended periods of doubt, confusion or erratic supplies. (SCMA)

Agency Response: Staff agrees but sees no reason for this to occur. To combat confusion and doubt, the ARB has been very proactive in their public outreach efforts as noted in the response above. Although the ARB cannot guarantee the supply of new products, it is recognized that manufacturers do have the capability to supply enough new technology products to meet California’s needs. This may require them to either increase their manufacturing capacity or alter their current distribution of new technology products that may have been distributed throughout the globe.

3. Effect on Consumers

64. **Comment:** The ARB Staff Report gives improper consideration to the financial impact on individual owners of two-cycle engines that are not employing new technology. It is too burdensome to those individuals. (BBAC)

Consideration of the financial impact on individual two-stroke owners was not properly performed. The proposed regulations are too burdensome to individuals. (Clear Lake Chamber of Commerce, Greater Lakeport Chamber of Commerce)

The ARB has not considered the economic impact on affected user groups and the businesses that depend on those groups. (Thomas L Coss, Jay Liu, Ben C French)

Agency Response: The ARB thoroughly considered the social and economic impacts of this regulation and found them to be acceptable due to the significant environmental benefits that will be derived. (Staff Report, pp. 66-72). These regulations apply primarily to engine manufacturers who have demonstrated an ability to develop and market engines that are capable of meeting all of our standards. These engines are currently available in the California market. One of the reasons that the ARB emphasized rules that apply primarily to the manufacturers of new marine engines and, therefore, yield emission benefits only upon turnover of the existing fleet is to minimize the economic impact on owners of existing products. A similar philosophy has been used in regulating passenger cars. Owners of marine engines manufactured before January 1, 2001, are not economically penalized by regulations applicable to new model engines thereafter, but the air quality will improve over time as it has with light duty vehicles because normal fleet turnover eventually leads to replacement of the older engines.

65. **Comment:** Although the Staff Report accurately states that there is no direct impact on recreational boaters from this proposal, there is an indirect cumulative impact that will happen very quickly after the label program is adopted. Not only is there an additional cost of the engines, boaters will have to go out and purchase these new engines very soon after you adopt the standards, whether they would otherwise need a new engine or not. That makes it even more important that if you are to adopt a decal program, it must be understandable by the consumer. (Recreational Boaters of California)

Agency Response: The ARB agrees that the boating public is concerned about this regulation and its impact on their access to waterways. However, the ARB does not believe that the public will be adversely affected in their ability to go boating and fishing. The standards themselves are to be met by the manufacturers, and the ARB agrees that costs for new boat engines might increase somewhat to pay for research and development as well as any increased manufacturing costs. Nothing in the regulations prevents the continued use of existing engines. With respect to an understandable label, staff led an environmental labeling working group comprised of representatives from manufacturers, dealerships, and water agencies to develop clear and meaningful consumer and environmental labels that will be visible and understandable by the public and water agency personnel. For a

description of the labels, see the Second 15-Day Notice Section 2443.3. See also the response to Comment 67 on labeling.

66. **Comment:** With the adoption of these regulations, existing engines become unsaleable and have no trade-in value. In addition, these regulations could lead to the potential to require smog-check type inspections. Such requirements were not specifically stated in the regulations so that the full impact of the costs would be minimized. (Parks & Recreation)

Agency Response: The marine regulations impose no constraints on the use of existing engines. Therefore, the engines have and will continue to have economic value. Moreover, two-stroke engines that do not conform to California standards for new marine engines will continue to be manufactured for sale in other states. Therefore, even if the sale of existing two-stroke engines had been curtailed in California, which is not the case, there would still be resale value for unmodified two-stroke engines. Finally, while smog-check type inspections are one of many regulatory options the ARB could pursue under proper authority, they are not included in these regulations and evaluation of these impacts would be speculative at best.

E. Environmental Labeling

1. Need for Labels

67. **Comment:** Since labels are included in the federal regulations, they are an unnecessary cost factor in the ARB regulations. (BBAC)

The federal program includes emission labels, so unique California labels should not be required. Instead, the dealer should explain the differences between engine types. (BBAC)

Agency Response: The U.S. EPA requirement is for an engine certification label with information regarding compliance with the federal emission standards. The label is applied to parts of the engine that would not be readily observed by the consumer. The ARB marine engine regulation also requires an engine certification label with necessary information for enforcement purposes about compliance with California's emission standards. The ARB requirements for an engine label are similar to those of the U.S. EPA but even here the information content is unique because ARB standards and/or time frames differ from those of the U.S. EPA. California's regulation regarding certification add little to the existing burden.

Consumer and environmental labels are also required by ARB's marine engine regulation. They must be applied to a highly visible location and provide information about the relative cleanliness of each production engine. A consumer label, or hang tag, is a nonpermanent label that provides basic information at the time of purchase about emissions from the engine, including a description of the relative emission levels. The environmental label will be a permanent label applied at a visible location on the hull or engine cowling. The label will clearly indicate compliance with California's Tier 1, 2, or 3 emission standards. The hangtag and environmental labels provide the consumer with uniquely visible information not available from the federal labeling program. Leaving explanations solely to dealers would potentially lead to varying interpretations and quality of education. By requiring the hang tag, there is a baseline of information that all consumers can access and upon which the dealers can expand if requested to do so by the consumer. This information will not only inform the public about relative emission levels from marine engines, but also provide a tool for water agencies to identify clean engines if there is a need to protect waterways from pollution. The engine certification, consumer and environmental labels are, therefore, essential cost factors.

68. **Comment:** The labeling provisions should be eliminated. (BBAC, CMDA, Anti-Label, WBSG, Apex Group)

I have 3,140 signatures on a document stating that we fully reject the proposed outboard multi-tiered labeling system. It labels people. (BBAC)

The labeling system is complicated and confusing. It discourages public acceptance, provides no air quality benefits, and does not enhance performance in any way. (SCMA)

Labels will have a significant detrimental impact on existing boaters. Boaters with new technology could also be negatively impacted. (Apex Group)

"Three tier ticketing" of outboards, ostensibly to prevent non-existent water pollution, is an apparent attempt to curtail those in declining years and those who cannot afford to buy new engines from recreational fishing, which as guaranteed as a right upon public waters by California's constitution. (Stanley R Radom)

The label provisions are confusing. (John's Custom Marine, Apex Group, Recreational Boaters of California)

Agency Response: The ARB disagrees. The labels, as modified in the final regulatory package, are clear and simple, showing the emissions benefit of the particular labeled engine. In addition, a hang tag is required on every engine that precisely explains what the labels mean. The labeling program will help consumers make environmentally conscious decisions about planned purchases. It is a market-based approach designed to educate the public as to the emission levels of differing engines. It was developed with the help of water agencies who needed a way to distinguish between the older technology engines that have a negative effect on California's drinking water and ecosystems and newer, cleaner technologies.

69. **Comment:** It is unfair to label existing outboards with respect to the pollution they produce. (Rick Meyer, Ward Zelhart, R Simmons, Water Resorts Inc)

Agency Response: The labeling program is not required for existing engines. However, per industry's request, ARB altered this regulation to allow manufacturers who can demonstrate that their engine meet Tier 1, 2, or 3 standards to use the appropriate clean engine labels prior to the 2001 model year. See Section 2443.2 in the First 15-Day Notice.

70. **Comment:** In addition to the existing emissions labels, the ARB should work with the CEC to develop an energy-labeling program. (Sierra Club, EHC, EDC, BWN)

Agency Response: The ARB originally investigated an energy labeling system. However, because there was so much variability in the usage and type of boat an engine was placed on, it would be very difficult to develop a meaningful program using currently available data. The ARB notes that technologies currently available and others likely to be developed to meet the emission standards will inherently reduce energy consumption significantly.

2. Impact of Environmental Labels

71. **Comment:** Consumers fear labels will be used to restrict waterway access. (NCMA, Apex Group, Scott Simpson, David McMonigle)

The multi-tier label program would restrict access on reservoirs and lakes to only boats with "ultra low emitting engines." Only new technology four-strokes would be allowed. This is a potential ban of all engines manufactured before 2001. (WBSG)

Labels will restrict the ability of people to recreate and hurt them financially. The label requirements should be eliminated. (Dave Munro)

The tiered labeling proposal is particularly unfair to people who customarily buy used and older technology products. The labeling proposal is going to stigmatize and target those older technology, lower-priced engines. As the water agencies restrict access to older technology engines, people will have to stop fishing, which will result in severe economic hardship for the businesses and send an economic ripple throughout the State. (Hooked on Fishing)

These labels may be misused by government or private entities as a basis for prohibiting access by particular personal watercraft models to riding locations or areas despite the absence of any meaningful difference in potential environmental impacts. (Kawasaki)

Do not effectively ban existing personal watercraft. (Tom Gardner)

Agency Response: It is not the intent of the ARB to, and the regulations do not, restrict usage of existing outboards or personal watercraft. Some water agencies with particularly sensitive aquatic habitats have felt compelled to limit the amount of gasoline and combustion byproducts that enter the water by imposing restrictions on boating. These restrictions are not new, many having been in place for more than a decade. Currently there are less than 10 lakes/waterways in California with restricted access based on environmental concerns. A list of currently restricted sites may be found on the California Department of Boating and Waterways internet site at www.dbw.ca.gov (click on the “Two-Stroke” button). These are measures that would be enacted or contemplated with or without ARB regulation. The labeling program provides water agencies with an option to reevaluate their restrictions and allow increased boating access. The labeling program makes it much less likely that outright bans on two-stroke engines will be promulgated. The ARB also notes that actions that protect fish habitat ultimately benefit those who fish.

72. **Comment:** 75 percent of California’s surface drinking water supplies are vulnerable to two-stroke pollution. The labeling program offers managers and impacted districts an excellent and enforceable tool to protect drinking water sources from MTBE and other toxic compounds. (Earth Island Institute)

The multi-tiered labeling program gives California’s water agencies in charge of sensitive reservoirs and waterways the ability to avoid unpopular access restriction programs. (ACWA)

Given the current situation with MTBE, the water agencies are going to have to ban recreational boating of all kinds if they have no way to discriminate between clean and dirty engines. (Union of Concerned Scientists)

Most boaters are not aware of the level of pollution emitted by their boats. Labels will enable boaters to choose to protect their waterways and fish habitat. (Earth Island Institute)

Agency Response: The ARB agrees. In order to ensure a reduction of contaminants from various craft in potable water supplies, a number of local governmental entities have either adopted regulations or are currently considering the adoption of regulations limiting craft to one extent or another. In part, these actions are motivated by a concern over the utilization of MTBE in gasoline and its adverse effect on water supplies leading to increased water treatment costs. The labeling concept affords water agencies a regulatory mechanism on the local level by which risks to the water supply can be managed in a fair and systematic manner. The absence of an appropriate labeling program will result in outright bans in the use of personal water craft so that local water agencies can avoid the potential liability that they would otherwise be exposed to from their consumers. The ARB also agrees that there are other compounds as or more toxic than MTBE that are of concern to water agencies.

73. **Comment:** Existing outboards will be stigmatized as polluters, with little economic value. Boaters often lack funds to buy new engines, especially when the regulations have virtually eliminated the value of their current engines. (Recreational Boat Owners, David Park, Wayne McGowen)

Under the proposed regulations, existing two-strokes will have little or no value. (SVMA)

The tiered labeling proposal is going to amount to property devaluation and is going to result in a de facto ban. (Hooked on Fishing)

The permanently fixed labels should be eliminated. They stigmatize boat owners, and can be used to restrict access of boats to certain areas, essentially devaluing the existing engines. (James Haussener)

Agency Response: The ARB agrees that when new, improved technologies are developed, the value of older technologies tends to decline. However, since the regulations do not restrict the usage of existing technology engines, the ARB does not believe such declines should be excessive over the long term.

74. **Comment:** If accepted as written with the intent to restrict the activities of my outboard, either by the actions of this Board or water agency, the result of the labeling program will be the devaluation of my property. This will take place without compensation and thus become a subtle form of confiscation of private property by the government. These types of actions are discriminatory and treat individuals in an unfair manner. (BBAC)

Will the labels result in an unusable, effectively confiscated, engine?
(Bernie Richter)

Agency Response: The ARB's regulations do not restrict access to any lake or waterway. The devaluation of existing engines, if any, would be a likely result of consumer fears regarding current and potential water agency decisions and the introduction of new technology engines. If anything, the ARB's regulations should reduce the likelihood that water agencies will prefer outright bans (without the regulation) over use restrictions (with the regulations). Any time a new consumer product is introduced which is significantly better than the previous model, the older model loses a significant amount of its value. Because the ARB's regulations apply only to manufacturers of engines produced in model year 2001 and thereafter, and existing engine owners have no property that the ARB is regulating, the regulations clearly do not unconstitutionally take private property.

75. **Comment:** If labeling is adopted, most users would not buy another outboard but would instead retain the old engine. (NCMA)

Tiered labeling on outboards risks slowing down the transition of new technologies and making the air and water quality worse in the near term. (California B.A.S.S. Federation)

Agency Response: The ARB disagrees. The ARB believes that, given readily available information, boaters will wish to protect the ecosystem and will select cleaner craft over dirtier engines, where available. This will enhance the emissions benefit of the marine regulations. Since newly purchased engines will more likely be allowed on currently restricted waterways than existing engines, the ARB sees no reason to suppose that the presence of a multi-tier labeling system should delay new engine purchases.

76. **Comment:** The labeling requirements will make it more difficult for our members to sell slow-moving inventory from previous years. (CMDA)

The labeling requirements should be eliminated. These labels will make existing personal watercraft inventories unsaleable. (CMDA)

Agency Response: While this may, in fact, occur, the ARB regulations do not prohibit the sale of existing inventory and imposes no time scale on the effort. The availability of labeled engines may even increase sales to out-of-state consumers who like to frequent California waterways.

77. **Comment:** Labels take the authority for regulating the reservoirs away from the local agencies and mandate access through law, as with the Bowen Bill. (BBAC)

Agency Response: The ARB disagrees with this statement, because the authority remains with the local agencies, not with the ARB. The label program in part empowers local agencies by providing them with additional flexibility in responding to the boating public on the one hand and the needs for safe drinking water and preservation of aquatic habitat on the other.

3. Need for Multi-Tiered Labeling Program

78. **Comment:** A single, simple label is least confusing to consumers. The water districts have been unable to provide any scientific data that more than a single label is needed. (Mercury Marine)

The proposed multi-tiered labeling program will result in many reservoirs and lakes banning clean burning engines that are not quite as clean as the “cleanest”. This places a burden directly on consumers. A single label for both direct injection 2-stroke and 4-stroke motors is a much more efficient tool. (Craig Clinkenbeard)

A single label on the rear of the engine cowling should provide visibility and engine identification at a more reasonable cost with a more viable possibility of aesthetically acceptable graphics. (Honda)

NMMA supports a single simple environmental label, but has concerns about the multi-label systems because the consumer may not know if a particular craft can be used on the waterways of interest. (NMMA)

The ARB should require a simple hang tag espousing the benefits of new technologies, not a multi-tiered guilt tag. (SVMA)

Agency Response: As noted in the response to Comment 72, multiple labels will enable the water agencies more discretion, which will minimize any potential need for waterway restrictions. Further, multiple labels

provide a market driven approach to promote cleaner burning watercraft purchases through public education. Currently, boaters need to contact the California Department of Boating and Waterways to determine the nature of any restrictions on the waterway they are interested in using. This will not change under the new regulations.

79. **Comment:** The multi-tier label program makes faulty distinctions between engine classes which all achieve low emission levels and meet applicable ARB standards. (Kawasaki)

Agency Response: Staff disagrees. There is a significant difference between similar size engines that have different environmental labels. Engines that meet a Tier 2 level are 20 percent cleaner than are those that meet Tier 1 standards. Similarly, engines that meet a Tier 3 level are 65 percent cleaner than engines meeting Tier 1 standards.

80. **Comment:** NMMA opposes ARB's third tier emission label because water quality concerns would chill purchases of engines not meeting that emissions level and instead proposes a two-label approach, a handbook to help water districts identify existing "clean" engines, and an analysis of water quality impacts by the end of 2002. (NMMA)

The existence of Tier 3 labels will discourage people from buying a cleaner (Tier 1 or Tier 2) engine, just because the cleanest engines Tier 3 engines are not yet available. The actual emission performance of all these engines is on a continuum, so when you award the third label, you have just discouraged the purchase of an engine that will be a gram or so higher than that. The third tier label will cheapen the environmental progress made by all the other engines. The Tier 1 label will even be cheapened relative to the Tier 2 label. (NMMA)

The proposed 2008 limit and the related labeling provisions inappropriately focus on the relatively small differences between the various clean engine technologies, rather than on the considerable environmental benefit associated with any of the clean engine technologies. (OMC)

Agency Response: The ARB believes its Tier 3 label will have no additional chilling effect on purchases beyond the chill currently caused by water agencies that are banning 2-stroke engine use outright because they have no practical means to differentiate the relative cleanliness of such engines. In fact, adoption of the proposed third tier label may increase sales overall because consumers may currently be postponing purchase of any marine engine until they see what water agencies will require. The water agencies have also indicated a preference for the

simpler, more effective identification mechanism that the three-tiered labeling system would provide. Finally, the water agencies' have demonstrated that their concerns over fuel components in water should not wait till 2002 to be addressed. See also Comment 81.

The 2008 Tier 3 standard provides significant emission reductions for California and therefore warrants promotion. Labels stating the emission levels for automobiles have been used for several years and have not discouraged the public from purchasing new products.

81. **Comment:** The environmental labeling program is an extremely important program, because it provides water agencies a tool to enforce restrictions in certain classes of high polluting engines on California reservoirs, and it also provides consumers the information they need to select the cleanest engines possible. Our members want that information, and we believe all boaters should have the right to easily select the cleanest motor. One of our colleagues will provide you with over 700 letters from our members who support this regulation, including the three tiered labeling program and the 2008 standard. (BWN)

Multi-tiered environmental labeling enables consumers to make an informed decision about the emission performance of the engine that they purchase. (Coalition for Clean Air, MECA)

Giving special recognition (labels) to cleaner engines will promote the development, introduction, and purchase of marine equipment with lower polluting engines. (MECA)

The environmental labeling program will help our reservoir operators easily distinguish between cleaner engines and dirtier engines. We believe this system is a good way of maintaining water quality while still allowing recreational boating on reservoirs. It is our opinion that this system would be most effective if it were multi-tiered. Since we do not know how water quality or the emissions from boats translate into water quality, the tiered labels will allow us more flexibility when meeting our water quality goals. While a single label would be the easiest to implement and enforce, it would only provide one level of control, after which a complete ban would be the only alternative. (ACWA)

The three-tiered program will allow the flexibility to establish the degree of engine "cleanness" required for an engine to be permitted use of a specific reservoir. This system maximizes the flexibility of reservoir managers. (East Bay MUD)

Water quality agencies are not required to use the labels. They are merely a tool that some may use to meet water quality standards should gasoline-related contaminants be found to exceed goals set by the district or the government. Waterway restrictions are not going to be widely implemented or required. (ACWA)

We believe that the three-tier label approach provides adequate time for industry to respond and gives regulatory agencies and water agencies the necessary tools to manage and protect water quality without restricting recreational use. (Lahonton RWQCB)

Agency Response: The ARB agrees.

4. Specific Label Requirements

82. **Comment:** We believe that the color, appearance, and size of the label on the engines should be at the manufacturers' discretion. (Mercury Marine)

The proposed label is too large for the smallest outboards, physically as well as aesthetically. If the label was more reasonable in size (two inch diameter) or of a different shape, we could use the ultra clean label on engines sold in all 50 states. (Honda)

Agency Response: The ARB has worked with representatives from the marine industry and local water agencies to make the label more aesthetic and to define some characteristics to ensure consistency in usage. See the First 15-Day Notice, Section 2443.2. The size requirement was modified as part of the first 15-day Notice for engines of 15 horsepower or less so that these labels now need to be no more than 2"x1 $\frac{2}{3}$ ". The new labels should fit on the cowling of the small engines. If not, the label may be wrapped around the back of the cowling. The color scheme was left to the discretion of the manufacturer because different companies have different well established color schemes for their products and it was not the ARB's intent to generate serious aesthetic difficulties in the labeling provisions.

83. **Comment:** It should be acceptable to use the ultra low emission label on any applicable engine whenever it becomes available in the market. (Honda)

Existing engines that have been certified by the U.S. EPA or can be shown from previous test data to be low, very low, or ultra low emissions should be able to use the appropriate label. (Honda)

Agency Response: Staff agrees. The regulations currently allow for this, providing certification-quality data is submitted to ARB. The ARB has incorporated the request for use of appropriate labels into the regulation. Manufacturers will need to provide certification-quality data on the engine, and manage the distribution of the labels. See the First 15-Day Notice Section 2443.2.

84. **Comment:** There needs to be a defined and simple method to replace labels that have been damaged in shipping or in customer use. (Honda)

Agency Response: All labels are required to withstand typical environmental conditions in the locations on which they are affixed for the engine's or watercraft's useful life. Also, accidental damage (e.g., tools or sharp instruments coming in contact with the label) must be considered when selecting an appropriate location for the engine label. Such damage is not expected to occur in the prescribed locations for environmental labels due to their distance from serviceable components. Nonetheless, the regulations currently allow manufacturers to provide replacement labels that have been damaged. These labels will be similar to those originally found on the engine and will include a serial number on them. This allows enforcement agencies to monitor for possible abuses to the labeling program.

F. Environmental Impact

1. Effect of ARB Standards

85. **Comment:** These regulations are based on the earlier outboard and personal watercraft inventories, which ARB staff acknowledge were too high by a factor of approximately two. The new inventory estimates more than justify dropping the Tier 3 standards. (Mercury Marine)

Agency Response: Staff disagrees. The Board approved a new watercraft inventory at the hearing that preceded this regulatory item. This inventory was based on the best available inventory information at that time. Because the ARB is required to obtain the maximum achievable emission reductions, the inventory only plays a part inasmuch as cost-effectiveness is concerned. Even at the new lower inventory, the Tier 3 regulations as discussed in the Staff Report (pp. 33-58) were found to be technically feasible and cost-effective.

86. **Comment:** Our analysis shows 3 to 6 tons per summer day difference between Tier 2 and Tier 3. Tier 3 is too risky in terms of the impact on the industry and is too small environmentally to be worth the risk. (NMMA)

Tier 3 offers a relatively small additional improvement. For example, the 150 horsepower engine has a 123 grams per kilowatt-hour reduction for Tier 2, but only an additional 21 gram kilowatt reduction from Tier 3. The third tier standard focuses too much attention on the relatively small differences between the clean engine technologies. (OMC)

The water quality differences using normal operations in most water districts will not be materially different between Tier 2 and Tier 3. We are talking about a 5 percent difference in air emissions. (NMMA)

The incremental environmental benefits of the proposed 2008 limit are marginal at best. (OMC)

Agency Response: The ARB is uncertain as to the source for NMMA's estimate of three to six tons a day or a 5 per cent difference in emissions benefit. However, it is consistent with an estimate for an average annual day associated with Tier 3 benefits statewide in 2010. The relatively modest benefit in 2010 is a consequence of the fact that Tier 3 standards are not imposed until 2008 and those engines meeting the Tier 3 standards would constitute a relatively small percentage of the in-use fleet. Still, that benefit alone would be sufficient to justify seeking cost-effective Tier 3 standards as were proposed here. By 2020 when the Tier 3 engines would represent a significant percentage of the in-use fleet, there will be 30 tons per average annual day emission reductions. For an average summer weekend day when the activity levels for watercraft and the ambient ozone concentrations are both at high levels, emission benefits attributed to Tier 3 would be 106 tons. These are very large benefits. The ARB considers the emission benefits accruing from Tier 3 standards as significant, necessary for improved air quality and technologically feasible. See the Staff Report (pp. 33 – 59)

Another way to view the incremental effect of Tier 3 standards is to use the lifetime emission benefit for each new engine. As an example we will use an average 3-15 horsepower outboard engine for this comparison. The lifetime emission benefit in using an engine that meets ARB's Tier 1 standard rather than the federal standards is 293 pounds of HC + NOx emissions. In addition, a Tier 2 engine provides a benefit of 156 pounds over a Tier 1 engine and a Tier 3 engine provides an additional benefit of 126 pounds over a Tier 2 engine. As you can see both Tier 2 and Tier 3 standards lead to emissions benefits that are a significant compared to Tier 1 standards by themselves. This is also reflected in the cost-effectiveness, which would be \$0.85/lb of HC + NOx for federal → Tier 1, \$1.60/lb for Tier 1 → Tier 2 and \$1.98/lb for Tier 2 → Tier 3 for engines in the 3-15 horsepower range.

The ARB has no comment on the water quality differences between a Tier 2 and Tier 3 engine. Water quality issues and usage will need to be addressed by the various water quality control boards. However, staff does disagree that there is only a 5 percent difference in air emissions between these two types of engines. There is a 65 percent decrease in HC + NOx emissions between a Tier 2 and Tier 3 engine.

87. **Comment:** The difference between the Tier 2 and Tier 3 reductions are significant, perhaps 18 tons in 2010. It is not trivial, as NMMA would have you believe. (Union of Concerned Scientists)

Agency Response: The ARB agrees with the Union of Concerned Scientists that significant benefits are to be gained by proceeding with the Tier 3 requirements in 2008.

88. **Comment:** The emissions impact should be based on scientific facts, not “media-based” claims. (Stephen Barry)

The information about emissions in the Staff Report is inconsistent with that in other sources. (Ronald LaForce)

Marine engines typically operate for only a fraction of the boating day. Sampling data showing pollutant emissions must be factored by the duty cycle of the pollutant emission source. This has not been done. (Thomas L Coss)

Do not target 2-stroke marine outboard engines without hard scientific data that use of such engines has in fact polluted the atmosphere. (Stanley R Radom)

Agency Response: The watercraft emissions data presented in the Staff Report to support the proposed standards were derived from marine engine manufacturer’s data submitted to U.S. EPA to certify their engines for national sales. The emissions inventory data that includes estimates for current levels and forecasts to the future with and without controls are described in detail in “Emissions Inventory for Pleasurecraft Report, 1998.” The emission factors, activity patterns, engine load characteristics, and population distribution are consistent with national models that were developed by the U.S. EPA with participation by representatives from NMMA and, therefore, represent the best available information for these sources at this time.

89. **Comment:** The proposed regulation will retard the turnover of the existing marine engine fleet. This will delay progress towards attainment of improved air quality in California. (OMC)

OMC is particularly concerned that ARB's confusing multi-tiered environmental labeling program will place significant doubt in the mind of prospective customers, simply because the dealers will not be able to assure potential buyers that every low emission engine will be usable on local reservoirs. The certain result of fostering this public uncertainty will be a reduction in sales of new technology engines and the retention of relatively high emitting existing technology engines by would-be purchasers. This will delay the emission inventory reductions associated with marine engine turnover. (OMC)

We will not have the environmental benefit you think if the consumers retain their current engines. (CMA/CCSB, SVMA)

The proposed regulations will cause motors to be unavailable and/or to cost more, thereby resulting in longer retention times and a delay in environmental benefits. (California B.A.S.S. Federation, Craig Clinkenbeard)

The increased cost of the new technology will cause longer retention of old polluting motors. The ARB should consider the economic and environmental impact of this action. (Galaxie Marine)

We believe that by raising the cost of new engines, older, high-emitting engines will simply remain in use for longer periods. (Bernie Richter)

Agency Response: The marine program encourages innovation and the development of new technologies by setting emission standards that must be met in order for manufacturers to sell marine engines in the state of California. New engine purchases are encouraged to the extent that manufacturers provide consumers with improved performance, fuel economy and/or reduced maintenance relative to the engines currently owned by consumers. It is important to remember, however, that the purchase of a new engine does not mean that an old engine will be removed from the fleet because it can and in many instances will be resold to a new owner within the state. These older engines are removed from the fleet in the course of time as the engines exceed their useful life span. Thus, even if a single owner were to retain an older engine for a somewhat longer period than he/she might otherwise have done, this will not extend the useful lifetime of the engine nor, on average, the rate at which the engine would have been removed from the fleet. Thus, the

emissions disbenefit associated with increased longevity is expected to be minimal.

90. **Comment:** The ARB program will have increased costs with no air quality benefits. Accelerating the transitional period, the extended warranty provisions, the redundant recall provisions, and labeling provide no air quality benefits nor do they enhance performance in any way. (SCMA)

Agency Response: The marine program is not intended to require enhanced performance of marine engines although it is possible that some will result from R&D designed to address the emissions standards. The ARB does agree that there are increased costs but the cost-benefit analysis presented in the Staff Report (pp. 53-72) makes it clear that the costs per pound of emissions reduction are comparable to or better than those of past ARB regulations. Hence there are substantial air quality benefits. The four year (or 250 hours of use) warranty period for emissions related parts is to ensure that emissions are controlled over a reasonable percentage of the lifetime of the engine. Although longer than U.S. EPA requirements, the ARB's warranty period is still only a modest percentage of the useful lifetime of a personal watercraft (9 years) or an outboard engine (16 years). The "redundancy" in recall provisions with U.S. EPA's program is an intentional harmonization with the federal requirements. The ARB's spark-ignited marine engine program builds upon and extends the federal standards and where there is overlap the ARB explicitly chose to be consistent with U.S. EPA requirements. The rationale for differences in the labeling requirements and accelerating the federal time frame is considered explicitly in the response to other comments (e.g., Comments 1 and 67)

91. **Comment:** The SIP notes the need for the development of additional advanced technology measures (black box) for the SCAB to provide an additional 75 tpd HC+NO_x reductions needed to reach attainment. According to the Staff Report, the marine engine category is less than 10 percent of the State's mobile source emissions inventory, yet is being asked to provide nearly 50% (31-35 tpd) of the 75 tpd requirement. This is a disproportionate burden. (OMC)

Has the ARB established sufficient basis under the SIP, including adequate quantification of the expected air quality benefits, to justify the extremely costly technology-forcing nature of this proposed regulation? (OMC)

Agency Response: The "black box" is a construct intended to represent the level of air pollution control necessary in California. Actual measures

needed to meet air quality goals will vary as the assessed effectiveness of current emissions controls changes. The measures taken in the proposed regulations will not impact the 1994 “black box” because emissions from the marine category are much higher than predicted in the 1994 SIP. In addition, SIP measures were developed in response to requirements of the California Health and Safety Code. Section 43018 of the California Health and Safety Code requires the state board to achieve the maximum degree of emission reduction possible from mobile sources in order to accomplish the attainment of the state air quality standards at the earliest practicable date. Although it is recognized that the reductions required for the watercraft industry may seem disproportionate, many other industries have previously been regulated and are already required to accomplish similar or greater reductions.

The 31 tons per day cited by the commenter refers to emission reductions in 2010 for an average summer weekend day in the South Coast Air Basin. This is a very important indicator of how large the emissions reductions are when the activity from this source is very high, as it is during the summer months, but it is not the appropriate basis for evaluating any implications that the marine program may have for the SIP. Finally, it is worth noting that although 9 tons per average annual day in the South Coast Air Basin would be a significant but proportionate reduction, it will not be possible to credit any of these emission benefits against the “black box” reductions (i.e. the basis for the marine program does not flow from SIP requirements).

92. **Comment:** The proposed 2008 Tier 3 standards are not particularly relevant to ARB’s 2010 SIP compliance demonstration. (OMC)

Staff has tried to reassure us that they will not submit the third tier as part of the State Implementation Plan. Once you have adopted a control measure, particularly after you say in the Staff Report how much it is needed for the SIP, how can you not use it in the SIP? Does staff have the authority not to submit something into the SIP? (NMMA)

NMMA also opposes the Tier 3 standard because ARB will not be able to remove the 2008 standard after it is in the SIP, regardless of the outcome of the scheduled technical review. (NMMA)

Agency Response: The ARB did not undertake the marine program solely to meet SIP requirements for 2010. Spark-ignited marine engines constitute a significant source of emissions. The ARB agrees that the full benefit of the Tier 3 standards will not be reached until some years beyond 2010. Nevertheless, the interim benefits still exist. In their comments, NMMA cited a figure of 3-6 tons per day additional reduction

in 2010 from the Tier 3 standards. While the ARB believes this is a low estimate, the ARB has developed entire rulemakings in the past to achieve reductions of this and lower magnitudes.

Contrary to the NMMA's assertion, the recent 1994 SIP suit (Coalition for Clean Air v. South Coast Air Quality Management District, et al.) is not pertinent here for three reasons. First, ARB settled with the plaintiffs, leaving no judicial determination to rely upon. Second, whatever principles the settlement stands for would not apply to amendment of Tier 3, which the ARB does not currently intend to submit as a SIP revision. Finally, even if the ARB submitted and the U.S. EPA approved Tier 3 as a SIP revision, the U.S. EPA has allowed the ARB to loosen such standards provided we make up any shortfall in emissions reductions.

2. Environmental Impact from Boats

93. **Comment:** Distinguishing between the various low emission technologies based solely on dynamometer measurements of HC + NOx emissions, does not take into account the real world fuel efficiencies gains associated with lighter weight technologies, and does not provide a fair comparison of all regulated pollutant emissions. This is a subjective process that potentially provides the consumer with misleading information about the overall environmental benefits of a particular engine. (OMC)

Agency Response: Staff agrees. Because there are potentially an infinite number of engine/boat/usage combinations, it is impossible to account for each of them. For this reason, ARB adopted a standardized test cycle that was adopted by U.S. EPA and developed by the marine industry as a basis for certification and engine comparisons. Although we recognize that there is a potential that some inaccuracies may exist, we further recognize that it would not be cost-effective to have manufacturers or enforcement agencies test each and every possible combination of engines, boats, and their associated usage. We think manufacturers would agree.

94. **Comment:** Based on anecdotal evidence, Freedom Motors believes that the duty cycle used to estimate the emissions performance of the marine engines underestimates average loading cycles for engines in this application, and hence, underestimates emissions. (Freedom Motors)

Agency Response: Staff concurs with this assessment, but decided to adopt the same test cycle as U.S. EPA in order to provide a cost-effective proposal for industry. In the future, as more data become available, the

duty cycle for outboard engines and personal watercraft may be improved accordingly.

95. **Comment:** How do emissions from boat operations compare to the average car or sport utility vehicle (SUV) in California? (James Haussener)

Agency Response: The operation of a 100 horsepower personal watercraft or high horsepower outboard for 7 hours results in more ozone-precursor emissions (HC + NO_x) than the operation of a 1998 passenger car over 100,000 miles. The corresponding mileage for a 1998 SUV is less dramatic, due to less stringent controls on these vehicles for that model year but the comparison is still quite impressive.

96. **Comment:** With the exception of MTBE, 2-stroke engines are essentially inert in the waters in which they operate. Less than 2.5 percent of the fuel enters the water column, not 25-30 percent as claimed by the ARB, and what does enter the water column dissipates relatively rapidly. The exhaust HC remains in the water too briefly to cause aquatic damage. At Lake Tahoe, three-tenths of one percent of the amount of hydrocarbons in the air can be attributed to two-cycle engine operations. And because of that, and because of a very well-financed, very slick, very well-done campaign of propaganda, they ban two-cycle engine operation in the lake. (Russell Anders)

Agency Response: Based on scientific studies published by the Tahoe Regional Planning Agency, the ARB disagrees with this assessment of the quantity and fate of unburned hydrocarbons and exhaust emission in the water column. More importantly, watercraft are a significant source of air emissions. Based on the latest emissions estimates, outboard and personal watercraft engines would produce 342 tons of HC + NO_x emissions per summer weekend day in 2010 without ARB's regulation. The 2010 levels represent the equivalent of 40 percent of the emissions from passenger cars during the same time period. See the Staff Report (pg. 61).

97. **Comment:** My 1998 2-stroke engine is cleaner than most 4-strokes available today. All marine engines, both 2- and 4-stroke, burn oil and fuel. Today's 2-strokes are more efficient and cleaner burning than most 4-stroke inboard/outboard vessels, including all Honda 4-stroke outboards. (Wesley A Sheehy)

Agency Response: The ARB has no opinion on the emissions produced by the commenter's engine; however, his statement appears to run counter to abundant evidence provided by the manufacturers.

Regardless, the ARB places no constraints on the technology chosen by manufacturers to meet emission standards. The certification process will ensure that engines sold in California will meet the applicable standards in a quantifiable manner regardless of the technology used.

98. **Comment:** Most auxiliary motors for sailboats are used only to safely exit the harbor, and have little impact. Outboards in general cause minimal damage compared to other emission sources such as motor vehicles and stationary sources. (Berkeley Marine Center)

We have over 300 boats in the marina. Most of them outboard-powered. The water is clean enough to drink. I have been drinking it for almost 30 years. (Dave Munro)

The pollution generated by existing outboards is “extremely insignificant” compared to the value of family recreation. (Water Resorts Inc)

Agency Response: Even a low horsepower outboard motor has a significant environmental effect. For example a 4-horsepower outboard motor emits 320 grams of hydrocarbons per hour of operation. A 1998 passenger vehicle averaging 35 miles per hour emits less than 6 grams of hydrocarbons per hour. Although the ARB acknowledges the great value in family recreation, the ARB is mandated to consider air quality as its first priority. The emissions from watercraft during a summer weekend day represent a significant fraction of total statewide hydrocarbon emissions and are forecasted to be equivalent to 40% of emissions from all passenger cars on a weekend summer day.

Reservoirs of safe drinking water in California must be kept as clean sources of potable water. In some bodies of water, this requires restrictions on boating activity. In others, no constraints are necessary. The ARB agrees that many reservoirs in the State are capable of handling current boating levels with existing two-stroke engines while remaining clean enough to drink. However, there are also water bodies where this is not the case and restrictions on activity may need to be considered by the responsible water agency.

G. Consumer Impact

1. Boat Owners

99. **Comment:** The staff’s identification of stakeholders in this process neglected to include the boat owner. Why weren’t we considered part of the stakeholders in this whole situation? (James Haussener)

The stakeholders of the process include the agencies, manufacturers and retailers, conservation and recreational organizations and the public, the most important stakeholder in the process. The boat owners/public were not part of the rule development process. The consumer must be confident that if he buys a new motor, he can use it to recreate on local lakes and waterways. (California B.A.S.S. Federation)

Agency Response: The ARB disagrees that the boat owners were not involved in the regulatory process. This regulation included several public meetings and notices in which all members of the public including individual boat owners were invited. In addition, several boating magazines and boating associations ran articles explaining the proposed regulations and included the address and appropriate contact people within ARB who could respond to individuals' concerns.

100. **Comment:** The Board and the staff should go out into the public to explain their position. The ARB should attend the upcoming trade and boat shows to explain your positions directly to the buying public. (California B.A.S.S. Federation)

Agency Response: The ARB recognizes the need to inform the public about developments in emissions standards. The ARB has undertaken extensive outreach for the marine engine program since December 1998. The ARB has conducted meetings with manufacturers, sent representatives to boat shows throughout the state, given presentations to dealership associations, conducted public hearings, developed fact and FAQ sheets for public distribution, and established a website (www.arb.ca.gov/regact/marine) with continually updated information.

101. **Comment:** The proposed regulations do not strike a balance between the concerns of the environment and the interests of boaters and the boating industry. (Best Management)

Agency Response: The ARB disagrees. The motivating force behind the marine program is the reduction of emissions to the air from an important and previously unregulated source category. However, the time lines and standards were developed with the participation of interested parties in the industry. Possible direct impacts on members of the boating public were a significant consideration at each step of the process during rule development.

102. **Comment:** I would encourage you to proceed cautiously in making sure that the rights of boaters like myself are protected so that we are not made to feel like second-class, unwanted citizens who care little about the

environment or California's recreational waters. While we understand that you do not intend to ban existing outboards like mine, your actions in publicly condemning these engines and their operators as horrific polluters are an affront to boaters like myself. (Family Life)

Agency Response: The agency has taken the utmost care to ensure that all California citizens' rights are protected. Further, staff made no attempt to condemn anyone for their choices or actions with regard to boating.

1. **Comment:** The regulations will pose a hardship to fishermen and to the poor. (Berkeley Marine Center)

Agency Response: The ARB disagrees that the regulations will pose a hardship to individuals who fish or who are of limited economic means, as the regulations do not restrict the use of existing engines that such individuals may currently possess. As new, cleaner engines are produced for sale and environmentally conscious boaters who can afford to do so upgrade to the new technology, a greater number of quality used engines at lower cost should also become available.

2. **Comment:** This regulation will have a major negative impact on our recreational freedom (Thomas G Jones)

One of the major tenets of the Clean Water Act is to provide for recreation in and on the water. Any approach that fundamentally contributes to the exclusion of people from being able to recreate in and on the water is going directly against the Clean Water Act. (California B.A.S.S. Federation)

Agency Response: This regulation does not exclude any person from using California's waters.

2. Boat Bans

3. **Comment:** Although the regulations do not ban existing two-stroke use per se, the effect of calling two-strokes polluting will be that the existing two-strokes will be banned from many waterways. (Anti-MTBE/ban)

There is public concern/uncertainty about making current engines obsolete. (Jim Segel Yacht Sales)

There should be no restrictions on pre-2001 watercraft use on any waterways. These waterways can become cleaner through boat attrition. (Mike Velasquez, Art Peters, Jim Wood, Clear Lake Chamber of

Commerce, Greater Lakeport Chamber of Commerce, Sally Robertson, R Gary Rounds)

Existing products on the market should be grandfathered. Existing outboards should not be banned. (Anglers Marine, David McMonigle, Anti-Ban, Anti-MTBE/ban)

Existing watercraft should be grandfathered as has traditionally been done for other mobile sources, such as automobiles. There should not be restrictions of the use of older craft so long as they continue to perform to their designed capacity. Such grandfathering will avoid disturbing individuals socially or economically. (BBAC)

This proposal will ultimately ban all old-technology boats (David McMonigle)

The ARB should not ban existing two-strokes. (Anti-Ban, Anti-MTBE)

I am concerned that the proposed standards may make my new 1998 motor unusable on many of the waterways I fish. (Ben C French)

Agency Response: The regulations do not restrict the use of existing engines, and water bodies currently allowing existing engines will generally continue to do so. The engines will become obsolete as market development of new and better engines ultimately leads to the replacement of the current fleet. The air quality will improve through attrition. It is, however, within the purview of local water agencies to limit use to the extent necessary to guarantee safe water quality. It would be inappropriate for the ARB to attempt to restrict the ability of local agencies to control water quality by requiring that they permanently grandfather access for existing watercraft. For especially sensitive water bodies, it is vital that local water boards have flexibility in dealing with water quality issues.

4. **Comment:** While emission reductions are important, the standards must not restrict the use of two-strokes by anglers. (Anglers)

The ARB should not ban outboards. (Hooked on Fishing, Recreational Boat Owners, Michael Howard, Joel Walls)

The ARB should phase out the old technology such that only new compliant equipment is available when new boats or engines are purchased instead of the regulations as proposed, which render our boats useless. (Mark Ensley)

Agency Response: There are no provisions in the regulations that ban existing 2-stroke engines. When a new engine (of model year 2001 and beyond) is purchased, it must comply with the new regulations. Existing engines, including those manufactured before the 2001 model year, may be sold (and resold), and used until they are retired.

5. **Comment:** The proposal should include existing watercraft, which will continue to have adverse effects on air and water quality in California. (John Hodge)

Agency Response: It is the ARB's position that taking advantage of the natural cycle of fleet turnover provides the best opportunity to improve emissions with a minimum of disruption to users of the affected equipment. Standards are, therefore, developed for models to be produced and sold in California in future years so that the consumer is automatically participating in a process of improving air quality through the purchase of new models. Promulgating a regulation for the retrofitting of existing equipment is generally effective only when the necessary retrofit technology is already available and retrofit costs are relatively low.

6. **Comment:** To ban 2-stroke outboard and personal watercraft engines before OEMs can replace the old technology with the new is not the way to solve the water and air pollution problem. The new engine designs will eliminate 20-30 percent of the unburned fuel that enters the exhaust of a piston port engine.

Agency Response: This regulation does not ban any personal watercraft or outboard engines. Currently personal watercraft and outboard manufactures are capable of meeting Tier 1 emission standards today. In addition, many outboard motor manufacturers can also meet Tier 2 and even Tier 3 standards today. We agree that the new engine designs are capable of eliminating significant amounts of emissions.

H. Alternate Approaches

1. U.S. EPA Program

The U.S. EPA adopted emission standards for spark-ignited marine engines that began in 1998, which will ultimately reduce emissions from this category by 75 percent. This program is described in Section I. Many commenters (see Comment 1 and the Agency Response) suggested that the ARB not move beyond the federal program.

2. NMMA's Proposal

7. **Comment:** In June of 1998, NMMA proposed an alternative to the staff proposal under development at that time, which significantly exceeds the federal standards while preserving the economic viability of the industry. (NMMA)

Our members believe they can meet an emission level that is 20 percent below the U.S. EPA curve. That target achieves an 85 percent reduction from uncontrolled levels, and will address both air quality and water quality concerns. Anecdotal evidence suggests that these levels are adequate to meet the water quality standards, but the industry will continue to respond to appropriate water quality concerns, just as we would to air quality concerns. (NMMA)

The NMMA's proposed emission standards for 2004 are 20 percent below the U.S. EPA 2006 model year requirements, and provide an aggressive program for reduced emissions from marine engines in California. (Russell Anders, CMDA, Jim Contzen, Hooked on Fishing, Governor Thompson of Wisconsin, Assemblymember Dennis Cordoza letter, Assemblyman Rico Oller letter, John Jay, OMC, NCMA/CCSB, NMMA, Jacobson-MCMA, SCMA, Suzuki, Yamaha)

Manufacturers have proposed that they can reduce emissions by 20 percent below the U.S. EPA standard by 2004. Why not approve this proposal that will avoid a business disaster? (B&B Cycles)

ARB should eliminate the Tier 1 and Tier 3 standards and adopt NMMA's proposal to achieve emission levels equal to 80 percent of the U.S. EPA 2006 standards by the 2004 model year. (OMC)

The ARB should adopt the NMMA plan of meeting the federal 2006 standards in 2004. (CMDA, BBAC)

The ARB should accept the NMMA proposal to achieve emissions equivalent to 20 percent less than the 2006 federal standard in 2004. (Assemblymember Dennis Cordoza letter, Assemblyman Rico Oller letter, Tim Rice)

Agency Response: The ARB reviewed NMMA's proposed alternative and found that it does not provide the emissions reductions benefits needed for California, as described in the Staff Report (pp. 73-76). Furthermore, the ARB found that ARB's regulations do not threaten the viability of either the directly impacted manufacturers or the parties indirectly affected, as described in the Staff Report (pp. 66-72). The ARB

considers the emission reductions obtained through the adopted program are necessary to meet California's air quality goals, are feasible as demonstrated by currently available technology, and can be achieved in a cost-effective manner compared to emission controls for other emission categories (see Staff Report at pp. 45-58). The spark-ignited marine engine category comprises a significant source of emissions for HC + NOx statewide, as described in the Staff Report (pp. 60-65). The adopted proposal results in the elimination of over 30 more tons per day of HC + NOx emissions over NMMA's proposal (see Staff Report at p. 76). It would not be equitable to require other sources to bear the burden of control for this category, which is essentially what eliminating or deferring the standards would require. While the marine industry would prefer that California not adopt standards significantly more stringent than U.S. EPA's, California's significant air quality problems require more stringent controls.

8. **Comment:** The ARB should adopt a variety of incentive programs to help achieve needed emission reductions. The focus should be on accelerating fleet turn-over. Two programs that could really encourage investment in future technologies and greater technology transfers throughout the industry are a universal credit program and a clean air investment fund. In place of the proposed MY 2008 standard, NMMA proposed that ARB adopt a "universal trading credit" program that allows manufacturers to generate and trade surplus credits for engines that beat a benchmark of 65% below the EPA curve. A clean air investment fund can be used to reward those people who bring technologies to you early, between now and 2004. This would bring more new technologies to market, as opposed to demonstration projects. (NMMA)

An existing engine retirement program will provide earlier and more substantial benefits than the premature forcing of incrementally expensive, unproven, and potentially infeasible engine technologies. (OMC)

Agency Response: The marine program imposes no constraints on how manufacturers achieve progressively more stringent emission standards for new engines. There is, therefore, substantial flexibility built into the regulation that provides great incentive for innovative solutions. The ARB is very supportive of manufacturers accelerating the introduction of cleaner engines into the market, since this will improve the environment. There are, however, two basic problems with the specific suggestion of early engine retirement incentives. First, the difficult task of obtaining a source or sources of funding for such a program must be successfully negotiated. Second, the program must have a mechanism by which only high-use engines are replaced. There is no emissions benefit to be gained in the exchange of an old but unused engine for a new one. The

ARB is not, however, opposed in principle to innovative techniques such as early engine retirement incentives and may revisit the idea in the future.

This program does include a provision for corporate averaging which is similar to a California specific universal trading credit program. Whereby on a year-by-year basis, manufacturers can use a form of credits generated by engines that are below the standards and use them to balance out emissions from those engines which do not meet the standard. See response to comment 136.

9. **Comment:** personal watercraft manufacturers are extremely concerned about ARB's proposed model year 2001 and 2004 compliance deadlines. They would accept alternative compliance dates of 2002 to meet the U.S. EPA curve on average and 2004 to meet 20% below the U.S. EPA curve provided that there is a technology review in 2000 to determine whether the standard is actually achievable or should be adjusted. (NMMA, Kawasaki)

Agency Response: The ARB understands the personal watercraft manufacturers' concerns, but found that the alternative dates and standards would not provide the emissions reductions benefits needed for California, as described in response to Comment 108. The ARB further acknowledges that not all personal watercraft manufacturers agreed with NMMA's proposal. During the course of the regulatory development, ARB investigated several companies that had technologies capable of meeting the Tier 1 standard. One such company was Polaris Industries, which has already certified a personal watercraft that meets the Tier 1 standards. Most other personal watercraft companies have licensed the same technology or have proprietary designs similar to that of Polaris which would allow them to achieve the same results, thereby proving that the Tier 1 standards are achievable and commercially feasible.

Staff expects further refinements to the Tier 1 technology as applied to personal watercraft will provide adequate emission reductions for compliance with the Tier 2 emission standards that are twenty percent lower than the Tier 1 emission standards. Most personal watercraft manufacturers will either utilize direct-injection or 4-stroke engines to meet the Tier 1 and Tier 2 requirements. Outboard engines using this same technology were capable of meeting the Tier 2 requirements with modest calibration changes and did not have to incorporate any further advancement in technologies. Staff expects this to be the case for most personal watercraft and therefore believes that a technical review in the 2000 timeframe is not warranted. Staff is committed to provide this type of review in the 2005, three years ahead of the Tier 3 requirement. This

will provide sufficient time for the personal watercraft manufacturers to fully research and develop the technology for complying with the Tier 3 standards.

10. **Comment:** The ARB alternatives analysis and reasoning rejecting NMMA's proposed alternative are conclusory and therefore procedurally deficient. (NMMA)

Agency Response: The ARB disagrees for two reasons. First, ARB has provided sufficient reasoning in the Staff Report for rejecting NMMA's alternative. The commenter sets up a straw man by stating that ARB could reject any alternative simply because it produced fewer emission reductions. Cal. Gov. Code § 11346.2(b)(4)(A), cited by the commenter, must be read in conjunction with the Legislative finding in § 11340(d). This finding states the Legislature's preference for more flexible performance standards over more burdensome prescriptive standards, if each produces the same result. The principal purpose of alternative analysis, then, is to ensure that the agency is not overlooking a more efficient way to achieve the same end. Since the emission reductions from NMMA's proposed alternative fall short of the emission reductions provided by the proposed and now adopted standards that the Board found necessary to meet health-based air quality standards, the analysis need go no further. But even if it did, ARB's standard is a performance standard that provides the kind of flexibility the Legislature envisioned.

Second, though the Staff Report reasoning provided sufficient support for the Board to reject NMMA's alternative, the Board was not limited to information contained in the Staff Report to support its rejection. Cal. Gov. Code § 11346.9(a)(3)-(5) require agencies to continue evaluating objections, recommendations and alternatives proposed after publishing the Staff Report, during the public hearing process. The Board thus considered numerous proposals, and its reasons for either accepting or rejecting them are described in detail in this document. In addition, Cal. Gov. Code § 11346.9(a)(4) again provides that agencies may reject alternatives like NMMA's that are neither more nor as effective in carrying out the purpose for which the regulation is proposed. The purpose of this regulation is to meet ARB's mandate to produce the maximum emission reduction possible from this source category. NMMA's proposal does not meet this purpose.

3. BBAC's Proposal

11. **Comment:** BBAC's alternate proposal includes a number of provisions. Under the BBAC proposal, ARB would require an increase over the U.S. EPA emission standards on January 1, 2004, to 80 percent of the U.S.

EPA 2006 emissions, which increases the California outboard emissions an additional five percent above the remainder of the United States. A series of workshops would be scheduled beginning in June 2003 where manufacturers, ARB staff and other interested groups would discuss updated and new technology to meet the 2004 standards.

Further, ARB would not require any further marking and/or tagging on the new technology outboards other than those required through negotiations between U.S. EPA and the manufacturers. The dealer would explain the fleet of two-cycle outboards with regard to exhaust emissions. A form similar to the truth-in-lending form could be used to confirm this practice between buyer and dealer did happen.

In addition, ARB would require that any mitigation concerning the new technology outboards that do meet the California emission standards would take place between the affected consumer and the manufacturer. The ARB should oversee the process to ensure fairness for both parties. Any fines collected by the ARB from manufacturers producing a noncompliant engine should be directed to the consumer.

The results of implementing these proposals rather than the staff's proposal are as follows. The time line of 2004 for implementation of U.S. EPA 2006 standards is two years or 25 percent earlier than the remainder of the United States. Raising the U.S. EPA standards from 75 percent to 80 percent in 2004 increases the cleanliness of the outboard engine by five percent over the remainder of the United States. A mechanism is in place to continue to clean up the two-cycle outboards after 2004 if the technology has further advanced. The projected fleet life is five years, 20 percent quicker than that projected by the U.S. EPA for the remainder of the United States.

This alternative proposal will be more effective and far less burdensome on the boating industry, related businesses or citizens. (BBAC)

Agency Response: The selected standards for the marine program are based not on what the emissions standards would be for the rest of the United States at a given time but rather on what is necessary to improve air quality in the state of California. The BBAC proposal would yield substantially lower emissions benefits than would the marine program and provide little incentive to the manufacturers for developing technologies necessary for reducing emissions. The ARB agrees that the BBAC proposal would be less burdensome on the boating industry but will not provide emissions benefit comparable to the ARB's cost-effective regulation. See also response to Comments 112 and 108.

12. **Comment:** We support the BBAC alternate proposal, as suggested in the letter addressed to you from Carter Fickes, dated December 6, 1998. Your acceptance of the BBAC proposal will be as effective and far less burdensome in the affected small rural community, such as ours, than the proposed current ARB staff recommendation. (Greater Lakeport Chamber of Commerce)

Hundreds of small businesses in the City of Clear Lake will be affected by the ARB regulations. We strongly support the BBAC alternative. (Clear Lake Chamber of Commerce)

Agency Response: The ARB's regulations including the labeling provisions do not affect individual lakes and communities unless their local lake adopts their own watercraft restriction policies. Such actions would be at the sole discretion of the individual water authorities that are beyond the control of the ARB. This regulation only requires manufacturers to supply California with cleaner burning watercraft engines that in most cases are already on the market and in high demand by consumers. These regulations are typical of other emission control regulations previously been adopted by the ARB. See also the response to Comment 112.

4. "Best Management" Approaches

13. **Comment:** The ARB should work with Cal/EPA, WRCB, Department of Boating and Waterways, water agencies, etc to develop a "best management" policy with reasonable limits and restrictions on volumes of watercraft. Phase-outs of old technology should be gradual. (Parks and Recreation)

The ARB must balance improving water quality with the interests of boaters and the right to access public waters. The ARB should use a "best management" approach to find a middle ground. (Senator Raymond Haynes)

The ARB should take best management practices approach to regulations on outboard motors. Requirements that are economically feasible and achievable will result in the greatest overall reductions in water and air pollution. (California B.A.S.S. Federation)

Our organization endorses the best management practices that are being adopted by the regional water districts as they address this difficult issue. (Recreational Boaters of California)

Our suggestion is that your dedicated staff and your skilled experts in this area develop a program that will facilitate the boaters' transitioning to the new equipment. The Department of Boating and Waterways that the recreational boating public funds to the tune of \$50 million of our gas tax monies every year, and we believe they can help work with you to develop that kind of approach. (Recreational Boaters of California)

In the UC Davis letter that came out about two weeks ago, the study that was funded, number seven requirement option of best management practice for surface water reservoir following the lead at Santa Clara Valley Water District, we support that. We think it is fair to the citizens of this State and of the counties and the cities. (BBAC)

Agency Response: These regulations do not dictate water districts' management policies. Further, the ARB does not have authority to dictate water district's management policies. Therefore, the agencies retain a full range of management options, including partial to full bans and usage restrictions. The ARB's outreach efforts are intended to facilitate transitioning to the new equipment that will be introduced to meet air emission standards.

14. **Comment:** The Board should call on the Governor to put together a multi-agency task force with all the stakeholders to find the best environmental and economic solution for clean air, clean water and recreation, and to start with the tenets of the Clean Water Act and have a policy that is fundamentally oriented toward inclusion of all outboards. (California B.A.S.S. Federation)

Agency Response: The ARB has found that multi-agency task forces can be effective. In fact, in developing this regulation, the ARB contacted and received participation from most of the agencies and other stakeholders that such a task force would likely include. However, the marine program places no restrictions on the use of any outboard and it is, therefore, unclear how a multi-agency task force would result in a different approach by the ARB with respect to this source category.

5. Bluewater Network's Proposal

15. **Comment:** We believe that ARB could tighten the Tier 2 standard to 12 percent below the proposed level to get additional emission reductions without causing any additional financial burden to the marine industry. Many outboards available today already meet the 2004 standard. As a side benefit, the environmental labeling program would become more symmetric, changing from "meeting, exceeding by 20 percent, and exceeding by 65 percent the U.S. EPA standard" to "meeting, exceeding

by 32 percent, and exceeding by 65 percent the U.S. EPA standard". (BWN)

The ARB should set a more stringent 2004 standard (an additional 12% reduction). (Sierra Club, EDC, Coalition for Clean Air)

Agency Response: Marine engines have not been previously regulated by the ARB and it is important that adequate time for developing new and/or enhancing existing technologies to meet the standards be made available to industry. While symmetry in the emissions reductions corresponding to different labels would be aesthetically pleasing, this must be balanced against realistic logistical problems for the manufacturers. Compliance with the 2004 Tier 2 standards will require additional refinements to existing technology for some of the marine engine product lines. Providing lead time and deferring the most stringent set of standards ensures that the manufacturers will be able to meet these standards without excessive developmental costs or product shortages.

6. Other Approaches

16. **Comment:** The ARB should adopt cleaner fuel requirements instead of emission standards. (James E Barrett)

Agency Response: In order to meet California's air quality requirements, it is necessary to develop both cleaner burning fuel and cleaner burning engines. The ARB is seeking both through regulation and other programs.

17. **Comment:** The ARB should develop incentives to promote the new technologies and new engine purchases. (California B.A.S.S. Federation)

The ARB should increase regulatory flexibility. Needed environmental goals should be met through technological innovation and education, not regulation. (United Outdoorsmen)

The ARB should use normal attrition and incentives to accelerate fleet turnover. (Apex Group)

The ARB should consider asking staff to come up with a program that can accommodate accelerated retirement of non-complying engines, perhaps a credit program of some type. (CCEEB)

We support proposals that encourage the maximum usage of technology to address emission issues in powerboats. We are also supportive of proposals that allow the maximum flexibility and adequate time that is

essential in order to meet the requirements without adversely affecting the boating industry and recreational use. (Board of Supervisors, County of Lake)

Agency Response: The regulations adopted by the ARB represent the best possible compromise between technical feasibility and cost-effectiveness. Watercraft engines have been on the market for over 20 years which are capable of meeting both our 2001 and 2004 standards. In addition, all new technology engines (4-stroke and 2-stroke direct injection) are capable of complying with this as well. Some 4-stroke engines already meet the most stringent 2008 requirements and one manufacturer has publicly stated that most of their 4-stroke and 2-stroke direct-injection engines will comply with the 2008 standards in the next couple of years. Further this regulation does not in any way restrict the use of existing boat engines that consumers may currently own.

In addition, the marine program provides a flexible blueprint that will lead to substantial decreases in emissions over the next decade. Corporate averaging and the 2005 technology review speak to flexibility. The marine program is also quite flexible in that it allows manufacturers to use any technology they choose in meeting emission standards. The standards force technological innovations by providing a specific target with a clear rationale for manufacturers. Based on manufacturers' efforts, many technological improvements have occurred which have been incorporated into this regulatory effort. Based on abundant and long-standing technical and historical experience, the ARB believes that the need for manufacturers to meet progressively more stringent emission standards will stimulate technological innovation and that the public will be interested in acquiring new cleaner engines. The ARB agrees that education is an important facet for achieving environmental goals.

Formal incentives generally require formal designations of funding which have not to date been identified. The ARB did not include buy-back options for old engines in the proposed regulation due to a lack of formally identified funds and a convincing analysis regarding the efficacy of developing such a program. The ARB recognizes that an early retirement program has the potential to be a useful part of emission reductions and may in the future revisit the idea for marine engines. See also response to Comment 109.

18. **Comment:** Since the ARB staff readily admitted during the rule development process that the 2008 requirements are not necessary to achieve the 2010 SIP goals, this regulation has clearly been developed on a discretionary basis. This should afford the agency and the regulated community the opportunity to achieve a technically and economically

feasible rule that retains flexibility to employ innovative techniques such as early engine retirement incentives. (OMC)

Agency Response: The ARB disagrees that the 2008 standards are discretionary. The ARB acknowledges that the 2008 requirement may not play a significant role in achieving the 2010 SIP goals. However, this is due to the fact that watercraft have a long useful life and in 2010, with only two years of 2008 compliant products in the marketplace, there would only be a small number of Tier 3 engines in the inventory. The 2008 standards when fully implemented provide a significant and cost-effective emission reduction strategy for California. See response to Comments 109 and 118 regarding engine retirement incentives.

19. **Comment:** The 2001 standards should be eliminated for personal watercraft. The third tier should be changed to 50 percent of the federal 2009 curve. (CMDA)

Agency Response: Staff disagrees. The commenter's suggestions do not provide the necessary emission reductions for California. See also response to Comments 10, 14, and 16.

20. **Comment:** Since the manufacturer's design problems resulted in these high-emitting watercraft, the manufacturers should pay for a trade-in program. (Wayne McGowen)

The suggested manufacturer-paid mitigation fees will be passed on the consumer, so it is really the consumer and not the manufacturer who is paying for old engine buy-back programs. Any mitigation should be between the affected consumer and the manufacturer. (BBAC)

Agency Response: The manufacturers' products met and currently meet all applicable emission standards. The basis for a trade-in program entirely at manufacturer expense is, therefore, unclear. This is not to say that a trade-in program is intrinsically bad. A market can be created for emission credits that at least partially defrays the cost of the program but additional funding sources would probably be required. Given the complexity and typically local control of buy-back and other accelerated turnover programs, the ARB did not introduce a buy-back program as part of this rulemaking. In addition, a source of funding for such a program was not identified. Also, there is the potential for buy-back programs to remove old engines that see little use and whose removal from the fleet produces little emissions benefit. The ARB remains committed to exploring buy-back programs for this and other categories which produce cost-effective and quantifiable emission reductions.

21. **Comment:** Modifications should be made to existing watercraft (retrofits) to make them cleaner. (Sally Robertson, R Gary Rounds)

Agency Response: It is the ARB's position that taking advantage of the natural cycle of fleet turnover provides the best opportunity to improve emissions with a minimum of disruption to users of the affected equipment. Standards are, therefore, developed for models to be produced and sold in California in future years so that the consumer is automatically participating in a process of improving air quality through the purchase of new models. Promulgating a regulation for the retrofitting of existing equipment is generally effective only when the necessary technology is already available and costs are relatively low. This would not be the case for existing watercraft at the present time.

I. Test Procedures and Regulations

1. Clarify Regulatory Language

22. **Comment:** It is not clear that replacement engines would be allowed. (BBAC)

The present regulation proposals would not allow some boat owners a replacement engine for their boats that have blown an engine, leaving the only option the boat owner has at hand is to rebuild his old technology engine, and that's perpetuating another 16-year lifecycle of the old technology engine. By ARB's own statistics, six and a half percent of the outboards in the fleet are replaced annually. The regulations should be clarified to allow replacement of all engines. (BBAC)

Agency Response: The ARB disagrees and believes that the regulations clearly identify their applicability to replacement engines. When an outboard engine is no longer useful, the boat owner is faced with either replacing or rebuilding the engine. The decision that is made is based primarily on economic and performance considerations. It is the view of the ARB that suitable replacement engines meeting the emission standards in effect at the time will be available to this consumer and that, therefore, the marine program will not impact directly on whether or not a replacement engine is purchased. As described in Section 2443.2 (e), replacement engines installed in watercraft that have been previously labeled in accordance with the marine engine regulation specifications, must have identical or improved emissions to that of the original certified engine.

23. **Comment:** Data obtained using the equipment and test procedures specified in the regulation should be considered to be valid and “official” whether generated by the manufacturer or the ARB. Section 2446(b)(2)(B) indicates that agency test data is inherently superior to manufacturer’s test data. (OMC)

Agency Response: Staff disagrees that the requirement to use the ARB’s test data as the official data for an engine implies that its data is inherently superior to that of the manufacturers. Due to the ARB’s role as the regulating agency, the use of the data is intended to reduce any perceptions of subjectivity. The ARB has consistently maintained this requirement in other regulated categories, and the language is almost identical to that provided in U.S. EPA’s Selective Enforcement Auditing regulations.

24. **Comment:** While the ECI label requirements in § 2443.1 are generally consistent with the U.S. EPA regulation, there are some confusing acronyms and superfluous text in § 2443.1 (c)(4)(G) for the ECI label compliance statement. Since there are already spatial constraints of some concern, OMC requests that the example language statement be revised as follows:

(G) An unconditional statement of compliance with the appropriate model year California regulations. For example, “~~THIS (specify LEE, VLEE or ULEE, as applicable pursuant to Title 13, California Code of Regulations, section 2443.1) ENGINE CONFORMS TO (model year) CALIFORNIA EMISSION REGULATIONS FOR SPARK IGNITION MARINE ENGINES AND IS CERTIFIED TO (specify FEL) g/Kw-hr HC+NO_x ENGINE FAMILY EXHAUST EMISSION STANDARD IN CALIFORNIA.~~” (OMC)

Agency Response: The ARB modified section 2443.1(c)(4)(G) in the 15-day Notice to accommodate the commenter’s stated concern.

25. **Comment:** The proposal to require year-round sampling is meaningless if the first two tests of the cum sum procedures indicate that no further sampling is required. If the manufacturer’s processes and normal quality audit procedures (e.g., ISO9002) are functioning, there is no need for year-round testing. We believe a manufacturer should be given the opportunity to demonstrate the existence of a proven sampling and test program and track record and receive an exemption from the year-round testing at the onset of the regulation, before implementing a year-round sampling program. (Honda)

Agency Response: Staff disagrees. Manufacturers produce their engines in batches throughout the year. If a manufacturer were allowed

to sample all of their engines during the first batch production, there would be no guarantee that there were no problems on the assembly line for engines produced several months later. Such problems could lead to engines with significantly higher emissions.

26. **Comment:** The U.S. EPA limits the maximum PLT percentage to one percent of the projected annual production. In recognition of the potential for low sales volume, California-only models to be created, and the need for a reasonable PLT sample population, OMC suggests the following alternative to § 2446(1)(B)(vii), which does not currently limit the percentage of actual production that may need to be tested for low sales volume engine families:

For engine families certified in California that are also sold outside of California, The the maximum required sample size for an engine family (regardless of the sample size, N, as calculated in paragraph (a)(1)(B)(i)) is the lesser of thirty (30) tests per model year or one percent of the projected national annual production for that engine family.

For California-only engine families not sold outside of California, the maximum required sample size for an engine family (regardless of the sample size, N, as calculated in paragraph (a)(1)(B)(i)) is the lesser of thirty (30) tests per model year or ten percent of the projected national annual production for that engine family. (OMC)

Agency Response: The number of engines selected for production line testing is determined by the California sales volumes of engines for each engine family. Section 2446 (c)(1)(A)(iv) requires manufacturers to either provide estimates of California sales or use actual California sales data. Because of this requirement, the number of engines tested is based on the actual or calculated sales of an engine family in California and does not include certified California engines that are sold outside of California. Staff recognized the need to reduce the production line testing burden for low volume engine families. During development of the regulations, including the 15-day change process, the staff incorporated several options that manufacturers can use for low volume engine families. Staff included the alternate quality audit engine selection method for production line testing, allowing manufacturers to choose the one-percent sampling option. Also, for manufacturers using the cumulative sum production-line testing procedures, engine families that have California sales volumes of 20 engines or less are not required to be selected for production-line testing.

27. **Comment:** The requirement in § 2446(a)(3)(E)(x) to report start/stop dates of batch production in the quarterly production line test reports is unnecessarily burdensome. This information should be required to be made available by the manufacturer subject to a demonstration of need by the Executive Officer. (OMC)

Agency Response: Staff disagrees that this reporting requirement is unnecessarily burdensome. Manufacturers record this number routinely; therefore, it should not be an unreasonable burden on manufacturers to report to ARB. This information will allow ARB to determine where the potential problems occurred on the assembly line. This is necessary in order to determine the environmental impact of a failure and enables ARB to determine the proper corrective action.

28. **Comment:** Test engine selection should be the manufacturer's obligation. To require that the Executive Officer select the engines would be nearly impossible to implement and suggests an inappropriate lack of trust. An approval process that involved the Executive Officer may be appropriate. (OMC)

Agency Response: Staff maintains that it is crucial that ARB be allowed to select engines for testing. Although ARB has no reason to mistrust industry, by allowing ARB to select the engines for testing, it removes any perception of improprieties. This process is conducted with Executive Officer involvement.

29. **Comment:** The requirement in § 2446(b)(4)(E) that a selected test engine must arrive at the test facility within 24 hours of selection is burdensome and in many cases infeasible. The norm should be changed to one week. (OMC)

Agency Response: Section 2446(e)(4)(E) allows manufacturers to request more time for shipment of engines based on a satisfactory justification.

30. **Comment:** OMC is concerned by the lack of coordination established between the proposed California in-use testing program and the federal program, and by the fact that there is no limit on the number of engine families that can be required. In use testing is costly, creates excess emissions to the environment, and results in unusable engines that are typically scrapped. Therefore, OMC requests that language be added to § 2444(b) as follows:

§ 2444 (b)(1) ... which is incorporated herein by reference. *The engine manufacturer shall notify the Executive Officer of the engine families identified by U.S. EPA for in use testing pursuant to 40*

CFR 91.803, within 10 days of the engine manufacturer receiving such notification from U.S. EPA.

§ 2444 (b)(2) The Executive Officer, may, *after review of the engine families identified by U.S. EPA for in use testing pursuant to 40 CFR 91.803, and upon sufficient notice to the engine manufacturer, prescribe that a California-specific ... if:*

§ 2444(b)(3)(A) The Executive Officer shall identify engine families and those configurations within families that the engine manufacturer must then subject to in-use testing for the specified model year, provided that no more than 25% of the engine manufacturer's Engine families certified in California are required to be tested between the U.S. EPA and California-specific in-use testing programs.

Agency Response: The California in-use testing program was harmonized with that of U.S. EPA wherever possible while maintaining its consistency with similar ARB programs for other regulated categories. It reduces an engine manufacturer's testing burden by allowing federal in-use data to be used for purposes of compliance. In cases where federal data is not appropriate (e.g., California-only engine families), the ARB will select engine configurations for testing. In the First 15-Day Notice of Modified Text, the maximum number of engine families to be tested was revised to be no more than 25 percent of the manufacturer's offering in California. Staff does not agree with the OMC's suggestion of a maximum limit of 25 percent of the families certified in California shared between the ARB and U.S. EPA. Primarily, because it would potentially leave no engine families available for California testing if U.S. EPA were to select the entire amount during its program. It is important to note that reduced testing will be allowed if the manufacturer demonstrates consistent in-use compliance.

31. **Comment:** Section 2444(b)(3)(B) potentially requires more in-use testing for low volume engines (11) than for high volume engines (10). This makes no sense. (OMC)

Agency Response: Section 2444 (b) (3) (A) was modified and made available for public comment in the First 15-Day Notice. Language was added to specify that the number of engine families for in-use testing shall not exceed 25 percent of the engine manufacturer families offered for sale in California. In staff's original proposal, allowances were also made for low volume engine manufacturers in Section 2444 (b) (3)(B) by further limiting the number of engines to be tested. For engine families of less than fifty engines for California sale or for engine manufacturers who

make less than or equal to 200 engines for California sales, a minimum of one engine per family must be tested provided this engine does not fail the emission standard.

32. **Comment:** It is not logistically possible to begin testing within one month after receiving notice from the Executive Officer. The seasonal nature of boating and the work required to locate an in-use engine or appropriate user all combine to make it necessary to have a minimum of 9 months and preferably one year within which to begin testing. We suggest harmonization with the U.S. EPA regulation on this issue. (Honda)

Agency Response: Staff agrees and modified Section 2444 (b)(3)(F) and made it available for public comment in the First 15-Day Notice. The period of time that is allowed for the engine manufacturer to begin testing was changed from one to twelve months after receiving notice from the Executive officer. This will allow sufficient time for the manufacturer to locate an in-use engine and begin testing.

33. **Comment:** The definition of “Useful Life” as 16 years for outboards and 6 years for personal watercraft makes it impossible to accumulate the prescribed service accumulation ($\frac{1}{2}$ to $\frac{3}{4}$ of useful life) within the nominal one year time frame allowed in section 2444(b)(3)(F) for completing the proposed in use testing obligations. This substantially increases the burden associated with in use testing and unnecessarily prolongs discovery and remediation of emission noncompliance discovered as a result of the in-use program. (OMC)

ARB should change its useful life for personal watercraft from 9 years to the 5 years adopted by U.S. EPA. This will avoid the need for separate certification tests for ARB and U.S. EPA. (Kawasaki)

Agency Response: Staff disagrees. Useful life requirements are 10 years for outboards and 5 years for personal watercraft. These definitions are identical to that required by the U. S. EPA. Therefore there is no increased burden associated with different regulatory requirements between ARB and U.S. EPA on this matter. Staff does acknowledge that the useful life for labeling requirements are higher than that required by EPA. However, manufacturers are fully capable of producing labels that are capable of the required useful life periods of 9 years for personal watercraft and 16 years for outboards. These labels are necessary for enforcement work and are similar to those on other on- and off-road equipment.

34. **Comment:** Unless there is a concerted effort by ARB to utilize and build from the electronic reporting templates that have been developed by U.S.

EPA, OMC is concerned that many of the reporting requirements common to the California and U.S. EPA regulations will become completely separate administrative burdens. OMC urges the ARB to establish reporting requirements that will build from pre-existing U.S. EPA reporting requirements and practices, to eliminate the potential for unnecessary duplication of effort by the regulated community. (OMC)

The certification application documents should be minimized to adequately inform the Administrator (sic) without burdening manufacturers or the staff. We believe that the required information should be reduced and that five pages should be adequate, including the certification review sheet and the supplemental data sheet. (Honda)

Agency Response: It is the ARB's intent to develop a single application format that may be used for both California and U.S. EPA certification. This format will eliminate the need for separate submittals by building on U.S. EPA's existing application templates. Wherever possible, efforts will also be made to minimize certification applications and harmonize reporting requirements for other regulatory programs such as production line testing and in-use recall testing.

35. **Comment:** Manufacturers should be permitted to utilize federal in-use credits to offset noncompliance with respect to engines that are sold in all 50 states to the extent of the estimated percentage of sales in California. (Kawasaki)

Agency Response: The ARB does not agree with Kawasaki's suggestion that manufacturers be able to use federal credits in this way. Although we appreciate manufacturer's efforts to promote clean engines in other states, it would be inappropriate for manufacturers to use emission credits generated in other states in California because California does not accrue air quality benefits from these credits. The ARB regulations allow corporate averaging in California that provides manufacturers with essentially year-by-year emission credits.

36. **Comment:** The proposed 80% recall capture rate requirement in § 2444(e)(2)(A) is unrealistic given the nature of the marine industry. OMC's experience with a recall campaign to advise owners of a particular defect in the design and manufacture of a recently introduced boat that could result in break-up and sinking if not immediately repaired resulted in less than a 50 percent response rate within the first year. (OMC)

Agency Response: During the First 15-day Notice, Section 2444(e)(2)(A) was modified to remove the 80% recall requirement and replace it with a requirement for maximum feasible capture rates.

37. **Comment:** Regarding the voluntary emission recall provisions, waiting 30 days after notifying the Administrator before notifying the customer seems a long time that could be better spent repairing the problem and maintaining clean air. (Honda)

Agency Response: The ARB wants to ensure that the manufacturer's solution to the problem is the most appropriate one. We therefore ask for this 30-day period in which the Executive Officer evaluates the manufacturer's proposed remedial action. This serves as a precautionary measure to protect the manufacturer from further emission recall actions.

38. **Comment:** OMC does not understand the need for, or support the unchecked power of, the "Executive Officer's Engines concept in Section 19 of Attachment B. (OMC)

Agency Response: This language is similar to that contained in both California's on- and off-road regulatory programs. The Executive Officers powers are part of a check and balance system to ensure equity and fairness across the board.

39. **Comment:** Engine models that are available in all 50 states will be difficult to track as sold and used in California. A manufacturer should be allowed to use the same method for approximating California sales for all points at which sales are a part of the compliance calculation. (Honda)

Agency Response: Staff acknowledges this difficulty. However, staff provided the flexibility of corporate averaging to ease the compliance burden on manufacturers. Unless ARB can determine the exact amount of product that was sold in California, we are unable to verify any corporate average calculations and therefore cannot verify if manufacturers are complying with the regulations. Further, this requirement to precisely track California sales is identical to that required by regulations for other California on- and off-road equipment. Corporate averaging and the reporting of California sales is purely an option for manufacturers and is not a requirement unless they want to use the flexibility of this program.

40. **Comment:** The two-step requirement in Section 9(b)(3) of Attachment B, that a manufacturer must obtain an Executive Order to certify California production prior to, and in addition to, obtaining the certification Executive Orders, is unnecessary and unreasonably burdensome. (OMC)

Agency Response: This regulation provides flexibility and allows manufacturers to corporate average emission levels from various engine

families. This allows them to sell a number of products that do not meet the standard if they sell a number of products that emit less than the standard. If manufacturers choose to corporate average, it is important that they provide some type of estimate as to the number of each type of engine they expect to sell during the year. Although staff recognizes that manufacturers cannot predict exact sales numbers for the upcoming year, this information is crucial in order to ensure excess emissions are not produced from engines sold in California. This type of reporting and the requirement to obtain an Executive Order is identical to that of other on- and off-road regulations that have proven successful.

41. **Comment:** Rather than detail emission test equipment and procedures, which are for the most part identical to the federal requirements, it would be more efficient and less confusing if ARB were to incorporate the U.S. EPA requirements by reference and then provide a list of additional or modified California requirements. OMC proposes that the format of the regulation as it relates to emission test equipment and procedures be revised to reflect such an approach. (OMC)

Agency Response: At the present time, both U.S. EPA and ARB testing requirements are very similar. However, in the future it is possible that U.S. EPA or the ARB will alter the regulations to meet their unique situation. If ARB chose to incorporate by reference and U.S. EPA made subsequent changes, it would be necessary for ARB to reissue the test procedure document or interested parties would have to have three separate documents to understand ARB regulations. If we incorporated by reference, it would be necessary for the individual to access a Federal Register that could be many years old. For this reason, it was felt that it would be better for all parties concerned to have a complete, stand alone, regulatory document available from the ARB. In response to the commenter's concerns, the ARB staff intends to issue a Manufacturers Advisory Circular to clearly identify the elements where California and federal requirements differ.

42. **Comment:** Why do the Attachment A and Attachment B formats have different numbering systems. In addition, they are in many cases duplicative (e.g., Table 1 in § 2442 of Attachment A and the table in Part I.9 of Attachment B). (OMC)

Agency Response: The numbering system of Attachment A and Attachment B are consistent with other regulatory documents produced by the ARB. Although the emission standards have been duplicated in Attachment A and Attachment B, this was done for clarification purposes and to provide manufacturers and compliance personnel with one

document for ease of use. This does not impose any type of hardship on manufacturers, and should benefit them.

2. Expand the Scope

43. **Comment:** The ARB should prohibit the sale of new conventional two-strokes in California beginning in 2001 because they dump unburned fuel into the water, along with other exhaust and PM emissions. (EHC)

Agency Response: The ARB does not explicitly determine the technology to be chosen by industry in meeting ARB standards. If a manufacturer can produce a conventional two-stroke engine that is compatible with the emission goals set by the marine program, the manufacturer is allowed to sell that engine in California. The ARB notes, however, that compliance with the approved air quality standards will greatly reduce exhaust emissions entering the air and water.

44. **Comment:** With engine retrofit or replacement, including those replaced under warranty, if excessive emissions were the cause of the replacement or retrofit, the engine should be rendered inoperable and recycled. (EDC)

Agency Response: Any engine that is recalled due to excess emissions could not be returned into service unless the engine was brought into compliance. This is similar to that required for California's other on- and off-road engine regulations.

45. **Comment:** Some of the two-stroke engines have been determined to release tremendous amounts of particulate matter. I would urge staff to continue to look at this and make further studies on it. I noted in the report that particulate matter from a jet ski is twenty times greater than from a marine four-stroke motor and five times greater than from a marine diesel motor. (BWN)

The ARB should improve the regulations by adding PM and CO standards. (Sierra Club, EDC, BWN, EHC)

The ARB should commence a rulemaking on particulate matter, especially since direct injection motors contribute significant amount of particulate matter. (CMC)

Agency Response: There was not enough information on the other exhaust constituents for proper evaluation and inclusion into the regulations. The ARB will continue to conduct research on all constituents of watercraft emissions. This includes particulate emissions, CO and other toxic air contaminants.

46. **Comment:** The ARB should determine how to better improve tracking on marine engine sales. (Sierra Club, EDC)

The ARB should consider measures to ensure noncompliant engines from other states are not allowed in California without appropriate mitigation.
Debra Bowen, 28th Senatorial District

The ARB should consider VINs for outboards. (BWN)

To ensure compliance, the ARB should require a VIN on the engines to track all motors and personal watercraft sold in California. The ARB should request that the DMV adopt registration and a smog compliance program. (EHC)

Agency Response: The marine program addresses only sales of new engines by dealers in California. The ARB believes that point of manufacture tracking is an efficient method and the least burdensome accounting tool for sales information. See also response to Comment 148.

47. **Comment:** Since the regulations do not prohibit the importation of used or new engines from other states, and since the advanced technology engines are expected to cost somewhat more than conventional or U.S. EPA-certified engines, I am concerned about people bringing in engines from out of state to circumvent these regulations, thereby reducing their effectiveness. How do we control this? (Bernie Richter)

Agency Response: Staff agrees that importation of non-certified engines could be a problem and will be monitoring for abuses of the program. If this is found to be a problem, then staff will amend the regulation and include a provision for mandatory vehicle identification numbers and will work with the Department of Motor Vehicles to develop a program for requiring engines registered in California to comply with California's emission standards. See also response to Comment 177.

3. Warranty Issues

48. **Comment:** Reliable hour meters are not available at a reasonable cost. Further, even if installed when the boat was new, such meters are part of the instrument panel, and track boat use, not necessarily the particular boat motor. Honda would like the absolute requirement of an hour meter removed and an alternative substituted. The U.S. EPA regulation was written a lot more flexibly on this issue and allows for a case-by-case determination. For commercial users, logs might substitute. (Honda)

Agency Response: The ARB recognizes the concern of the commenter with regards to the use of hour meters. Any engine that is currently computerized should be able to accommodate an engine-specific hour meter, but non-electronic engines may face a greater challenge. Section 2445.1 (g)(2) was modified in the First 15-Day Notice to allow for devices similar to hour meters or other evidence or methods, as approved by the Executive Officer, to record usage times in support of Warranty of engines for hours of use rather than years of use.

49. **Comment:** The ARB should harmonize the required warranty with U.S. EPA since it will be applying to engines sold in all 50 states. U.S. EPA established specified warranty periods correlating with particular model years, ranging from one to three years for particular emission-related parts. The ARB, on the other hand, is requiring a four-year warranty period for all emission-related parts in model year 2001 and beyond. (Kawasaki)

How was the 250-hour warranty period established? How does it relate to years? (James Haussener)

Agency Response: The ARB's warranty for defects of 4 years or 250 hours, whichever occurs first, requires engine manufacturers to ensure that the engines they build will have emission-related components that are reliable, durable and capable of complying with the applicable emission standards. Section 2445.1 (d) (1) requires warranted parts to be repaired or replaced by the engine manufacturer. Section 2445.1(d)(4) requires the repair or replacement of any warranted part at a warranty station at no charge to the owner. The requirement for an extended warranty relative to U.S. EPA requirements is consistent with other ARB mobile source regulations and appropriate given the level of emissions and purchase price associated with marine engines. The yearly coverage period represents approximately 25 and 44 percent of the outboard and personal watercraft engines useful life, respectively. A greater percentage of the useful life was required for personal watercraft because of the relatively higher emission levels produced by these watercraft due to their high horsepower levels and duty cycles. The alternative warranty period using hours of usage is based on the same time frame for an average user but reflects a recognition that some applications of marine engines engender heavy usage.

50. **Comment:** The rapid phase-in schedule will result in reduced product reliability. Retailers actually bear the brunt of warranty repairs, since the manufacturers pay very little for warranty labor (if anything), and little or

no allowed mark-up on parts. This is a cost for the retailer, not for the manufacturer or the consumer. (John Jay)

Agency Response: Staff disagrees that the phase-in schedule will affect product reliability. As with most consumer products, market forces should promote engines with fewer warranty problems. As noted in responses to Comments 2 and 3, technology to meet the Tier 1 standards is well established in most cases, and, in fact, many engines capable of certifying to Tier 2 standards are already on the market. Further, although it is unfortunate that dealers believe they bear the brunt of the warranty repair costs, this regulation does not alter their current situation.

51. **Comment:** A significant portion of business revenue is generated with extended warranty contracts. This added income can determine whether or not a sale is profitable. The ARB should not be considering mandatory warranty guidelines. (Steve A McKee)

Agency Response: Emissions warranty requirements are to ensure engines are durable and remain in compliance with the adopted standards. Emission reductions cannot be dependent on discretionary purchase of such contracts. Manufacturers and dealers remain free to sell extended warranties for parts that are not covered by or are in excess of the mandated emissions warranty.

4. Averaging

52. **Comment:** Section 2442(b) of the proposed regulations allows no amendments to the FELs during the model year, which may limit the ability of a manufacturer to make necessary mid-year design improvements. In accordance with the flexibility provided by EPA, FEL amendments should be allowed during the model year if there is room under the corporate average emission calculation for the model year. This is a more positive and environmentally efficient approach than penalizing the manufacturer's next model year, as suggested in § 2444(c)(3). (OMC)

Agency Response: Staff agrees and modified Section 2442(b) as part of the First 15-Day Notice. Manufacturers are now permitted to re-certify to a lower FEL during a model year.

53. **Comment:** The corporate average standard in § 2442(b) should be based on actual sales in California, not units produced for sale in California. (OMC)

Agency Response: It is the intent in the regulation that the corporate average standard be based on actual sales in California. However, because the manufacturer is required to estimate California sales throughout the year in order to comply with corporate average reporting requirements, this wording was necessary. All compliance and enforcement actions will be based on the number of actual engines sold in California at the end of the model year.

54. **Comment:** The ARB should not allow emissions averaging for motor families because it lets dirty engines remain in the fleet for longer. (EHC, EDC)

Allowing emission averaging for motor families has been shown by studies to be very ineffective for reducing the discharge of highly toxic unbranded oil as well as MTBE from 2-stroke engines. (CMC)

Averaging will allow much higher levels of air and water pollution than placing emission caps on each individual motor. The ARB should place emissions caps instead. (CMC)

These standards could and should be strengthened. The weaker averaging and other alternatives are not worth considering. (Sierra Club)

Agency Response: Corporate averaging is an important means of providing flexibility to the manufacturers. By taking advantage of averaging, a manufacturer can field an extended product line in each model year even if not all of the engines are compliant. This is a useful tool because improvements in technology do not always move at the same rate across all product lines. Caps on emissions and maximum family emission levels are required for Tier 2 and Tier 3. However, staff believed the flexibility was necessary for the Tier 1 standards.

55. **Comment:** We have found your regulations will result in a minimal financial impact on the public because they include a highly flexible average regulatory process that harmonizes with the Federal program. (Ventura County APCB)

Using the corporate averaging compliance approach combined with a 3-tier standards program will enable the engine manufacturers and emission control manufacturers to optimize and introduce emission control strategies in an efficient and cost-effective manner. (MECA)

Agency Response: Staff agrees.

J. Legal Issues

1. Authority

56. **Comment:** The ARB is not authorized to regulate nonvehicle emissions. (NMMA)

Agency Response: The ARB disagrees. California Health and Safety Code sections 43013 and 43018 clearly require the ARB to adopt necessary, cost-effective and technologically feasible regulations for off-road or nonvehicle engine categories.

57. **Comment:** The ARB's general authority to regulate "off-road or nonvehicle engine categories" under HSC section 43013 does not extend to recreational marine engines. (NMMA)

ARB's general authority to regulate "off-highway vehicles" under section 43013 does not extend to recreational marine engines. (NMMA)

Agency Response: Health and Safety code section 43013(b) provides ARB authority, indeed requires ARB, to regulate off-road or nonvehicular categories across the board. Marine engines are certainly an off-road or nonvehicle engine category, as the commenter admits.

An authoritative treatise on California's air pollution law, authored by a former ARB general counsel who served at the time the California Clean Air Act (CCAA) was enacted in 1988, notes that health and safety code section 43013(b) requires ARB to regulate marine vessel emissions, "even though as nonvehicular sources they would otherwise be subject to the primary regulatory jurisdiction of the local air pollution control districts..." (Manasters & Selmi, CA Env. Law, §41.04 n.4.) The treatise applies the same reasoning to other off-road or nonvehicular categories listed in 43013(b). Such reasoning is consistent with ARB's consistent and ongoing regulation, beginning in 1992, of numerous nonvehicular sources considered to have been under exclusive district control before the CCAA was enacted. The commenter's reference to the 1990 amendment clarifying ARB's authority over such off-road or nonvehicular categories is inapposite. The 1990 amendment was declaratory of existing law in that the Legislature acknowledged that the CCAA shifted the responsibility for regulating such sources from the districts to ARB as described above. Even if concurrent (state/district) authority over marine spark ignition engines remained arguable, the practical need for uniformity would likely result in exclusive state control in setting emissions standards for this category. (See M & S, §41.06[2].)

In addition, Health and Safety Code section 43018 requires ARB to seek the maximum reduction possible from vehicular and other mobile sources. Though mobile sources are not defined in state law, a federal court long ago upheld U.S. EPA's interpretation that marine vessels are mobile sources (NRDC v. USEPA (D.C. Cir. 1984) 725 F.2d 761.). The U.S. EPA continues to treat marine vessels, including pleasure craft, as mobile sources, as reflected in the federal rule on engines used in such vessels. We can look to these interpretations as guidance, further supporting California's regulation of this category of mobile sources.

Finally, it is puzzling for the commenter to argue both that the ARB cannot regulate pleasure craft engines and the ARB somehow agreed in 1994 that ARB would not seek emissions reductions beyond the federal proposal (covering these same craft) then under consideration. Obviously, had industry thought ARB did not have authority over this source category, there would have been no need for industry in 1994 to seek from ARB the assurances industry now claims it received in 1994.

58. **Comment:** The ARB's specific authority to regulate marine vessels under HSC section 43013 does not extend to recreational marine engines. (NMMA)

Agency Response: The ARB agrees.

59. **Comment:** The federal government has not granted ARB the authority to regulate marine engines. (NMMA)

ARB has failed to establish the conditions precedent required for promulgating a rule that supplants a federal standard established under the Clean Air Act Amendments of 1990 (CAA), and thus, any such regulation is pre-empted by the federal standard. (OMC)

California has not found the proposed standards necessary to meet compelling and extraordinary conditions, a prerequisite to U.S. EPA authorizing ARB to regulate these engines. (NMMA)

Agency Response: The ARB made its finding of compelling and extraordinary conditions at p. 7 of Resolution 98-63. The ARB agrees that the federal government has not yet granted the ARB authority to enforce these regulations. Longstanding procedures in both on- and off-road contexts allow, and as a practical matter, require, the ARB to first adopt regulations. The ARB then enforces their regulations after receiving a federal waiver or a "within the scope" determination made after U.S. EPA notices and conducts a public hearing.

This waiver procedure began in 1967 for on-road waiver requests, was firmly established when Congress extended the waiver scheme to nonroad sources in the 1990 CAA amendments, and has continued uninterrupted through recent waiver determinations. The procedure was also acknowledged in Motor and Equipment Manufacturers Association (MEMA) v. U.S. EPA, 627 F.2d 1095 (D.C. Cir. 1979) for on-road engines. The U.S. EPA interprets this procedure as meeting the Clean Air Act section 209 requirements for both on and off-road sources.

In keeping with this waiver procedure, after this regulation is effective pursuant to Government Code section 11343.4, ARB will address required factors in its request to U.S. EPA for a waiver of federal preemption. It is therefore unnecessary and inappropriate for ARB, in the context of this rulemaking, to speculate as to how U.S. EPA will evaluate our waiver request. The U.S. EPA will judge ARB's findings on this topic and others as required by CAA §209(e) during the U.S. EPA's hearing on the waiver request. After U.S. EPA completes its public hearing process, if U.S. EPA grants ARB's waiver request, ARB will then be authorized to enforce the regulation.

60. **Comment:** The ARB lacks authority to adopt regulations addressing water quality issues. (NMMA)

Agency Response: The ARB disagrees. If "address" means to identify and consider, then ARB can, and under ARB regulations must, address such issues. As described at the beginning of the hearing of this item by ARB Counsel, the California Environmental Quality Act (CEQA) and ARB regulations require the Board to identify and consider cross-media impacts, both positive and negative. In addition, California Water Code section 13146 requires state agencies such as ARB to comply with state water policy in carrying out activities that affect water quality. The ARB has met these requirements, while simultaneously fulfilling California's Clean Air Act and Administrative Procedures Act requirements for adopting regulations to reduce air emissions from this source category.

2. Procedure

61. **Comment:** The ARB has not approved the emissions inventory for recreational marine engines within statutory deadlines before developing the subject regulations, and did not give proper notice of its proposal to approve the updated inventory. (NMMA)

Agency Response: The ARB disagrees. As discussed in the Notice for the related inventory item, in December 1997 the ARB met its statutory duty under Health & Safety Code § 39607.3 to adopt an emissions

inventory triennially. At that time, the Staff committed to return with updates to the offroad source inventories. The marine inventory at issue is one such update.

Approving an update to the marine emissions inventory was a non-regulatory item not subject to the same 45-day notice requirement as the marine regulations. The ARB was required to and did provide at least 10 days public notice of its proposal to approve the update. The ARB approved the updated marine engine inventory at its December 10, 1998 hearing, just before its hearing on the marine engine regulatory item.

62. **Comment:** The ARB, through its staff's failure to include and consider relevant information submitted by OMC and others who intended the information to be included and considered, has denied OMC and others, substantively and procedurally, their due process required by the U.S. and the State of California. (OMC)

Agency Response: The commenter has provided no specific examples of such "relevant information" that would enable the ARB to frame a specific and intelligent response. The ARB notes, however, that staff considered numerous oral and written comments from OMC and other manufacturers. All comments properly submitted and received by ARB for inclusion in the written record are in the rulemaking rule. In this Final Statement of Reasons, the ARB has responded to these comments as well as oral comments presented to the Board at the hearing, in accordance with California's rulemaking law. It is incorrect to assume that because this information may not have been included in the Staff Report or other ARB publications that it was not evaluated. Further, all parties were free to bring any relevant information to the ARB at the December 10, 1998 Board Hearing.

63. **Comment:** The regulations, as proposed by ARB and as will be applied to OMC, are arbitrary and capricious and should not be given the effect of law. (OMC)

Agency Response: The ARB disagrees, having supported the findings and conclusions in Resolution 98-63 with substantial evidence in the record established through a rulemaking procedure in compliance with California's rulemaking law.

64. **Comment:** The regulations as proposed by ARB and as will be applied to OMC are confiscatory and will effect the taking of property rights. (OMC)

Agency Response: The regulations clearly effect no physical invasion of manufacturers' property or a denial of substantially all economically viable

use of their property, and the record contains more than substantial evidence of California's legitimate State interests in reducing emissions from these engines.

65. **Comment:** The ARB's planned demonstration violated its statutory duty to make all materials related to this proposed rulemaking available to the public upon request and to include in the record only such information that has been adequately subject to public comment. (NMMA)

Agency Response: The ARB disagrees. The Cal. Gov. Code §11346.8(d) cited by the commenter is inapposite, as it requires providing adequate public comment upon materials added to the record after the close of the public hearing or comment period. Here, industry was allowed to and did state its objection to the demonstration both in writing and orally on the record before the close of the hearing. In addition, ARB's summary of the demonstration was made available for public comment per Gov. Code § 11346.8(c).

66. **Comment:** The ARB has not satisfied findings that must be made pursuant to the California Government Code for valid regulations, including those under Cal. Gov. Code § 11346.2(b)(6) and 11349.1. (NMMA)

Agency Response: The ARB disagrees. In the 45-day Notice at page 3, ARB recognized and described its need to make and proposed bases for making the findings required by Cal. Gov. Code § 11346.2(b)(6). The bases were then explored in detail throughout the entire Staff Report, including at pp. 13-14, 62-66. After reviewing this and additional evidence during the public comment period including at the hearing proper, the Board made the required finding in its Resolution at page 5.

The ARB is unclear as to how the commenter's "reasons set forth above" would lead the Office of Administrative Law to disapprove these regulations under Cal. Gov. Code § 11349.1. "Nonduplication" under that section, as interpreted by OAL in 1 Cal. Code Reg. (CCR) sec. 12, does not preclude agencies from addressing subject areas also under federal regulation, but is rather a limit on adopting federal regulation verbatim in the CCR. In addition, the findings discussed above clearly support the necessity of these regulations and state the source of California authority to adopt them.

K. Miscellaneous

1. methyl tertiary-butyl ether (MTBE)

67. **Comment:** MTBE should be removed from the gasoline in the State of California. (Russell Anders, California B.A.S.S. Federation, Recreational Boaters of California, Dave Munro, Sherman Walker, Hooked on Fishing, James Haussener, Anti-MTBE, Recreational Boat Owners, Senator Raymond Haynes, Assemblyman Rico Oller letter, Anti-Acceleration/MTBE, CMDA, Ronald LaForce, Water Resorts Inc, Ben Tadano, Joel Walls)

Don't ban MTBE indirectly through engine technology bans. (Anti-MTBE/ban)

MTBE is a greater health risk in groundwater than on surface waters where it can evaporate or dilute. Environmentally safe oxidizers in gasoline should be substituted for MTBE (B&B Cycles)

Agency Response: A phase-out of the fuel additive MTBE has begun in California, although the date of full phase-out is unknown at this time. In the interim, MTBE does remain an issue but it is important to recognize that there are toxic contaminants other than MTBE that are and will continue to be contained in the exhaust from watercraft. These will remain a concern long after the MTBE is gone. The regulations do not ban engine technologies that may release MTBE after combustion.

68. **Comment:** You will get more MTBE out of the water if Tier 3 is not adopted than if it is, because the cost of doing that is extraordinary. If Tier 3 is not adopted, new engines will be more affordable and the turnover will therefore be faster. (NMMA)

Agency Response: The ARB disagrees that the cost of Tier 3 standards is particularly high. The additional costs associated with achieving the Tier 3 standards are modest compared to the emissions benefits to be gained. The goal of these regulations is to improve California's air quality. A secondary impact may be the reduction of MTBE and other fuel contaminants into water.

69. **Comment:** Restricting and/or prohibiting power driven vessels from California's recreational waters is not the answer to eliminating fuel additive concerns. (Bombardier, Polaris)

Agency Response: This regulation does not restrict or prohibit the use of watercraft.

70. **Comment:** The current gasoline in California is formulated for the 4-stroke engine, not the 2-stroke engine. A properly formulated 2-stroke fuel could easily solve the water pollution problem from gasoline containing MTBE as an oxygenate. Gasoline formulators currently make such fuels. (Torco)

Agency Response: Staff agrees that specialty fuels could be manufactured that would reduce water pollution problems associated with marine engines. However, due to limited production and distribution networks, the cost would likely be prohibitive. In addition, there would be no guarantee that consumers would actually purchase this new gas reformulation and therefore the environmental benefit would be unknown.

2. Other

71. **Comment:** Evidence that the staff does not fully appreciate or know our industry is also seen in their repeated use of the “FICHT” brand name (OMC technology) instead of “direct fuel injection” when referring to the technology type. Mercury’s system is sold under the brand name “OptiMax” and is one of two distinctly different direct fuel injection systems on the market today. (Mercury Marine)

Agency Response: Staff is fully aware of Mercury Marine’s efforts, accomplishments, and the differences between the two direct fuel injection systems. A short description of the principle attributes of the two systems was provided in the Staff Report (p 37-38).

72. **Comment:** The fervent attacks against personal watercraft allege that they are noisy, dangerous and pollute the waters. I hope you will take a more balanced approach in issuing your regulations and not cave into stereotypical images that seem to cloud people’s perceptions about personal watercraft. Personal watercraft are often used to save human and marine lives. (Pro-personal watercraft)

Agency Response: The ARB acknowledges the many uses for personal watercraft. Personal watercraft are subject to the same regulations as outboard motors and jet boats. They were not singled out in this regulation.

73. **Comment:** There needs to be an adequate and rational discussion of the consequences of this proposed regulation. (Lauderdale Marina)

Agency Response: The regulatory process, including the hearing proper, provided a procedurally adequate and substantively broad discussion of potential regulatory impacts. Staff hosted many public and

confidential meetings with industry, associations and the general public in the development of this regulation. Although staff recognizes that there may be differing degrees of consequences for each individual, the Board determined that this regulation provides the best balance for all of California's citizens.

74. **Comment:** It has been my experience working on regulatory issues, that the most successful regulations are achieved when all the stakeholders work through their differences to achieve reasonable and achievable standards. Our members are troubled that such major discrepancies still exist, particularly in the area of inventory and especially in terms of the economic impact. (NCMA/CCSB)

Agency Response: The ARB strives to work out differences before and during the hearing process. It is not unusual, though, for major issues to resolve for or against the staff's proposal, or for there to be less than absolute certainty on technical and economic issues. However, the Board approved regulations it found to be reasonable and achievable based on substantial evidence in the record.

75. **Comment:** In 1997, we sold about 300 watercraft, with the state receiving about \$150,000 in sales tax. In 1998, we sold about 100 watercraft, corresponding to about \$50,000 of sales tax revenues. In 1997, we had 30 employees, falling to 23 in 1998. These significant reductions are the media's fault for all of the attention on everything that has been talked about before it has become fact. If you could make sure that you have the facts and not implement Tier 3, then 1999 could maybe be this big and 2000 a little bigger. (Sherman Walker)

Agency Response: ARB acknowledges the reduction in watercraft sales between the years 1997 and 1998 and finds that regrettable. It should be noted, however, that the decline occurred prior to the adoption of ARB's regulation in December 1998 or the first implementation date of Tier 1 standards in 2001. Consequently, the ARB does not consider this regulation as the cause for the loss in sales. It should also be noted that engines capable of meeting 2008 Tier 3 standards are clearly feasible as evidenced by currently existing engines, nine years ahead of schedule. Furthermore, the ARB will conduct a technology review in 2005 to evaluate developments in Tier 3 technology over the next six years.

76. **Comment:** We are concerned also about the importation of engines from other states and about the effects of the regulation on California businesses selling engines. (Bernie Richter)

Agency Response: Staff agrees with this concern and will be monitoring this issue closely. If found to be a problem, the ARB has the authority to alter the regulations and require manufacturers to place standardized vehicle identification number (VIN) on the engines and watercraft which could be used to deter this. This VIN could be tracked with the help of the Department of Motor Vehicles and is similar to that done for other on- and off-road equipment.

77. **Comment:** The emission inventory estimates in Mail Out #MSC98-34 do not reflect future sales losses projected by NERA. (NMMA)

Agency Response: This comment addresses a non-regulatory item not directly at issue in this rulemaking. However, the ARB notes that the updated inventory had to be and was based on emissions that would occur in the absence of California regulations, not - as NERA would have it - on emissions that would occur if California regulates. Price-elasticity is an appropriate factor for staff to consider regarding emissions impacts from reduced sales of engines to California due to increased costs from the federal regulations alone. However, it makes no sense to argue that the baseline inventory should include the results of California regulations that have not been adopted. Rather, resulting emissions reductions arguably resulting from reduced sales attributable to the California regulations would be an appropriate factor to consider in the regulatory cost-effectiveness analysis. Although, staff acknowledges that watercraft sales may have continued to decline. This has been the trend for the last several years and may reflect market saturation and demographic shifts in the population. However, it is not conclusive that this trend will continue or that the use of existing watercraft, which is the basis for the inventory will decline.

To the extent that there is price elasticity of demand here, the general changeover that the market place will cause is going to overwhelm any impact that a few people have of holding onto their boats.

78. **Comment:** There are troubling inconsistencies in ARB staff's emission inventory that call into question the very need for the proposed regulations in any form. (OMC)

Staff's chosen power factor and resulting fuel usage calculations result in a flawed emission inventory. (NMMA)

Agency Response: This comment addresses a non-regulatory item not directly at issue in this rulemaking. However, the basis for this rulemaking is the determination that emissions from this source category are substantial and will in the future constitute an increasing proportion of

total emissions for the state. If, for example, no ARB controls were to be implemented for spark-ignition marine engines, statewide emissions of hydrocarbons plus oxides of nitrogen (HC + NO_x) are predicted to be 342 tons per summer weekend day, 40% of the emissions produced by all passenger cars in California on such a day. This large number minimizes the effect of any uncertainties in the inventory. Staff disagrees that the emission inventory is flawed. The emission inventory and all input factors were based on the best available information at the time. Power factors were generated as part of a fleet average for outboards and personal watercraft. The power factors came directly from information supplied by industry.

79. **Comment:** Energy savings will be helpful for consumers especially when they look to buy an engine that is very efficient and may be able to defer some of the costs that may come with incremental cost of additional regulations. (Coalition for Clean Air)

Agency Response: Staff agrees. Most manufacturers are already marketing their new products as more fuel-efficient than conventional 2-stroke engines.

80. **Comment:** The ARB seems intent on implementing a regulatory scheme focused solely on producing maximum theoretical emissions reductions without regard to technological workability, economic impact, or procedural requirements. (NMMA)

Agency Response: The ARB must seek and in this case did seek the maximum degree of emission reduction possible from this source. In seeking this degree of reduction, ARB met the procedural rulemaking requirements of the California Administrative Procedures Act and found such reductions necessary, cost-effective, and technologically feasible as required by California law and as specifically described in response to comments in Sections A3, C, D, and J2.

81. **Comment:** The scientific basis of the proposed standards is “faulty”. (Anglers and Boaters, Sunset Marine)

Agency Response: The adopted standards were based on emission levels from currently available engines tested on an International Standard Organization test cycle developed specifically for these types of engines. This test cycle was developed by the marine industry and is identical to that currently used by the U.S. EPA to certify engines for sale.

82. **Comment:** The ARB has failed to rationalize changes in fundamental elements of its regulatory justification. The initial proposed regulation

(June 1998) was based on a planned 50% reduction in emissions beyond the federal program by 2010, and an inventory of 312 tpd. The new inventory estimate is only 129 tpd, suggesting that a much less aggressive standard is required to achieve the tpd reductions ARB staff identified in June. Although changes to the initial fixed 13 g/kw-hr proposal were made, the flat portion of the “emissions vs. rated power” curve yields nearly the same limits for medium and large engines. For example, under the current proposal, engines larger than 150 horsepower would have an HC + NOx limit of about 16 g/kw-hr, a level not commercially demonstrated for this horsepower classification. This level of regulatory aggressiveness is unwarranted in light of ARB’s tenuous regulatory basis for proceeding with this rule in the first place. (OMC)

Agency Response: The ARB must identify sources of emissions that can be reduced in a cost-effective manner and then act to make sure that they are in fact reduced. The revised estimate for the emissions inventory impacted the analysis of cost-effectiveness but, as the Staff report shows, even after correcting for the lower inventory estimate, the cost-effectiveness of the marine regulation is well within the range for other regulations of off-road source categories. Thus, the marine program is readily justified as a cost-effective means of reducing emissions. The ARB is aware that there are currently no commercially available low emission outboard engines above 150 horsepower or personal watercraft that comply with the Tier 3 emissions standards. However, current commercial feasibility is not at issue regarding a standard set over nine years into the future. Nevertheless, direct fuel- injection outboard engines as well as four-stroke stern drive engines are available for the higher horsepower ranges and a prototype four-stroke personal watercraft has been developed with low-emission levels. It is possible that improvements in technology over the next several years will lead to a high horsepower outboard as well as production quality Tier 3 personal watercraft that can meet Tier 3 standards by the 2008 model year. If it proves unfeasible to produce such engines, the technology review in 2005 will identify the problem and provide the ARB with the opportunity to institute mid-course corrections if they are needed.

2. L. Support

In addition to comments received supporting specific regulatory components as discussed above, statements of support were provided at the Board hearing from the State Water Resources Control Board, Maxsym, SCAQMD, TRPA, Lahonton Regional Water Quality Control Board, MECA, CCEEB, Coalition for Clean Air, Ventura County APCB, Union of Concerned

Scientists, Natural Resources Defense Council (conveyed by UCS), Assemblymember Darrell Steinberg (by letter), Earth Island Institute, and BWN.

In addition to other written support from organizations providing oral support testimony at the Board Hearing, the agency also received support letters from other coalitions/organizations, such as CAPCOA, Sierra Club, Environmental Health Coalition, Environmental Defense Center, American Methanol Institute, Ventura County APCB, East Bay Municipal Utility District, Santa Clara Valley Water District, BWN and ACWA, Assemblymember Darrell Steinberg, Senator Debra Bowen. In addition, written support was also received from two manufacturers, Harken USA, and Freedom Motors.

Approximately 1025 letters supporting the ARB proposed regulations were from the general public. These letters identified major benefits, including reducing air and water pollution to the environment and the multi-tier environmental labeling program, because it will provide the consumers with high quality information and encouragement of the development of clean technology. These included approximately 940 e-mail letters of support and about 85 other letters, for a total of approximately 1025 letters of support from all sources.

The ARB appreciates receiving and including on the record these numerous positive comments in support of its proposal to reduce emissions beyond the federal program.

3.

4. **M. Late Submittals**

124 late submittals were received after the close of the hearing and before the first notice of modified text went out for this rulemaking. These included 69 Anglers form letters, 23 letters from individuals expressing concerns already addressed herein (mostly other form letters), and an additional 32 letters of support. All tracked issues addressed previously in this section of the FSOR.

III. MODIFICATIONS TO THE ORIGINAL PROPOSAL – FIRST NOTICE OF MODIFIED TEXT

There were 482 comment letters received during the 15-day comment period for the first notice of modified text, including 35 letters of support. The majority of the letters was from members of the public, and contained comments that were outside the scope of the 15-day changes. Comments within the scope of the changes were received from BWN, Mercury Marine, Suzuki, Latham & Watkins (for NMMA), OMC and Honda.

5. **A. Definitions**

1. **Comment:** Mercury Marine supports the changes to the definitions to clarify terms used in the regulations. (Mercury Marine)

OMC believes the current definition and use of the terms “Sales” and “Eligible Sales” are sufficient, as revised, to address previous concerns associated with those terms. (OMC)

Agency Response: The ARB agrees.

2. **Comment:** OMC finds the proposed “Useful Life Period” of 16 years for outboards unnecessary and overly burdensome, arbitrary and illogical. The ARB has failed to support linkage of their inventory assessment and the proposed useful life period. After deliberate and careful study of relevant boating statistics, U.S. EPA concluded that actual useful life is dependent on a number of factors and must be differentiated from “regulatory” useful life. The ARB has in fact proposed the 10 year/350 hour useful life period for in-use testing, yet retains the 16 year proposal for other provisions, thereby creating unique administrative burdens for manufacturers. OMC requests that ARB fully harmonizes its useful life period with the 10-year/350 hour period in the U.S. EPA rule. (OMC)

Agency Response: A useful life of 16 years for outboards is consistent with the emission inventory for this category. In the inventory, the assumption is that at least half of the fleet is gone by the end of the useful life. Thus, about half of the outboard engines for the model year 1990 will be removed from the fleet. As noted by the commenter, in-use compliance testing will be consistent with U.S. EPA requirements and based upon 10 years or 350 hours, whichever occurs first. Labels, however, will be required to be durable for a minimum of 16 years for outboards and nine years for personal watercraft. Given that approximately half of the respective fleet is still operational beyond this time period, staff considers this requirement to be essential so that engine emission levels may be properly identified.

3. **Comment:** Particularly in the commercial context, other reasonably accurate means of verifying hours of operation of engines should be included. Operational logs or other operating records should be allowed. We recommend that Section 2445.1(g)(2) be amended to read: “Engines not equipped with hour meters, or similar devices as approved by the Executive Officer, and for which otherwise verifiable evidence of the hours of operation is not available, must be warranted for the specified yearly warranty period.” (OMC)

Agency Response: Staff agrees and modified Section 2445.1 (g)(2) accordingly to allow for devices similar to hour meters or other evidence or methods, as approved by the Executive Officer, to record usage times in support of Warranty of engines for hours of use rather than years of use.

B. Emission Standards

4. **Comment:** Mercury Marine supports the changes made to the description of the standards. (Mercury Marine)

Honda fully supports the emission standards adopted at the hearing. (Honda)

Agency Response: The ARB appreciates the support.

5. **Comment:** We ask that, consistent with U.S. EPA, jet boat engines that are based on outboard engines be allowed to be averaged with the outboard families for purposes of determining compliance. (Mercury Marine, NMMA)

Agency Response: Jet Boat engines do not meet the definition of outboard engines and are therefore not allowed to corporate average with outboards. Some manufacturers produce a wide range of products that they could use to corporate average with their jet boat engines. By allowing this, it would be possible that one manufacture could actually corporate average all of their jet boats engines and continue to sell uncontrolled engines in those products. This would put them at a distinct economic advantage over the majority of jet boat producers. This suggestion was already reviewed and rejected in the Staff Report at p. 24.

C. Labels and Hang Tags

6. **Comment:** Honda supports the concept of environmental labeling. However, the requirement for environmental label visibility at 100 feet and the specified label size are potentially conflicting. The smaller label (for small engines) will be difficult to discern at the approved distance. Even the larger label for the larger engines may pose challenges. Honda understands that the water agency personnel would like to read this label at a distance. However, other watercraft labels are not equally readable, most inspections are done at the launch site, and a larger label will not fit on the smaller outboards. Honda suggests that the visibility requirement be deleted because the minimum size requirement for the higher

horsepower engines already makes it visible, and it would require a label that will be too large for the smaller outboards. The required minimum label size is appropriate for Honda engines both above and below 15 horsepower. Labels of the size specified in the regulation will fit in the available space and not detract from the design and salability of the outboard engine. (Honda)

Agency Response: The visibility requirement of 100 feet by the naked eye is necessary to ensure that watercraft engines may be visible by enforcement personnel while a watercraft is operating on a waterway. Although staff recognizes the challenges associated with the visibility requirements for the minimum sizes allowed by the regulation, particularly for the smaller engines, there are options available for increasing visibility such as using different colors, introducing high contrasts, or increasing the size of the labels.

7. **Comment:** Mercury Marine is opposed to the three-tier labeling provisions. Customers are hesitant to purchase products that may not be usable in the future. The use of permanent labels to allow boat bans has had, and will continue to have, negative impacts of the sale of all engines, including 4-stroke and direct injection engines, which has a detrimental effect on the environment. (Mercury Marine)

We continue to have serious concerns about the three-tier labeling scheme as proposed, and would prefer to see it eliminated entirely. Since the hearing, consumers have become increasingly familiar with the label proposals and have been very hesitant to purchase products that may not be usable in the future. Instead of encouraging the purchase of low emission products, the proposed labels are causing customers to continue to use their conventional two-stroke engines while maintaining a “wait and see attitude.” (NMMA)

Mercury Marine remains opposed to the requirement to affix labels, especially given the dramatic label that has been proposed. There will be a cost impact to affix each label. (Mercury Marine)

Agency Response: These comments are outside the scope of the proposed modifications. While the ARB was accepting comments regarding changes to the format of the three-tier label, the merits of having three tiers versus other alternatives were resolved at the hearing and were not at issue in the proposed modifications. Nonetheless, the ARB is not pursuing a labeling program in order to ban boats. The vast majority of California is, and will continue to be, accessible to all marine engines. As it becomes more apparent to consumers that the marine program will not impede the use of personal watercraft and outboard

engines, they will cease to wait if they are interested in purchasing a new engine. See response to Comments 71, 72, 75, and 78-81.

Staff recognizes the cost of having manufacturers affix the environmental labels. This cost was included in our calculations of the cost impact of the regulations. It was necessary to ensure that each engine is properly characterized and to minimize the possibility of fraudulent sale of nonconforming marine engines.

8. **Comment:** We support the concept of consumer information labeling. (Mercury Marine)

We support in principle the ARB proposal to provide prospective purchasers with environmental information to assist in making an informed buying decision using a point of purchase display of environmental information, containing the hang tag content as proposed by the ARB. (OMC)

Agency Response: The ARB appreciates the support.

9. **Comment:** NMMA is concerned about the additional burden associated with requiring a hang tag on each engine sold, as opposed to only those engines displayed for sale. (NMMA)

Agency Response: Hang tags on each engine sold ensure that the consumer will have access to the information not only in the showroom but also after the purchase. This increases the opportunity for the consumer to read the information and become better informed about the relative emission levels from different watercraft engines.

10. **Comment:** The changes to the hangtag are unwarranted and not in the best interest of providing maximum information to consumers. The hangtag should provide comparative reference to other clean technologies. Comparing the Tier 2 and Tier 3 labels to the most polluting engines minimizes the real differences between them and will dis-incentivize the sale of the cleanest products. (BWN)

Agency Response: The ARB agrees with the commenter's assessment of this issue, and issued the Second 15-day Notice for public comment with the language modification to Section 2443.3(b). The revised language compares emission levels of 1 Star engines to emissions from a carbureted 2-stroke engine, 75% cleaner; 2 Star engine's emission levels to a 1 Star engine emissions, 20% cleaner; and, 3 Star engine emission levels to 2 Star emissions, 65% cleaner.

11. **Comment:** It is onerous to a small-volume manufacturer who cannot easily segregate California production (like Suzuki) to require that labels only be applied by the manufacturer or the distributor. It would be much easier if the dealers could apply them. Safeguards could easily be established that would control the distribution of labels and ensure proper handling. The ultimate responsibility would rest with the manufacturer. NMMA has proposed language that could be utilized. (Suzuki)

In an attempt to avoid and isolate the adverse consumer reactions associated with labeling of outboards in California, OMC is facing the prospect of having to create specific California-only models across its entire product line (because of the requirement that manufacturers apply the labels). The result will be either much higher prices or reduced product offerings in California. This diverts resources away from further development of environmentally sound outboards. The ARB should allow the labels to be applied either by the manufacturer or the manufacturer's designated representative prior to the offer of sale to a customer. This approach is fully consistent with the terms of the recent California Proposition 65 settlement with marine manufacturers which was reviewed by the California Attorney General and entered by the Superior Court of California. (OMC)

We are greatly concerned about the requirement that the environmental label be applied only by the engine manufacturer or OEM. We propose amending this section to read as follows:

“Labels must be affixed to new watercraft engines by the engine manufacturer or the original equipment manufacturer. Notwithstanding the foregoing, labels may be affixed by the dealer provided that the engine manufacturer has provided the Executive Officer a written explanation of the manufacturer's program for administering the labels, and based on such explanation, the Executive Officer has approved the affixing of labels by the dealer. If the labels are applied by the original equipment manufacturer or dealer, the engine manufacturer remains the ultimate party responsible for ensuring that the labels are correctly administered. Improper labeling or distribution of labels will subject the engine manufacturer to penalties as described in Paragraph (h).” (NMMA)

Agency Response: The ARB disagrees and makes no change in response. The requirement for the engine manufacturer or original equipment manufacturer to apply the permanent environmental label is necessary to ensure engines are properly identified. This provision was included to minimize the potential for fraudulent use or replication of labels. The best way to ensure that each engine is properly labeled is to

make sure that the original point of manufacture is also the original point of labeling. Placing the proximal responsibility with dealers makes it far more difficult for the manufacturers to guarantee that labels are applied in accordance with the marine program's standards. Staff does not have information regarding the California Proposition 65 settlement with marine manufacturers and therefore cannot comment.

12. **Comment:** We have concerns regarding the need to assume a 30% deterioration factor for purposes of determining whether engines produced prior to 2001 qualify for environmental labels. Where an FEL exists for a certain engine family identical to an earlier engine family, the lesser of 30% deterioration factor or the FEL should apply for the earlier, uncertified, engine family as well. (NMMA)

Given the high quality of the federal certification process, OMC believes that manufacturers are fully capable of accurately estimating the deterioration of federally certified pre-2001 engines and therefore sees no need for use of a fixed 30% deterioration estimate. OMC requests that ARB amend its proposal to allow manufacturers to use the applicable federal FEL or establish an alternate criterion based on certification test results plus 30%. This allowance will provide manufacturers with the needed flexibility to apply federally derived FELs as appropriate and avoid the use of overly burdensome emission estimates for certain engine families. (OMC)

Agency Response: Staff agrees and modified Section 2443.2 to add clarifying language where federally certified spark-ignition marine engines produced prior to model year 2001 with a Family Emission Level (FEL) that complies with applicable standards may have the appropriate label applied. For all other engines produced prior to model year 2001 and shown by the manufacturer to comply with the emission standards following certification test procedures a deterioration factor of 30 percent must be added to the results. This deterioration factor is typical of the compliance margin needed by production engines to comply with the applicable emission standard. Alternative demonstrations of emissions performance may be used, if the engine manufacturer demonstrates to the Executive Officer that the emissions performance is representative of actual emissions for the engine family.

13. **Comment:** Hang tag and sticker label samples should not have to be submitted with the certification application as this poses an additional burden on the manufacturer. At a June 8, 1999 meeting, ARB staff indicated that the sample provided need not be the final label and could be a facsimile or drawing of the proposed label. If this remains the case, our concerns with this provision are satisfied. (NMMA)

Agency Response: Staff agrees and modified Section 2443.3 (d) to indicate that samples of all labels must be provided with the certificate application instead of requiring the actual labels.

D. In-Use Compliance and Recall

14. **Comment:** Mercury Marine supports the changes to this section that bring the in-use and recall requirements into harmony with U.S. EPA regulations. (Mercury Marine)

Agency Response: The ARB appreciates the support.

15. **Comment:** We need clarification regarding the provision requiring excess emissions to be made up within the year following discovery of non-compliance. It is not clear when the one-year period begins. (NMMA)

Agency Response: Staff modified Section 2444 (c) (3) in the Second 15-Day Notice to add clarifying language. All excess emissions resulting from in-use noncompliance with the California standard must be made up in the model year following the model year in which the notification of noncompliance is received. For example, if an in-use test program conducted in 2004 identified 2003 model year engine family in non-compliance with the appropriate emission standards, and the notification was sent to the manufacturer in 2004, then the manufacturer must make up these excess emission levels with the following model year, 2005.

E. Warranty

16. **Comment:** Mercury Marine supports the changes to the requirements for determining if the warranty period still exists, providing that item (2)(c) allows the use of company maintenance records or other records to determine hours of use, particularly in a commercial application. (Mercury Marine)

Agency Response: As noted in response to Comment 149 staff agrees with this interpretation.

F. Production Line Testing

17. **Comment:** The ARB desire for assurance that production throughout the model year continues to meet emission requirements must be balanced against the high cost of testing engines. The minimum of two engines per quarter is burdensome, is not cost-effective, and does not add to the statistical significance of the Cum Sum method. Honda suggests that the minimum be changed to one additional engine per quarter. We also suggest that the “two year, no failure” threshold be changed to one year, no failures. We further suggest that ARB accept historical U.S. EPA production line test information as sufficient justification for reduced testing. (Honda)

We remain opposed to the mandatory quarterly testing regardless of Cum Sum results. It places an unnecessary testing burden without environmental benefit. (Mercury Marine)

We have grave concerns about the requirement to perform a minimum of two tests per engine family per quarter regardless of the Cum Sum analysis. This is a significant additional burden beyond what is required by the U.S. EPA, and is inconsistent with staff’s commitment to the Board to harmonize with U.S. EPA regulations with respect to testing. (NMMA)

We understand that the two tests per quarter requirement superceded the 30-engine test maximum. This requirement is a very serious concern. (NMMA)

Mercury Marine supports the opportunity for the EO to waive the requirements based on prior testing. Does this also include two successful years of testing under the U.S. EPA PLT program? (Mercury Marine)

Agency Response: Staff added Section 2446 (c) (2)(A)(vi) in the First 15-Day Notice to specify the requirement for performing a minimum of two production line tests per engine family per quarter. The requirement may be waived if the engine manufacturer does not have a failing engine family in the prior two model years of testing. This waiver does not include two years of successful testing under the U.S. EPA production line testing program because the purpose is to test a sample of a California distribution of engine families that may differ from national distribution. The existing federal Cumulative Sum procedure was modified to ensure year-round sampling so as to provide assurance that engines comply with the emissions standard in the first quarter of production as well as subsequent quarters of production. Because of batch production, seasonal engines production/sales, emission component variation, and manufacturing variation, exhaust emissions from production engines may vary on a quarterly basis. California’s

experience with other off-road regulations has shown that emissions can vary on a quarter to quarter basis even if the same model is being tested. The two per quarter requirement provides for a continuous, random sample that should be representative of California distribution. This requirement is consistent with other ARB off-road regulations that include the cumulative sum production line test procedure.

G. Other Test Procedure Corrections

18. **Comment:** Mercury Marine supports the changes that allow the replacement of an engine under the cowling with a similar or improved engine. (Mercury Marine)

Agency Response: The ARB appreciates the support.

H. Other Regulatory Provisions

19. **Comment:** Honda suggests harmonizing with the U.S. EPA regulation on the reporting of sales of a given model year engine. The U.S. EPA regulations require the demonstration of compliance under the averaging provisions by 270 days after the model year. The ARB requires submission of California sales data 90 days after the end of the model year. The longer U.S. EPA allowance provides more accurate reporting. Closing the data collection prematurely will undercount the sales of a given model year product or unreasonably force a premature and costly inventory reduction. A change to the more flexible federal time period will provide more comprehensive data without disrupting sales plans of individual California dealers. (Honda)

Agency Response: A reporting of actual sales data within 90 days of the end of the model year allows for confirming compliance with corporate average standards using actual rather than projected sales data. The reporting time duration is consistent with U.S. EPA's requirement for reporting actual sales data and with ARB's on-road motorcycle regulation that also contains corporate average standards.

20. **Comment:** A number of significant items in the proposed rule remain unharmonized with existing U.S. EPA marine regulation. In every case, the proposed ARB provisions have little or no potential to advance environmental goals yet impose a real and distinct burden on manufacturers of marine engines. OMC urges ARB to carefully examine these items and make the necessary changes to more fully harmonize with the U.S. EPA rule. These items include the definition of

“Manufactured for Sale” (ambiguous as applied to engine units in the manufacturing process, which cannot identify where engines will ultimately be sold. Given this uncertainty, OMC is unable to accept and believes it is unfair and inappropriate to consider all engines as potential California sales. OMC requests that ARB either modify, qualify, or delete the term from the final regulations.).

Agency Response: The regulation was not intended to and does not require all engines be considered potential California sales. The definition of “sales” or “eligible sales” refers to actual or calculated sales of an engine family in California. This is flexible so that the manufacturer can select to designate specific engines for California sale or calculate them based on market analysis as is most convenient. The ARB’s provision for production line testing requires, however, that the manufacturer know which engines are to be designated for introduction into the California market.

6. I. Comments outside the Scope

476 comment letters were received following the first notice of modified text that were outside the scope of those proposed changes, that is, they were directed either at issues resolved at the hearing or at issues not raised by the proposed modified text or both, or they were in general support of the regulations. In some instances, the commenters acknowledged that the comments were outside of the stated scope of the modified text, but stated that they should have been included and discussed as “emerging issues to be considered” (per Board Member Dunlap). In addition, Suzuki, NMMA, and OMC noted that they continue to have concerns about the regulations that go beyond the issues addressed in the comments, as they indicated previously. The ARB notes that throughout this document, staff has responded to all written comments that were submitted during the public comment periods along with comments orally presented during the Board

The out of scope comments focused on nine main areas: (1) With Governor Davis’ planned phase-out of MTBE, labels are no longer needed; (2) Labels will effectively slow the natural turn-over rate; (3) The regulations, especially the labeling component, will have a much larger economic impact than the ARB alleges, especially in terms of reducing sales and potential employee layoffs; (4) Observed sales reductions mean fewer air quality benefits will be obtained; (5) Labels will be used to ban boats/existing boats should not be banned; (6) ARB did not adequately study the economic and other issues relevant to the marine sector; (7) ARB must complete an impact analysis on the potential lost recreational access and resultant shifts to other waterways if bans are imposed; (8) The program is not reasonable and should be eliminated and/or other larger

sources should be targeted instead of marine engines; and (9) The regulations are still too weak and need to be strengthened.

Before addressing these issues, the ARB would like to clarify that the Board Members' comments on several of the above issues during the hearing were limited to or typical of on-going review of regulations and how they are affecting various parties. They were not directed to changes within the 15-day period. Rather, they refer to the review of implementation of final adopted regulations. The Board approved the regulations. By the Executive Order, the regulations are actually adopted. In general, these issues were also raised as comments to the proposed regulation, and have been addressed in detail in Section II above. The ARB need not respond to these comments separately because they are not within the scope of the 15-day changes that the Board directed and the staff implemented. Nonetheless, the following paragraphs briefly summarize ARB's earlier responses.

(1) As noted by some of the commenters, a phase-out of the fuel additive MTBE has begun in California, although the date of full phase-out is unknown at this time. In the interim, MTBE remains an issue. Also, although MTBE is a convenient proxy for the many other toxic contaminants in the exhaust from watercraft, it is by no means the only one. The removal of MTBE from gasoline will not remove the issue of marine engines as a source for toxic contaminants in either the air or the water. While most gasoline components are readily biodegradable and/or economically removed from drinking water, 2-stroke engines also emit various unburned lubricants that contaminate the water. That water contamination often originates with boating activity is well-established (see Transcript pp. 191-198). Studies have shown a strong temporal correlation between elevated MTBE levels in lakes where MTBE is an issue and boating activity levels. In the air, BTEX emissions from watercraft tend to be toxic/carcinogenic. Issues in addition to drinking water sources also need to be considered. For example, aquatic environment is a concern, both for those organisms living in and around the water body and for recreation-seekers who wish to consume fish from or swim in the water body.

Since the need for a labeling program is fully supportable on air quality grounds, the anticipated removal of MTBE as an additive does not remove the need for the labeling program. The labels are intended to show the emissions benefit of each labeled marine engine. The hang tag required on every engine precisely explains the meaning of the labels. The ARB believes that, given readily available information, boaters will wish to protect the ecosystem and will select cleaner craft over dirtier engines, where available. This will enhance the emissions benefit of the marine regulations.

(2) The ARB disagrees with the assertion that there is a correlation between the proposed labeling program and sales declines. Manufacturers

have been voluntarily placing similar labels on their products stating they meet U.S. EPA's requirements even prior to the start of any public California regulatory project. This suggests there is a market advantage to those manufacturers who produce more environmentally friendly products and that consumers place some value in that knowledge the emission levels of products they purchase. Although there have been declines in sales of watercraft in California these declines began prior to ARB's rulemaking and are consistent with national trends. This indicates, as discussed by some manufacturers, that the declines are attributable in large part to global factors such as demographic shifts and market saturation. There may be a factor attributable to consumer concerns about bans of boating activity on waterways sensitive to pollution levels, however these restrictions were also in place prior to the adoption of ARB's regulation and any new restrictions would be under the purview of local water agencies.

(3) The ARB does not anticipate large economic impacts due to the marine engine regulation. The ARB notes, however, that where there are restrictions on the use of marine engines in a particular water body, alternative recreational uses can occur on and around that water body and the recreational users that were restricted can find alternative watercraft to pursue the same activity. Tourist dollars will still be available while air and water quality improve.

(4) While sales volumes have declined both in California and nationally, such impacts have historically been temporary, and, in fact, the declines began well before the adoption of these regulations. The ARB fully expects sales volumes to increase again over time. However, no significant reductions in air quality benefits would be anticipated even with a temporary reduction in sales volumes.

(5) This regulation does not ban the use of two-stroke engines. Instead, it establishes emission standards for new engines beginning with the 2001 model year. No boating restrictions are imposed; however, water agencies are well within their rights to restrict access to sensitive aquatic environments. In fact, certain waterways in California have had restricted access for many years and, therefore, boating restrictions can not be regarded as unprecedented. The ARB expects that fears of boating bans will subside as the standards take effect and it becomes clear that significant restrictions on recreational water uses are not occurring.

The ARB is not imposing bans on the use of any existing or future marine engines. This is the purview of local water agencies that are responsible for maintaining a clean water supply for all Californians. At present, there are less than ten areas in the state that have restricted access to marine engines as a consequence of environmental concerns. Owners of marine engines who are unable to use these waterways have undoubtedly shifted to waterways better

able to accommodate their equipment so that overall recreational usage in the state has not significantly declined. Moreover, as emissions from new marine engines continue to decrease as the ARB's marine program unfolds, it is likely that increased usage, even on these most sensitive of waterways, will be possible. In the absence of ARB's marine program such an option would have been unlikely.

(6) In developing the regulatory proposal the ARB staff evaluated the potential impacts on private persons and businesses. As with any other regulatory item, staff acknowledges that there could be potential impacts associated with this program. These impacts were fully disclosed and discussed in the Staff Report (pp. 66-72). Any business which involves manufacturing, sale, distribution, servicing, or use of outboard marine, personal watercraft, and jet boat engines, boats or supplies could potentially be affected by the proposed regulations. However, the proposed regulations are not expected to impose a significant cost burden on these companies or on consumers. Further, the proposed regulatory action will not have a significant adverse economic impact on the ability of California businesses to compete with businesses in other states.

(7) This regulation does not ban the use of watercraft. Any boating restrictions would be under the purview of local water agencies, which will balance water quality needs with the potential loss of recreational access. See the response to (5) above.

(8) The ARB has focused on large sources to the point that "small" sources like marine engines will soon constitute a major proportion of the total emissions. Off-road vehicles such as marine engines have become a larger portion of total mobile source emissions as on-road mobile source regulations take effect. For example, if the marine engine regulation was not adopted, summer weekend day HC + NO_x emissions from marine engines would be equivalent to 40% of the emissions produced by passenger cars in California.

(9) More stringent standards would likely lead to greater emissions benefits, but this must be balanced against increased development costs to the industry. The ARB chose the balance point proposed.

7. J. Late Submittals

In addition, 31 late submittals were received addressing similar issues, including one 16-signature letter from a Lake Havasu group.

IV. MODIFICATIONS TO THE ORIGINAL PROPOSAL – SECOND NOTICE OF MODIFIED TEXT

One comment letter was received supporting the second notice of modified text. No other comments were received within the scope of the specific regulatory modifications proposed. Comments not involving objections or recommendations specifically directed toward proposed modifications are not detailed below.

8.

9. A. Environmental Label/Consumer Notification Requirements

1. **Comment:** Bluewater Network and its 50 coalition members strongly support the proposed changes to the environmental labels. (BWN)

Agency Response: The ARB appreciates the support, and believes that this version of the labels will be both useful and informative.

10. B. In-Use Compliance Testing and Recall Requirements

No comments were received regarding the proposed modifications to this section of the regulations.

11. C. Comments outside the Scope

Comments were received from 114 individuals and organizations that were outside the scope of the second notice of modified text. Two of these letters were in support of the regulations. One commenter complained that the standards are too lax, and that, since even a 2008 model year compliant engine will pollute 26 times as much as a 1999 automobile, it is objectionable to call such an engine “ultra low emission”. The remainder primarily addressed issues to which the ARB has previously responded earlier in this document. Nine of these letters were from individuals. Three of the individual letters addressed the concern that 2-strokes not be banned or otherwise restricted. The others primarily asked the ARB to remove the labeling provisions, under the aegis that the labels were not needed with the upcoming phase-out of MTBE. A group letter signed by 36 individuals was also received requesting the labeling provisions be removed for that reason. Finally, 57 form letters from anglers (identical to the previous letters from the anglers) were received, suggesting that restricting the use of two-stroke engines will result in a loss of revenues to small businesses and tax revenues to the State. As noted in the responses in Section II, the regulations do not in any way restrict the use of two-stroke engines.

The ARB’s approach to marine engines is to limit the emissions from new products regardless of the technology involved. By leaving the manufacturers with flexibility in meeting standards, innovation is encouraged and by using a

sliding scale of progressive stringency, production is shifted from high to relatively low polluting engines in a manner that is not economically debilitating to the manufacturers, distributors, dealers, current owners, or taxpayers. It is inappropriate to treat off-road and on-road vehicles in precisely the same way because usage, design constraints, market size and elasticity, cost structure, and history for the source category are all very different.

12. D. Late Submittals

Late submittals were received from 364 individuals, including 156 additional form letters from the anglers, and 196 more signatories to the group letter. Twelve individual letters were also received, including one letter of support. No new issues were raised, either within or outside the scope of the proposed modifications.

V. LIST OF ACRONYMS

ACWA	Association of California Water Agencies
APCB	Air Pollution Control Board
APCD	Air Pollution Control District
ARB	California Air Resources Board
BBAC	Black Bass Action Committee
BWN	Bluewater Network
CAA	Clean Air Act Amendments of 1990
CAPCOA	California Air Pollution Control Officers Association
cc	cubic centimeters
CCAA	California Clean Air Act
CCEEB	California Council for Environmental and Economic Balance
CCSB	California Coalition to Save Boating
CMC	Center for Marine Conservation
CMDA	California Motorcycle Dealers Association
CO	Carbon monoxide
CUB	Californians United for Boating
EDC	Environmental Defense Center
EHC	Environmental Health Coalition
FSOR	Final Statement of Reasons
HC	Hydrocarbon
HSC	Health and Safety Code
OMC	Outboard Marine Corporation
MECA	Manufacturers of Emission Control Equipment
MOAA	Marina Operations Association of America
MTBE	methyl tertiary-butyl ether (MTBE)
NCMA	Northern California Marina Association
NERA	National Economic Research Associates
NMMA	National Marine Manufacturers Association
NOx	Oxides of Nitrogen
NMMA	National Marine Manufacturers Association
PM	Particulate matter
rpm	revolutions per minute
RWQCB	Regional Water Quality Control Board
SCAQMD	Southern California Air Quality Management District
SCMA	Southern California Marina Association
SIP	California State Implementation Plan
TRPA	Tahoe Regional Planning Agency
U.S. EPA	United States Environmental Protection Agency
VIN	Vehicle Identification Number

VI. COMMENTERS AND SIGNATORIES

13. A. Public Comment at the 12/10/99 Board Hearing

1. Former Assemblyman Bernie Richter
2. Robert Wyman, NMMA
3. David Harrison, NERA
4. Sue Bucheger, Mercury Marine
5. Lawrence Keller, OMC
6. Ken Bush, Suzuki
7. Fernando Garcia, Bombardier Motor Corporation
8. George Hawley, reading letters from the Greater Lake Board Chamber of Commerce, Clear Lake Chamber of Commerce, and Board of Supervisors of the County of Lake
9. Jim Baetge, TRPA
10. Laurie Kemper, Lahonton RWQCB
11. Tom Bingham, Honda Motor Company, Honda
12. Tom Fletcher, Freedom Motors
13. Patrick Walker, Maxsym Engine Technology
14. Bruce Bertelsen, MECA
15. Mike Nazemi, SCAQMD
16. Carter Fickus, BBAC
17. Mike Riehl, BBAC
18. James Haussener, boat owner
19. Russell Anders, individual
20. Edward Peterson, California B.A.S.S. Federation
21. Rodger Stegall, California B.A.S.S. Federation
22. Russell Long, BWN
23. Krista Clark, ACWA
24. Jerry Desmond, Recreational Boaters of California
25. Dave Munro, boater and marina owner, presenting comments from The Apex Group
26. Betsy Oilman, MOAA
27. Terry Tjaden, SCMA
28. M'K Veloz, NCMA, CUB, and CCSB
29. John Paliwoda, California Motorcycle Dealers Association
30. Sherman Walker, retailer
31. Craig Jacobsen, retailer
32. Steve Carson, Hooked on Fishing
33. John Jay, retailer
34. Jim Contzen, small manufacturer
35. Brooke Coleman, Earth Island Institute
36. Robert Lucas, CCEEB
37. V John White, Sierra Club
38. Sheila Gallagher, CMC
39. Todd Campbell, Coalition for Clean Air
40. Joseph Caves, Union of Concerned Scientists
41. Richard Baldwin, Ventura County APCB

42. Mike Schmidt, Yamaha Motors

14. B. Lists of Signatories to Written Communications

Manufacturers

Honda, signed by David Raney

OMC, signed by Lawrence Keller and Joseph Moran

Supplemental comments signed by Joseph Moran, Sr Counsel

Kawasaki, signed by Jeffrey D Shetler

Bombardier, signed by Glyn Johnston

Freedom Motors, signed by Tom Fletcher

Harken USA, signed by Olaf Harken

Polaris, signed by Claude Picard

MECA, signed by Bruce Bertelsen

Mercury Marine, signed by Susan Bucheger

Grouped letters¹ (form letters and individual letters making the same points)

Best Management form letter

- | | | |
|--------------------------------------|---------------------------------------------|------------------------------------|
| 1. Grace C Bodle,
Stone Boat Yard | 4. J Hammer, Hammer's
Ski & Marine, Inc | 7. Ronald D Sullivan |
| 2. Joan Fuske | 5. Cindy M Kelly | 8. Jim Tejerian |
| 3. William L George | 6. Vince Macaluso,
VeeJay Marine Service | 9. Miguel Zamora,
Shaw's Marine |

Product Line form letter

- | | | |
|-------------------------------------------------------|------------------------------------------------|---------------------------------------------------|
| 1. Auburn Polaris, Jeff
Barbarick | 7. Castaic Ski & Sport,
Leslie McCartin | 14. Pacific Yachts, Robert
Kolstad |
| 2. Bob's Marine, Bill
Donaleski | 8. Cope & McPhetres
Marine Bob Cope, | 15. Pitchometer Propeller,
Don A Dolle' |
| 3. Bridgehead Dry Dock,
Donald A Dolle' | 9. Delta Marine Engine,
Inc, William Cosbie | 16. Pleasure Boat
Specialties, Glen
Schuler |
| 4. C & C Marine, Chester
E Hammonds | 10. Delta Sport Boats, Inc | 17. Ski Park Boat & Ski,
Chris Quackenbush |
| 5. Cal/North Marine
Publishing Co, John H
Super | 11. Harrison's Boat Center | 18. Twin Rivers Polaris,
Bill Fortna |
| 6. Camanche Recreation,
Chris Cantwell | 12. Jet Sports of L A, Terry
Koh | 19. VeeJay Marine Service,
Frank Macaluso |
| | 13. North Bay Boat Center,
Jerry O'Dell | |

Existing Inventory form letter

- | | | |
|--------------------------------------------------------------|------------------------------|-------------------------------------------|
| 1. Fred Cummings Honda
Suzuki SeaDoo,
Fredric Cummings | 2. DH Cycles, David
Hanes | 4. Larry Lilley
Motorcycles, Will Kohl |
| | 3. Fun Bike Center | |

¹ Note: Staff has provided a best guess as to the identity of individuals who signed letters without providing an accompanying typed name.

- | | | |
|----------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------|
| 5. Mid Cities Honda,
Kawasaki, Dea-Doo,
Douglas Slumskie | 6. Hayward Honda
Suzuki Sea Doo, Eileen
Olund | 8. Saddleback Suzuki Sea-
Doo, Greg Lamb |
| | 7. Simi Valley Honda,
Jim Woods | 9. TriCounty Marine, Steve &
Beth Schall |

Marina Operators

- | | | |
|----------------------------------------|----------------------------------------|-------------------------------------------|
| 1. B & W Resort Marina,
Joan Deak | 5. Holiday Harbor,
Stephen C Barry | 9. Pyramid Enterprises,
Chet D Roberts |
| 2. Ballena Isle Marina,
Jack Bolank | 6. Kaweah Marina, Inc,
Dale Mehrten | 10. Shasta Lake Resorts,
Michael Han |
| 3. Clipper Yacht Co,
Ken Pedersen | 7. Lake Don Pedro
Marina, Employees | |
| 4. Hi-Tide, Anthony
Carello | 8. Lauderdale Marina,
Robert O Cox | |

Boat/Accessory Manufacturers form letters

- | | | |
|--------------------------------------------------------|-----------------------------------------------|---------------------------------------|
| 1. Cal-June Inc, James H
Robertson | 19. Larson, Jeff Olson | 37. Triton Corp, Rochelle
Priesgen |
| 2. Challenger, Ron
DiBartolo | 20. Logic Marine, Robert
N Anderson | 38. Weems & Plath, Peter
Trogdon |
| 3. Cobalt Boats, Pack St
Clair | 21. Marlin Yacht, Angela
Gismondi-Salbe | 56 Employees of Bert's as
follows: |
| 4. Correct Craft, Inc,
Walter N Meloon | 22. MarinCo, J Marty
O'Donohue | 39. A |
| 5. Doelcher Products, Inc,
Joe Carnes | 23. Marine Development,
John I Crews, Jr | 40. Al |
| 6. Eagle Trailer, Robert
Johnston | 24. Midwest Industries,
Andy Brosius | 41. Damien |
| 7. Ebbtide, Rebecca
Lampley | 25. Moeller Marine,
Benson Nicholl | 42. D A |
| 8. Electric Fishing Reel
Systems, Carl T
Huffman | 26. Otron Tech Inc, David
Jones | 43. Guy Abu |
| 9. Elkhart Plastics, Inc,
Jack E Welter | 27. Parker Marine, Russell
Norris | 44. Bonnie Alva |
| 10. Forespar, Robert R
Foresman | 28. Parker Marine, Jason
Tilghman | 45. Lupe Alvarez |
| 11. Glastron, Jeff Olson | 29. Parker Marine,
Linwood Parker | 46. Av B |
| 12. Grady-White, Kris
Carroll | 30. Powerquest, Kevin
Hirdes | 47. Curtis A Batter |
| 13. Grady-White, Doug
Gomes | 31. Precision Mfg & Sales,
Normand Brunet | 48. Gail Benham |
| 14. Grant Products, Keith
Morris | 32. Rinker Boat Co, Raeni
Rinker-Dumford | 49. Steven Candela |
| 15. Harris Kayot, J R Poiry | 33. ShoreMaster, Erik
Ahlgren | 50. Dante Castillo |
| 16. Interphase Tech, Terri
Wallace | 34. Survival Products, Inc,
Donna W Rayers | 51. Brian Chrash |
| 17. Johnson Pump, Steve R
Orth | 35. Taylor Made Group,
James W Taylor | 52. James D |
| 18. Landau Boats, Linda
Gast | 36. Teleflex, Phil Rothe | 53. Rick D |
| | | 54. Luis Dava |
| | | 55. Mike Davis |
| | | 56. Angelian DeLuna |
| | | 57. Daryl Erbe |
| | | 58. Nikki M Frohuch |
| | | 59. Larry Garcia |
| | | 60. John R Harper |
| | | 61. Rick Henningsen |
| | | 62. Jason D Huber |
| | | 63. Erik Hurr |
| | | 64. J |
| | | 65. C J |
| | | 66. Jeff K |
| | | 67. David Kambarian |

68. Stan Knight
69. John Lemke
70. Eric Lich
71. Chris Lopez
72. Hector Lopez
73. Erik M
74. Barbl M
75. M M M
76. James Mascono
77. Kevin McPherson

78. Me
79. Jose Murillo
80. Melody Nolan
81. Tom Osinga
82. Louis Polack
83. D L P
84. R
85. Dustin S
86. J S
87. S S

88. David Sears
89. Michael Swinehart
90. Kevin Tussey
91. Dave Waugh
92. Scott Webster
93. Brian Witiozk
94. Rob Wittkamp

Mom & Pop form letter

1. Aegis Marine International, Judy Su
2. Air Chair, Robert C Woolley
3. AMPS Insurance Services, Mike Green
4. Auburn Polaris, Karen Barbarick
5. Auburn Polaris, Jeff Barbarick
6. Scott A Bain
7. Bike World, Earl Fernandez
8. Blue Porpoise Marine, Natalie C Gladnick
9. The Boat Brokers, Inc, Dean Messmer
10. Bruce Brown & Associates, Bruce Brown
11. Cabo Yachts, Inc, Henry A Mohrschladt
12. California Custom Trailers, Inc, Karen Messersmith
13. Callville Bay Marina, Rod Taylor
14. Carrera Performance Craft, Dennis Winzer
15. Russell's Crane Service, Joseph A Chartier
16. Commander Boats, Sy Singhal
17. Stu Caira
18. DCB Custom Boats, Dave Hemmingson
19. Sheila S Dela Vega
20. Delta Houseboat Rentals, CA, Bill Butts

21. Depth Perceptions Diving & Marine, Nancy R Dixon
22. Dockside, John Barr
23. Dockside, Scott Leigh
24. Ebbtide, T M Tradeway
25. Eliminator Boats, R D Geach
26. Extreme Engineering Inc, Eddie Rowland
27. Forever Resorts, David E Gackenbach
28. Glastron, Jeff Olson
29. GS Marine, Greg Shoemaker
30. Hayden Insurance, Michael Hayden
31. Jesus Hernandez
32. High Torque Marine, Inc, Lea Coulomde
33. IMCO, Fred R Inman
34. King Harbor Marina, Michael Aaker
35. Lake Amistad, Wolf Foster
36. Larson, Jeff Olson
37. Lavey Craft, Jeff A Camire
38. Lynn Vick Products, Lynn Vick
39. Marine Center Inc, Richard A Gain
40. Marine Express, Jeff Boh
41. Marine Plastic Lumber, Jerald A McDonald
42. McKee & Associates, Steve McKee

43. Miller's Landing, Jeff Dixon
44. Miller's Landing, Jim Cabral
45. Miller's Landing, Steve Turner
46. Miller's Landing, John Christianson
47. Miller's Landing, Tom Powell
48. Moccasin Point Marina, John Schoppmann
49. Morgancraft Boat Co, R S Rindel
50. Mullin & Associates, Michael W Mullin
51. Nautical Promotions, Amy Elliott
52. Newport Boats, Sid Partow
53. Ocean Marine Insurance Agency, Richard C Ramseyer
54. Perimeter Industries, R Todd Mackey
55. Pomona Valley, Lynn A Whitlinger
56. Pomona Valley, Ralph D Whitlinger
57. Powerski, James Walker
58. Quality Performance Marine, Rob A Clarke
59. Ron's Marine Center, Ronald H Voyles & Carlyn D Voyles
60. Russell's Crane Service, Vince L Fraser

- | | | |
|--------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------|
| 61. S & W Marine Service,
Inc, Carol Williamson | 72. Sonic Jet Performance,
Jeana Kern | 82. Michael A Von
Disterlo |
| 62. Schock Boats, Marie
Schock | 73. Southport Marine,
Jesse Soto | 83. Voyager, Rick Cob |
| 63. Sea Tow, Captain
Philip L Munsch | 74. Stitcheree Embroidery
Services, Ed Lauree | 84. Voyager, Fred
Finocchiaro |
| 64. Mark Selzler | 75. Sunwest Sports, Jeffrey
C Morat | 85. Voyager, Martin
Finocchiaro |
| 65. Captain David B
Severson | 76. Sun Country Marine | 86. Voyager, Gordon
Passey |
| 66. Shadow Trailers | 77. Supple-Merrill &
Driscoll, Dana J Coates | 87. Voyager, Brad
Renfrow |
| 67. Don Shefer | 78. TDC, Terry Brown | 88. Water Works, William
L Shofstall |
| 68. Jan C Suing | 79. Terry Brown's Marine
Service, Terry Brown | 89. Paul Watson |
| 69. Silverthorn Resort
Associates, Jane
Wallukait | 80. Teague Custom Marine
Inc, Bob Teague | 90. West Coast Correct
Craft, Robert W Bense |
| 70. The Small Business
Insurance Center, Gina
S Coates | 81. Valley Cycle Polaris,
Chuck Show | 91. Westmark
International, Judy
Soucy |
| 71. Jorge Servin | | |

United Outdoorsmen form letters

- | | | |
|-----------------------|---------------------------------|------------------------|
| 1. Robert F Baron | 9. Stacey Larson & Dave
Ruiz | 16. Richard Reinolhl |
| 2. David W Dodds | 10. Mike Leslie | 17. Thruman Schuman |
| 3. Doug Gianni | 11. Frank Luiz | 18. Kenneth L Shecty |
| 4. James Hunt II | 12. M G Miller | 19. Randall R Stubbins |
| 5. Alice Pauline Hunt | 13. Alfie L Olin | 20. Keith Todden |
| 6. Barbara A Kelling | 14. Clarence Pack | 21. Ron J Wik |
| 7. Ronald LaForce | 15. Brian Payne | 22. Illegible #1 |
| 8. Christopher Larson | | 23. Illegible #2 |

Recreational Boat Owners form letters

- | | | |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------|
| 1. Glenn Abu-El-Haj | 15. Brice Tool and
Stamping | 34. Archie & Connie
Devereux |
| 2. Bannowsky Family | 16. Jacqueline Brice | 35. Angelo DeVito |
| 3. Leo Battle | 17. Krystie Brice | 36. Benito Diaz |
| 4. Harold L Belcher | 18. Linda Brice | 37. Todd Dillmann |
| 5. Dennis J Bell | 19. Gene & Karen Brilione | 38. Michael Ditlow |
| 6. John Bennett | 20. Jerry Brink | 39. Robert E Downey |
| 7. Al Bergstrom | 21. William F Bricso | 40. Richard Dunshee |
| 8. Lorraine Bergstrom | 22. Darryl Bryson | 41. Phan Duong |
| 9. Michael Bergstrom | 23. Ralph L Buonacorsi | 42. Norma Edge |
| 10. Paul Bergstrom | 24. Jorge Cardenas | 43. Curtis Eggleston |
| 11. Wayne & Carol
Bingham
Tom Work
Valjean Hall
Gary & Arnell Work
Bob & Joy Work
Bob & Anita Hall | 25. M Leonard Cardosa | 44. Edward Eidinge |
| 12. Kenneth L Blanton | 26. Bill Carley | 45. CT Ellingboe |
| 13. Charles J Botano | 27. Jim F Charbagian | 46. Clifford H Feagins |
| 14. Karl Breckner | 28. Johnnie Charles | 47. Robert Forrester |
| | 29. Matt Clark | 48. Stacey Hill Francisco |
| | 30. Randy Clark | 49. John Fraser |
| | 31. Ernest Costanza | 50. Brandon Freeberg |
| | 32. Myron J Day | 51. Cameron Gale |
| | 33. Jack W Dent | 52. Mark Glover |

- | | | |
|--------------------------|--------------------------|--------------------------|
| 53. David Golden | 82. Mike McQueen | 111. John Schiveley |
| 54. Werner G Griebusch | 83. Russell A Meek | 112. Bob Schreiner |
| 55. Robin Guardino | 84. John D Mercer | 113. Carol Schuler |
| 56. SG Hartman | 85. John E Mills | 114. Hudson Scott |
| 57. David Hawk | 86. David Ray Morgan | 115. Sam Seggman III |
| 58. Michael & Tamsy Hays | 87. Leonard Murawski | 116. Wesley A Sheehy |
| 59. Mark Hix | 88. Michael Murrieta | 117. Daniel Showman |
| 60. James Hoffland | 89. John L Mussell | 118. Arne Skibsrud |
| 61. Lee Hoffman | 90. Edgar E Norton | 119. Steven A Souza |
| 62. Robert Hohman | 91. David Oaks | 120. Darrell Steele |
| 63. Bruce Horton | 92. Richard H O'Brien | 121. Clarence A Steward |
| 64. David Inderkum | 93. Ross E Patrick, Jr | 122. Doug Tate |
| 65. Paul Jansen | 94. Jeff Payne | 123. James D Tostenson |
| 66. John Jansheski | 95. Renholt V Peterson | 124. Sherman Triscuit |
| 67. Ronald Johnson | 96. Mark Phygian | 125. James Valladares |
| 68. Cindy M Kelly | 97. Hank Pierson | 126. Doug Volk |
| 69. Tom Kelly | 98. Frank Polak | 127. George Weddington |
| 70. Michael Kerr | 99. David Pollard | 128. Charles R Weitlauf |
| 71. Robert A Kirby | 100. Bob Powell | 129. Howard Wheeler |
| 72. Maurice LaFlamme II | 101. Gary Rahly | 130. James G White |
| 73. Claus Langer | 102. Robert V Redwine | 131. Don Whitlock |
| 74. Edgar Larrarte | 103. Gilbert P Reinhardt | 132. JB Wood |
| 75. Richard C Lawe | 104. Linda Reinhold | 133. Charles & Mary Work |
| 76. Dan Leaf | 105. William Richardson | 134. Keith Wulf |
| 77. Verne Long | 106. Russ Richenberg | 135. Caroline Zahn |
| 78. John Masson | 107. Larry Rose | 136. Don Zipser |
| 79. Thomas S Madon Sr | 108. St George Family | 137. D L |
| 80. Bruce Mark | 109. De Leon Schaupul | 138. Illegible |
| 81. MB Massey | 110. Michael Schiimm | 139. Unsigned |

Copies of form letter distributed at Lake Isabella, signed by 225 people in order as follows:

- | | | |
|--------------------------|-------------------------|-----------------------|
| 140. Jack Tarnowske | 163. Glen Srat | 186. Robert Sollami |
| 141. Iren Turner | 164. Charles Sullivan | 187. Barbara Kenton |
| 142. Wendy Saucht | 165. Leslie Stewart | 188. Rhonda Borkland |
| 143. Steve Saucht | 166. Bruce Stewart | 189. Orle McNasty |
| 144. Nancy E Reinhardt | 167. Yue Ping Sabertro | 190. Stephan Leek |
| 145. JW Long | 168. Henry Sabertro | 191. Daren Strum |
| 146. Mike Beale | 169. Julia Rawls | 192. John Paul |
| 147. Kathy Bohn | 170. S Allen Rawls | 193. Eileen Thomblin |
| 148. Patty Lanterman | 171. Dale Chevallier | 194. Micha Hart |
| 149. Py Carter | 172. Peggy Peay | 195. Scott Scillan |
| 150. J Bh | 173. Bud Peay | 196. Dewann Templeton |
| 151. Roger Ketelsleger | 174. Harold Hilsobeck | 197. Marilyn H Miller |
| 152. Jim Ketehlre | 175. Barbara Chevallier | 198. Newton |
| 153. Jay Zolt | 176. John Rodgers | 199. Kit Vessey |
| 154. Stephen Connelly | 177. Paul Bailey | 200. Eddy Tarnian |
| 155. Fred Bundy | 178. Lars Roundironick | 201. Pamela Kluden |
| 156. Rich Kleeman | 179. Sue Layman | 202. Ernest Cadens |
| 157. Madrin Addison | 180. Joel So | 203. Dan Aden |
| 158. Paul Cowan | 181. David Clariclay | 204. William E Webb |
| 159. David Pruina | 182. HV Lay | 205. Debbie McKinney |
| 160. Gilbert P Reinhardt | 183. Jerry Brown | 206. Fred Wheat |
| 161. Albert H Vavak | 184. Roddy Brown | 207. Deborah McCoy |
| 162. Frank F Figueroa | 185. William Jacob | 208. Rob Dindlay |

209.Laura Condit	262.Tatuev Irene	315.Paul Peters
210.James Throne	263.Patricia Henderson	316.Pete Lappas
211.Richard Throne	264.Tammy Seltz	317.Hewey Bars
212.Michele DuBry	265.Gina Maki	318.Clerske Hand
213.Stacey Guild	266.Joel Maki	319.Dean French
214.Butch Alexander	267.Tim Kirlil	320.Dale Jones
215.Cynthia M Kelly	268.Ronald Septh	321.Frank Turner
216.Cynthia M Casey	269.Steve Aguila	322.Ian Beltger
217.Debbie Eicce	270.Jimmie Skilmore	323.Thomas Preat
218.Jim Best	271.Steven Watkins	324.John Gecher
219.Tammy Best	272.Leora Watkins	325.Clint G
220.Chuck R Bar	273.Daniel Gonzales	326.Gary Hailey
221.Diane Drake	274.Bonnie Vlachos	327.Bob Quinn
222.Carla Smith	275.Walter Mamser	328.Barry Holzen
223.Glenn Smith	276.Bob Argini	329.Dustin Allredge
224.Dean Hunt	277.Ron Picker	330.Patricia Pangston
225.Curtis Barton	278.Dave Register	331.Rita Williams
226.Karen Diebel	279.Dennis Voller	332.Robert Eddes
227.Donald Diebel	280.Cathy Casey	333.David Wyly
228.Gary Mendez Jr	281.Ralph Uverson	334.Lisa Wyly
229.James A Wyly	282.Camryn Sanders	335.J Hrich
230.Ed Milton	283.John L Borrete	336.J Funk
231.Chuck Zeltt	284.Edward Gerard	337.R Denison
232.Shirley Kyle	285.Dale Emmons	338.JH Mahoney
233.Thomas Parker	286.David Perez	339.Jackie Neith
234.Plirda Nalois	287.Edward Sfichells	340.Tiffani L Henson
235.Stacy Beka	288.Carol Ann Kao	341.Dennis Barilett
236.James Avery	289.Lyn Lynch	342.Robert Cunningham
237.Gary Fishlachi	290.Bunchette Camby	343.Bob Broute
238.James M Perry	291.Millie Costes	344.Bob Mackenzie
239.Matthew Sefton	292.James Costes	345.Diane Mackenzie
240.Ernest Zammora Jr	293.Doug Rhodes	346.Cathy Williams
241.Bob Pefect	294.Nancy Skeen	347.Muil Whilt
242.Susan Schaub	295.Gary R Shultz	348.Glen D Pettit
243.Connie Fuancini	296.Drew Berry	349.Stefanie Thomey
244.Hazel M North	297.Linn Berry	350.Georgeann Karshan
245.J Walh	298.Joseph B Pien	351.Steve Brennan
246.Leshec Curtis	299.Jon Aynes	352.Tobin Gibson
247.Paul Vlachos	300.Billy Rintosh	353.Walter Keeling
248.Robert Charles	301.Darin Cillima	354.ME Roberts
249.Linda Baker	302.Richard Cross	355.SE Coffman
250.Wallace Baker	303.Robert Smith	356.Alan Campbell
251.David Rawley	304.Jerry Rupert	357.Ray Markham
252.Don Duvall	305.Sharon Riport	358.Kim Meordons
253.Dave Prince	306.Clarence R Report Sr	359.Bobby Milligan
254.Shirley Driskill	307.Doris Rypert	360.Thomas Bostid
255.Dallas Driskill	308.Billy Stalt	361.Carrie Pedroza
256.Frankie Driskill	309.Pamela Silletti	362.Railene Smith
257.Ron Halli	310.Dave Ludington	363.Debra Mendez
258.Ken Roberts	311.James Dugard	364.Gary Mendez
259.Todd Mamrshen	312.George Lee	365.Randy Mendez
260.David Thompson	313.Ron Evans	
261.Georgine Stephenson	314.James Day	

California B.A.S.S. Federation letter, submitted by Edward Peterson, and signed by 181 people in the following order:

1. Dave Perez
2. James Zailosa
3. William Dudley
4. Van T
5. Rernire Riev
6. Dan McGerna
7. An Gene
8. Jerry Betterncourt
9. Dash Matho
10. Robert Roranerto
11. Randy Hirskins
12. Rich Hoover
13. Greg Wall
14. Stephen R Hanss
15. Das Wytman
16. Ralph Warden
17. Robert R
18. Scott Taylor
19. Scott Curch
20. Richard Taylor
21. Bill Parker
22. David Walls
23. Fild Cops
24. Vern Zinn
25. Clinty Claper
26. March Eolin
27. David R Rush
28. Jehn Miller
29. Richard Buyst
30. Gerald Brackett
31. Corky Williams
32. John Smeller
33. Jan Ketchum
34. Sid West
35. Larry Dobbins
36. Rpger Bartley
37. Gary R Bruce
38. Don Dennis
39. Robert Mendoza
40. Jef Peb
41. Steve Taylor
42. JLV Taylor
43. Al Lydon
44. Bill McCompfiell
45. Robert Rodriguez
46. Bill I
47. Richard J Anderson
48. Priany Potli
49. Jerry Staffero
50. Jan Staffero
51. Dianna Lopez
52. LeRon Lopez
53. Arron Jackson Smith
54. Kenneth Ibson Jr
55. Craig Magaline
56. Robert Campbell
57. Eric Hernandez
58. John Fontana
59. Lonnie Woodload
60. Larry Stockman
61. Wayne Hodge
62. Ron Robertson
63. Jay J
64. Bud Bennett
65. James Mixer
66. Len Martin
67. John Copeland
68. John R Beattio
69. Dennis Wer
70. Robert Rutledge
71. Todd Siegfried
72. Jeff Pardini
73. Stephen Henson
74. Simon Salugsugan
75. Clay Pierce
76. Max Vellow
77. Steven Hart
78. Sylvester Gorsky Jr
79. Greg Taylor
80. Michael A Shuanson
81. The Miles
82. Ben E McCoy
83. George Morris
84. Bill Visk
85. Dave Kian
86. Dbert MnGant
87. Bry Terman
88. Gary Wratten
89. Bruce Liam
90. Wlke Bl
91. John Ellis
92. Mike Gutierrez
93. Kevin Shane
94. CR Martin
95. Guy
96. Jeff Jewell
97. I B
98. Terry McChr
99. Jeff Browning
100. J N
101. Jist N
102. Joe Lorres
103. Al Freedman
104. Chris Ball
105. Harry Pali
106. Robert Sacummus
107. Jeff Conan
108. Cliol Colten
109. Don Mendes
110. James Martin
111. Jeena Graham
112. M Hara
113. Marik Trih
114. Rheth
115. Reed Brunn
116. Gary Keeler
117. Grodon Duggan
118. Linda Duggan
119. Brian Lopez
120. Miro Lopez
121. Norma Gicercia
122. Rwhal Wardian
123. Gerald L Rukal
124. Michael H Criste
125. Rod Hernandez
126. Tom Burton
127. Mike Nunemacher
128. Charles Cobb
129. Stan Meye
130. Bob Lopez
131. J Winq
132. Gig Lunford
133. Sally Sarrois
134. Robert Corney
135. JP
136. Mat Brooks
137. John Parker
138. Rachele Deence
139. Charles Duncan
140. Matt Reyen
141. Ken Zanicoer
142. Peter Vohn
143. Larry Cogen
144. Frank Bobemil
145. Ronny Tylth
146. Steven Sigcay
147. Vincent Junter
148. Robert Jirman
149. J Sandulls
150. Miles Dill
151. Alberto Z
152. Abel Bellman
153. Larry Diamanso

154.M Kenne
155.Gerry Pimington
156.Kelly Clull
157.Rudy Walter
158.Dusty Boyle
159.Nbate Boyle
160.Sean Davis
161.Chris Cork
162.Ed Stinnett
163.Larry Langdon

164.Vince Matz
165.V Diaz
166.Dan Brolen
167.Jim Sch
168.David A Ott
169.D R Ghlr
170.Anthony Matuibe
171.Matt Adltreire Jr
172.John Somas
173.Ashon Payne

174.Derek Syolte
175.F Pepede
176.Moe S Valaq
177.William Myt
178.Tber DI
179.Duane Grobler
180.Dave Walsh
181.GP Hawkins

Anglers form letters

1. Jim Adams
2. Kenneth Allen
3. Rick Armstrong
4. Douglas Ashmore
5. Gary Asner
6. Louis Auria
7. Mark Auria
8. David Barnes
9. Leo Battle
10. Ron G Beavers
11. William Becker
12. Mike Bledsoe
13. Mike Boskovich
14. Darryl Bryson
15. Mike Burgh
16. Gary Burns
17. Guy Carele
18. Doug Chummer
19. Thomas Cissmah
20. Dan Colfin
21. Candace Comer
22. Wayne Conaki
23. Ralph Coran
24. Keith Corpus
25. Marion J Corpus, Jr
26. Michael O Corwin
27. Dan Daniel
28. William S Dehart
29. Patrick J Dilling
30. George Dollar
31. Malcolm J Dunn
32. Dan N Dyman
33. Alfred Fall
34. Gary A Feddersen
35. Manny Fernandez
36. Robert J Fitzgerald
37. David L Fuske
38. Stephen Fritz
39. Tom Garvey
40. Randy M George
41. Russ Greenlee

42. John P Grewe
43. Bert Guml
44. Bob Hallaway
45. Gene Harris
46. Helen M Harris
47. William E Harris
48. William P Hart
49. Joe Hastings
50. Pamela M Hawley
51. John H Hayes
52. Brian Heath
53. Diana Holder
54. Todd Holder
55. Ed Holsom
56. Ron Horan, TriValley
Bassmasters
57. David Houghton
58. Don Houlihan
59. Patrick G Hyl
60. Harry Jones
61. Thomas L Jones
62. Patty Kelly
63. Rube Kendrick
64. Timothy R Keys, Sr
65. David Kochis
66. Ken Kusnik
67. Janice LaValley
68. Ralph Lawhorn
69. William J Layne
70. Eddy Lerille
71. Jared Lin
72. Robert Lindgren
73. Mike Long
74. Jack R Loyal
75. Greg J Lucas
76. Edward Lugansad
77. Larry M Lutz
78. Matt McDonald
79. Jeffrey A Maloy
80. Lorrie Marette
81. Michael Martin

82. Paul J Marzilli III
83. Mike Matt
84. Joe McDonough
85. Ron McGibbon
86. Jim Menane
87. Stephen P Merlo
88. James C Metzger
89. Gregory G Mitchell
90. Robert T Monsen
91. Edward Moon
92. Ben Morris
93. Gary Mussat
94. Vince Mussat
95. Mike Nashbro
96. Rick Neidhardt
97. Tom Nelson
98. Michael Nguyen
99. Charles Nippen
100. Bill Nunes
101. V Harold Paxton
102. Gerald M Palmer
103. Ronald Perfetto
104. Dave Plotnik
105. Patricia Plotnik
106. Joe Plotz
107. Clint Porter
108. Kirk Procice
109. Ray
110. Joseph M Rey
111. Gerold G Ricks, II
112. Mark Roberts
113. Brenda Rollins
114. Joshua Rollins
115. Lonnie Rollins
116. Louise J Rollins
117. Shawn Rollins
118. Kelly Rose
119. Randall A Sandquist
120. Ken Sauret
121. Tim Sfe
122. Beverly Sheehan

123. Thomas J Sheehan
124. Steve Shuya
125. Ron Silva
126. David Skelk
127. Ken Smith
128. Wayne Spaulding
129. Lewis Starks
130. Paul Steel
131. Dan Stiles
132. Tom C Stouff
133. Charlie Strong
134. Peter J Su
135. Rodney Sull
136. Doug Sullivan

137. Cindy Sutherland
138. Jason Sutherland
139. Kaytlin Sutherland
140. Natanya Sutherland
141. Jim Tejerian
142. Mark B Thomas
143. Robert Throm
144. Reginald D True
145. Derek Turner
146. Steven D Vaughan Sr
147. ES Vestal
148. James Villazon
149. Raymond L Votive
150. Gary Wagmen

151. Allen Water
152. Don Weaving
153. Teresa L Wetter
154. John N White
155. Terry Wilson
156. Gary Woods
157. DR Worley
158. Richard E Wyman
159. Illegible #1
160. Illegible #2
161. Illegible #3
162. Illegible #4
163. Illegible #5

Anti-Ban individual letters

1. David Abney
2. Rhonda L Becker
3. Charles J Botano
4. H Durwood Campbell
5. Peter & Mary Camper
6. Charlie Davis
7. Joan Deak

8. Leonard Erwin
9. George Esser
10. Frank Galusha
11. John C Morrell
12. Philip Newman
13. Jonathan Rubin
14. Steve Russell

15. Rudolph F Sandor, Sr
16. James C Thomas
17. Russ Turner
18. Linda Warren
19. P Terry Anderlini

Anti-Acceleration/MTBE individual letters

1. MS Allen
2. Jim T Bentz
3. Dave Brooks
4. John Eads

5. David Hadden
6. Jim Heida
7. John Heida
8. Guy Kilburn

9. Rick Meyer
10. Scott Simpson

Anti-MTBE individual letters

1. Robert Barr
2. Ralph Bradley
3. George Clark
4. Harry C Crowell
5. Archie & Connie
Devereux
6. Todd Diaz
7. David W Dodds
8. Robert J Durant

9. Dana Gilbert Fox
10. Frank Galusha
11. Dan Hall
12. Robert Hancock
13. Winstion T Henry
14. Yvonne Mabee
15. M McCaslin
16. Allyn McDowell
17. Richard O'Brien

18. Arthur L Poganski
19. Larry Rider
20. R Simmons
21. Scott Simpson
22. Ed Smith
23. James C Thomas
24. Lonnie P Vanley

Anti-MTBE/ban individual letters

1. Gene & Karen Brilione
2. Haven Britts
3. Neal DeWitt

4. Tom Gardner
5. Dan Leaf
6. Bill Tancik

7. Raymond M Vella
8. Joel D Walls

Anti-Acceleration individual letters

1. Don Abbott
2. Jeanne Boell

3. John Graham
4. Dan Hasshaw

5. Lewis Family
6. Joanne Liu

- | | | |
|--------------------|-------------------|---------------|
| 7. Carl A Pilegard | 9. Jack Reshatoff | 11. Anonymous |
| 8. Lars Reshatoff | 10. Ward Zelhart | |

Anti-acceleration group letter

- | | | |
|----------------------|-------------------------|------------------|
| 1. Christopher Wood | 5. Sandra Osterholt | 9. Tina Everhart |
| 2. William B Wood | 6. William J Wood | 10. Dwayne Hayes |
| 3. Sherry Wood | 7. Sandra K Wood | |
| 4. Spencer Osterholt | 8. James E Everhart III | |

Objectors

1. Frank J Allegretta
2. Clint Hooper (email)
3. Calvin Roberts
4. Lisa Theveny

Anglers and Boaters form letters

- | | | |
|--------------------|----------------------|----------------------|
| 1. D Ablor | 15. Sandy He | 29. John Price |
| 2. Eugene Atkins | 16. Jeff Herschfield | 30. David Sandboture |
| 3. Bill Caldren | 17. Bill Hicks | 31. Larry Sanders |
| 4. Brian Ciu | 18. John D Hitchcock | 32. John R Scott |
| 5. Lee Cohen | 19. James Junette | 33. Anthony Sevano |
| 6. Dan | 20. Sally McDonald | 34. Curt Skinner |
| 7. Kenneth Danele | 21. Sid McDonald | 35. Thomas M Taylor |
| 8. Michael R Erich | 22. Mel | 36. Jim Taylor, Jr |
| 9. Russ Frin | 23. Les Miller | 37. Bruce W Whit |
| 10. Rachel W G | 24. Connie Ollie | |
| 11. Doug Gaylord | 25. Steve D Orsay | |
| 12. John Gentry | 26. Dan Pah | |
| 13. Erich Gicks | 27. Bill Park | |
| 14. Randy Gruler | 28. Robert Patterson | |

Individual Letters with sender's Name

- | | | |
|---------------------------------------------|--------------------------------------------------------|------------------------------------------------------------------|
| 1. Mike Velasquez | 13. Scott Simpson | 25. WI Gov Tommy Thompson |
| 2. Art Peters | 14. Senator Raymond N Haynes, 36th Senatorial District | 26. Congressman George Radanovich |
| 3. Jim Wood | 15. Wesley A Sheehy | 27. Craig Clinkenbeard |
| 4. Sally Robertson | 16. Mark Ensley | 28. D Louise Talley, Chair, Board of Supervisors, County of Lake |
| 5. R Gary Rounds | 17. Steve A McKee | 29. Michael Howard |
| 6. Wayne McGowen | 18. David McMonigle | 30. Tom Gardner |
| 7. David Park | 19. Ben Tadano | 31. Ronald LaForce, United Outdoorsmen |
| 8. Malcolm Smith Motorsports | 20. Thomas L Coss | 32. John Hodge |
| 9. Jay Liu, President, Bay Area Bassmasters | 21. James E Barrett | 33. Steve Long, LongRun Trailers |
| 10. Rick Meyer | 22. Kenneth R Butler | |
| 11. Ward Zelhart | 23. Thomas G Jones | |
| 12. R Simmons | 24. Ben C French | |

Business/Retailer Individual Letters with Company Name

- | | | |
|-------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1. Lauderdale Marina,
Robert Cox | 9. Mikelson Yachts,
Patrick Sullivan | 16. Specialty Marine Co,
Bob Bacus |
| 2. Berkeley Marine
Center, Dan Lucas | 10. Ron's Marine Service
Center, Ronald &
Carlyn Voyles | 17. Galaxie Marine, Joe &
Marilyn White
Mike VanWagner
Steve Binyon
Lou Hack
Robert Baldes
Ryan White |
| 3. Stephen Barry, Holday
Harbor | 11. Better Way Marine,
John Gratian | 18. Ecto Marine, Earl
Towsley |
| 4. Anglers Marine, Rick
& Cindy Grover | 12. John's Custom Marine,
Alan Stoker | 19. Bert's, Bonnie Alva |
| 5. Mountain Motorsports,
Shawn Packer | 13. Tim Rice, motorcycle
and personal watercraft
dealer | 20. Beneteau, Wayne
Burdick |
| 6. Water Resorts Inc | 14. Jim Segel Yacht Sales,
James Segel | |
| 7. Sunset Marine, Harold
Rehmann | 15. Galey's Marine
Supply, Don Galey | |
| 8. Premier Marine,
Robert Menne Jr | | |
| 21. Boston Whaler, Terry Dunagin | | |

Family Life form letters

- | | | |
|-----------------------|--------------------------------|-------------------------|
| 1. Al Bergstrom | 18. Greg Fentress | 33. Robert Neveux |
| 2. Lorraine Bergstrom | 19. Stacey Hill Francisco | 34. Doug Noren |
| 3. Michael Bergstrom | 20. Phil & Darcy
Greenwood | 35. Jay Peterson |
| 4. Paul Bergstrom | 21. Andrea Helland | 36. Susan Peterson |
| 5. Betty J Beavers | 22. Bernard Horton | 37. Mark Phigian |
| 6. Harold L Belcher | 23. Steve Hudson | 38. Paul Randall |
| 7. Andrew Berg | 24. Larry & Dorothy
Jamison | 39. John Van Rensselaer |
| 8. Nicollette Brice | 25. Anthony Jeppson | 40. Le Ann L St Clair |
| 9. Russell G Brice | 26. James Kehl | 41. Tania Shaverdi |
| 10. Jim Burdick | 27. Cindy M Kelly | 42. Robert Shepard |
| 11. Jorge Cardenas | 28. Tom Kelly | 43. Paula Richardson |
| 12. Rick Cervantes | 29. Jeff Koontz | 44. Darrel Taylor |
| 13. Benito Diaz | 30. Jim & Janet Martin | 45. Howard Wheeler |
| 14. Michael Ditlow | 31. Sherry Miller | 46. Anna Woodburn |
| 15. Robert K Eckels | 32. Karen Lopes | 47. Anonymous |
| 16. Curtis Eggleston | | |
| 17. Henry R Faust | | |

BBAC

1. H Carter Fickes, BBAC Development Director
2. George Hawley, BBAC Board Member
3. Don Reighley, Chairman of Governmental Affairs

BBAC supporters

4. Frank Cammarata, Executive Director, *Clear Lake Chamber of Commerce*
5. Janet L Connor, Executive Director, *Greater Lakeport Chamber of Commerce*

Finance Company Letters

1. James A Coburn, National City Bank of Michigan/Illinois, Marine/RV Finance Division
2. John Haymond, American Investment Financial

3. Michael N Parks, NationsCredit

Parks and Recreation Groups

1. John Koeberer, President, The California Parks Company
2. Jane H Adams, Executive Director, California Park & Recreation Society
3. Jack Harrison, Executive Director, California Parks Hospitality Association

Assemblymember Dennis Cardoza letter

1. Assemblymember Dennis Cardoza, 26th District
Not signed by Dennis Cardoza, but signed by:
Mike Machado Dick Floyd
Lou Papan Helen Thomson

Assemblyman Thomas "Rico" Oller letter

1. Assemblyman Thomas "Rico" Oller, 4th District
Signed by Rico Oller and 19 others

Associations

1. M'K Veloz, Administrative Director, Northern California Marine Association
2. Mike Basso, President, Southern California Marine Association
3. Barry Paulson, Sacramento Valley Marine Association
4. John Paliwoda, Director, Government Relations, California Motorcycle Dealers Association
5. Spik Breland, Western Boaters Safety Group
6. William E Krauss, The Apex Group, representing the Marina Recreation Association, California Association of Harbor Masters and Port Captains, California Marine Parks and Harbors Association, Western Boaters Safety Group (Munro testimony)
7. Robert Wyman, et al., Latham & Watkins, representing the National Marine Manufacturers Association

Bassboat Owners

1. Geoff McMillan
2. Craig Cornelius

Pro-personal watercraft

- | | | |
|---------------------------|-------------------------|---------------------------|
| 1. Brian Brager | 18. J Hammer, Hammer's | 33. David L Morris |
| 2. Jeff Carley | Ski & Marine Inc | 34. Julie Pankey |
| 3. Robert H Clark | 19. J S Harris | 35. Donald L Poteet |
| 4. Keith A Decker | 20. F Michael Heffernan | 36. Richard Recheal |
| 5. Mark Decker | 21. Bernard Horton | 37. Carl H Sasaki |
| 6. Nadine Decker | 22. Donna K Hunter | 38. Leslie D Scott |
| 7. Kenneth A Demers | 23. Jeff Ivey | 39. Robert H Clark, Seven |
| 8. Kimberly M Demers | 24. Peter Killus | Crown Resorts |
| 9. Paul F Dumas | 25. Craig Knebel | 40. Ron Smith |
| 10. Craig W Eastman | 26. Cindy M Kelly | 41. William C Street |
| 11. Curtis Eggleston | 27. Judy A Littrell | 42. Ronald D Sullivan |
| 12. Russ & Kathy Ellis | 28. Warren Dean Lee, | 43. Ralph Lewis, Tulare |
| 13. Bill Fortna, Twin | Lee's Honda Kawasaki | Honda |
| Rivers Polaris | Polaris | 44. Richard L Tusing |
| 14. Stacey Hill Francisco | 29. David Machado | 45. Kenneth & Lucille |
| 15. Ed & Jerrie George | 30. Michael E Mercer | Wilson |
| 16. Chris Graves | 31. Lynn Milano | |
| 17. Larry Hall | 32. John E Mock | |

Anti-Label group letter

- | | | |
|--------------------|----------------------|----------------------|
| 1. Gina | | |
| 2. Lera | 9. Ben Lehr | 16. Edna Giles |
| 3. Kenneth Sweet | 10. John Huhlman | 17. Dean Englund |
| 4. Lori Kadel | 11. Carol Kuhlman | 18. Steve Whitcomb |
| 5. Deborah Meighan | 12. Ron Thompson | 19. Julie Ross |
| 6. Mel Johnson | 13. Greg Ward | 20. Paul Rasmussen |
| 7. June Cagle | 14. Rex Liva | 21. George Rasmussen |
| 8. Mark Minnis | 15. Manuel Ynostroab | 22. Lynda Moldenbaum |

Support

Approximately 1050 letters and e-mails in support of the regulations were received, and are part of the formal rulemaking file. The names of the signatories are not specifically listed in this section.

15. C. First 15-day Modifications

- | | | |
|---------------------------|------------------------------|--------------------------|
| 1. TC Faulkner | 10. StreetTrucks | 19. George and Barbara |
| 2. B.A.S.S. Inc, Helen | Magazine, Brian | Amorin |
| Sevier | McCormick | 20. Mike Kennedy #1 |
| 3. Penn. B.A.S.S. | 11. Bob Maddoux #1 | 21. Mike Kennedy #2 |
| Federation, William E | 12. Bob Maddoux #2 | 22. Robert A Lindgren |
| Reichert | 13. Michael Panarale | 23. Roger Crisp |
| 4. Vincent Macaluso | 14. Pete DeFroschia #1 | 24. Quality Performance |
| 5. Bob Kornhauser | 15. Pete DeFroschia #2 | Marine Inc, Rob A |
| 6. Steven J Marino | 16. Chris L Anderson | Clarke |
| 7. Terry Freeland | | 25. Anglers Marine, Rick |
| 8. VeeJay Marine Service, | 17. Int'l Jet Sports Boating | & Cindy Grover |
| Frank Macaluso | Assn, Stephan | 26. James Coveney |
| 9. Robert L Barthman | Andranian | 27. James R Ray III |
| | 18. Curtis G Wheeler | 28. George & Tracy |
| | | Holloway |

29. John Goniea
30. Don H Heffren
31. Al Cunningham
32. Jeanette Zanotelli
33. Gary Zanotelli
34. Jimmy Zanotelli
35. Tom Zanotelli
36. Tony Zanotelli
37. Chris Niederberger
38. Chris Lee & Family
39. Lewis Cuccia
40. Jack Russell
41. Keith S Parsons
42. Ohio BASS Federation,
Bob Eyerman
43. Anonymous
44. Dennis K Stevenson
45. Glen Quinn
46. James Lommel
47. Zoltan Hallor
48. Richard Johnson
49. Steve Clairl
50. David L Cathey
51. Mark D Poole
52. Illegible
53. Stewart R Blunck
54. Michael J Baltz
55. Frank Prieto
56. Frank Shalabi
57. Clayton L A
58. Alan Allen
59. Larry S Lichty
60. Ray Hinton
61. Terry Brown
62. Ohio BASS Federation,
Dennis Becker
63. Bart Lawrence
64. Wade Porter
65. William Porter
66. Matthew Porter
67. Tom Porter
68. Rosemary Porter
69. Mr and Mrs Gary
Lancaster
70. Larry Blackshear
71. Rodger Stegall
72. Rick Burnett
73. Lowell Vaughn
74. Tom Jessop
75. Mary Eddy
76. Terrance Chenowth
77. Rick Isle
78. Robert L Benjamin #1
79. Robert L Benjamin #2
80. Robert L Benjamin #3
81. Village West Marina
82. Harold Walther
83. Frank Rodman
84. Ed Zimmerman
85. Dennis Smith
86. Ken Smith
87. Richard Memmott
88. Dave Grund
89. Nick Fonseca
90. April Fonseca
91. Chris Fonseca
92. David Cogswell
93. Matt Clancy
94. Gail Clancy
95. Donald Beisel
96. Wayne Doebler
97. Keith Barnes #1
98. Keith Barnes #2
99. Mr & Mrs Jack Coe
100. Marine Max Illegible
#1
101. Wayne West @ Marine
Max
102. Illegible #2 @ “ “
103. Illegible #3 @ MM
104. Glen Deahdley @ MM
105. Don Walks @ MM
106. Nola Mathany @ MM
107. Rogelio Raya Ramirez
@ MM
108. John ?? @ MM
109. Illegible #4 @ MM
110. Illegible #5 @ MM
111. Don Lee & Associates
112. Illegible #6 @ MM
113. Illegible #7 @ MM
114. B Schulz @ MM
115. Illegible #8 @ MM
116. Illegible #9 @ MM
117. James L Beavard @
MM
118. Gordon Bright @ MM
119. Illegible # 10 @ MM
120. Don Canby @ MM
121. Saddleback Suzuki,
Greg Lamb
122. Bert's, Ron Seidner
123. Marine Emporium,
Joseph & Julia Spotts
124. Marine Emporium, Jor
& Julia Spotts #2
125. Joseph & Julia Spotts
#3
126. Sun Country Marine,
Mike Basso
127. Cope & McPhetres
Marine, Robert Cope
128. Judy Fabris
129. Michael Panarele
130. Bill Weaver
131. Tim Paes
132. Bill Park
133. Don Elms #1
134. TDC Equipment, Don
Elms #2
135. TDC Equipment, Don
Elms #1
136. Pete's Harbor, Pete
Uccelli #1
137. Pete's Harbor, Pete
Uccelli #2
138. Pete's Harbor, Pete
Uccelli #3
139. Daniel Curtis
140. Mark Mellinger
141. Jason Arnel
142. Justin Doyle
143. William J Borneman Jr
144. Gus Willis
145. Jiggs Benn
146. Sieg Taylor
147. Ken Allen
148. Dave Marx
149. John Marshall
150. Steven J Marino
151. Curtis G Wheeler
152. John C Beery, Jr
153. Glenn Abu-El-Haj
154. JR & Denise Taylor
155. Mike Mountain
156. OA Strobridge
157. James Walker
158. Richard Burkhalter
159. Barry E McCoy
160. AG Posella
161. "Dominick"
162. Don Fournier
163. Chuck Kane
164. John Donaldson
165. Terry Christensen
166. Jim Cuevas
167. Susan Fleming
168. Steven C Penberthy
169. Anonymous
170. Philip C Terry Jr
171. Scott Koivunen
172. Lola Marie Cathey

173. Barbara Nelson
 174. Don Edmonds
 175. Illegible
 176. Oregon BASS Federation, Gary Yexley
 177. Catherine & Alfred Strohlein
 178. Laura Cartwright
 179. Outboard Jets, Richard C Stallman
 180. Mike Long
 181. Robert Seikel
 182. Alan Cotten
 183. J A Lynn
 184. Kaweah Marina, Lawrence Dale Mehrten
 185. Mike's Marine, John M Gilday
 186. Lynn Milano
 187. Mercury Marine
 188. SCMA
 189. NCMA, Robert Gorman
 190. CUB
 191. Bluewater Network, Russell Long
 192. Robert Widick
 193. Steve La
 194. Tim Linahon
 195. Sea-Power Marine, Dan O Ice
 196. Joe & Brenda Allen
 197. Jeffrey & Kimberly Brown
 198. Donald E Colclough
 199. Dave's Custom Boats, Dave Hemmingson
 200. Gary Mc Gill
 201. Jim Hamrick
 202. Westwind, Michael Fitzgerald
 203. Nancy L Perry
 204. Barry A Hespenshide
 205. Stewart & Stewart Marine Center, M "Duffy" Stewart
 206. Ronnie Molina
 207. Tom Kendall
 208. Russ Meyer
 209. Carolyn Vanek
 210. Tony G Reed
 211. B&B Cycles, Richard Barnes
 212. Donald Savill
 213. Leonard & Sharon Hunter
 214. Paul C Gordon
 215. Raj Gorajia
 216. Carlton Love
 217. Jay C Kumar
 218. Gary Grinzi
 219. Luigi Lucas
 220. Greg Stump
 221. Michael Brakebill
 222. David Hagan
 223. BASSMASTER, Michael Jones
 224. Scott L Vaughn
 225. Ronald & Katherine Haas
 226. Carl Brown
 227. Eric Crilly
 228. Dallas Baker
 229. Larry E Fry
 230. Chip Larsen
 231. Randel Mason Rod Kellogg Steve Surian Adam Paralta
 232. Boatland, Thomas Gray
 233. John F Graham
 234. Scott Sexton
 235. Joe Hallagard
 236. Seth Hals
 237. Willie Ray
 238. Jose Luis Juarez
 239. Karen & Ronald Whittington
 240. Douglas D Ashmore
 241. Robert Challen
 242. Steve D Vaughn
 243. Ray Blake
 244. Vaun Clegg
 245. G M
 246. Michael Purviance
 247. Eddie Lopez
 248. Russell Simpson
 249. Ed Guerrero
 250. Bruce
 251. Jim Cardoza
 252. Jim Muchi
 253. Wendell Martin
 254. Tammy Nunes
 255. Illegible
 256. Larry McCormick
 257. Henry Sartin
 258. Bill & Kathy Nunes
 259. Mo Beck's Stern Drive Co, Mo Beck
 260. Avalon Yacht & Boat Sales, Edward L Spurlock
 261. Ray Sahlberg
 262. Newport Boats, Sid Partow
 263. Carl Clarke
 264. IMCO, Fred Inman
 265. Ten Mile Bass Club, Illegible
 266. Michael Ferguson
 267. C Ray Long
 268. Rick Gangloff
 269. Lee Harris
 270. Glen Turner
 271. Steven Smith
 272. "tomyjo"
 273. unsigned
 274. Jay Miklovic
 275. Braden Spear
 276. Michael Young
 277. Daniel A Pollard
 278. Curt Lytle
 279. Guy Rodges
 280. Michael Bombauer
 281. Jeff H
 282. Eric Hayes
 283. John Mastorakis
 284. Ryan Brodreick
 285. Hugo de Cruz
 286. Shawn Alladio
 287. Steven Johnson
 288. Anonymous
 289. Wayne Pricolo
 290. John N Macdonald
 291. Anonymous
 292. Tom Kristiansen
 293. Loyal Vanderman
 294. NMMA comments, by Michael J Carroll, Latham & Watkins
 295. Carl W Ames
 296. Davis Beckman
 297. James Brackeen
 298. Scott Bruce
 299. Wayne Carey
 300. Tom Coss
 301. Lance Curlson
 302. "Gdloniak"

303. "exdr"
304. Joseph J Guzy Jr
305. Calvin E Dooley
Armand Emond
Victor Moundam
306. Gerald Gray
307. Steven G Lindner
308. Steve Nixon
309. Brett Peterson
310. Karl Reitmayer
311. Larry Albach
312. Robert E Allen
313. Tommy Abbott +13
Maul Anderson
Amaki Johnson
Jeff Pacinini
David DeForest
David Madera
Joe Costa
Correy Coggeus
Eddie Mendez
Joe Lopez
David Ccenine
Dave Lemh
Stephen Palista
Gary Perez
4. Jeff Armstrong
5. Gayle Asher
6. Z Babcock
7. Jerry A Bahma
8. Janet Beck
9. Edward Beggs
10. Stephen T Brecko
11. Scott Bruce
12. Darrell M Bryson
13. Pat Bryson
14. Kenny & Jenni Cabral
15. & Sosa Families
16. Sherry Cameron
17. Frank D Cardoza
18. Joseph J Cecchini
19. Carole Chubb
20. Gary D Cooper
21. Hugo Cruz
22. Joe & Brenda Cullen
23. Serge Decorte
24. Donald A Dolle'
25. Jon Donsey
26. Brenda Dunlap
27. Bob Durant
28. Carey Edwards
29. Crystal Edwards
30. Julie Edwards
31. Greg Enns
32. Mark Ensley
33. J R Ford
34. Brent Freeberg
35. Ben C French
36. Don Fournier #1
37. Don Fournier #2
38. John M Gilday
39. Alan J Girard
40. Greg Glasser
41. David C Goldberg
42. Ron Hardy
43. Ken E Hazlewood
44. Dave Hemminger
45. Erik Herman
46. Steve Hodge
47. James Hubbard
48. Michael Huffstatler
49. Don Iovino
50. Nicol Jones
51. Bob Kahn
52. Norman Kamin
53. Ron Kinzie
54. Steven Kremesec
55. Mr & Mrs Anthony B Lappas
56. Darrell Lehmann
57. Dave LemhDave LemhWilliam Lenheim
58. Alan J LemingAlan J. LemingAlan J. Leming
59. Tim Lenahon
60. Cheryl Louie
61. Robert Louie
62. Carol Martens
63. Marvin Marter
64. Bernie Matzke
65. Anita Mays
66. Lawrence Dale Mehrten
67. Ron Meno
68. Austin Michals
69. Curtis Michael
70. Lynn Milano
71. A Mocer
72. Henry Moody
73. Charles Niemann
74. Glen Olson
75. Angelo Panelli
76. Steven C Penberthy
77. Robert R Perez
78. Donald Phillips
79. David Plotnik
80. Lonnie Rollins
81. Eddie Rowland
82. Randall A Sandquist
83. Craig Schlicht
84. Bruce Smith
85. David M Smith
86. Magda Smith
87. Sean Smith
88. Gary Southern
89. Jon Steward
90. Larry D Stewart
91. Debra L Stone
92. Jason Stone
93. Robert T Suekawa
94. Mike Taylor
95. Brett Townsend
96. Joseph Townsend
97. Mr & Mrs Oscar Thompson
98. Jim Valladares
99. Daniel E Vance
100. Robert W Wager
101. Kevin Walker
102. Elmer D Weatherson
103. Gene West
104. John Wever
105. Robert L Widick
106. Robert R Wilbanks
107. Debra Wilbanks
108. J R Wills
109. Beth Schall #1
110. Beth Schall #2
111. Stephen Schall #1
112. Stephen Schall #2
113. Stephen Schall #3
114. Jack Schlicht
115. Gerald Scholl
116. "Shasts925"
117. Bruce Sikora
118. Kenneth Sommermeyer
119. Raul Solario
120. Jim Thompson
121. Robert Valk
122. Chris Wickham
123. Ed Young
124. "Eddie52S"
125. Bruce Ernest
126. Dink Carter
127. Steve Lunch
128. Gary Memmett
129. Illegible
130. Illegible
131. Chris D Renf
132. Glen Zin
133. Clayton Lat

134.MT Spencer #1
135.MT Spencer #2

136.MT Spencer #3
137.Steve Wiley

15-Day Support

- | | | |
|-----------------------------------------------|----------------------|--------------------------|
| 1. Jim Van Osdell | 11. Eleonora Molnar | 24. Leigh Moorhouse |
| 2. Sacha Maxwell,
Martha's Vineyard,
MA | 12. Richard Buchholz | 25. Tim Cassidy |
| 3. Heather Volesky | 13. Robert Shanbrom | 26. Joan Hudson |
| 4. Julia McGuire | 14. Carol E Fletcher | 27. Harry Read |
| 5. Brent Larsen | 15. Lisa Robertson | 28. Christopher Kirchwey |
| 6. John Anderson | 16. Todd T Cardiff | 29. Albert Kaufman |
| 7. Dorothy & Frederick
Reardon | 17. Mark Rylander | 30. Jeff Raheb |
| 8. David H Markey | 18. Colleen F Smith | 31. Jeffrey Hou |
| 9. Sylvia M Gregory | 19. Craig Smith | 32. A Mocerri |
| 10. George W Barlow | 20. Ani Rosselot | 33. Magda |
| | 21. Catherine Svehla | 34. Edward Beggs |
| | 22. Cris M Currie | 35. Robin Houston |
| | 23. Marilyn Dinger | |

D. Second 15-day Modifications

Anglers

- | | | |
|-----------------------------------------|------------------------|-------------------------|
| 1. Mike AcklinMike
AcklinMike Acklin | 24. Chris Glies | 48. Richard J Mispagel |
| 2. Keith Anderson | 25. Harland D Griffith | 49. Henry Parker |
| 3. Earnest C Banner | 26. Tim Grinolds | 50. Mike Phua |
| 4. Gerald R Bell | 27. Hiroshi Hasegawa | 51. David Plotnik |
| 5. Brent Bliss | 28. Doran Hayes | 52. Patricia Plotnik |
| 6. Wayne DuBoise | 29. Jim M Herberger | 53. Derick Rader |
| 7. Steve Brackmann | 30. Kevin Hugo | 54. Anne Rankin |
| 8. Michael Capanas | 31. Keith Janes | 55. Greg Redmond |
| 9. Dennis Conradi | 32. Chris Johnson | 56. L Reed |
| 10. Frank R Costello | 33. Mike Keniry | 57. Lonnie Rollins |
| 11. Thomas B Creasy | 34. Pat Keniry | 58. Joe Saldana |
| 12. Steven A Ellis | 35. Jeff Kiesendahl | 59. Susan Santucci |
| 13. Adria Falconer | 36. Daniel S Kirby | 60. Ty Schlendor |
| 14. James Falconer | 37. Rick Kiske | 61. John M Searle |
| 15. Jamie Falconer | 38. Donald L Lutes | 62. William M Siemantel |
| 16. Nancy Falconer | 39. Julie Lutes | 63. Janine Smith |
| 17. Darvin Fischer | 40. Leroy M Lutes | 64. Wes Steusner |
| 18. Manny Forare | 41. Robert Lutes | 65. Larry D Stewart |
| 19. Mike Forton | 42. Pete Marino | 66. Gabriel Valdez |
| 20. Mike Frame | 43. Jim Markham | 67. Mike Wesche |
| 21. Richard Franklin | 44. Charles Martin | |
| 22. Richard D Franklin | 45. Michael Meler | |
| 23. Mike Gissel | 46. Curtis Michael | |
| | 47. David L Miller | |

Boating Rights Group Letter

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|-------------------|-------------------------|-------------------------|
| 1. Pat Keniry | 13. Manny Frerre | 25. Steven A Ellis |
| 2. Mike Keniry | 14. Scott Brownlie | 26. Doran Hayes |
| 3. Saul Gudelj | 15. Mike Spruthgismeyer | 27. Richard D Franklin |
| 4. Dan Walling | 16. Chris Lavin | 28. Daniel S Kirby |
| 5. Manuel Chavez | 17. David Plotnik | 29. Ray Vella |
| 6. Ray McConnell | 18. Lonnie Rollins | 30. Bob Toohig |
| 7. Rich Mispagel | 19. Wes Stevener | 31. John Galleano |
| 8. Steve Lowe | 20. Bill Layne | 32. Cindy Monroy |
| 9. Ray Price | 21. David Skelton | 33. Joe Branco, Sr |
| 10. Dorothy Price | 22. Bill Siemantel | 34. Joe Branco, Jr |
| 11. Greg Redmond | 23. Jim Grinolds | 35. Doreen Raymond |
| 12. Josh Redmond | 24. Bob Diehl | 36. Robert J Fitzgerald |

Individual Letters

- | | | |
|---------------------------------------------|--------------------|-----------------------|
| 1. San Diego Audubon Society, James A Peugh | 4. Terry Swanson | 10. Brian Stafford |
| 2. Bluewater Network, Russell Long | 5. Jason Mazingo | 11. Ivor Frischknecht |
| 3. Wayne Thompson | 6. Gary McGill | 12. Tom LeBosquet |
| | 7. Michael Dice | |
| | 8. Richard Davison | |
| | 9. Ken Morgan | |

Names of signatories to letters which arrived after the comment deadlines are not listed in this document. However, they can be located in the "Late Submittals" binder, which is part of the formal rulemaking file.