California Environmental Protection Agency

Air Resources Board

Final Statement of Reasons for Rulemaking

Including Summary of Comments and Agency Responses

PUBLIC HEARING TO CONSIDER THE ADOPTION OF REGULATIONS TO REDUCE EMISSIONS FROM DIESEL ENGINES ON COMMERCIAL HARBOR CRAFT OPERATED WITHIN CALIFORNIA WATERS AND 24 NAUTICAL MILES OF THE CALIFORNIA BASELINE

Public Hearing Date: October 26, 2007, Continued to November 15, 2007

Agenda Item No.: 07-10-6

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I. GENERAL

In this rulemaking, the Air Resources Board (ARB or Board) is adopting a new regulation and an essentially identical airborne toxic control measure (ATCM) to reduce emissions of diesel particulate matter (PM) and oxides of nitrogen (NOx) from commercial harbor craft within 24 nautical miles of the California baseline (referred to as "Regulated California Waters"). The regulation and ATCM are hereinafter collectively referred to in the singular "regulation" unless otherwise noted.

The regulation will apply to commercial harbor craft operating within Regulated California Waters beginning January 1, 2009. Regulated California Waters include all California internal waters, estuarine waters, ports, and coastal waters within 24 nautical miles of the California coastline. The regulation establishes in-use emission limits for both auxiliary and propulsion diesel engines on ferries, excursion vessels, tugboats, and towboats consistent with the United States Environmental Protection Agency (U.S. EPA) marine engine emission standards. All engines in new harbor craft and replacement engines purchased for in-use harbor craft must meet emission limits equal to, or more stringent than, the U.S. EPA marine engine emission standards in effect at the time the new vessel or engine is purchased.

The regulation supports the "Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles" (Diesel Risk Reduction Plan) adopted by the Board on September 30, 2000, the "Goods Movement Emission Reduction Plan" adopted by the Board in April 2006, and the State Implementation Plan. The regulation will reduce the public's exposure to diesel PM and NOx by requiring vessel owners to repower or replace in-use engines with cleaner Tier 2 and Tier 3 engines; in addition, ferry owners are required to install best available control technology (BACT) on propulsion engines on new ferries.

This rulemaking was initiated by the September 7, 2007, publication of a notice for a public hearing on October 25-26, 2007 ("45-day Notice"). A "Staff Report: Initial Statement of Reasons" (Staff Report or ISOR) and "Technical Support Document" were also made available for public review and comment by September 7, 2007. The Staff Report, which is incorporated by reference herein, described the rationale for the proposal. Appendix A to the Staff Report contained the text of the originally proposed regulation, which adds a new section 2299.5 to title 13, California Code of Regulations (CCR) and a new section 93118.5, title 17, CCR. The Technical Support Document, which is incorporated by reference herein, described the basis of the proposal in more detail. These documents were also posted by September 7, 2007, on the ARB's internet site for the rulemaking at: http://www.arb.ca.gov/regact/2007/chc07/chc07.htm ("ARB's internet site").

On September 11, 2007, ARB staff published an errata to correct an error in the internet address for ARB's internet site as it appeared in the 45-day notice. On September 25, 2007, ARB staff published a second errata to correct the information in

various tables contained in the Staff Report and Technical Support Document. These errata were to correct errors associated with the incorrect use of "Tons/year" (corrected to show "Tons/day") and errors resulting from the conversion of the Staff Report and Technical Support Document from Microsoft Word to Portable Document Format (PDF).

On October 26, 2007, the Board conducted a public hearing to consider adoption of the staff's proposal, including staff's suggested changes to the original proposal. Those modifications were set forth in a two-page document entitled, "Staff's Suggested Modifications to the Original Proposal – To Be Presented at the October 26, 2007 Hearing," which was distributed at the hearing and included as Attachment B to Resolution 07-47. Written and oral comments were received at the hearing, and several stakeholders suggested additional changes to the proposed regulation. At the conclusion of public testimony, the Board requested staff to review two issues that were raised during the public comment period and to report its findings at the next Board meeting. The Board then closed the rulemaking record on the proposal and continued the hearing to consider the staff's proposal to the staff's November 15, 2007 meeting.

At the November meeting, staff provided the information the Board requested on October 26, 2007. At the conclusion of the continued hearing, the Board adopted Resolution 07-47, in which it approved the adoption of the originally proposed regulation with suggested modifications discussed on both hearing dates. Modifications proposed by staff in response to the Board's questions raised on October 26, 2007 were set forth in a two-page document entitled, "Staff's Suggested Modifications to the Original Proposal – To Be Presented at the November 15, 2007 Hearing," distributed at the hearing and included as Attachment C to Resolution 07-47. In accordance with section 11346.8 of the Government Code, the Board directed the Executive Officer to incorporate the modifications included in Attachments B and C into the proposed regulatory text and to make such modifications available for a supplemental comment period of at least 15 days. The Executive Officer was then directed either to adopt the regulation with such additional modifications as may be appropriate in light of the comments received, or to present the regulation to the Board for further consideration if warranted in light of the comments.

The text of the modifications to the originally proposed regulation, the incorporated documents, and additional supporting documents were made available for a supplemental 15-day comment period by issuance of a "Notice of Public Availability of Modified Text and Availability of Additional Documents" ("15-day Notice"). The 15-day Notice with five attachments was mailed on June 18, 2008 to all parties identified in section 44(a), title 1, CCR, and to other persons generally interested in ARB's rulemaking concerning commercial harbor craft. These five attachments included a copy of Resolution 07-47 with Attachments B and C entitled "Staff's Suggested Modifications to the Original Proposal," the revised regulatory language, and three documents that staff added to the rulemaking record. All these documents were also published on June 18, 2008, on ARB's Internet site. An email message announcing and linking to this posting was transmitted to the more than 1,300 parties that have

subscribed to ARB's "harborcraft" listserve for notification of postings pertaining to commercial harbor craft.

The 15-day Notice gave the name, telephone, and fax number of the ARB contact person from whom interested parties could obtain the complete texts of the additional incorporated documents and the modifications to the original proposal, with all of the modifications clearly indicated. The deadline for submittal of comments on the staff's suggested modifications was July 3, 2008.

Ten written comments were received during the 15-day comment period. Two of the ten comments did not specifically address the proposed modifications in the 15-day Notice. Eight comments specifically addressed the proposed modifications, but ARB decided not to make additional modifications in response to those comments.

After considering the comments received during the supplemental 15-day comment period and making the modifications described below, the Executive Officer issued Executive Order R-08-007, adopting new section 2299.5 in title 13, CCR, and new section 93118.5, title 17, CCR, and adopting the incorporated documents.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and explaining the modifications that were made to the original proposal as a result of public comment and staff analysis after the Staff Report was issued. The FSOR also summarizes written and oral comments the Board received on the proposed regulatory text during the formal rulemaking process and ARB's responses to those comments.

Documents Incorporated by Reference.

The following documents are incorporated by reference in the regulation:
(1) International Standard ISO 8178-4(E):1996, "Reciprocating Internal Combustion Engines – Exhaust Emission Measurement – Part 4: Test Cycles for Different Engine Applications"; (2) International Standard ISO 8178-2(E):1996, "Reciprocating Internal Combustion Engines – Exhaust Emission Measurement – Part 2: Measurement of Gaseous and Particulate Exhaust Emissions at Site;" (3) U.S. EPA Marine Engine standards, Tier 1 and Tier 2, as set forth in "Control of Emissions of Air Pollution from New Marine Compression Ignition Engines at or Above 37 kW" (64 Federal Register (FR) 73299-73373, December 29, 1999)(40 Code of Federal Regulation (CFR) Part 94); (4) U.S. EPA Marine Engine Standards, Tier 3 and Tier 4, as set forth in "Final Rule: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters Per Cylinder" (73 FR 25245 et seq., May 6, 2008); (5) the following National Oceanic and Atmospheric Administration (NOAA) Nautical Charts, as authored by the NOAA Office of Coast Survey: (A) Chart 18600, Trinidad Head to Cape Blanco (January 2002), (B) Chart 18620, Point Arena to Trinidad Head (June 2002), (C) Chart 18640, San Francisco to Point Arena (August 2005), (D) Chart 18680, Point Sur to San Francisco (June 2005), (E) Chart 18700, Point Conception to Point Sur (July 2003), (F) Chart 18720, Point Dume to Purisima Point (January 2005), and (G) Chart 18740, San Diego to Santa Rosa Island (April 2005);

(6) ASTM D975-81, "Standard Specification for Diesel Fuel Oils" (as modified in May 1982); and (7) “Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines," 13 CCR §2700-2710.

The seven documents listed above consist of an updated international test method for measuring emissions from reciprocating internal combustion engines, marine engine emission standards promulgated by U.S. EPA, seven updated nautical charts defining sections of the California baseline (i.e., the coastline), and ARB procedures and requirements for diesel engine control strategies. Each instance of incorporation identifies the incorporated document by title and date. The documents are readily available from ARB upon request and were made available in the context of this rulemaking in the manner specified in Government Code section 11346.5(b). Also, the referenced ISO documents are published by the International Organization for Standardization, a well-established and prominent organization. Similarly, the nautical charts are available from NOAA, another prominent and long-established national agency. Further, ARB is a well-known public agency, and its verification procedure is easily obtained from ARB through various channels, including ARB’s general web site. Finally, the U.S. EPA regulations are readily available from that agency. Therefore, all the incorporated documents are reasonably available to the affected public from commonly known sources.

The documents are incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to print them in the CCR. Existing ARB administrative practice has been to have specifications, test procedures, and similar documents incorporated by reference rather than printed in the CCR because these specifications and procedures are highly technical and complex. These include “nuts and bolts” engineering protocols and laboratory practices and have a very limited audience. Because ARB has never printed complete test procedures and similar documents in the CCR, the directly affected public is accustomed to the incorporation format utilized in the regulation. These test procedures and similar documents as a whole are extensive, and it would be both cumbersome and expensive to print these lengthy, technically complex procedures in the CCR for a limited audience. Printing portions of the test procedures and other documents that are incorporated by reference would be unnecessarily confusing to the affected public. For similar reasons, ARB is also incorporating by reference the detailed NOAA nautical charts specified above.

Fiscal Impacts. Pursuant to Government Code sections 11346.5(a)(5) and 11346.5(a)(6), the Executive Officer has determined that the regulatory action will create costs to some State and local agencies. Most State and local agencies will incur only reporting costs. Staff has estimated these one-time reporting costs to range from about $100 to $3,000 depending on the number of vessels operated by the agency. Agencies operating ferries, excursion vessels, tugboats, or towboats with diesel engines would also incur engine replacement costs ranging from a total compliance cost of $100,000 to $10 million. These agencies include the City of Vallejo, which operates the

Baylink Ferry; the Golden Gate Bridge and Highway Transportation District; the Port of Los Angeles; and the California Department of Transportation. However, the regulatory action will not result in costs or savings, as defined in Government Code section 11346.5(a)(5) and 11346.5(a)(6), to any state agency, or in federal funding to the state, or create costs or mandates to any local agency or school district, whether or not reimbursable by the state pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, or other non-discretionary costs or savings to local agencies.

The Executive Officer has determined that there will be costs to the ARB to implement and enforce the regulation. Staff estimates that ARB's cost to implement the reporting program (initial report) would be approximately $25 to $50 per engine for the entire population of 8,300 engines. These costs would be spread over the first two years of implementation. An additional cost on the order of $10 to $100 per engine (spread out over the 14 years from 2009 to 2022) is estimated for implementing the in-use engine compliance requirement. This would include providing technical assistance to stakeholders in compliance efforts and processing report updates at the time of final compliance with the regulation. Approximately 1,900 engines would be involved. Both of these implementation costs will be absorbed within existing budget and resources. Additionally, there will be travel and materials costs during the initial years of the regulation for outreach and educational efforts to economically disadvantaged or hard-to reach stakeholders, estimated at $25,000 per year for two years. A budget augmentation request has been made for these funds for the first year. Enforcement costs, including inspection and verifying reporting, are estimated at approximately $80 per engine per year for the 1,900 engines required to comply with in-use engine emission limits, or about $160,000 per year starting in 2009. The Enforcement Division is submitting a request for one additional staff person for the enforcement of this regulation in a Budget Change Proposal that encompasses their need for additional staff to enforce multiple, newly adopted regulations.

Consideration of Alternatives. The regulation proposed in this rulemaking was the subject of discussions involving ARB staff, local air districts, affected vessel engine owners, operators, manufacturers, dealers, and others. A discussion of two alternatives to the regulatory proposal is found in Analysis of Alternatives, Section I, Chapter VIII (pp. VIII-27 through 32) of the Technical Support Document. Staff recommended against both alternatives.

Both alternatives considered replacing pre-Tier 1 (unregulated or Tier 0) engines on uniform statewide in-use compliance schedules. One alternative removed the SCAQMD accelerated compliance schedule, such that vessels with homeports in SCAQMD as well as all other vessels in the State would be subject to a 15-year life compliance schedule. This alternative would accelerate Tier 0 engine replacements, but not as quickly as the SCAQMD compliance schedule. It was found to reduce the number of engine replacements in the first six years, unacceptably eliminating the early emission reductions necessary to help meet PM2.5 attainment goals by 2014. The other alternative placed all vessels in the State of California on the proposed SCAQMD

accelerated compliance schedule. This alternative was found to be infeasible because accelerating engine replacements statewide would exceed California's boat yard and maintenance facilities' capabilities. Staff also found that accelerating the compliance schedule for Tier 0 engines was found to provide short-term benefits at the expense of greater long-term reductions. The Board agreed with staff's recommendation against these two alternatives, but the Board suggested that ferry Tier 0 engine replacements be accelerated for the health and safety of ferry passengers.

During the October 26, 2007 hearing, the Board instructed staff to analyze a third alternative, namely to accelerate replacement of ferry Tier 0 engines while maximizing Tier 3 engine replacements. Under the original compliance schedule, ferry vessel 1996-1999 model year Tier 0 engines would be replaced in 2015 and 2016. Tier 3 engines become available in 2014, so accelerating the replacement of those engines 1 to 2 years would accelerate emission reductions with no loss in long-term benefits. This change would not adversely affect the repower capacity since fewer than 10 ferries would be affected by this acceleration. However, it would increase the economic impact of the rule on ferry owners. The 2000 model year Tier 1 engines would still be replaced in 2015 and 2016, maintaining a 15-year life for Tier 1 engines.

For the reasons set forth in Chapter VIII of the Technical Support Document, in staff's comments and responses during the hearing, and in this FSOR, the Board determined that the alternative of accelerating ferry vessel 1996-1999 model year Tier 0 engines by 1 to 2 years would be effective in carrying out the purpose for which the regulatory action was proposed. The Board therefore adopted the proposal to accelerate the ferry vessel compliance schedule for 1996-1999 model year Tier 0 engine replacements. The Board has determined that no other alternatives considered by the agency or that have otherwise been identified and brought to the attention of the agency would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

II. MODIFICATIONS MADE TO THE ORIGINAL PROPOSAL AND ADDITIONAL DOCUMENTS MADE PUBLICLY AVAILABLE

Various modifications were made to the original proposal to address comments received during the 45-day public comment period and to clarify the regulatory language. These modifications are described below and include staff-proposed modifications that were approved by the Board on November 15, 2007, changes that the Board directed staff to make, and subsequent modifications made in response to public comments and to improve the proposed regulation's clarity. The 15-day Notice together with a copy of the proposed regulation with changes indicated was posted on June 18, 2008 for period of public review and comment through July 3, 2008. Notification was sent to persons who had expressed an interest in the regulation during the course of rule development and review, including all individuals described in subsections (a)(1) through (a)(4) of section 44, Title 1, CCR. By these actions, the modified regulations were made available to the public for a supplemental comment

periods pursuant to Government Code section 11346.8. ARB decided not to make additional substantial changes in response to public comments received June 18-July3, but certain nonsubstantial changes were subsequently made and are detailed in subsection B below.

A. Availability of Modified Text

The following is a description of the substantive modifications provided for public comment from June 18, 2008 through July 3, 2008, arranged by section number. Essentially identical modifications were made to proposed section 2299.5, title 13, CCR and to the proposed Airborne Toxic Control Measure in section 93118.5, title 17, CCR. All references below to section 2299.5 and section 93118.5 are to the indicated sections in title 13 and 17, CCR, respectively, unless otherwise noted.

Definitions, Subsections 2299.5(d) and 93118.5(d)

The definitions for “excursion vessel” and “ferry” were changed to help differentiate between the two vessel types.

Also, the definition for “ocean-going vessel” was modified to delete references to a registry and foreign-flagged vessels because the remaining three definitions for “ocean-going vessels” sufficiently describe such vessels.

The definition for “Regulated California Waters” was modified to correct a slight error in the coordinates for the overwater Mexico-California border.

Definitions for “Tier 3 Standards” and “Tier 4 Standards” were corrected for minor changes in the finalized standards and for one error, along with appropriate citations to the federal rulemaking, to reflect the recent U.S. EPA adoption of these standards in May 2008. Also, the definitions for “Tier 1 Standards,” “Tier 2 Standards,” “Tier 3 Standards,” and “Tier 4 Standards” were modified to make it clear that in the event of a conflict between a particular standard in the summaries of those standards in this regulation and the actual corresponding U.S. EPA standard, the U.S. EPA standard will control.

In-Use Engines and Vessels: Pre-Tier 1 and Tier 1-Certified Engines (Applicability and General Requirements), Subsections 2299.5(e)(6)(A) and 93118.5(e)(6)(A)

This subsection was modified to clarify the applicability of the in-use engine and vessel requirements and to clarify the applicable compliance date.

In-Use Engines and Vessels: Compliance Schedules and Determination of Engine Model Year, Subsections 2299.5(e)(6)(C) and 93118.5(e)(6)(C)

To improve clarity, this subsection’s heading was changed from “Compliance Schedules and Determination of Engine Model Year” in the original proposal to “Compliance

Dates," and it was moved to become subsection (e)(6)(D). (Note: An automated paragraph numbering function resulted in original subsection (e)(6)(C) being erroneously renumbered as subsection (e)(6)(D) in the version of the regulations indicating 15-day modifications, but this error appeared in text that was correctly identified for deletion and was therefore judged by staff to be of no consequence.)

Use of the "Engine Model Year + 5" method to determine engine model year was restricted to vessel engines with homeports outside the SCAQMD. This modification ensures the regulation will not delay engine replacement emission reductions in the SCAQMD.

Table 7 was modified to accelerate the compliance dates for specific ferry vessel (1996-1999 model year) engines with homeports outside the SCAQMD. In the originally proposed compliance schedule, 1996-1999 model year ferry engines were required to comply in 2015 or 2016, depending on the annual engine hours of operation. The Board directed staff to accelerate the compliance schedule for these ferry engines to 2014. These engines will still be replaced with Tier 3 engines, maintain a 15-year engine life on the original engines, and accelerate the emission reductions by 1 to 2 years.

In-Use Engines and Vessels: Compliance Requirements, Subsections 2299.5(e)(6)(D) and 93118.5(e)(6)(D)

This subsection's title was changed from "Compliance Requirements" in the original proposal to "Compliance Methods," and was moved to become subsection (e)(6)(C). The compliance option involving demonstration that the in-use engine meets Tier 2 standards was clarified by dividing this option into two separate options. One option, named Method C2 in the modified regulation, specifies engines may be brought into compliance by demonstrating that the in-use engine meets Tier 2 engine emission standards as long as the demonstration is made prior to the effective date of Tier 3 engine emission standards, even if the engine's compliance date occurs after the Tier 3 effective date. The other option, Method C3, specifies that engines may be brought into compliance by demonstrating the engine meets the Tier 2 or Tier 3 engine emission standards, whichever is in effect at the time of the engine's compliance date.

In-Use Engines and Vessels: Compliance Extensions, Subsections 2299.5(e)(6)(E)(4) and 93118.5(e)(6)(E)(4)

The compliance extension for same fleet vessel engines that share compliance dates was modified by adding an extension for owners with multiple vessels who will need to comply in the first two compliance years (2009 and 2010). The extension will allow a phased compliance schedule providing an additional three to four years for compliance while ensuring that all engines are in compliance by the end of 2013. This maintains the early reductions necessary in the SCAQMD and the rest of California.

In-Use Engines and Vessels: Special Provisions for DECS, Subsections 2299.5(e)(6)(F) and 93118.5(e)(6)(F)

A repair requirement was added to apply when a diesel emission control strategy (DECS) fails. This requirement gives the option to repair the DECS within 90 days of a failure or, if it cannot be repaired, to either replace it with another working DECS or use a different compliance method that meets the requirements of the section.

Initial and Compliance Plan Reporting Requirements, Subsections 2299.5(h) and 93118.5(h)

The date when ferry, excursion vessel, tugboat, and towboat owners are required to report how they will comply with the in-use emission limit requirements was changed from the time of the initial reporting in 2009 to February 28 of the year compliance is required. This would allow vessel owners to develop a plan based on technology available at the time compliance is required and their current economic status. Vessel owners who choose to comply early can report compliance at that time.

Violations, Subsections 2299.5(i) and 93118.5(i)

This provision was modified to make it clear that violations are also subject to the penalties prescribed in Health and Safety Code §42402 et seq.

Supporting Documents and Information

In accordance with Government Code section 11347.1, the following documents were added to the rulemaking record with public notification provided in the 15-day Notice:

- "Assumptions for Estimating Greenhouse Gas Emissions from Commercial Harbor Craft Operating in California" -- This document was appended to the 15-day Notice as Attachment 3 and serves as new Appendix G to the Technical Support Document.

- "Estimated Ticket Price Increase for Ferry/Excursion Businesses" -- This document is appended to the 15-Day Notice as Attachment 4 and serves as new Appendix H to the Technical Support Document.

- "Survey of Ferry Vessel Owner/Operators" -- This document is appended to the 15-Day Notice as Attachment 5 and serves as new Appendix I to the Technical Support Document.

Other Changes in Modified Text

In addition, certain subsections and paragraphs were rearranged and other minor modifications were made throughout the regulatory text to improve clarity; to correct spelling, typographical errors, punctuation, and grammar; to make numbering

adjustments; and to correct citations and references. For example, staff modified the subsections (b) and (c) in both regulations to make the regulatory text easier to read. These modifications were included in the strikeout/underline version of the regulatory text that was provided for public comment with the 15-day Notice.

B. Nonsubstantial Changes

Certain nonsubstantial changes were made in the proposed regulations subsequent to circulation of the modified text for public comment. These changes are detailed paragraph by paragraph below, except that the following changes are not individually identified by location in the proposed regulations: (1) Correction of spelling errors, including replacing "home port" with "homeport" for consistency, adding hyphens to the terms "ocean-going," "compression-ignition," and "low-use," and adding an "s" to the word "emission" in the term "emissions data"; and (2) Punctuation and formatting corrections including adding spaces after periods at the end of sentences and after colons, adding commas between the last two items in a list of items, changing periods to semicolons, changing the form of quotation marks, removing spaces before and after the slash in the term rescue/recovery, adding and removing blank lines between paragraphs, adding a return and blank line between a paragraph title and text, and changing paragraph title font to bold and italicized.

The following grammatical corrections and changes to improve clarity were made to the final regulation order, shown below in underline to show additions and strikeout to show deletions:

2299.5(c)(5)
93118.5(c)(5)

(5) A recreational vessel is exempt from this section in its entirety;

2299.5(c)(13)
93118.5(c)(13)

(15) Near-Retirement Vessels. A harbor craft is exempt from the requirements of subsection (e)(6)(C) and (e)(6)(D) if all of the following criteria have been met:

2299.5(d)(13),(14), and (15)
93118.5(d)(13),(14), and (15)

(13) "Category 1 engine" means any marine engine with a displacement of less than 5.0 liters per cylinder and with a maximum horsepower (hp) rating of 50 hp or greater**.**

(14) "Category 2 engine" means any marine engine with a displacement of 5.0 to less than 30 liters per cylinder.

(15) "Category 3 engine" means any marine engine with a displacement of greater than 30 liters per cylinder.

2299.5(e)(4)
93118.5(e)(4)

(4) All New Harbor Craft (Including All New Ferries) – Requirements for Newly Acquired Vessels.

Beginning January 1, 2009, a person subject to this section may not sell, purchase, offer for sale, lease, rent, import, or otherwise acquire a new harbor craft for use in any of the Regulated California Waters unless each of the diesel engines on the vessel meets the applicable Tier 2, Tier 3, or Tier 4 standards in effect on the date of vessel acquisition. The person must also meet the additional requirements set forth in subsection (e)(5) below for diesel propulsion engines in newly acquired new ferries.

2299.5(e)(6)(A)2
93118.5(e)(6)(A)2

2. General Requirements. . . .

For purposes of this subsection, "applicable compliance date" is either the compliance date, as set forth in subsection (e)(6)(D) for the in-use engine, or the compliance date from subsection (e)(6)(D) for the in-use engine, as extended pursuant to subsection (e)(6)(E), whichever applies and occurs later.

2299.5(e)(6)(C)1
93118.5(e)(6)(C)1

1. Method C1 – Replacement of the in-use engine with a U.S. EPA certified Tier 2 engine or one with a higher certification level (e.g., Tier 3-certified). . . .

Once the in-use engine has been replaced with an engine that is U.S. EPA-certified to meet ~~at~~ Tier 2 or Tier 3 standards, as set forth above, the engine is deemed to be in compliance with this subsection (e)(6) and no further replacements of this engine are required under this subsection. Tier 3-certified engines may be used as the replacement engine to comply with this paragraph, even if Tier 4-certified engines become available by the applicable compliance date;

2299.5(f)(1)(F)3
93118.5(f)(1)(F)3

3. documentation, calculations, emissions test data, or other information that establishes the diesel PM and NO_x reductions, expressed in pounds, are equal to or greater than the emission reductions that would have been achieved upon compliance with subsection (e), including but not limited to the requirements specified in subsection (e)(6)(C) and (e)(6)(D); and

2299.5(f)(1)(J)
93118.5(f)(1)(J)

(J) A person subject to an approved ACE may not operate any harbor craft under the ACE unless the person has first been notified in writing by the E.O. of the ACE's approval. Prior to such approval, the applicant must comply with the

provisions of this section, including the requirements in subsection (e)(6)(C) and (e)(6)(D).

2299.5(g)(9)
93118.5(g)(9)

(9) For each engine for which an owner or operator is claiming an extension pursuant to subsection (e)(6)(E)3, the purchase order or signed contract between the owner or operator and seller of the new engine or equipment that has been purchased to comply with subsection (e)(6)(C) and (e)(6)(D).

2299.5(h)(2)
93118.5(h)(2)

2. Compliance Plan. By February 28 of the year vessel engine compliance is required, a person subject to the requirements of subsection (e)(6)(C) and (e)(6)(D) must submit a Compliance Plan to the E.O. that describes in detail the engine replacements, rebuilds, upgrades, use of DECS, and any other measures the person plans to use to meet the requirements of subsection (e)(6)(C) and (e)(6)(D) for each of the person's engines and harbor craft. The person may revise the Compliance Plan, as needed, but the person must notify the E.O. within 10 business days of any changes to the Compliance Plan after the initial Compliance Plan is submitted. The Compliance Plan is for the E.O.'s informational and planning use only, and the substantive contents of the plan are not binding on either the E.O. or the person who submitted the Compliance Plan. The E.O.'s receipt and acceptance of a submitted Compliance Plan shall not constitute or be interpreted as evidence of compliance with the requirements of subsection (e)(6)(C) or (e)(6)(D).

2299.5(e)(6)(E)4
93118.5(e)(6)(E)4

4. Multiple Engines on Multiple Vessels Within Same Fleet and With Same Compliance Dates.

This provision applies only to fleets of 2 or more vessels that are owned by the same person. Upon written request, the E.O. may grant to the person an extension to the nominal compliance date(s) for engines on vessels within such fleets, as set forth below;

Explanation: A verb was missing in the second sentence of paragraph (e)(6)(E)4. The verb "may" was inserted because it is clear from surrounding provisions that the E.O. must determine whether the applicant has met criteria to qualify for an extension.

2299.5(i)(2)
93118.5(i)(2)

(2) Any failure to meet any provision, standard, criteria, or requirement in this section, including but not limited to the applicable emission limits; recordkeeping requirements; and ACE provision, including the requirements of any approved ACE plans, shall constitute a single, separate violation of this

section for each hour that a person operates a~~n ocean-going~~ vessel within the Regulated California Waters until such provision, standard, criteria, or requirement has been met.

Explanation: In a typographical error, the term "ocean-going" was included in paragraph (i)(2) to describe the word "vessel." It is clear from the balance of the paragraph, particularly the language at the beginning of the paragraph stating it applies to "[a]ny failure to meet any provision, standard, criteria or requirement *in this section*," that the described violations will apply to vessels that are: (1) subject to the regulation, and (2) fail to comply with requirements in the regulation, and not to a category of vessels that is expressly excluded from the provisions of the regulation. See also the applicability provision at section 2299.5(b)(1), the definition of "harbor craft" in section 2299.5(d)(36), and the definition of "ocean-going vessel" in section 2299.5(d)(50).

III. SUMMARY OF COMMENTS AND AGENCY RESPONSES TO THE ORIGINAL PROPOSAL

The Board received numerous written and oral comments during the 45-day rulemaking comment period (September 7, 2007 to October 26, 2007). A list of commenters is set forth in Table I below, identifying the date and form of all comments that were timely submitted. This list does not include commenters who submitted only supportive comments. Following the list is a summary of each objection or recommendation made regarding the proposed action, together with an explanation of how the proposed action has been changed to accommodate the objection or recommendation, or the reasons for making no change. The comments have been grouped by topic. Comments not involving objections or recommendations specifically directed towards the rulemaking or to the procedures followed by ARB in this rulemaking are not summarized below. Additionally, documents that were referred to in comments are not separately summarized and responded to because the referenced documents did not contain objections or recommendations specifically directed towards the rulemaking or the procedures followed by ARB.

Comments were received from the following government agencies, vessel operators, industry representatives, and environmental organizations supporting and objecting to specific terms of the proposed regulation. Six commenters included in Table I below expressed general support for the regulation. These comments also included suggested modifications to the regulatory text. Specifically, ARB received four supportive comment letters from environmental groups. One of the comments was signed by a coalition of nine environmental groups, of which seven did not submit their own individual comments. In addition, the SCAQMD and the California Air Pollution Control Officers Association (CAPCOA) submitted supporting comments. Suggestions received included weakening and delaying the requirements, as well as strengthening and accelerating the requirements.

For purposes of the following comment summaries and responses, any reference to provisions in section 2299.5, title 13, CCR also apply to the equivalent provisions in section 93118.5, title 17, CCR, and vice versa, unless the statement clearly applies only to the section that is cited.

Table I
Comments Received during the 45-day Comment Period
(Excluding Statements in Support of the Regulation)

Abbreviation	Reference Number	Commenter
AWO	AWO1	Jason A. Lewis The American Waterways Operators Written testimony: October 24, 2007
AWO	AWO2	Jeff Browning Sause Bros. Ocean Towing Co., Inc. The American Waterways Operators Oral testimony: October 26, 2007
BAYLINK	BAYLINK1	Martin Robbins Marine Services Manager Baylink Written testimony: October 26, 2007
BAYLINK	BAYLINK2	Martin Robbins Marine Services Manager Vallejo Baylink Ferry Service Oral testimony: October 26, 2007
BLUEGOLD	BLUEGOLD	Carolyn Horgan Vice President – Operations Blue and Gold Fleet Oral testimony: October 26, 2007
CAPCOA	CAPCOA	Larry Allen President California Air Pollution Control Officers Association Written testimony: September 14, 2007
CATALINA	CATALINA	Greg Bombard President Catalina Channel Express Oral testimony: October 26, 2007
CCA	CCA	Tim Carmichael Coalition for Clean Air Oral testimony: October 26, 2007

COALITION	COALITION	Bonnie Holmes-Gen American Lung Association of California Written testimony: October 24, 2007
		David Marshall Senior Counsel Clean Air Task Force Written testimony: October 24, 2007
		Tom Plenys Research and Policy Manager Coalition for Clear Air Written testimony: October 24, 2007
		Jesse N. Marquez Executive Director Coalition for a Safe Environment Written testimony: October 24, 2007
		Joel Bush Executive Director Communities for Clean Ports Written testimony: October 24, 2007
		John Kaltenstein Clean Vessels Program Associate Friends of the Earth Written testimony: October 24, 2007
		Diane Bailey Scientist Natural Resources Defense Council Written testimony: October 24, 2007
		Bill Magavern Senior Representative Sierra Club of California Written testimony: October 24, 2007
		Don Amir Senior Vehicles Analyst Union of Concerned Scientists Written testimony: October 24, 2007

FOTE	FOTE1	John Kaltenstein Friends of the Earth Written testimony: October 24, 2007
FOTE	FOTE2	John Kaltenstein Friends of the Earth Oral testimony: October 26, 2007
GGF	GGF1	Jim Swindler Deputy General Manager Golden Gate Bridge Highway and Transportation District Written testimony: October 20, 2007
GGF	GGF2	Jim Swindler Deputy General Manager Golden Gate Bridge Highway and Transportation District Oral testimony: October 26, 2007
HORNBLOWER	HORNBLOWER1	Terry A. MacRae (signed letter) Joe Wyman (submitted online) President/CEO Hornblower Cruises and Events Written testimony: October 25, 2007
HORNBLOWER	HORNBLOWER2	Joe Wyman Manager, Planning and Development Hornblower Cruises and Events Oral testimony: October 26, 2007
HORNBLOWER	HORNBLOWER3	Richard Allard Bay Area Marine Director of Operations Hornblower Cruises and Events Oral testimony: October 26, 2007
MECA	MECA	Joseph Kubsh Executive Director Manufacturers of Emission Controls Association Written testimony: October 25, 2007
NRDC	NRDC	Diane Bailey Scientist Natural Resources Defense Council Oral testimony: October 26, 2007

SAUSE	SAUSE	Jeff Browning Sause Bros. Ocean Towing Co., Inc. The American Waterways Operators Written testimony: October 24, 2007
SCAQMD	SCAQMD	Henry Hogo South Coast Air Quality Management District Oral testimony: October 26, 2007
WESTAR	WESTAR1	Richard Smith General Manager Westar Marine Services Written testimony: October 25, 2007
WESTAR	WESTAR2	Richard Smith General Manager Westar Marine Services Oral testimony: October 26, 2007

A. Authority

1. **Comment:** AWO believes that the harbor craft regulation is unconstitutional because it requires companies to allow CARB staff to board their vessels, when this authority is solely under the jurisdiction of the U.S. Coast Guard. AWO believes the state is overstepping its regulatory authority by requiring companies to allow CARB staff to board their vessels to ensure compliance with the regulation. First, the authority to board the vessel is under the domain of the U.S. Coast Guard. Second, because of the post-September 11, 2001 atmosphere of heightened security and resultant security requirements, there are many instances in which CARB personnel would not be allowed to board the vessel. It is critical that the rule be written so that it protects the integrity of existing federal security regulations, requirements and procedures. (AWO1) (SAUSE)

Response: We disagree. The regulation is a valid exercise of the State's traditional police power to protect the health, welfare, and safety of its citizens and environment. It is authorized and mandated under State law. (H&S §43013(b), §43018, and §39666.) And the regulation's emission standards and related requirements are permissible under section 209(e)(2) of the Clean Air Act (CAA), provided ARB obtains authorization to enforce the standards and related requirements from the U.S. EPA. As noted in Resolution 07-47, the Board made findings in accordance with CAA section 209(e)(2), evidencing the Board's intent to petition U.S. EPA for such authorization.

Because the affected engines are located aboard vessels, it is necessary for the regulation to require that vessel operators provide inspector access to the engines. Without such access, it effectively would be impossible for ARB inspectors to determine if vessel operators have met the emission standards and other regulatory requirements. State law authorizes such on-site inspections. (H&S §41510 and §41511.) While the U.S. Coast Guard conducts most vessel inspections, it does not have exclusive authority to conduct all such inspections. In fact, vessels are currently inspected by other California agencies, including the California State Lands Commission in its enforcement of ballast water rules. Some of California's local air districts have boarded vessels to enforce visible emission regulations, such as the South Coast Air Quality Management District's Rule 401. ARB enforcement staff will coordinate inspection activities with other state or federal agencies to the extent feasible. ARB does not believe its inspections will complicate compliance with security regulations, as ARB inspectors will meet all applicable federal requirements such as security checks.

2. **Comment:** AWO believes that portions of the regulation are unconstitutional. First, California's proposed regulation of vessels up to 24 miles offshore is unconstitutional. The Submerged Lands Act of 1953 granted coastal states ownership of the lands and resources out to three nautical miles offshore. The Outer Continental Shelf Lands Act of 1953 established federal jurisdiction over the resources beyond three nautical miles offshore. AWO believes that CARB is violating the Submerged Lands Act and exceeding its authority by regulating

vessels up to 24 miles off its coast. Therefore, subsections (E), (F) and (G) of the definition of "Regulated California Waters" in paragraph (65) of the harbor craft regulation should be deleted. (AWO1) (SAUSE)

3. **Comment:** It is unreasonable and potentially unconstitutional to impose this onerous regulation on a vessel whose homeport is in another state that is participating in interstate commerce. These vessels routinely stay outside of the three-mile limit of state authority and are often outside the 24-mile limit outlined in this regulation. (AWO1) (SAUSE)

4. **Comment:** We oppose the state regulating vessels beyond its constitutionally-mandated limit. (AWO1) (SAUSE)

5. **Comment:** We believe some sections are unconstitutional based on interstate trade. (AWO2)

Response: We disagree. There are two basic objections contained in these comments involving: (a) ARB's regulatory authority beyond 3 nautical miles, and (b) preemption under the Constitution's "dormant" Commerce Clause. With regard to Comments A.2, A.3, and A.4, other than citing these federal statutes, the commenters have provided no specific legal bases supporting the claim that either the Submerged Lands Act of 1953 (SLA) or the Continental Shelf Lands Act of 1953 (OCSLA) preempts the ARB regulation. These statutes were enacted specifically to address the partitioning of subsea and mineral rights between the states and federal government and to establish the federal government's rights to explore and exploit oceanic and subsea resources in accordance with international law. There is nothing contained in either the text of those statutes or their legislative history to indicate a Congressional intent to limit the scope of a state's authority to exercise its traditional police powers in waters adjacent to the state.

On the contrary, the Board believes that California may exercise its traditional police powers beyond 3 nautical miles under the Clean Air Act (provided authorization is obtained; see Response to Comment 1 above) and under case law applying the "effects test" to uphold regulations that reach beyond territorial waters. Under the "effects test," the application of a state law beyond the state's 3 nautical mile boundary has been upheld if the regulated activity has a substantial effect on the state and the regulation is reasonably tailored to regulate such activity. For example, in *State of Florida v. Stepansky* (FL 2000) 761 So.2d 1027, the Florida Supreme Court held that Florida's sovereign authority includes the ability to exercise criminal jurisdiction over acts committed outside the territorial limits of the state under the effects doctrine as long as the exercise of jurisdiction does not conflict with federal law and the exercise of jurisdiction is a reasonable application of the effects doctrine.

With that said, it appears that the commenters misunderstand the purpose of subsections (E), (F), and (G) of 2299.5(d)(65). The primary aspect of harbor craft operations that is affected beyond 3 nautical miles is the required use of low sulfur

CARB diesel fuel out to 24 nautical miles. This is a use and operational requirement permitted under section 209(d) of the Clean Air Act and does not require authorization under CAA section 209(e).

In any case, the comments do not appear to be directly challenging the use and operational requirements of the regulation as much as they are challenging the imposition of engine standards on the basis of the SLA or OCSLA. The engine standards calling for replacement or retrofitting of engines and equipment, which do require CAA section 209(e) authorization, apply irrespective of whether the affected vessel is operating outside 3 miles of California; as long as the vessel operates within 3 nautical miles of a California port, it is subject to the engine emission standards. Therefore, even if the SLA or the OCSLA did apply to limit the regulation's reach beyond state boundaries, the issue of applying the engine standards to vessels beyond 3 nautical miles is largely irrelevant.

With regard to Comments A.3 and A.5, the commenters provide no specific basis for the objection other than general references to "interstate commerce" and "interstate trade." We assume these comments refer to constitutional constraints on state regulations that impermissibly interfere with interstate commerce under the dormant Commerce Clause and will respond accordingly.

Where, as in this rulemaking, Congress has not explicitly prohibited state regulations on a particular matter affecting interstate commerce, a state regulation may still be held invalid under well-established case law interpreting the dormant Commerce Clause if: (1) the regulation is discriminatory (e.g., the regulation favors California vessels at the expense of non-California vessels), or (2) the regulation's putative benefits are clearly outweighed by the burdens imposed on the regulated industry and interstate commerce.

With regard to discrimination, a regulation that discriminates against interstate commerce (e.g., targets out-of-state businesses or vessels) is virtually per se invalid under the dormant Commerce Clause. *Dean Milk Co. v. Madison* (1951), 340 U.S. 349. However, this regulation on its face is non-discriminatory since it applies to all harbor craft that operate in California waters and within California ports. That is, it does not matter whether an affected harbor craft is from California or originally from elsewhere – if it operates in California waters and docks at a California port, or has its homeport in California, that vessel is subject to the regulation's requirements. There are no advantages or disadvantages to being a California-based harbor craft under this regulation. Therefore, because it applies equally to all affected harbor craft, the regulation is non-discriminatory on its face.

State regulations that are non-discriminatory can still be held invalid under the so-called "*Pike* balancing test." *Pike v. Bruce Church, Inc.* (1970), 397 U.S. 137. Under this test, a state regulation can be held invalid if the regulation's putative benefits are clearly outweighed by the burdens imposed on interstate commerce. ARB has clearly demonstrated that this regulation's benefits range from $1.3 to $2.0 billion, accounting only for the value of avoiding 310 premature deaths and no other benefits. ISOR at ES-

2 and ES-3. By contrast, ARB estimated that total out-of-pocket costs to the regulated industry would be about $460 million. *Ibid.* Thus, even if all the regulation's costs are viewed as burdening interstate commerce, these burdens do not clearly outweigh the benefits; in fact, the staff has shown the opposite -- the benefits clearly outweigh the costs and other burdens to be imposed on interstate commerce.

As noted, the Board intends to request and obtain an authorization from U.S. EPA pursuant to CAA §209(e)(2)(A). Presently, no federal court has ruled on the question as to whether California's authorization to set standards for new and in-use off-road, or nonroad, engines under CAA §209(e)(2)(A) exempts ARB emission standards and other emission-related requirements from limitations imposed on state regulation by the dormant Commerce Clause. Several California courts have opined that such an exemption exists under CAA §209(b). The exemption is argued in that Congress has made its intent unmistakably clear by establishing a comprehensive legislative scheme in the CAA that provides that California may adopt its own emission standards and other emission-related requirements for in-use nonroad engines upon obtaining authorization from U.S. EPA.

In such cases, the authorized California regulations should not be subject to preemption under the dormant Commerce Clause. In place of a Commerce Clause review, Congress created in section 209(e)(2)(A) a review procedure requiring the Administrator of U.S. EPA to review California's regulations and authorize it to adopt and enforce emission standards and other related requirements for the control of emissions from, among other things, all in-use nonroad engines. Obtaining authorization from the U.S. EPA effectively waives federal preemption for California from the prohibition that the states may not regulate such engines. Congress, in fashioning the waiver from preemption, made a determination that interstate commerce would not be disrupted by California having exclusive authority among the states to establish separate, more stringent regulations than adopted by U.S. EPA for the rest of the nation.

Indeed, Congress, in section 209(e)(2)(A), granted California and no other state the authority to regulate emissions from non-new nonroad engines in section 209(e)(2)(A). Section 209(e)(2)(B) requires that other states, if they choose to regulate nonroad engines, must adopt regulations identical to California's. By entrusting California with exclusive authority to formulate state-applied controls, Congress assured itself of uniform national regulations and avoided the possibility of the country facing 50 different sets of regulations. In sum, it is therefore reasonable to conclude that Congress, by enacting section 209(e)(2)(A), expressly exempted California's nonroad regulations that have received EPA authorization from the limitations imposed by the Commerce Clause.

6. **Comment:** It is the responsibility of CARB to adopt a regulation that adheres to the spirit and letter of the Clean Air Act 209(e)(2), which states:

> No such authorization shall be granted if the Administrator finds that -
> (i) the determination of California is arbitrary and capricious,

(ii) California does not need such California standards to meet compelling and extraordinary conditions, or
(iii) California standards and accompanying enforcement procedures are not consistent with this section.

The regulation is not consistent with the Clean Air Act because it exceeds federal standards while severely negatively impacting the towing industry. The impact to industry is to reach goals far beyond federal standards. (AWO1) (SAUSE,)

7. **Comment:** The department is attempting to impose an excessive, unreasonable regulation that exceeds the state's authority under the U.S. Constitution. (AWO1) (SAUSE)

Response: We disagree. It is Congress that established under CAA section 209(e)(2) the framework within which California has the ability to go beyond federal standards on nonroad sources, provided the State has received authorization from U.S. EPA. See Response to Comments A.1 through A.5 above and Comment A.8 below. Thus, CAA section 209(e)(2) explicitly provides for and permits California, and California only, to impose emission standards that can go far beyond similar federal standards on in-use nonroad sources, such as the existing harbor craft subject to the regulation. This is in recognition of California's traditional role as a "laboratory" for exploring innovative and stringent air pollution controls for vehicular, nonroad, and other sources.

Under CAA section 209, California has often led the nation on setting emission standards on engines for a variety of equipment and applications and has required additional emission controls on a wide range of industries. The marine harbor craft industry is one of the few remaining industries to face regulations aimed at cleaning up diesel engine emissions. The regulation relies heavily on the Federal emissions standards and, aside from accelerating the replacement of engines to meet current Federal standards, the regulation only goes beyond those standards in the case of ferry propulsion engines built after January 1, 2009.

As noted previously, ARB will apply for an authorization from U.S. EPA to allow enforcement of this regulation.

See Response to Comments A.2 through A.5 above for additional discussions of why the Board believes the dormant Commerce Clause does not preempt this regulation and why the regulation does not impose excessive and unreasonable requirements on affected industries. See also responses to Comments L1, L3, H.13, and H.20 for discussions on why the Board believes the regulation is both commercially and technologically feasible.

8. **Comment:** AWO believes that because many of the businesses in California operate in multiple states, it makes more sense to tackle the problem of engine emissions at the federal level. This alleviates the burden of a company trying to

adhere to a patchwork of state regulations to achieve significant emissions reductions. (AWO1) (SAUSE)

Response: Of course, decisions about the scope and timing of federal regulation are not within ARB's control. But we disagree with the suggestion that ARB's action adopting this regulation will lead to patchwork of state regulations. In adopting this regulation, ARB is taking action that is consistent with federal law and that cannot result in a patchwork of state laws as the comment suggests. Under CAA section 209(e)(2)(A), California is permitted to impose emission standards and related requirements on nonroad sources, such as marine vessels, provided the State obtains the necessary authorization from the U.S. EPA. Section 209(e)(2)(B) further provides that, upon California receiving such authorization, no other state may impose emission standards and related requirements on the same nonroad sources unless that state imposes the exact same emission standards and related requirements as in the California regulation, with additional lead-time as provided for in section 209(e)(2)(B). As previously noted, ARB intends to seek and obtain authorization from U.S. EPA for this regulation. See Response to Comment A.1 above. Thus, it will be impossible for a patchwork of regulations to develop for harbor craft engine standards: Once California receives its authorization, there will simply be a California standard and a 49-state federal standard. States wishing to achieve more reductions in a faster timeframe than the federal standards can opt into the California standard but cannot adopt their own standards, so companies will not need to worry about complying with varying standards of multiple states.

See Response to Comments A.2 through A.5 above for additional discussion of why ARB believes the dormant Commerce Clause does not prohibit it from adopting and enforcing this regulation.

B. Applicability

1. Comment: We strongly recommend that oceangoing tug boats be removed from the harbor craft regulation and placed in oceangoing regulation. (AWO2) (SAUSE)

Response: We disagree with the comment because while most ocean-going tugboats do not perform harbor tugboat duties, they are functionally equivalent or otherwise very similar to their harbor tugboat counterparts. Additionally, they do not meet the definition for "ocean-going vessel" in ARB's pending proposed regulations for ocean-going vessels that require the use of low sulfur fuel (e.g., see Title 13 CCR section 2299.2(d)(24)) We note that ocean-going tugboats would arguably meet the definition for "ocean-going vessel" in the existing regulation for auxiliary diesel engines on ocean-going vessels (see Title 13 CCR section 2299.1(d)(21)). However, that regulation was recently held to be preempted under the federal Clean Air Act, section 209(e)(2), and is not being enforced by the State. *Pacific Merchant Shipping Ass'n v. James Goldstene,* No. 07-16695 (9th Cir. Feb. 27, 2008). Further, it was never ARB's intention during the development of the ocean-going auxiliary engine regulation to cover ocean-going

tugboats. These vessels were not surveyed in the 2004 Ship Survey for ocean-going vessels, nor were they discussed in the staff report prepared for the auxiliary engine ocean-going regulation.

Certain ocean-going tugboats, which pull barges over long distances, may have met the definition of an ocean-going vessel in the originally proposed Commercial Harbor Craft regulation because they have a "registry" (foreign trade) endorsement on their United States Coast Guard Certificate of Documentation. However, this prong of the definition was deleted as part of the June 18, 2008 modifications to further clarify ARB's intent to cover ocean-going tugboats in this regulation and exclude them from the definition of ocean-going vessels. ARB believes that the remaining three descriptors, which are physical in nature, sufficiently describe ocean-going vessels while omitting ocean-going tugboats from the definition.

As noted, staff included ocean-going tugboats in the harbor craft regulation because of their functional equivalence to harbor tugboats and the frequency of their visits to California ports. Based on available data, we estimate these ocean-going tugboats made over 500 visits to California ports last year.

2. **Comment:** Tugs . . . don't even operate in harbors. They come in and do port calls and leave and should not be included in the regulation. (AWO2)

Response: We disagree with this comment because, as discussed in the response to Comment B.1, these vessels made over 500 visits to California ports last year. This indicates that a significant number of these vessels spend time in California ports.

3. **Comment:** The regulation unfairly requires ocean-going tugs to comply with the low-sulfur fuel regulation. (AWO1)

Response: We interpret this comment as addressing compliance with the fuel requirement in this Commercial Harbor Craft regulation. We disagree with this comment. See response to Comment B.1.

4. **Comment:** The regulation unfairly requires ocean-going tugs to comply. (SAUSE)

Response: We disagree with this comment. See response to Comment B.1.

5. **Comment:** Ocean-going tugs should only be required to comply with the fuel requirements contained in the harbor craft regulation. (AWO1)

Response: We disagree with this comment. See response to Comment B.1.

6. **Comment:** We recommend that ocean-going tugboats be required to adhere to the low-sulfur fuel guidelines contained within the [auxiliary engine] regulation. Ocean-going tugs operate in similar fashion to ships, in that they make calls to

California ports but their home ports are often outside California waters . . . are involved in interstate commerce and are not utilized in ship assist work or other duties generally assigned to harbor craft. The growing demand on the national transportation system means that ocean-going tugs will be a major component of the future of commodity transportation, and including them into the harbor craft regulation will only limit the number of vessels able to service California ports. (AWO1) (AWO2) (SAUSE)

Response: We disagree with this comment for reasons provided in the response to Comment B.1. There is adequate compliance flexibility provided in the regulation to allow sufficient numbers of ocean-going tugboats to be available to service California ports. In addition, there are multiple options available for compliance with the in-use engine requirements besides engine replacement. These include rebuilding and/or retrofitting the engine to meet the required emission limits (discussed in more detail in the response to Comment H.13) and using an alternative control of emissions (ACE) plan. An ACE plan allows more flexibility in complying with the regulation but requires that emission reductions be equivalent or greater.

7. **Comment:** Delivery times for a set of EMD engines is currently one year after order and getting worse. Other manufacturers quote 6 months plus. Installation of engines takes 60 to 90 days and shipyards are backed up. Clean kits are behind schedule as many of the parts are sourced from these same engine manufacturers. Ocean-going tugs have only recently been added to the Harbor Craft regulation. Previously included in the ocean-going vessels regulation, these tugs could comment and anticipate changes while the regulation is being drafted. Being added to this regulation as an afterthought, the ocean-going tugs have not been afforded the time to comment or anticipate changes. In addition, these tugs do not have funding available to assist in coming into compliance. Most funding, such as Carl Moyer limit the area of use for the tugs to a port or requires a large percentage of the operation time to be in their region, while ocean-going tugs travel interstate and cannot usually meet the requirements. (SAUSE)

Response: We disagree that delivery delays will make it difficult to comply with the regulation and that ocean-going tugboats were added in this regulation as an afterthought. The regulation includes provisions for renewable compliance extensions beyond the nominal compliance date specified in the regulation for engine manufacturer delays or due to installation difficulties.

The inclusion of ocean-going tugboats in the regulation was not an afterthought. Requirements for ocean-going tugboats have been in the draft commercial harbor craft regulatory language and discussed at workshops since early 2007. At a public workshop on April 24, 2007, ARB staff introduced a draft regulation that included ocean-going tugboats in the tugboat definition and specified in-use engine requirements for these vessels. A representative of the national trade association for the U.S. tugboat, towboat, and barge industry (American Waterways Operators or AWO), which includes

ocean-going tugboat operators in its membership, participated in this workshop by phone. Contact information for ARB staff was presented at that workshop to allow the public an opportunity to ask follow-up questions and provide comments on this and other harbor craft topics. Also, all workshop materials relating to the commercial harbor craft regulation have been posted on the commercial harbor craft website and a notice of its availability emailed to the public listserve for commercial harbor craft activities prior to each workshop. Staff provided the required 45-day notice prior to the Board hearing, giving the public an opportunity to comment on the proposed regulation, and the commenter responded to the notice. Additionally, ARB staff notified James Lewis of the AWO, of which Sause Brothers is a member, in a letter dated March 7, 2007, that ocean-going tugboats would be included in the commercial harbor craft regulation. This was 6 months prior to the beginning of the formal 45-day public comment period for the rulemaking.

Public funding is generally meant for obtaining emission reductions surplus to regulatory compliance. None of the entities subject to the regulatory requirements is eligible for public funds to pay for complying with the regulation. However, there is public funding available for projects that bring engines into compliance early or achieve emission reductions in excess of those required for regulatory compliance. While the majority of Carl Moyer Program funding is administered by the local air districts, ARB may reserve up to ten percent of Carl Moyer Program funding for multidistrict projects, which can be used to clean up engines that traverse district boundaries. For example, two multidistrict marine engine repower projects, totaling over $800,000, were selected for funding under the 2007-2008 Carl Moyer Program Multidistrict Program.

8. **Comment:** ARB should require full regulatory compliance for ocean-going tugboats and towboats. Exemptions should only be extended in rare cases and for compelling reasons. (FOTE1) (COALITION) (FOTE2)

Response: It appears that the commenters were not aware that ocean-going tugboats and towboats are included in the commercial harbor craft regulation and are subject to the in-use engine requirements. This is explicit in the regulatory language and was discussed in the Staff Report. However, we disagree that the granting of extensions for ocean-going tugboats should be more stringent than for other vessel types. Extensions will be granted only when all conditions required are met. All vessel types will be treated equally.

C. Exemptions

1. **Comment:** According to local district inventory and compliance data, crew and supply boats that service offshore oil platforms in Ventura and Santa Barbara County waters emitted about 220 tons of NOx, and 17 tons of PM in 2006. The draft harbor craft rule would require “excursion vessels” such as dive boats and whale watching boats to repower beginning in 2010. It would not require crew boats, supply boats, or work boats to repower. In the case of Ventura County these boats are docked next to each other at the harbor and travel to the same

destinations. Crew and supply boats often burn more fuel than the dive boats and whale watching boats. We believe that the exemption of crew and supply vessels from the proposed harbor craft regulation should be reevaluated. (CAPCOA)

Response: The commenter is correct in that the regulation does not include in-use engine requirements for crew and supply vessels, although these vessels are not specifically exempted from the regulation.

For this regulation, we focused on the largest emitters contributing to near-source risk. In the baseline 2004 statewide harbor craft emissions inventory, ferries and excursion vessels were estimated to contribute over 25 percent of the statewide PM and NOx commercial harbor craft emissions. Tugboats and towboats were estimated to contribute over 20 percent. In contrast, crew and supply vessels were estimated to contribute only two and three percent of the total statewide commercial harbor craft NOx and PM emissions, respectively, as documented by the emissions inventory provided in Appendix B of the Technical Support Document (Table III-1, page B-29). The crew and supply vessel category is estimated to have just over 60 vessels out of a total harbor craft population of about 4,200 vessels. However, we recognize that while the crew and supply vessel population is smaller than the categories covered by the in-use engine requirements of this regulation, these vessels are concentrated in a few air districts and are a source of concern in those air districts. We will be evaluating other vessel types, including crew and supply, in the future for further controls. Until that time, both Carl Moyer Program funding and Proposition 1B funding are available for projects aimed at reducing emissions from crew and supply vessels. See the response to Comment M.1 for further discussion of available incentive funding.

2. **Comment:** ARB should eliminate the exemption for crew boats, supply boats, and work boats in the regulation; or, in the alternative, ARB should quickly gather and/or reconsider data about these boats' impact and subsequently reevaluate their exempt status. Due to issues of equity and cumulative environmental impact, these categories of marine vessels should be subject to all requirements set forth in the regulation. (FOTE1)

Response: We disagree with the comment for reasons provided in the response to Comment C.1.

3. **Comment:** In light of the availability of numerous compliance extensions (e.g., temporary replacement vessels, near-retirement vessels) included in this regulation, it is imperative that this regulatory latitude is not abused or unnecessarily broadened. One way of ensuring that this does not occur is for ARB to create a process that evaluates the cumulative emissions from compliance extensions so as to assure their contributions are not significant and do not forestall expected public health improvements and the attainment of regulatory goals. Their regulations should be clear that if ARB finds that compliance extensions are hindering regulatory objectives, the agency is

reserving the right to scale back, cap or eliminate those extensions, as needed. ARB should evaluate compliance exemptions and extensions to ensure that they do not interfere with the regulation's goals. (FOTE1)

Response: We do not believe provisions need to be added to the regulation to establish a process for evaluating the impacts of compliance extensions or to reduce the availability of extensions. Compliance extensions, such as for temporary replacement vessels and near-retirement vessels, are necessary in order to not severely restrict business in California which, if allowed to happen, could negatively affect the transportation of goods and services in California. However, staff will maintain records of the extensions granted and evaluate the impact of these extensions on the emission reduction goals of the regulation. Currently, the compliance exemptions that could be quantified were included in the analysis of the emission benefits of the regulation. The regulation will clearly reduce emissions compared to the existing baseline, so the proposed action will not cause or cumulatively contribute to significant adverse environmental effects or to adverse impacts on public health.

D. Definitions

1. **Comment:** We request that CARB use the California Historic Register for this State mandated regulation. (BAYLINK1)

Response: Requirements for registration with the California Register of Historical Resources are very similar to requirements for registration with the National Register. However, the California register allows registration of some resources that the National Register does not. The primary difference that would relate to commercial harbor craft is the integrity requirements. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity, the National Register requires that the property possess several, and usually most, of the aspects of integrity. It is possible that historical resources may not retain sufficient integrity to meet the National Registry's criteria, but may still be eligible for the listing in the California Register. ARB believes that the more stringent requirements of the National Registry are more appropriate for exemption from the in-use engine limits due to the contribution of these older engines to the public health risk.

Also, while the California Register can include historically significant harbor craft, there are currently no such harbor craft listed in the California Register to our knowledge. However, ARB staff is aware of at least two vessels that are included in the National Historic Registry: These include a 1925 classic fireboat that is still a vital part of the Los Angeles Fire Department's fleet and a 1940 harbor tug that was at one time operating as a fireboat at the Port of Oakland. The 1940 vessel was built entirely of welded steel and is diesel-electric powered.

2. **Comment:** The regs that are in front of you say that if an owner can go get his boat on the National Register, then he could be exempted from an engine replacement. We don't know the viability of that. We don't know how many

vessels can actually be placed on the National Register. If you look at the National Register, the types of vessels that you have there are masted ships, historic vessels of limited operations. Our vessels, you know, run on a weekly basis and are not of the same caliber and quality those vessels are. (HORNBLOWER2)

Response: ARB believes that the exemption from the in-use engine limits for vessels registered in the National Registry is appropriate, as discussed in response to Comment D.1 above. The creation of a broader exception for a relatively large number of older vessels would substantially undermine the regulation's purpose of emissions reductions and public health benefits.

3. **Comment:** Exclude either "Classic Vessel" engines or any engines operating less than 1,000 hours per year or burning less than 8,000 gallons per year (similar to antique/classic motor vehicle policy of the DMV) from the proposed replacement schedule. (HORNBLOWER1) (HORNBLOWER2)

Response: We disagree because engines on "classic vessels" tend to be older, higher polluting engines that contribute a disproportionate amount of emissions. If the vessel is of historic significance, the vessel owner may apply to have the vessel included in the National Historic Registry, which would then exempt the vessel from these requirements.

The regulation includes a low-use exemption from the in-use engine requirements for engines operated for less than 300 hours. ARB does not believe it is appropriate to increase the low-use exemption to include all engines that operate less than 1,000 hours or consume less than 8,000 gallons of diesel fuel. ARB chose the 300 hour low-use exemption limit to minimize the emission reductions lost due to the exemption while still exempting those engines that would be least cost effective to bring into compliance. The required emission reduction goals would not be met if the exemption were increased to 1,000 hours or the 8,000 gallon fuel limit.

4. **Comment:** Modify the definitions of vessels covered by policy. Change the definition of a "historic vessel" from a vessel listed on the National Register of Historic Places, to a vessel "older than 40 years with significant historic or cultural features". (HORNBLOWER1)

Response: We disagree because, as shown in Appendix D of the Technical Support Document (Figure 1, page D-6), the average age for the surveyed tugboats and towboats was just over 30 years for tugboats and close to 40 years for towboats. Ferry and excursion vessels were somewhat newer, with an average age of about 27 years. Consequently, changing the definition of "historic vessel" to a vessel older than 40 years with significant historic or cultural features would lead to a vast number of harbor craft owners claiming their vessels to be historic vessels. Additionally, determining if a vessel has "significant historical or cultural features" is not within ARB's expertise. The

National Historic Registry, by contrast, already has the criteria and process for determining the historical significance of a vessel. See response to Comment D.1.

E. Engine Hour Meters

1. **Comment:** We recommend that [the section pertaining to Installation and Use of Non-Resettable Hour Meters] be clarified so that existing engine hour meters are accepted to comply with the regulation. Many other regulations rely on records and reporting from the companies. Records would be the backup in the event the meters failed. (AWO1) (SAUSE)

2. **Comment:** The regulation does not explicitly accept existing engine hour meters to comply with the regulation. (AWO1) (AWO2) (SAUSE)

Response: We do not believe the regulatory text is unclear or needs revision. The regulation requires an installed and properly operating non-resettable hour meter. The regulation does not require the installation of a new hour meter if a previously installed hour meter is fully operational and non-resettable. This is reiterated in the posted fact sheet for the regulation and will be further clarified as necessary during the regulation implementation. This regulation uses recordkeeping and reporting in addition to the non-resettable hour meters as enforcement mechanisms.

F. Best Available Control Technology (BACT)

1. **Comment:** I would like to request the Board to consider adding the word "proven" when referencing "best available control technology" as the mere offer of a technology does not ensure its reliability or effectiveness. (GGF1)

2. **Comment:** We would like to see the word "proven" involved with best available control technology**,** because the technology that we tried in the past that one of my colleagues will speak about just did not work. (GGF2)

3. **Comment:** We request that the phrase "Best Available Control Technology" be changed to read "Best Available Proven Control Technology" throughout the regulation, and that objective thresholds be established to define "Proven" --- for example a Reliability Threshold of >98%, and a Durability Threshold of "time to overhaul for the control technology equal to or greater than time to overhaul of the engine served." (BAYLINK1)

4. **Comment:** We believe until we can include the phrase "proven" along with best available control technology, we risk technology failures. The vessel Solano today produces more pollutants than our sister vessels do simply for the fact she's carrying a system that no longer works. Reliability and durability are going to be key objective measures that should somehow be written into this regulation to quantify in some way what's best in a proven technology for vessels. (BAYLINK2)

5. **Comment:** We need to actually add into that equation where it talks about best available control technology, the word "proven" needs to go in there. (CATALINA)

Response: We disagree with the request that the word "proven" should be added to the regulatory language in reference to the best available control technology (BACT). BACT is the best level of control that has been achieved in practice, evaluated on a case-by-case basis where the data is sufficient to ensure that the unique elements of each situation have been considered. It is also a widely applied standard for emissions control devices. The environmental operating conditions that the technology is exposed to can vary significantly from one application to another. Consequently, ARB believes that making a BACT determination on a case-by-case basis for every new ferry that is to be added to the California fleet will provide for the most successful applications of these technologies. The maturity of the available technologies will be considered in this determination.

Further, the suggestion for reliability and durability thresholds would require a statistically significant number of demonstrations with accompanying testing. We are not aware that such demonstrations have occurred for emission control technologies on small, high-speed ferries. It is expected that the ferry owner will negotiate a warranty with the technology provider that is sufficiently protective of the owner's investment.

6. **Comment:** We have first hand experience in visiting some of the ferry lines in the Baltic Sea. And they have been using SCR technology as well as other water emulsification and water injection technologies for many years now. And to me, at least, it's proven technology. It was just unfortunate that the tests on the one ferry that's out here was using a particular technology and we hadn't had a chance to look at it very closely. But we have given to your staff several reports relative to some of the experiences with the technology. So we think when staff evaluates BACT it will be proven technology. (SCAQMD)

Response: We cannot say at this time that selective catalytic reduction (SCR) technology is proven for all marine applications. As was the case with the SCR failure mentioned by the commenter, and as discussed in the response to Comments F.1 through F.5, the environmental operating conditions that a technology is exposed to can vary significantly from one application to another. ARB believes that making a BACT determination on a case-by-case basis for every new ferry that is to be added to the California fleet will provide for the most successful applications of these technologies.

7. **Comment:** Because of the SCR experience with marine engines, MECA believes that DOC + SCR systems should be BACT for the propulsion engines on new ferries built and brought into service in California after January 1, 2009. (MECA)

Response: We do not believe that we can predetermine what will be BACT for new ferries prior to reviewing the vessel description and duty cycle. See responses to Comments F.1 through F.6.

8. **Comment:** ARB should allow for public comments on BACT applications before they are decided upon, and, if needed, create an inter-agency or inter-stakeholder body to most effectively determine BACT. ARB may consider revising section (e)(5) to enhance BACT decision-making and improve the public process surrounding that decision. If ARB goes forward with the rather ambiguous case-by-case BACT approach, we propose that section (e)(5) be amended to include an informal inter-agency or inter-stakeholder consulting process – potentially consisting of state and federal pollution control officials, scientists, and academics – which would help to ensure that a diesel emission control strategy achieves the "greatest reduction feasible of NOx or diesel PM when used with the ferry's propulsion diesel engine."

In addition, in contrast to section (f) regarding Alternative compliance Plans and section (e)(6)(E) concerning Compliance Extension requirements, the BACT determination does not include a sufficiently thorough public process. With due consideration given to proprietary and other sensitive business information, Section (e)(5) should be revised to incorporate sufficient public process such that interested stakeholders can review and publicly comment on the BACT application before it being decided upon by the Executive Officer. (FOTE1)

Response: BACT determinations are based on engineering evaluation and consideration of the best available information. The regulation specifically identifies the requirements the ARB must follow in making the BACT determination and specific timeframes within the staff must act in establishing completeness and approving or denying the request. These requirements specifically engage the applicant. In addition, ARB staff is committed to working with technical experts within the applicable local districts to assist with the evaluation. The commenter suggests that the regulatory language be amended to include an "informal-inter-agency or inter-stakeholder consulting process." However, including this requirement in the regulatory text would formalize the process.

The commenter suggests that BACT determinations follow a public process similar to that defined for the approval of an ACE plan. However, the two processes are very different. BACT timelines may be significantly more critical than those of an ACE plan and may require swifter action than preparing a document for public review could allow. Additionally, a BACT determination may involve the technical assessments of propriety information. The regulation requires that the BACT determination be made available to the public on ARB's internet site, however using a public process similar to that used for an ACE plan is not feasible.

9. **Comment:** The proposed regulation does not go far enough in achieving specific Action Plan goals due to the regulation's lengthy compliance timeline,

modest ferry emissions standard, exemptions, and compliance extensions; therefore, we request that ARB revise the regulation to increase DPM and NOx emission reductions in the near term, strengthen the ferry emission standard, shorten the engine compliance timeline and eliminate extensions and exemptions . . . The lengthy compliance schedule and prolonged rulemaking process have delayed critical environmental and public health benefits. Further postponement will not only detrimentally impact affected communities and natural resources, but also inhibit technological development and do little to address future costs. (FOTE1)

Response: The compliance schedule delivers the needed emission reductions in the South Coast Air Basin (South Coast) prior to 2014 to help meet PM2.5 attainment goals. In addition, compliance with the statewide schedule in the rest of the State achieves the 2015 and 2020 goals for harbor craft in the Goods Movement Action Plan, as referenced in Chapter IV of the Technical Support Document.

The statewide compliance timeline spans 14 years because it requires in-use Tier 1 engines just recently purchased and installed to comply with more stringent standards. All unregulated engines (pre-Tier 1) are brought into compliance by 2013 in the SCAQMD, and by 2016 in the rest of the State. The useful life of newer Tier 1 engines is shortened by five to seven years due to these requirements, depending on whether they have a homeport in the SCAQMD or elsewhere in the State. In ARB's view, it would be unreasonable to shorten their useful life further by compressing the compliance schedule without a compelling reason.

The vessel exemptions provided in the regulation do not constitute a significant number of vessels. The low-use and minimum power rating exemptions for the in-use engine requirements are set at levels that minimize the loss in emission reductions while exempting those engines that are truly not cost effective to bring into compliance. The temporary replacement vessel exemption requires Executive Officer approval and is for a limited term. Other exemptions are for safety reasons, such as temporary emergency rescue/recovery vessels, U.S Coast Guard vessels, and military tactical support vessels. The exemption for harbor craft near retirement is included to provide practical consideration of a business's equipment replacement plan. The historic vessel exemption covers only a handful of vessels.

The compliance extensions provided in the regulation were carefully selected as only those necessary to allow businesses to continue to operate when difficulties occur outside of their control, which prevent them from completing compliance requirements. The rules guiding these extensions are very specific and require that all reasonable steps toward compliance have been completed.

Regarding the new ferry emission standards, aftertreatment technologies for marine applications are not currently mature enough to specify levels of compliance. The case-by-case BACT determination is appropriate for marine applications because marine applications vary significantly in their operational requirements.

We do not believe that the compliance timeline inhibits technological developments. The timeline allows vessel owners to comply earlier than required using incentive funding. This provides both more incentive for technology development and mitigates future costs.

10. **Comment:** ARB should adopt a Tier 4 or, at a minimum, 85 percent below Tier 2 emission standard for ferries built as of January 1, 2009. We urge that all newly built ferries comply with an additional propulsion engine standard that is, at a minimum, equivalent to the San Francisco Bay Area Water Transit Authority (Bay Area Authority) standard of 85 percent cleaner than EPA tier 2, or equivalent to proposed US EPA Tier 4 standards. We prefer the more stringent Tier 4 standard option. We support strong emission standards for ferries because their emissions are predominately near shore and adversely impact the health and welfare of coastal populations, especially marginalized communities. Furthermore, the 85 percent standards should apply separately to NOx and PM to achieve the most health protective levels, rather than allowing averaging. We contend that if the Bay Area Authority can institute this requirement and has a ferry under construction expected to meet the standard, then the State of California should be able to adopt the same standard. Moreover, while acknowledging potential design challenges for new technology, the successful operation of a Staten Island ferry since 2005 with the same technology (Selective Catalytic Reduction and a diesel oxidation catalyst) as the ferry currently being built by the Bay Area Authority argues in favor of adopting the 85 percent standard. We are extremely disappointed that ARB has backtracked on the ferry standard. The proposed case-by-case Best Available Control Technology (BACT) option does not have specific standards to drive industry toward existing or new technology that achieves the highest emission reductions. We strongly disagree with this approach. Selective Catalytic Reduction and diesel oxidation catalyst technology are available commercially, so by not requiring that ferries use it, ARB may be eliminating greater market development for this technology in California and out-of-state. (FOTE1)

Response: We agree with the commenter's support for strong emission standards for ferries because of their near-shore emissions and the resulting adverse health impact. It was for this reason that we included unique requirements for the propulsion engines on new ferries and that we, as part of the 15-day Notice, accelerated the compliance date for newer Tier 0 ferry engines by one to two years. However, we disagree with the suggestion to require Tier 4 or, at a minimum, 85 percent below Tier 2 for new ferries. See responses to Comments F.1 through F.5 and F.9 regarding the maturity of aftertreatment technology for small, high-speed ferries.

Requiring new ferries to meet Tier 4 standards is not reasonable. The effective dates for Tier 4 standards were set by the U.S. EPA as 2014 and beyond because the technology is not sufficiently mature to require these standards at this time. However, we believe that the BACT requirement will drive industry towards developing more effective aftertreatment for these engines.

The San Francisco Bay Area Water Emergency Transportation Authority (WETA) is pioneering technology on fast ferry propulsion engines that is at least 85 percent cleaner than Tier 2 standards. This technology has not yet been successfully demonstrated and as such is not at the maturity level that would justify a specified standard of performance in the regulation. Additionally, it is not necessary to prescribe this standard since, if this technology is successful, it will become the BACT standard for similar new ferry applications. The WETA requirement for new ferries to be 85 percent cleaner than the Tier 2 standards does not deliver separate 85 percent reductions in both NOx and PM, as recommended in the comment. The WETA requirement is that the combined NOx plus PM emission levels are to be 85 percent cleaner than the combined emissions from the standard. The ferry being built is predicted to achieve a combined NOx and PM emission level 85 percent lower than the combined emission levels of the Tier 2 standards (see Technical Support Document, Appendix E).

The Staten Island ferry, which has been operating with a combination system of SCR and diesel oxidation catalyst (DOC) technology, is a large, slow-speed ferry, with a passenger capacity of over 1,000 persons. Most California ferries are much smaller, with capacities of up to a few hundred passengers. The Staten Island ferry does not represent operating conditions comparable with those of the small, high-speed ferries in use in California. Additionally, the control system employed on this vessel has not been shown to achieve the 85 percent reduction in both NOx and PM that the commenter requests as the standard. Emissions testing of the engines on this vessel showed that the overall trip NOx reduction ranged from 69 to 81 percent, and the PM reduction was estimated at about 25 percent overall, both less than the 85 percent standard being requested (see Technical Support Document, Appendix E and Alice Austin Final Report referenced in Appendix E.).

While the BACT requirement does not prescribe a specific standard, we believe that the BACT requirement will drive industry towards developing more effective aftertreatment for these engines since it requires the best available. By requiring BACT for new ferries rather than specifying SCR and DOC technology, the requirement pushes the market to develop technologies that provide more significant diesel PM reductions than this technology combination in order to achieve a higher level of control.

11. **Comment:** We would like to see the Board advance a more progressive position with regard to ferries beyond the Tier 2 BACT to either 85 percent of Tier 2 or Tier 4 if feasible. (FOTE2)

Response: We disagree with the comment for the reasons provided in the response to Comment F.10.

12. **Comment:** We propose that feasibility considerations be predominately technological as opposed to economic, and that ARB define the term “feasible” in the regulation. (FOTE1)

Response: Feasibility considerations will be primarily based on technical considerations. It is not necessary to define the term feasible because the process by which BACT will be determined is clearly defined in the regulation.

G. New and In-Use Harbor Craft Requirements

1. **Comment:** The proposed rule for ferries uses a non-industry standard threshold of seventy-five (75) passengers . . . this threshold seems to be arbitrary. We suggest that CARB use the 150 passenger threshold used by the United States Coast Guard for vessel construction and safety standards. This threshold would conform the CARB regulation to a traditional Coast Guard and maritime industry break point, and it is very likely that any new ferry built for California service would be at or above the 150 passenger capacity, and would thus be covered by the new regulation. (BAYLINK1)

Response: The regulation requires that new ferries with a 75 or more passenger capacity incorporate the use of Best Available Control Technology (BACT) with their new Tier 2 or Tier 3 propulsion engines because ferries are often built with capacities under the U.S. Coast Guard 150-passenger determination. For example, as discussed in Appendix E of the Technical Support Document, WETA is building two 149-passenger ferries to be delivered later this year that incorporate emission control technology resulting in 85 percent lower air emissions than federal EPA requirements. The 75-passenger determination is appropriate because ferry emissions are significant, and it is important that the regulation include the ferries that are built with capacities between 75 and 150 passengers. We also note that the 75-passenger threshold has previously been used in proposed legislation in California.

2. **Comment:** We don't understand or want an understanding of where the 300-hour rule of justification comes from. Excursion vessels are quite different than ferry vessels. Ferry vessels operate a huge number of hours. They burn a lot of fuel. Whereas excursion vessels operate a limited number of hours in a given week and go at very slow paces. We think that to be lumped into larger duty cycle vessels, such as commuter ferries and tug boats, is an onerous implication for an excursion vessel operator. (HORNBLOWER2).

Response: ARB chose the 300-hour low-use exemption limit based on minimizing the emission reductions lost due to the exemption while still exempting those engines that would be least cost effective to bring into compliance.

We believe that categorizing excursion vessel with ferries is appropriate. Ferries and excursion vessels are categorized together by the U.S. Coast Guard as passenger vessels. Similar to ferries, excursion vessels operate close to shore a large percentage of the time. This was an important factor in determining which vessel types to include in the in-use engine requirements due to the impact on the health risk to nearby communities.

The regulation does require that higher use engines comply earlier than lower use engines of the same model year grouping in some cases. The compliance schedule for vessels with homeports outside of the South Coast requires engines that operate 1,500 hours annually or more to comply one year earlier than engines that operate less than 1,500 hours annually. This is the case for all engines that are not on ferries and required to comply prior to 2017.

3. **Comment:** Putting our elegant, slow, classic yachts in the same regulatory bucket with Tugs, High Speed Ferries, and other similar vessels is bad public policy. We believe that any policy that puts all vessels in the same class, ends up penalizing numerous vessels that have substantially different duty cycles and operational characteristics. (HORNBLOWER1)

Response: We disagree for the reasons provided in the response to Comment G.2 above.

4. **Comment:** We are confused or actually concerned that a dinner charter vessel that has a very low duty cycle would be included in other excursion crafts and probably more concerned that we're included with ferries and tug boats that produce a much larger quantity and are available to this other subsidy. What we're concerned about are those boats that go around at three knots for the comfort and enjoyment of our passengers. (HORNBLOWER3)

Response: See response to Comment G.2 for a discussion on the reasons that excursion vessels are required to comply with the in-use engine requirements.

The subsidy mentioned in the comment refers to Carl Moyer Program funding. Carl Moyer Program funding is available to excursion vessels. See response to Comment M.4 for additional information on the application of Carl Moyer Program funding to excursion vessel projects.

5. **Comment:** A separation of the proposed harborcraft regulation into distinct NOx and DPM rules would provide states other than California with much needed flexibility to consider adoption of one or the other of these rules, depending on their particular air quality situation. We note that the Board accepted a similar recommendation and adopted this approach recently by dividing its regulation for In-Use Off-Road Diesel Vehicles into separate rules for NOx and DPM. We urge ARB to divide the proposed harbor craft regulation into separate NOx and DPM rules, thereby facilitating the adoption of in-use marine diesel emission reduction measures by other states around the nation. (COALITION) (FOTE1) (FOTE2)

Response: We disagree with dividing the regulation into separate rules for NOx and diesel PM, since the regulation requires that engines meet federal certification limits, which achieve both NOx and diesel PM emission reductions at the same time. This should not preclude the states that wish to reduce only diesel PM or only NOx from

adopting the rule, since they would simply achieve simultaneous reductions of the other pollutant.

6. **Comment:** I also want to note there's a significant opportunity with this rule to get similar emission reductions in other states. I hope that the attorneys can pay close attention to the final regulatory language to ensure that or facilitate the adoption of this rule by other states. I don't have direct suggestions on how to do that, but I hope that the attorneys can give it a close look and try to do that. (NRDC)

Response: We are not aware of any specific issues with the regulatory language that would create problems for other states. See response to Comment G.5.

7. **Comment:** ARB should specify marine emission standards independent of EPA rulemakings. This is necessary because the EPA rulemaking is not final, and the ARB regulation must be implemented regardless of whether EPA's rulemaking is ever finalized. (FOTE1)

Response: This is not necessary because the U.S. EPA finalized their rulemaking in March 2008, with final publication in May 2008, as referenced in the 15-day Notice.

8. **Comment:** I would urge you to direct staff to include shore side power for harbor craft directly in the greater shore side power regulation [and] in the harbor craft regulation. (NRDC)

Response: We disagree with the recommendation that shore side power for harbor craft be included in this regulation as it is out of the scope of this rulemaking. However, staff is considering including shore power requirements for at-berth commercial harbor craft as part of another rulemaking and will evaluate technical feasibility, costs, and emission reductions as part of that effort.

9. **Comment:** The regulation also does not take into account the environmental benefits of transporting goods along the waterways as opposed to on land. (AWO1) (SAUSE)

Response: The benefits of transporting goods along the waterways as opposed to on land have been debated. However, for the benefit of public health, the emissions from both sources must be reduced. The Diesel Risk Reduction Plan charged ARB with reducing diesel PM from diesel engines throughout California. For the protection of public health, it is imperative that these emissions be reduced from all sectors throughout California. The Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach, provided as Appendix C of the Technical Support Document, concluded that commercial harbor craft are the third largest source of diesel PM emissions in the combined ports of Los Angeles and Long Beach (POLA/LB). As reported in the Staff Report, page 5, based on a 2002 POLA/LB

inventory, over 1.5 million people are exposed to a cancer risk of greater than 10 in a million due to harbor craft diesel PM emissions in the Los Angeles/Long Beach area.

H. Compliance Schedule

1. **Comment:** We have concerns over the compliance option which is based on the implementation of emission control strategies . . . with a minimum of 25% reduction efficiency in NOx and PM . . . with compliance dates extended for up to 5 years . . . this compliance option, if selected, will not achieve equivalent emission reductions compared to the requirement for replacement of existing engines with Tier 2 or 3 engines . . . we recommend that this compliance option be revised to require equivalent emission reductions based on the application of emissions control technologies for existing engines. (CAPCOA)

Response: The "Engine's Model Year + 5" method is a method for determining the "effective model year" on which the in-use engine compliance date would be based. It is not a compliance option and so is not meant to achieve equivalent reductions. A vessel owner that utilizes the "Engine's Model Year + 5" method is still required to take further action to meet the in-use engine requirements of the regulation. For example, the owner of a 1995 model year engine on a tugboat with a homeport outside of the SCAQMD and which operates in Regulated California Waters for 750 hours in 2013, would normally be required to meet a December 31, 2014 compliance date. However, if a diesel emission control strategy (DECS) that meets the requirements of the "Engine's Model Year + 5" provision of the regulation is implemented with this engine prior to the 2014 nominal compliance date, the engine's effective compliance date would be extended to the compliance date for a 2000 model year engine (i.e., the 1995 model year + 5). Accordingly, in that scenario, the engine's effective compliance date would be December 31, 2016, an extension of two years. Vessels with a homeport within the SCAQMD are not eligible for this method.

The method, as originally proposed, adds an additional two to four years to the compliance date for older unregulated engines that qualify for this method and an additional 5 years for cleaner Tier 1 engines (model years 2000 and later) that use this method.

This optional method for determining compliance date was included to encourage the use and consequent development of DECS for marine applications. Since there are no DECS verified for marine vessel applications, commercial harbor craft owners who employ this method do not have the assurance that accompanies a verified strategy. However, this optional method provides an opportunity for DECS manufacturers to verify their systems. The minimum 25 percent emission reduction level was chosen to be consistent with a Level 1 verified emission control device (VDECS). The requirement that there be no more than a 10 percent increase in NOx or PM is also consistent with the Level 1 VDECS requirements. These DECS and VDECS could be used to help reduce emissions from other vessel types which are not subject to the in-

use engine requirements and result in larger overall emission reductions. ARB believes that use of this method will ultimately provide additional public health benefits.

2. **Comment:** With respect to the regulation's provision for Compliance Schedules and Determination of Engine Model year and its "Engine's Model Year + 5" method (e)(6)(C), we have reservations concerning the limited amount of pollution control that could trigger a compliance extension thus potentially vitiating overall emission reductions. For example, an owner can achieve a 25 percent reduction in DPM and a 9 percent increase in NOx for a net emissions reduction of 14 percent and thus have a legitimate emissions control strategy, entitling him or her to use of the "Engine Model Year + 5" method. In some instances, the election of this method can postpone compliance requirements two years. The overall benefits of this alternative compliance strategy seem questionable, and the strategy furthermore offers another way in which an owner or operator can extend his or her compliance timeline–timelines, which as referenced previously, have already been pushed back and prolonged considerably. ARB should reform its "Engine's Model Year +5" method so that emissions reductions are equivalent to those achievable from engine replacement (repowering). (FOTE1)

Response: We disagree with the recommendation to modify this method. See response to Comment H.1 regarding the benefits resulting from this optional method for determining compliance model year and the selection of the required emission reduction requirements. See response to Comment F.9 regarding the length of the compliance timelines.

3. **Comment:** We recommend that the provision for extending the compliance dates under this option be removed to avoid potential delay in achieving the needed reductions. (CAPCOA)

Response: We disagree with this recommendation to remove this method. This comment is referring to the "Engine Model Year + 5" method to determine the engine model year for compliance. See response to Comment H.1 regarding the actual length of the compliance date extension. This method could produce emission control devices for future use on older marine vessels not required to meet the regulation compliance timeline. This will provide emission reductions beyond those required by the regulation. Ultimately, owners or operators using the "Engine Model Year + 5" method will be required to bring these engines into compliance with either the U.S. EPA Tier 2 or Tier 3 emission limits.

4. **Comment:** We recommend that the "Engine's Model Year +5" model be changed so that five years are added to the compliance date instead of to the engine model year [allowing] engines built before 2003 to have more time to comply with the regulation. The operators using older equipment are often doing so out of necessity because they are small businesses or lack the financial resources to upgrade their engines. It is reasonable to request that these small

operators be given more time to comply with the regulation. After the 2003 model year date, the +5 formula would apply to both engine model year and compliance dates. This would also allow companies to replace the engines during a major overhaul cycle. (AWO1) (SAUSE)

Response: The commenter is suggesting that this method be modified such that five years are added to the compliance date rather than to the effective model year used for determining the compliance date for all unregulated (pre-Tier 1) and Tier 1 engines built before 2003 that use this method. We disagree with this comment because for many of the pre-Tier 1 engines, the compliance date prior to applying the "Model Year + 5" method already affords at least a 20-year useful life. In the cases where this is not true, applying this method as originally proposed does provide at least a 20-year useful life. In fact, the oldest engines, those that are pre-1982 model year, are afforded a minimum 30-year useful life with the application of this method. Adding five years to the compliance date instead of the model year would further delay compliance for these older engines. This would delay the emission reductions and associated health risk reductions achieved through compliance with the regulation.

The method, as originally proposed, adds an additional two to four years to the compliance date for older unregulated engines that qualify for this method and an additional 5 years for cleaner Tier 1 engines (model years 2000 and later) that use this method. This is appropriate considering that these older engines have already been in service for a significant number of years whereas the newer Tier 1 engines have not.

The impact of the regulation on businesses is addressed n the responses to Comments L.1 and L.3.

5. **Comment:** If an engine has been retrofit from Tier 0 to Tier 1, we request that the engine be given an additional five years until compliance rather than adding five years to the model year. We currently have a Carl Moyer grant for just such a retrofit, and the compliance date for the engines is only extended from 2009 to 2011, even though the engine would now meet Tier 1 requirements. (WESTAR1)

Response: We believe that the commenter is mistaking the "Engine Model Year + 5" method of determining effective model year with the "Engine Tier 1 Rebuild" effective model year method. Based on the compliance dates cited in the comment, we believe that the comments are directed at the "Engine Model Year + 5" method. See response to Comment H.4 regarding the reasons why we have chosen to add five years to the effective model year rather than extending the compliance date by five years.
The reason we do not believe this comment is directed at the "Rebuild to Tier 1" method is that if the Westar engine were rebuilt to Tier 1 standards, then the effective model year would become the date of the Tier 1 rebuild. A compliance date of 2011 indicates that the rebuild to Tier 1 standards occurred in 1998 if the vessel is in the SCAQMD, or 1996 if in another part of the State. Tier 1 standards were not promulgated by the U.S. EPA until 1999 so it is unlikely that engines were rebuilt to this standard prior to

that time. If the rebuild occurred in 2000, the compliance date would be much later, 2013 in SCAQMD or 2015 in the rest of the State. On the other hand, an engine compliance date of 2009 indicates that the engine is a high-use 1975 or earlier model year engine. A retrofit with an emission control device would then only extend the effective model year to that of a 1980 model year or earlier, which would be required to comply in 2011. This scenario is consistent with the compliance dates cited in the comment and indicates that the commenter is referencing the effective model year method for applying diesel emission control technologies. See response to Comment H.4 for reasons why ARB believes this method should not be modified to add an additional five years to the compliance date.

6. **Comment:** We recommend that CARB increase the compliance schedule for Tier 0 to Tier 1 engines from January 2008 till July 2009. There will be not enough time to comply with the January 2008 timeline. (AWO1)

Response: We interpret this comment to refer to the method for determining engine model year for unregulated engines that have been rebuilt to meet the Tier 1 engine emission standards. The Engine Tier 1 rebuild model year method allows a 15-year useful engine life for those engines that have been rebuilt to Tier 1 standards. It is not a compliance extension option to allow extended life for unregulated engines.

7. **Comment:** We recommend that CARB increase the voluntary compliance schedule for Tier 0 to Tier 1 engines from January 2008 till July 2009. There will be not enough time to comply with the January 2008 timeline due to the delivery schedule of either parts to upgrade or engines to re-power and the shipyards inability to accommodate us. (SAUSE)

Response: We disagree for reasons provided in the response to Comment H.6.

8. **Comment:** We request a year and a half extension . . . to the December 31, 2007, date for voluntary compliance retrofitting engines from Tier 0 to 1 with resulting change in engine model year . . . to July 1st, 2009. (WESTAR2)

Response: We disagree for reasons provided in the response to Comment H.6.

9. **Comment:** We request that CARB allow twenty (20) full years of operation for any engine in any vessel installed under Carl Moyer (or other port-sponsored clean air offset program), before requiring replacement of that engine. (BAYLINK1)

Response: We disagree with this request. Engines funded through the Carl Moyer Program are required to meet a specified project life to ensure that these public funds are spent in a cost-effective manner and gain near-term emission reductions that go above and beyond, or in advance of, a regulation's requirements. The Carl Moyer Program guidelines establish a minimum project life of three years and a maximum

project life of five years for marine projects. The in-use engine compliance schedule allows a 15-year useful life for all Tier 1 engines outside the SCAQMD and 13 years within the SCAQMD. The compliance date for an engine rebuilt to Tier 1 standards prior to January 1, 2008, is based on an effective model year which is the same as the rebuild date. Consequently, all Tier 1 engines, and engines rebuilt to Tier 1 standards, will have fulfilled their Carl Moyer Program project lives (5 years maximum) prior to required compliance with the regulation. Since the project life required for the Carl Moyer Program will be fulfilled prior to the required compliance date, these engines should be treated on an equal basis to other Tier 1 engines.

10. **Comment:** We have acted proactively by replacing all of our two stroke engines with cleaner burning Tier 1 four-stroke engines. The eight main engines and eight auxiliary engines have been replaced over the past seven years at a cost of almost $2 million. The Carl Moyer program financed a portion of the cost of these engines. We feel that we acted in good faith by replacing our polluting engines. We ask CARB to allow 20 full years of operation for any engine and any vessel installed under Carl Moyer Program, before the engine would be required to be replaced. (BLUEGOLD)

Response: While we applaud those owners/operators who have replaced older engine with Tier 1 engines, reducing engine replacement timelines is a mechanism that ARB has employed for many industries to reduce emissions. If these Tier 1 engines are replaced per the compliance schedule, they will be replaced with engines that meet Tier 3 emission standards. This will result in about a 75 percent PM emission reduction and a 40 to 50 percent NOx emission reduction. Staff evaluated the cost of these reductions, including reduced engine life, to be $29 per pound of reduced PM if all costs are associated with the PM reduction. These costs are within the range of other recent regulatory measures. Also, see response to Comment H.9 regarding the replacement of engines originally funded through the Carl Moyer Program.

11. **Comment:** We request that a Tier 1 engine installed since 2001, particularly one that was funded from the Carl Moyer Program, have a phase out of 15 years from the effective date of the regulation. (BLUEGOLD)

Response: The effective date of the regulation is January 1, 2009. Allowing 15 years from that date for the first compliance requirement would delay the turnover of a Tier 1 engine installed in 2002 by an additional 7 years, or until 2024. This would delay the emission reductions necessary to meet the goals of the Diesel Risk Reduction Plan and the Goods Movement Emission Reduction Plan and the associated health benefits. See the response to Comment H.9 regarding the use of Carl Moyer Program funding and the associated project life. See the response to Comment H.10 regarding the magnitude of emission reductions that would be delayed under this scenario.

12. **Comment:** For those of us who were pro-active in installing Tier 1 or better, we believe that the regulation cuts our life cycle in those engines and that dollars that were expended by at least 25 percent, we believe all of those engines went

in with the thought in mind of at least lasting 20 years. That's the normal turn over period of a good engine. (CATALINA)

Response: We disagree with the suggestion that compliance dates be extended for Tier 1 or better engines for the reasons provided in the response to Comment H.10.

13. Comment: We recommend that engines with the model year 1996 and newer should have a compliance extension of five additional years. By taking into account those companies that have been purchasing new engines for their vessels using a company replacement cycle, CARB will help offset the fiscal impact those companies will face. An engine with a model year 2003 would then be subject to compliance on December 31, 2023. This engine life cycle still does not reflect the true life cycle of a tug engine; however, it does reflect a compromise that will reduce the financial burden on the industry. (AWO1, 14) (SAUSE)

Response: The ARB does not agree with the proposal to give model year 1996 and newer a compliance extension of five additional years. Reducing engine replacement timelines is a mechanism that ARB has employed for many industries to reduce emissions and provide needed public health protection. Staff evaluated the cost of these reductions, including reduced engine life, to be $29 per pound of reduced PM if all costs are associated with the PM reduction. These costs are within the range of other recent regulatory measures. Engines of model year 1996 through 1999 are unregulated (pre-Tier 1) engines. Compliance with Tier 2 standards will provide 25 to 30 percent reduction in PM and 40 to 45 percent reduction in NOx emissions for these engines. See response to Comment H.10 regarding the reductions obtained when a Tier 1 engine is brought into compliance with Tier 3 standards. Extending compliance dates for these engines by five years delays these reductions similarly.

In the evaluation of the economic impact of the regulation, staff used a useful life of 25 years to determine the lost value of the reduced engine life for a tugboat propulsion engine, as discussed in Chapter VIII of the Technical Support Document. ARB staff developed the useful life values based on the results of a statewide survey of commercial harbor craft administered in 2004 (Appendix D of the Technical Support Document). See responses to Comments L.1 and L.3 regarding the evaluation of the fiscal impact on affected companies.

Staff's analysis of the economic impact of the regulation assumed the most costly option for regulatory compliance will be used. However, engine replacement is not the only compliance option for meeting the in-use engine requirements. Retrofit technology and rebuild-to-a-cleaner-standard kits can be employed to meet the required emission limits.

The U.S. EPA has certified kits to remanufacture large locomotive engines to a cleaner standard. The propulsion engines used on many tugboats are marinized locomotive two-stroke engines. There are currently rebuild kits available for these engines, as well as for some other two-stroke engines widely used in marine vessels. While these kits

do not bring the engines to Tier 2 standards, it is expected that engine manufacturers will develop engine upgrade rebuild kits that will clean engines to the Tier 2 level in response to this ARB regulation and requirements recently finalized in the U.S. EPA marine and locomotive engine rulemaking (40 CFR Part 1042). The U.S. EPA rulemaking specifies new remanufacture requirements for engines at or above 800 hp, Tier 2 and earlier, manufactured in 1973 or later. If a rebuild kit that has been certified to reduce PM emissions by at least 25 percent is available for an engine at the time of rebuild, this kit must be used. This ruling, in conjunction with the ARB requirement that certain in-use marine engines meet Tier 2 standards, has created a market for these rebuild kits. It is anticipated that kits to rebuild to a Tier 2 standard will be developed and available in the near future. As one example of industry's efforts to develop new rebuild kits, Caterpillar's rebuild kit for their 3500 series marine engines has been recognized by the U.S. EPA as an emerging technology. This kit is for engine model years 1984 to 2008 with maximum power rating greater than 750 horsepower. This kit will not rebuild to Tier 2 standards. However, once such kits are available, rebuilding the engine to meet Tier 2 standards will bring the engine into compliance with the in-use engine requirements if compliance occurs before Tier 3 standards become effective for the engine.

14. **Comment:** Delay enacting one size fits all policy. Regulations should be based on duty cycle or fuel consumption rather than age of engines. As written, the legislation unfairly penalizes low use vessels.

The philosophy behind the timetable of phase-out dates for existing pre-Tier 1 and Tier 1 engines is to give owners a certain amount of time/operation to take advantage of at least a portion of the engine's useful life. However, using the year as the measure works better for a vessel/engine in service many hours of the day. This results in a large number of actual operational hours and corresponding emissions. In contrast, the vessel/engine that operates less frequently or only a short time per day gets considerably fewer actual hours of operation over the remaining regulatory life granted to the engine. Thus, with a ferry and a dinner boat both having the same phase-out date, the dinner boat gets far fewer hours of actual operation before the required engine replacement than does the ferry, incurring a substantial economic penalty while operating without subsidy.

A year in the life of a dinner excursion vessel is not the same as a year in the life of a ferry vessel. Hornblower charter and dining cruise vessels rarely travel above 6 knots and burn very little fuel. A vessel that makes 200 trips a year at this speed will burn substantially less fuel than a ferry vessel making 300 trips at 20 knots.

For example, comparing two classes that have been lumped together in the Regulation:

Characteristic	Typical New Ferry Vessel	Classic Charter Vessel
Age	1-20 Years	40-90 Years
Appearance	Contemporary	Classic
Construction	Aluminum	Wood
Drive Engine BHP	4,000 to 20,000	200-600
Annual Days of Use	250-300	100-150
Annual Hours of Use	2,000 to 4,000	500-1,200
Annual Fuel Use-Gallons	200,000 to 1,000,000	5,000-10,000
Relative Emission Factor	**1,000**	**1**
Repower $/% of Vessel $	20%-40%	50% to 150%

(HORNBLOWER1)

Response: The regulation provides a low-use exemption for engines that operate less than 300 hours annually. The in-use engine compliance schedule requires that the oldest and highest use engines comply first. These oldest engines required to comply in the first two years have already been in operation much longer than a 20-year useful life. These are unregulated (pre-Tier 1) engines that generate significantly more pollution, about 40 percent more NOx and 25 to 30 percent more PM, than a Tier 1 engine that will be required to comply in a later year. Additionally, as an engine ages, it experiences wear, which increases clearances and introduces more variability into engine operation. Generally, the older an engine is, the more pollution it emits. Consequently, an older engine operating fewer hours may generate more emissions than a newer engine operating more hours.

Further, the emissions comparison provided in the comment is unrealistic. For example, an unrealistically high horsepower range of 4,000 to 20,000 horsepower was cited for the total vessel propulsion horsepower for California ferries. As provided in Chapter III of the Technical Support Document, the 2004 ARB Statewide Commercial Harbor Craft Survey indicated the average total vessel propulsion horsepower for a typical California ferry is about 2,200 horsepower (based on two 1,100 horsepower propulsion engines). Conversely, the commenter underestimates the average power rating for an excursion vessel at 200 to 600 horsepower whereas the survey indicated an average propulsion engine power rating of 800 horsepower (two 400 horsepower engines). Also, the survey data indicated that excursion vessels operate an average of about 1,000 hours annually, which would indicate that the range cited in the comment is underestimated.

Consequently, the annual days of use and fuel use could be similarly adjusted to reflect more realistic vessel horsepower and hours of operation. We do not know how the commenter estimated their “relative emission factor.” However the 1,000 to 1 value is not realistic, as demonstrated by the high range of the vessel horsepower presented for ferries and the low horsepower and hours of operation presented for excursion vessels. None of the data provided in the comment addresses the difference in emission levels from a 40- to 90-year-old engine and a much newer engine, one less than 20 years old. Taking this into account makes the emission levels significantly more comparable.

Based on excursion vessel average engine size, average annual engine use, average engine age, and operation proximity to shore (a factor in determining health risk impact), ARB determined that excursion vessels should be included in the in-use engine requirements of the regulation.

As discussed above, "duty cycle" was taken into account in determining regulation requirements. "Fuel consumption" would be an inappropriate parameter to determine regulation requirements because, as discussed above, the associated emissions can vary significantly depending on engine age.

15. **Comment:** The SCAQMD timeline should be removed from this regulation. It is unreasonable to expect companies operating within California waters to adhere to two separate and unique timelines. This will undoubtedly limit the number of tugs able to operate in southern California and place even more burden on those companies attempting to conduct business in California. (AWO1) (SAUSE)

Response: The SCAQMD timeline is necessary in order to provide early emission reductions in the South Coast Air Basin which is in non-attainment for the federal annual PM2.5 and PM10 ambient air quality standards and 8-hour ozone standard. The South Coast Air Basin is required to attain the PM2.5 standards by 2015 but must demonstrate that goals are met in 2014. This is because the U.S. EPA requires that all necessary emission reductions be achieved one calendar year sooner – by 2014 – in recognition of the annual average form of the standard. NOx emission reductions are needed because NOx leads to formation in the atmosphere of both ozone and PM2.5. Diesel PM emission reductions are needed because diesel PM contributes to the ambient concentrations of PM2.5.

We understand that having a different compliance schedule for the SCAQMD does create added complexity to the rule. However, staff's evaluation indicated that requiring the entire State to adhere to the SCAQMD compliance schedule would overburden the State's resources for bringing these engines into compliance. The accelerated SCAQMD timeline is two years faster than the rest of the State. However, as discussed above, the two year acceleration is necessary. This two year acceleration should not limit the number of tugboats available to work in the SCAQMD. ARB does not believe costs of compliance in SCAQMD, home to California's largest port (the combined ports of Los Angeles and Long Beach), which is also one of the nation's busiest ports, will affect the number of tugboat and towboats available in the South Coast. In addition, see discussion in response to Comment H.13 about alternative options for larger engines in tugboats to comply with the in-use engine requirements.

During the course of developing the regulation, ARB staff evaluated the fiscal impact on affected companies in both the SCAQMD and the rest of the State. As discussed in the Staff Report Technical Support Document (Chapter VIII), ARB staff analyzed the potential impacts of regulation compliance on affected tugboat and towboat businesses and estimated that the average impact on business's return on equity (ROE) was a decrease of 3.6 percent and 0.5 percent, respectively. However, tugboat and towboat

businesses provide a needed service that is not easily replaced, and they will likely be able to pass on the costs to their customers in terms of higher service fees. To the extent that they are able to pass on these costs, the impact on their profitability would be less than estimated here.

These businesses may also be able to reduce the impact of the regulation on their businesses by taking advantage of available public funding. Both Carl Moyer Program and Proposition 1B funds are available for early compliance with the regulation. The Board approved an allocation of $40 million of Proposition 1B funding specifically for reducing emissions associated with commercial harbor craft vessels involved in freight movement operations, including tugboats and towboats. See the response to Comment M.1 for more information regarding incentive funding.

16. Comment: We recommend synchronizing the compliance time frames for the South Coast with the rest of the state. I believe the compliance time frame for the South Coast is eleven years. And that's a really long time. And for the rest of the state, there's even more time through 2022. And I think there is a lot of room to speed up that compliance and offer the earlier public health benefits to these impacted communities. I also want to note that there are significant safeguards already in place in the existing regulatory language that's proposed here to make sure that we don't run up against the problems of capacity in terms of getting enough vessels replaced or repowered in a year. And that if that did happen, compliance extensions would be possible. So I don't think that that's a significant issue. (NRDC)

Response: We interpret this comment as suggesting that the State in-use engine compliance schedule be accelerated to match the SCAQMD schedule. See the response to Comment H.15 regarding the South Coast Air Basin's non-attainment status and the necessity of the SCAQMD accelerated schedule.

The statewide compliance timeline spans 14 years because it requires in-use Tier 1 engines just recently purchased and installed to comply with more stringent standards. The statewide compliance schedule is based on allowing a minimum 15-year useful life for Tier 1 and Tier 0 diesel engines. Consequently, the engines complying in the latter timeframe are all engines meeting Tier 1 engine emission standards. All Tier 0 engines are brought into compliance by 2013 in the SCAQMD, and by 2016 in the rest of the State. The useful life of newer Tier 1 engines is shortened by five to seven years due to these requirements, depending on whether they have a homeport in the SCAQMD or elsewhere in the State. While useful life was shortened to 13 years in the SCAQMD, this was due to non-attainment issues, as discussed in the response to Comment H.15. Shortening their useful life further by compressing the compliance schedule without compelling reason would be unreasonable and burdensome.

Accelerating the statewide schedule would also result in more engines being brought into compliance before Tier 3 standards become effective. Staff demonstrated to the Board at the November 2007 Hearing that replacing a Tier 0 engine with a Tier 2 engine

two years early results in a 20 to 25 percent loss of long-term benefits when compared with replacing the engine with a Tier 3 engine at the original compliance date. While it is important to obtain the short term benefits of early replacement in the South Coast, this is not true for the remainder of the State.

Implementing the SCAQMD in-use engine compliance timeline for the entire State would overextend the statewide capacity of boat builders, boat repair facilities, and ship yards to complete the additional work associated with implementation of the regulation in a timely fashion. During the course of the rulemaking process, the ARB staff surveyed more than 60 California-based boat builders, boat repair facilities, and ship yards to ascertain the statewide cumulative annual vessel repair/maintenance carrying capacity. The results of that survey indicated that accelerating the compliance schedule would overburden the existing vessel repair/maintenance infrastructure. The Board agreed with the staff recommendation that the compliance schedule developed for the SCAQMD not be implemented statewide. In developing regulations, the ARB works to develop a balance that obtains the necessary emission reductions and protects public health while still allowing businesses to continue to operate within the State.

Finally, accelerating the statewide compliance timeline reduces the opportunity for businesses to use incentive funds to comply early. This increases the burden on industry.

17. **Comment:** The strongest argument that the staff has for not requiring an accelerated turnover for the rest of the state on the same time line as the South Coast is they're concerned about the capacity of the industry to be able [to] change over the engines on time. Even the accelerated South Coast version is a long time line. You're looking at a ten-year window of opportunity to either increase staff or expand a facility to enable additional engine turnover or replacement. The Board should feel empowered to require the whole state to go with the South Coast time line. Significant emission reductions justify the Board going with the South Coast time line that's a two or three year acceleration to the overall program. (CCA)

Response: We disagree for reasons provided in the response to Comment H.16.

18. **Comment:** ARB should accelerate and compress the compliance schedule. At a minimum, ARB should duplicate the compliance schedule for the South Coast Air Quality Management District statewide. In keeping with a condensed compliance timeline, at a minimum we support the second alternative considered in the September 2007 CARB Staff Report. In this alternative, total DPM emissions reductions: ". . . would be significantly more than with the proposed schedule, 6.0 million pounds during the 14 years from 2009 to 2022 . . . The total NOx reduction of this same time would be 46,000 tons, nearly 20 percent more than with the proposed regulation. This alternative would produce earlier reductions than the current proposal, with a cost-effectiveness similar to the current proposal." This alternative was rejected due to concerns about statewide

engine replacement capacity. However, possible alternatives exist to address these concerns including out-of-state engine replacement locations, financial inducements (such as the Carl Moyer Memorial Air Quality Standards Attainment Program), and subsidized increased capacity arrangements. These possible alternatives should be evaluated to accelerate and augment needed vessel emission reductions. (COALITION) (FOTE1) (FOTE2)

Response: We disagree for reasons provided in the response to Comment H.16. While some vessel owners with larger vessels will send their vessels out of state for repower, ARB believes this will be a small minority of the repower population. Basing capacity on California facilities is reasonable.

There are financial inducements in place for encouraging vessel owners to comply early with the in-use engine requirements. Adopting a condensed timeline for the entire State would reduce opportunities for incentive funding for early compliance. The Carl Moyer Program requires that funds be expended at least three years prior to the regulatory compliance date, and Proposition 1B funding guidelines require two years. The availability of these funding sources will allow proactive vessel owners to bring their engines into compliance years earlier than required by the compliance timeline.

ARB does not have the funding authority to subsidize an increase in boat yard capacity. Nor can ARB advise boat builders, boat repair facilities, and ship yards as to what business model they should pursue, or mandate that these facilities increase their business capacity, either through increased staff or facility expansion, to meet the needs of the regulation.

19. Comment: It appears in 2011 and 2012 and 2014 there's some space to shift around the[se] numbers. I know the capacity number that was referenced is 150 [engines per year]. And if possible, we can use any means at our disposal to move that around so that we can go forward on the statewide replication of that at the South Coast level. (FOTE2)

Response: The compliance schedule in the regulation provides a more even distribution of engine repower than either of the two alternatives considered in the Technical Support Document. While the anticipated number of engines coming into compliance in 2011, 2012, and 2014 are lower than the estimated statewide capacity, requiring engines scheduled for compliance in 2015 and later to comply in those years would reduce their useful life to significantly less than 15 years. This would make the regulation more costly and also reduce the opportunity for using incentive funds for early compliance.

20. Comment: The regulation sets unrealistic compliance dates. (AWO1) (AWO2) (SAUSE) (WESTAR1) (WESTAR2)

Response: The compliance schedule is reasonable and takes into consideration economics, engine and dry dock availability, and emissions impacts. The regulation

includes extensions for cases in which there are no suitable engines available, installation difficulties exist, and when a fleet having sets of engines on multiple vessels are required to comply in the same year. There are also alternative compliance methods that can be used to meet the emission limit requirements, as discussed in the response to Comment H.13.

21. **Comment:** The compliance timeline, as drafted, is extremely lengthy and should be shortened as much as practicable. No explanation has been provided for why the compliance deadline is 2022 despite the urgent need to reduce harbor craft emissions. (FOTE) (COALITION)

Response: See the response to Comment H.16 regarding the length of the compliance timeline.

I. Compliance Methods

1. **Comment:** We recommend that Tier 4 repowers be considered for certain size vessels (e.g., over 800 hp) subject to a feasibility demonstration. If infeasible, Tier 3 engine repower requirements would then apply. (CAPCOA)

Response: We do not believe it is appropriate to include a requirement for meeting Tier 4 standards for in-use vessels. During our public workshops, engine owners and manufacturers raised an issue about the proposed regulation's originally proposed requirement to install Tier 4 engines on existing vessels. The U.S. EPA's proposed Tier 4 marine engine emission standards will result in the necessity for exhaust after-treatment (i.e., selective catalytic reduction and diesel particulate filters) on Tier 4 engines. Owners and manufacturers stated that installing Tier 4 engines that utilize exhaust aftertreatment equipment on existing vessels would create space and weight difficulties, U.S. Coast Guard approval problems, and vessel stability issues. After consideration of these issues, staff modified the proposal so that engines meeting Tier 4 standards are not required for engine repowers (i.e., on in-use vessels), unless the engine being replaced is a Tier 4 engine, but they would be required for new vessels.

Additionally, see response to Comment F.10 regarding the feasibility of requiring Tier 4 engines prior to the U.S. EPA effective date for these standards.

J. Compliance Extensions

1. **Comment:** We recommend that a three-year automatic extension be granted when there is no suitable engine replacement. Requesting annual extensions for engines that have not been developed is unnecessary and burdensome for a company. The industry already has to face the brunt of this regulation and it should not have to also face an undue administrative burden. (AWO1) (SAUSE)

Response: The regulation allows a compliance extension when there is no suitable engine replacement available. The ARB Executive Officer (E.O.) may grant to an owner

or operator a one-year extension, which can be renewed annually, provided the owner or operator demonstrates to the E.O.'s written satisfaction that there is no suitable Tier 2-certified or Tier 3-certified replacement engine available that can be used in the specific vessel, and the owner cannot otherwise meet the requirements of subsection (e)(6) of the regulation. The annual extension application requirement provides accountability in the extension process. It is appropriate that the availability of a suitable engine for a vessel be evaluated annually due to the possibility of new offerings in the market place, and ARB does not believe this annual extension process is burdensome to the company.

2. **Comment:** We recommend that an automatic extension be granted to the company as long as it submits documentation showing both that it has ordered the engine and the manufacturer's expected delivery date. There is an economic incentive for the engine manufacturers to ensure that there are as few delays as possible in the delivery of a new engine. However, the burden should not fall on the operator to continually submit requests for six-month extensions when the manufacturer is delayed. In order to alleviate the administrative burden that this section imposes on the industry and expedite the extension process, documentation from the operator and manufacturer should be sufficient to warrant an extension to the compliance date that reflects the manufacturing delay. (AWO1) (SAUSE)

Response: The extension application process requires only that the vessel operator provide the documentation cited in the comment and documentation showing that the engine was ordered no later than six months prior to the engine's compliance date. This is not an onerous process, and ARB will make an objective determination of eligibility for the extension. The 6-month extension ensures that at least one full year is allowed for compliance from the date the engine is ordered.

3. **Comment:** We recommend that this extension [an installation difficulty (six month extension)] should mirror the extension comments made previously in regards to manufacturer delays [be granted to the company as long as it submits documentation showing both that it has ordered the engine and the installer's expected installation date.] Currently this regulation imposes the burden on the operators when the delays are out of their hands. (AWO1) (SAUSE)

Response: As stated in the response to Comment J.2 above, the extension application process requires only that the vessel operator provide the documentation cited in the comment, documentation showing that the engine was ordered no later than six months prior to the engine's compliance date, and documentation of the installation difficulties. This is not an onerous process, and ARB will make an objective determination of eligibility for the extension.

4. **Comment:** We request automatic compliance for the extension dates on replacement engines due to the manufacturers, not a one year, six month. We

need automatic compliance or automatic extension for compliance. That would be in line with when we can get the engines. (AWO2)

Response: We disagree for reasons provided in the response to Comment J.2.

5. Comment: We request the exemption process through the Executive Officer for infeasibility be modified to allow for a longer period between submittals, the current writing calls for annual submissions of very complex and time consuming documents. (BAYLINK1)

Response: We are interpreting this comment to be referring to the compliance extension for the case where no suitable engine is available, rather than an exemption. There are no repeated submittals for exemptions. See response to Comment J.1. As discussed in the response to Comment J.1, annual submittals are appropriate for accountability. If no new technology is available, then the submittal should not require further evaluation of the suitability of available technology. If new technology has become available, it is appropriate that the technology be evaluated for suitability.

6. Comment: The regulation contains a burdensome application process. (AWO1) (AWO2) (SAUSE)

Response: We disagree for reasons provided in the responses to Comments J.1, J.2, and J.3.

7. Comment: We recommend that an extension [to an owner having multiple vessels whose engines need to comply during the same year] not be a one-time only extension. The impact on an operator with multiple vessels coming into compliance will only be compounded if this extension is limited to one use. (AWO1) (SAUSE)

Response: We disagree with the comment except in the case when the compliance date is in one of the first two compliance years. Except when the compliance dates are in the first two compliance years, the vessel operator has sufficient time to plan for the engine compliance requirements and possibly comply early with incentive funding or apply for an alternative control of emissions plan. The one-year extension allows an operator to phase the dry dock times for their multiple vessels over a two-year period rather than just over one year.

For those cases where compliance is required for sets of engines on multiple vessels in one of the first two compliance years, a change was made in the regulation as part of the 15-day Notice. The original proposal provided a one-year compliance extension for vessel owners or operators with multiple vessels requiring engine compliance in a single year. However, there are at least two fleets with a large number of vessels with engines older than 1975 model year that would need to bring all of the effected engines on these vessels into compliance in the first two compliance years, 2009 and 2010. The original proposed compliance extension would only have extended their compliance deadline for

either of these dates by one year. Based on Board direction at the November 2007 Hearing, staff made changes in the 15-day Notice to provide an extension to allow a phased compliance schedule for owners and operators with sets of engines on multiple vessels requiring compliance in either 2009 or 2010. The phased compliance schedule would require that a portion of the fleet be brought into compliance each year and that all engines be brought into compliance by the end of 2013. This would allow up to four years for the engines to be brought into compliance but would not jeopardize the early reductions necessary in the South Coast or the rest of California.

8. **Comment:** We renew our objection to compliance extensions offered to owners or operators possessing multiple vessels in the same fleet. While some extensions are reasonably provided for – such as those pertaining to the absence of suitable replacement engines – assisting owners and operators who own multiple vessels is neither essential nor arguably equitable. (FOTE1)

Response: The extension the commenter is referring to is a one-year extension for cases when there are sets of engines on more than one vessel in a fleet with compliance required in the same year. If compliance for these sets of engines is required in one of the first two compliance years (2009 or 2010), a longer extension is provided, as discussed in the response to Comment J.7. This extension requires more than simply for owners or operators to own multiple vessels, as implied in the comment. This extension was provided because compliance with the regulation is expected to require a nontrivial period of time, during which the vessel must be in dry dock. The extension will allow the vessel owner to phase that out-of-service time for vessels over two or more years rather than one. This extension also allows more time for financing of any modifications required. When sets of engines on multiple vessels in a fleet are required to comply within one of the first two years, additional time beyond a one-year extension is allowed because there is little time for the owners to plan for the expense and out-of-service time. Requiring compliance within one of the first two years also does not allow for early compliance with the use of incentive funding.

9. **Comment:** Write into the regulation or give the Executive Director and staff more discretion to allow appropriate time to companies that can demonstrate undue economic burden in any given year of the program . . . i.e., to extend implementation dates if a company has more than two vessels to be re-powered in any given year (estimated implementation cost of over $250,000). (HORNBLOWER1)

Response: We disagree with this recommendation. The determination of undue economic burden is very subjective in nature, which makes equitable evaluation difficult. As explained in the response to Comment J.7, more flexibility has been added to the regulation for vessel owners with sets of engines on multiple vessels that are required to comply in one of the first two years. For cases where compliance is required in later years, there is sufficient time for the vessel owner to plan for compliance, including considering various compliance options, as discussed in the response to

Comment H.13, and the use of incentive funding, as discussed in the responses to Comments H.15 and M.1.

10. **Comment:** We request that the extension for same fleet vessels that share compliance dates be broadened. Due to our extensive re-engining under the Carl Moyer program, Westar currently has seven vessels that have a compliance date of 2015 and seven vessels with a date of 2017. We would have to re-engine 14 vessels over a four year period. Based on our extensive experience with re-engining, we do not believe that we could manage that many re-enginings with in that time period. A single one-year extension is just not adequate. We request that this extension not be limited to one use. (WESTAR1) (WESTAR2)

Response: For cases where compliance is required in later years, there is sufficient time for the vessel owner to plan for compliance, including considering various compliance options, as discussed in the response to Comment H.13, and the use of incentive funding, as discussed in the responses to Comments H.15 and M.1. See responses to Comments L.1 and L.3 for additional discussion on the impacts on businesses.

11. **Comment:** I'd also like to comment briefly on engine availability and second what you're hearing that it takes a year or so to get the engines. We're going to schedule six months for our ferries to be re-powered. And we're going to have to take it to a shipyard in Washington. . . . we are actually having to modify the hull of the vessel in order to accommodate the added weight of the engine. And that's going to involve significant shipyard time. (BAYLINK2)

Response: Every commercial harbor craft repair/maintenance/repower project is different and, as such, the regulation includes a compliance extension for manufacturer delays or installation difficulties. In addition, ARB staff plans to work closely with owners that are fulfilling the intent of the regulation when dealing with these types of issues. There are other options besides engine replacement that can be considered for compliance. See response to Comment H.13 for a discussion of these options.

12. **Comment:** There's much more to this exchange of engines than I think what I've heard talked about today. There's no way you can complete this task within a three week period. It's been a minimum of three months per vessel. (CATALINA)

Response: ARB staff surveyed more than 60 California-based boat builders, boat repair facilities, and ship yards to determine an estimate of the time it takes to repower a commercial harbor craft. The time estimates ranged from three to four weeks up to three months, with the vast majority indicating the former. Also, see response to Comment J.11.

K. Alternative Control of Emissions

1. **Comment:** We reiterate our opposition . . . to elements of the Alternative Control of Emissions (ACE) program. We remain concerned that Fleet Averaging may create disproportionate impacts. Further, we believe that several of the provisions allowable in an ACE should be required, as opposed to optional. These provisions include engine modifications, exhaust treatment control, engine repower, use of alternative fuels or fuel additives and shore-side power, especially shore-side power for tugboats. ARB should evaluate whether ACE methods can be made mandatory elements of this rule. (FOTE1)

Response: ARB believes the ACE provision is important for providing flexibility in achieving equivalent emission reductions compared to direct compliance with the regulation. The regulation will require ACE applications be made available for public review and comment before Executive Officer action. Fleet reductions that are part of an ACE plan cannot be used to compensate for emissions in another air district or locale, as provided for in the definition of "fleet". This will avoid any disproportionate impacts from occurring due to the ACE plan. Until Executive Officer approval is granted, the owner or operator would be required to meet the performance requirements in the regulation.

The multiple strategies possible in an ACE plan and the costs and risks associated with those strategies make them more appropriate to consider on a case-by-case basis as opposed to a general mandate. To make these strategies mandatory would impose a prescriptive standard for the in-use engines affected. In contrast, the regulation imposes a performance standard for these engines which allows vessel owners to choose how they will meet these standards.

As discussed in the response to Comment G.8, staff is considering including shore power requirements for at-berth commercial harbor craft as part of a future rulemaking effort.

L. Economic Burden and Impact on California's Economy

1. **Comment:** We oppose the draft harbor craft regulation. It places unnecessary and overly burdensome regulations on the tugboat, towboat and barge industry that have the potential to put many operators out of business, thereby striking a severe blow to California's economy, as well as the nation's. (AWO1) (SAUSE)

Response: We do not believe this regulation will significantly affect California's or the nation's economy. As discussed in the Technical Support Document (Chapter VIII), ARB staff analyzed the potential impacts of regulation compliance on affected tugboat and towboat businesses and estimated that the average impact on business's return on equity (ROE) was a decrease of 3.6 percent and 0.5 percent, respectively. Tugboats and towboats are a significant source of commercial harbor craft emissions, resulting in reduced air quality and contributing to significant public health risks. However, these

businesses provide a needed service that is not easily replaced, and they will likely be able to pass on the costs to their customers in terms of higher service fees. To the extent that they are able to pass on these costs, the impact on their profitability would be less than estimated here. The State's and the nation's economies are not expected to be impacted by the passing on of these costs. The ultimate customer base to which the costs will be passed is the mass of consumers of imported goods. The distribution of these costs among a customer base that is many orders of magnitude larger than the source will greatly mitigate the increase in costs such that it becomes negligible.

These businesses may also be able to reduce the impact of the regulation on their businesses by taking advantage of available public funding. Both Carl Moyer Program and Proposition 1B funds are available for early compliance with the regulation. The Board approved an allocation of $40 million specifically for reducing emissions associated with commercial harbor craft vessels involved in freight movement operations, including tugboats and towboats. See the response to Comment M.1 for more information regarding incentive funding.

2. **Comment:** The proposed regulation will have a significant effect on our operations and our ability to stay in business. (WESTAR1) (WESTAR2)

Response: See response to Comment L.1.

3. **Comment:** The ramifications of this regulation have not been adequately addressed by CARB staff in the economic impact statement. For example, imposing a short life cycle on marine engines will be so costly that it will push smaller vessel operators out of business, which will decimate the ship assist business in California waters and cause employees to lose family-wage jobs, and also possibly severely limit the number of vessels that operate in California from outside of the state and weaken the state's economy.

Ocean-going tugs operating as ships and only making port calls, ship assist vessels and marine construction companies will all be severely impacted. (AWO1) (SAUSE) (AWO2)

Response: We disagree with these comments. See response to Comment L.1 for a discussion of economic impact on affected businesses and the State's and nation's economies. The analysis that staff conducted took into account the lost economic value due to engines being replaced before the end of the engine's useful life. This cost was included in the estimated reduction in ROE discussed in the response to Comment L.1. The economic analysis assumed that vessel operators would comply with the regulation by replacing their engines. This is the most costly option for regulation compliance. There may be other, less costly options available to many fleet owners for complying, including rebuilding engines with engine upgrade kits that reduce emissions (as discussed in the response to Comment H.13), employing emission control technologies, which could include aftertreatment devices and fuel strategies, or applying for approval for an ACE plan. An ACE plan must obtain emission reductions equivalent to or greater

than direct compliance with the regulation. ACE plans may include the use of engine rebuild kits, exhaust treatment, use of alternative fuels or additives, shore side power, or other methods which reduce emissions for their fleet but allow more flexibility. Consequently the regulation will not cause the ship assist industry to be decimated or result in lost jobs.

There are provisions in the regulation to extend the compliance time for vessel owners/operators for manufacturer delays, installation difficulties, and for engines on multiple vessels that have the same compliance date. ARB staff plan to work closely with owners/operators when dealing with these types of issues. If an extension is warranted, the owner or operator is required to apply for this extension at least six months prior to the engine regulatory compliance date. The approval process for some extensions includes a public review period.

Operators who bring out-of-state vessels into California for operation may need to assign their cleanest harbor craft to California operation and, as maintenance schedules permit, clean up other vessel engines to allow more flexibility in vessel use.

4. **Comment:** One example of a similar situation in the past is in the 1990's when California imposed an eight percent sales tax on bunker fuel. Ships simply chose to buy fuel elsewhere. This increase obliterated the bunkering business and, in turn, approximately 75 percent of the market left California. The impact of the harbor craft regulation on the tug and barge industry will have a greater negative impact than the bunker tax and, unlike the bunker tax, the harbor craft regulation will impact multiple business sectors. (AWO1)

Response: See responses to Comments L.1 and L.3 for a discussion on the economic impacts on affected businesses. The example of the bunker fuel sales tax is not applicable to this situation. As discussed in the response to Comment H.15, the combined ports of Los Angeles and Long Beach are one of the nation's busiest ports due to the large amount of imported goods that flow through this port and the size of the metropolitan area that the port and other local transportation industries service. The businesses that commercial harbor craft are engaged in (primarily import/export) will not relocate to outside of California due to the cost of this regulation. The customer base that the harbor craft industries service is sufficiently large to bear the cost of the regulation.

5. **Comment:** However, legitimate concerns of the tug boat industry presented during development of the regulation have mostly not been addressed. Of particular note are the unrealistic compliance dates and the gross underestimation of total costs involved. Many vessels are going to have to be re-engined.

And there's going to be disruptions in commerce when tug boats are unavailable due to time out of service, engine delivery delays, and limited shipyard resources. This is going to cost California consumer much more than is

estimated in this proposed rulemaking. And many smaller tugboat companies with limited financial resources will sell their boats outside of California and go out of business. (WESTAR1) (WESTAR2)

Response: ARB believes it has addressed the concerns of the tugboat industry, as described more specifically in other responses to comments within this document, even though not all changes that companies requested in the regulation have been made. See response to Comment H.20 for a discussion regarding unrealistic compliance dates and extensions for delays due to engine delivery and installation difficulties (including delays due to limited shipyard resources). As discussed in Chapter VIII of the Technical Support Document and the responses to Comments L.1 and L.3, staff conducted an economic analysis and calculated that the average impact on tugboat business ROE was a decrease of 3.6 percent. Tugboat and towboat businesses provide a needed service that is not easily replaced, and they will likely be able to pass on the costs to their customers in terms of higher service fees. To the extent that they are able to pass on these costs, the impact on their profitability would be less than estimated here. Assuming these costs are passed on to and spread amongst millions of consumers, the cost to each individual consumer will be insignificant. Alternative methods of meeting the emission limits are discussed in the response to Comment H.13.

6. Comment: Typically the main engines on tugs will last many rebuild cycles. Most of the EMD engine blocks have pre 1980 original build dates. To re-power with like engines can cost 2.5-3.5 million dollars per tug, sometimes exceeding the total value of the tug. The current compliance schedules will decimate the ocean tugs and ship assist business in California waters and cause employees to lose family-wage jobs, and also possibly severely limit the number of vessels that operate in California from outside of the state and weaken the state's economy. (SAUSE) (AWO2)

Response: We disagree with the commenter's conclusion. See responses to Comments H.13 and L.3 regarding less costly alternative compliance options available. See Comment L.1 regarding the economic impact on businesses. It is not expected that the regulation will result in job losses or have a significant impact on tugboat businesses because they provide a necessary service that will continue to be in high demand. See the response to Comment L.3 regarding the possibility of the regulation limiting the number of vessels that operate in California from outside of the State and the impact on the State's economy.

7. **Comment:** . . . our company cannot survive the proposed Commercial Harbor Craft Regulation as drafted.

The impact of the legislation will bankrupt our company:

- 14 of 35 Vessels would require re-power in the first two years (2010-11). Regulation does not recognize the impact it will create on a large fleet of vessels.
- All of these vessels combined have fewer emissions than the average commuter ferry due to hours of operation and fuel consumption rate.
- Recent rebuild and re-power write-offs would exceed $500,000
- Historic Register(s) registration concept as drafted is not compatible with USCG Inspected Vessels. Many vessels were built around the engines and will require substantial demolition to replace. Our fleet has at least 5 such vessels that would be permanently removed from service as a result.
- Collateral damage in re-power situations is substantial, including reduction in capacity, additional capital expenditures, and route/service reduction.
- Private Lender support will dry up with regulations that increase ownership cost

(HORNBLOWER1)

Response: As discussed in the responses to Comments H.13, L.1, and L.3, owners/operators have other options for regulation compliance besides engine replacement that are substantially less expensive. Larger fleets, such as described in the comment are particularly suited to using the ACE option. Additionally, a change has been made to the regulation through the 15-day Notice and public comment that includes a compliance extension specific to fleets with sets of engines on multiple vessels that are required to comply within the first two years. The extension allows phasing compliance through multiple years, as long as all affected vessel engines are brought into compliance by the end of 2013, as discussed in the response to Comment J.7.

See the response to Comment H.14 regarding the comparison of emissions from older excursion vessels to those from newer ferries.

Capital expenses will be incurred; however, as discussed above and in the responses to Comments L.1 and L.3, these costs are not expected to be devastating to affected businesses. In Appendix H, included as Attachment 4 in the 15-day Notice, staff estimated an increase in ticket price required to cover the expense of regulation compliance for three businesses for which staff was able to obtain Dun & Bradstreet credit and business report information. These businesses represent a range of business sizes, including a large, medium, and small ferry/excursion company. Estimated new equipment costs were based on the fleet description provided in the survey responses for these companies. An average annual new equipment cost was estimated for the years over which compliance would be required. The average new equipment costs ranged from between three to five percent of the average annual sales

for these three companies. As a worst case hypothetical example generated to confirm this estimated range of ticket price increase, ARB staff estimated the costs to a small excursion company with a single older vessel. The analysis estimated that if the annualized cost, amortized over 10 years at an interest rate of 5 percent, was passed on to the passengers through a ticket price increase, the resulting increase in ticket price would be 10.5 percent. These estimated increases in the ticket prices should not significantly reduce the number of passengers nor cause bankruptcy.

See response to Comment D.1 to address the applicability of the National Historic Registry to U.S. Coast Guard inspected vessels. The response to Comment D.1 discusses two fireboats that are listed in the National Historic Register: one which is currently part of the Los Angeles Fire Department's fleet and the other which previously operated in Oakland. Since these types of vessels are registered by the U.S. Coast Guard, we assume that there is no conflict between U.S. Coast Guard registration and registration with the National Historic Registry.

The commenter claims that compliance with the regulation will reduce capacity and routes and services. Whether or not such reductions occur will be dependent on how the operator chooses to comply with the regulatory requirements. If they choose to reduce engine operating hours to below the low-use limit, these reductions may occur. Otherwise, compliance with the regulation should not reduce vessel capacity, routes, or services.

With higher costs, businesses may find it more difficult to qualify for loans from private lenders. A private lender will want to see a return on investment and proof that the borrower can pay back the loan. As discussed in Chapter VIII of the Technical Support Document, the reduction in return on equity due to regulatory compliance that was estimated for ferry/excursion companies ranged from 3 to 5 percent. This is not considered an economic hardship and is not expected to impact the ability of businesses to qualify for loans.

We acknowledge that some vessel owners may be forced to change their business model and increase their debt to comply with the commercial harbor craft regulation. Many vessel owners may have to change how they allocate capital resources, and they may need to borrow money to purchase retrofits or repowers. The amount of debt acquired will depend on the compliance path chosen by the vessel owner. Also, for vessel owners with engines with later compliance dates, taking early actions with the use of incentive funding is another way to spread out the costs of the regulation without accruing large amounts of debt in the beginning years where the compliance costs can be the highest.

8. **Comment:** The regulation does not accurately address the economic impact of us and unfairly requires ocean tugs to comply. (AWO2)

Response: We are confident in the economic impact analyses conducted for this regulation and believe it is appropriate to include ocean-going tugboats in the regulation. See responses to Comments B.1, L.1, and L.3.

9. **Comment:** To get a better understanding of how flawed the financial impact statement is, this section will detail how a real California tug company will comply with this regulation. The company has a total of 10 tugs and operates a ship assist business. The numbers contained within this example will be in today's dollar; any future impacts would need to have an escalator of at least 10 percent annually due to inflation.

The engines in the tug company are model years 1996 and 1997 and operate more than 1,500 hours annually. Based on the proposed regulation, the compliance date for these tugs would be 2015, which means that this company would have to replace its entire fleet's engines during the same year. Each tug would be out of service for approximately 30 days, during which time the tug will have to be ripped open and have the engines removed with a crane. Also, during this time the company would have to pay a charter tug to cover the company's existing contracts.

After taking into account lost revenues, engine costs, service costs, service equipment costs and the expense to charter a vessel, the company will have to invest $2.2 million per tug. This means that within a two-year period, if the one-time extension for multiple vessels is utilized, the small business in question will have to spend $22 million.

This is one tug company of many that will probably not be able to afford compliance with the harbor craft regulation as it is currently written. Companies will also have to examine the various ports to determine if the enormous additional expense of complying with the regulation is worth continuing to stay in operation in California.

However, if AWO's suggestions are incorporated, the tug company in the previous example will be able to spread the $22 million expense over a period of five to 10 years. This time will allow the company to continue to use part of its fleet to generate revenue so that it can pay the costs imposed by the regulation and not be forced out of business. (AWO1) (SAUSE)

Response: We do not agree with the dire picture that the comment has drawn. With a compliance date in 2015, the business has six years to plan for the required compliance. Incentive funds, as discussed in the response to Comment M.1, are available for tugboat projects if they choose to comply early with the regulation requirements. Additionally, other options besides engine replacement are anticipated to be available for compliance, as discussed in the response to Comment H.13.

10. **Comment:** Example of how the proposed policy will impact one "classic Vessel" in our fleet –

Built in 1942 and owned by John Wayne, she currently carries 150 Passengers maximum, 80 average, 100 days per year. We have spent $200,000 over the last 2 years to maintain her classic condition. The vessel has large slow speed EMD engines with average operation of 800 hours annually.

Under the present proposal, Hornblower will need to re-power by 2010. We do not think that a re-power is possible and the vessel will be rendered unusable at a great loss to the public, who enjoy the vessel and her history.

a. Large heavy engines are part of the vessel ballast system (USCG Issue)
b. Vessel would require partial destruction to remove engines (USCG Issue)
c. Estimated cost of new engines & generators $200,000. Estimated additional cost of re-power (if even possible) $500,000. Estimated fair value of vessel $2,000,000.
d. Vessel contributes over 40% of our gross revenue in Newport Beach, and employs over 50 local residents.

(HORNBLOWER1) (HORNBLOWER2)

Response: We do not agree with this comment. There are options for regulation compliance other than repowering. See responses to Comments H.13 and L.1 regarding alternative ways for owners/operators to comply with the regulation. See responses to Comments D.3 and H.14 regarding the emissions from "classic vessels."

11. **Comment:** Implementing a hastily-constructed regulation would cripple an industry and harm the overall economic health of the state. (AWO1) (SAUSE)

Response: As discussed in the Staff Report (pages 25-26) and Technical Support Document (Chapter II, pages II-7 to II-9), ARB has worked extensively with the various stakeholders since 2004. ARB staff has held 12 public workshops during the development process. In addition to the public workshops, staff participated in numerous industry and government agency meetings over this timeframe regarding the development of the regulation. See responses to Comments L.1 and L.3 regarding the impact of the regulation on tugboat industry and the State's economy.

12. **Comment:** There is not an appreciation by the state of the severity of the regulation's impact on the entire maritime community. (AWO1) (SAUSE)

Response: See responses to Comments L.1 and L.3 regarding the economic impact on the tugboat and towboat industry and the State's economy. The regulation was crafted to include sufficient flexibility, as discussed in responses to Comment H.13, regarding alternative methods for compliance, Comment H.20, regarding available extensions, and Comment J.7, regarding fleets with sets of engines on multiple vessels

required to comply in the same year (to mitigate the regulation's impact on the maritime community).

13. **Comment:** We don't believe that the staff has done an adequate analysis to determine the ROE on our company. In fact, we think it could jeopardize our viability as a company to serve the public of California. (HORNBLOWER2)

Response: As discussed in Chapter VIII of the Technical Support Document, staff used the available Dunn and Bradstreet financial data to analyze the economic impact of the regulation on the ROE of impacted businesses. Staff was able to obtain representative data for each of the three vessel types. However, it was not possible to conduct an ROE analysis for every individual company impacted. ARB is confident that its financial impact projections are sound and that the regulation has sufficient compliance options and flexibility to accommodate the specific needs of individual businesses

14. **Comment:** AWO's concerns with previous drafts of the harbor craft regulation have, in large part, gone unaddressed, and we are now presented with a draft regulation that will have an enormously negative economic impact on the tug and barge industry. (AWO1) (SAUSE)

Response: ARB believes it has addressed the concerns of the tugboat and towboat industry by including a number of compliance options and flexibility into the regulations, as discussed more specifically in other responses. In particular, see the responses to Comments L.1 and L.3 regarding the economic impact on the tugboat and towboat industries.

M. Incentives

1. **Comment:** We suggest CARB authorize tax incentives and grants to tug companies to invest in cleaner burning, more efficient engines. It is uncertain whether or not Carl Moyer funding will be available after the adoption of the harbor craft regulation, since the funding is not available to meet regulatory compliance. This would allow small businesses and companies heavily invested in equipment the opportunity to find capital to make the necessary modifications to their engines to meet the compliance standards. (AWO1) (SAUSE)

Response: ARB has no authority to initiate tax incentives. The State Legislature and U.S. Congress have exclusive authority to amend State and federal tax law, respectively.

Grants for early compliance are available. The Carl Moyer Memorial Air Quality Standards Attainment Program, now in its tenth year, provides incentive grants to public and private entities. Carl Moyer Program funding subsidizes the incremental cost of installing cleaner-than-required engines and rebuilding older, dirty engines to a cleaner standard. The objective is to encourage operators to exceed emission reductions

required by regulation. During its first seven years, the Carl Moyer Program provided $170 million to clean up approximately 7,500 engines throughout California.

As of the 2003-2004 fiscal year, about 400 propulsion engines and 50 auxiliary engines had been replaced in approximately 300 harbor craft through the Carl Moyer Program. Specifically, $6.3 million was granted to tugboat operators to rebuild and replace 68 engines, and $3.7 million was granted to ferry/excursion operators to rebuild and replace 30 engines.

The Carl Moyer Program is available to commercial harbor craft operators who undertake projects to reduce emissions early or beyond what is required by regulations. Grants are available as long as replacing engines with new cleaner engines is completed at least three years prior to regulation compliance dates. Project completion deadlines are summarized in Table VIII-16 and Table VIII-17 Chapter VIII of the Technical Support Document.

In addition, Proposition 1B funding is available to reduce tugboat and towboat emissions; $40 million has been allocated for reducing emissions from commercial harbor craft. These funds are available in the specified goods movement corridors and may also be used for projects to reduce emissions from work, pilot, crew, and supply boats as well as high-use commercial fishing vessels. Engine replacements for tugboats and towboats must be completed at least two years prior to regulation compliance dates.

At the local port level, grants are available to support air quality improvements from port operations. For example, grant funds are available from the Port of Los Angeles for air emission reductions that go beyond current regulatory requirements. The Port of Los Angeles Air Quality Mitigation Incentive Program (PAQMIP) has granted millions of dollars since 2003 for air quality mitigation projects.

2. **Comment:** We request that incentives be crafted to assist economically challenged companies or industries, this in order to attain CARB goals in a faster time frame. (BAYLINK1)

Response: Incentive money to fund early reductions is available as discussed in the response to Comment M.1. However, public funding is specifically meant for obtaining emission reductions surplus to regulation compliance, such as early compliance, and are not awarded based on need. Additionally, the determination of economic need is very subjective in nature which makes equitable evaluation difficult.

3. **Comment:** We've never seen funding available that will do the complete job. When you replace this engine, you don't just replace the engine . . . You redo the engine beds. You have to replace drive lines. And you may end up replacing water jets and everything else. They just don't come out the same. They either run at a different RPM that changes torque levels. (CATALINA)

Response: Incentive money to fund early or excess reductions is available as discussed in the response to Comment M.1. However, the vessel operator is expected to share in these costs. Alternative methods to replacing an engine in order to meet the emission limits are discussed in the response to Comment H.13.

4. Comment: There's just one point I wanted to clarify as far as duty cycles of a dinner cruise boat. Historically, that has not allowed us to get Carl Moyer funding. In fact, on the occasions we've applied, we did not get it. From the criteria I hear today from this future bond funding, I don't think we'll get it either. (HORNBLOWER3)

Response: As discussed in ARB's response to Comment M.1, the Carl Moyer Program has provided several millions of dollars to install new engines in commercial harbor craft. Over the past several years, 12 excursion vessel engines have been repowered under the Carl Moyer Program and other local incentive programs. The Carl Moyer Program is typically over-subscribed, and the air districts typically award funding to the most cost-effective projects. To be competitive for these funds, excursion vessel operators may choose to make their proposals more cost effective in order to be awarded funds. One way to increase cost effectiveness is to share a more significant portion of the cost.

IV. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES – NOTICE OF MODIFIED TEXT

Ten written comments were received on changes made in the regulation at the time of the 15-day Notice dated June 18, 2008. Two of the written comments received were not responsive to the modifications in the 15-day Notice as they did not address the specific changes in the regulation. Additionally, several commenters included non-responsive comments along with responsive ones in their written correspondence. For example, both Red and White Fleet and San Francisco Bay Area Water Emergency Transportation Authority made comments regarding subsections that were rearranged or otherwise modified to make them easier to read but did not include substantive changes. Comments that were not responsive to the modifications are not addressed in this FSOR. Eight commenters suggested changes to the proposed modified regulations. These eight commenters are listed in Table II. Set forth below is a summary of the comments together with the Agency's response.

Table II
Comments Received During the 15-day Comment
(excluding comments that were not specific to modification made)

Abbreviation	Reference Number	Commenter
AWO	AWO	Jason A. Lewis The American Waterways Operators Written testimony: July 3, 2008
FOTE	FOTE	John Kaltenstein Friends of the Earth Written testimony: July 3, 2008
HORNBLOWER	HORNBLOWER	Terry A. MacRae Hornblower Cruises and Events Written testimony: July 3, 2008
PPS	PPS	Brett Greene Peterson Power Written testimony: July 3, 2008
PVA	PVA	Edmund B. Welsh Passenger Vessel Association Written testimony: July 3, 2008
RED AND WHITE	RED AND WHITE	Joe Burgard Red and White Fleet Written testimony: July 3, 2008

WETA	WETA	Mary Culnane San Francisco Bay Area Water Emergency Transportation Authority Written testimony: June 27, 2008
BLUE AND GOLD	BLUE AND GOLD	Carolyn Horgan Blue and Gold Fleet Written testimony: July 3, 2008

Summary of 15-Day Comments and Responses

A. Engine's "Model Year + 5" Method of Determining Effective Model Year

1. Comment: The "engine model year plus five years" methodology is an important option in the proposed regulation. It is to be regretted that this methodology will not be allowed for vessels in the South Coast. Retention of this concept for vessels in the South Coast would not impede that region's efforts to achieve its air quality goals, but it would demonstrate CARB's sensitivity to the fact that the affected passenger vessel operators in the South Coast area are all private small businesses with limited financial resources. (PVA)

Response: The "engine model year + 5" method was removed for use in the South Coast Air Quality Management District (SCAQMD) because there was concern that this option would delay the emission reductions necessary in the South Coast to bring the region into attainment with federal standards. The South Coast is in non-attainment with the federal annual PM2.5 and PM10 ambient air quality standards and 8-hour ozone standard. Early emissions reductions are necessary in order to meet the PM2.5 standards in 2014. The attainment date is 2015, but the U.S. EPA requires that all necessary emission reductions be achieved one calendar year sooner – by 2014 – in recognition of the annual average form of the standard. NOx emission reductions are needed because NOx leads to formation in the atmosphere of both ozone and PM2.5. Diesel PM emission reductions are needed because diesel PM contributes to the ambient concentrations of PM2.5.

The impact of compliance costs on ticket price was estimated for typical small, medium, and large ferry/excursion businesses and the analysis documented in Appendix H, included as Attachment 4 in the 15-day Notice. The ticket price increase was estimated to range from 5 to 10 percent and with little differential across the range of business sizes. This cost will impact all excursion businesses within California and so will not generate a competitive advantage or disadvantage.

2. Comment: Some of [the South Coast] operators have already demonstrated their financial commitment to clean air by obtaining Carl Moyer funds and

combining them with their own private resources to repower their vessels with lower-emissions engines in recent years before they had any legal obligation to do so . . . PVA urges CARB to reconsider this proposed modification and restore the "engine model year plus five years" option statewide. An alternative would be to restore this "engine model year plus five years" option for any engine in the South Coast area that was obtained with the assistance of Carl Moyer grant funding. (PVA15)

Response: While we applaud those owners and operators who have replaced older engines with Tier 1 engines, reducing engine replacement timelines is a mechanism that ARB has employed for many industries to reduce emissions. Engines funded through the Carl Moyer Program are required to meet a specified project life to ensure that these public funds are spent in a cost-effective manner and gain near-term emission reductions that go above and beyond, or in advance of, a regulation's requirements. The Carl Moyer Program guidelines establish a maximum project life of five years for marine projects. The in-use engine compliance schedule allows a 15-year useful life for all Tier 1 engines outside the SCAQMD and 13 years within the SCAQMD. The compliance date for an engine rebuilt to Tier 1 standards prior to January 1, 2008, is based on an effective model year which is the same as the rebuild date. Consequently, all Tier 1 engines, and engines rebuilt to Tier 1 standards, will have fulfilled their Carl Moyer Program project lives (5 years maximum) prior to required compliance to the regulation.

Also, see response to Comment A.1 regarding the necessity of achieving early emission reductions in the South Coast.

3. **Comment:** The proposed amendments to the original draft regulation only make it more onerous to conduct business in Southern California and do little to help mitigate the negative impact of the regulation's compliance schedule. (AWO)

Response: The amendments proposed in the 15-day Notice that specifically impact vessel operators in the South Coast include disallowing the use of the Model Year + 5 method for determining model year in the South Coast, adding a compliance extension for operators with sets of engines on multiple vessels required to comply with the in-use engine requirements in one of the first two years of the compliance schedule, and modifying the date for reporting compliance plans. Only the amendment to exclude the use of the Model Year + 5 method in the South Coast could be construed as having a negative impact on businesses. This modification prevents any delay in engine replacement emission reductions in the SCAQMD. See response to Comment A.1 regarding the necessity of early reductions in the South Coast.

4. **Comment:** FOE does not believe the "Engine Model Year +5" method to determine engine model year is desirable, despite its application being restricted to vessels with home ports outside the SCAQMD. FOE references below its previously stated reasons for opposition to the provision:

> With respect to the regulation's provision for Compliance Schedules and Determination of Engine Model year and its "Engine's Model Year +5" method, we have reservations concerning the limited amount of pollution control that could trigger a compliance extension, thus potentially vitiating overall emission reductions. For example, an owner can achieve a 25 percent reduction in diesel particulate matter and a 9 percent increase in oxides of nitrogen for a net emissions reduction of 14 percent and thus have a legitimate emissions control strategy, entitling him or her to use the "Engine's Model Year +5" method. In some instances, the election of this method can postpone compliance requirements two years. The overall benefits of this alternative compliance strategy seem questionable, and the strategy furthermore offers another way in which an owner or operator can extend his or her compliance timeline – timelines, which as referenced previously, have already been pushed back and prolonged considerably. We suggest that this alterative compliance option be altered to mandate emission reductions equivalent to those realizable from replacing existing engines with Tier 2 and 3 engines." (FOTE)

Response: The "Engine Model Year + 5" method was included to encourage the development and use of diesel emission control strategies (DECS) for marine applications. While control technologies have been proven to reduce emissions of PM and NOx from land-based diesel-fueled engines, there is limited experience applying controls to marine engines. To date there are no ARB verified diesel emission control strategies (VDECS) for marine applications. Therefore, commercial harbor craft operators who employ this method do not have the assurances that accompany a verified strategy. However, this optional method provides an opportunity for DECS manufacturers to verify their systems.

The minimum 25 percent emission reduction level was chosen to be consistent with a Level 1 VDECS. The requirement that there be no more than a 10 percent increase in NOx or PM is also consistent with the Level 1 VDECS requirements. The emission control alternatives available to a harbor craft owner or operator range from aftertreatment controls to engine modifications. These DECS and possible future VDECS could be used to help reduce emissions from other commercial harbor craft vessel types which are not subject to the in-use engine requirements, and could result in larger overall commercial harbor craft emission reductions.

The commenter suggests that the method require emission reductions equivalent to replacing with a Tier 2 or Tier 3 engine. This modification would change this method into a compliance option, which is not the purpose of the method. Compliance Methods C2 and C3 already provide compliance options that allow the use of DECS.

B. Acceleration of Compliance Schedule for 1996-1999 Model Year Ferry Engines

1. **Comment:** WETA suggests that CARB reconsider issuing restrictive timeframes and advancing timeframes for ferries for compliance when CARB doesn't retain any responsibility for liability for CARB's actions. The financial burden could have disastrous results especially when there is a state-wide call to increase the number of ferries for emergency response. CARB's actions could potentially put ferry companies out of business. (WETA)

Response: We are interpreting this comment to be in reference to the acceleration of the compliance schedule for 1996-1999 model year ferry Tier 0 engines such that all unregulated ferry engines are brought into compliance by the end of 2014. This acceleration only impacts ferries with homeports outside the SCAQMD. As documented in Appendix I, included as Attachment 5 of the 15-day Notice, staff completed a phone survey of known ferry operators in California and found only 4 out of 24 ferries operating outside the SCAQMD that would be impacted by this change. Based on this result, staff estimated that less than 10 ferries throughout the State would be impacted. ARB does not believe that the magnitude of this impact is consistent with the commenter's conclusion that the financial burden would have disastrous results for the ferry industry.

C. Vessel Owners or Operators with Multiple Vessels Requiring In-Use Engine Compliance in Either 2009 or 2010

1. **Comment:** For an extension to be invoked there must be a "set" (2 or more) of engines on two or more vessels. Many vessels will have engines of varying ages and may not have a set of engines that needs to be addressed at the same time. Moreover, to take a vessel into dry dock to replace only one set of engines is cost prohibitive and will lead to a more expensive project in the long run. The Board should eliminate the requirement that there must be a set of engines on a vessel and allow extensions when an owner has to address two or more engines. Proposed draft only offers flexibility for vessels required to comply in 2009 and 2010. However, the way in which the time tables are structured there will be other years where multiple vessels in a fleet will need to comply with the proposed regulations. In the Hornblower fleet, we have several years (2009, 2010, 2011, 2012, 2013, and 2014) where multiple vessels/engines will need to comply with the propose regulations. Permit time extensions in any year where a vessel owner has to address two or more engines (regardless of vessel). (HORNBLOWER)

Response: If this extension were provided to vessel owners required to bring two or more engines into compliance in the same year, regardless of whether they were on two or more vessels, it would apply in cases where there are multiple engines on a single vessel that were required to comply in the same year. Having multiple engines repowered on a vessel at the same time is more economical then staggering the repowers. While it involves a larger, single capital investment, only one dry dock time

period and one out-of-service time period is required rather than multiple events. This is a significantly different case than having to pull two different vessels out of service and put into dry dock in the same year. Additionally, there are a large number of vessels with twin propulsion engines of the same model year, and every one of these vessels would then be eligible for the extension. This would greatly increase the number of engines to which the extension would apply. See response to Comment C.2 below for additional discussion on multiple vessels with compliance dates in 2011 and beyond.

2. **Comment:** The proposed modification allows more flexibility for a covered owner with multiple engines or two or more vessels with a compliance date of 2011 or later. Under these circumstances the regulations would allow Blue & Gold a one-time extension of one year, upon the approval by the CARB Executive Officer. We request that CARB reconsider this part of the proposed modification and restructure it to be equivalent to the potential relief offered owners with a compliance date of 2009-2010

In 2017 and 2018 Blue & Gold will need to replace five engines in each year. We are asking that the rule be modified to allow the CARB Executive Officer the latitude to approve a compliance extension plan that allows three to four years beyond the original compliance date. (BLUE AND GOLD)

Response: Vessel fleet operators with engines having compliance dates of 2011 and beyond will have sufficient time to plan and execute regulatory compliance, compared to vessels which need to comply in the first two years of the compliance schedule. A vessel owner who needs to bring engines into compliance with the regulation in 2011 will have up to three years to prepare and execute regulatory compliance. While this timeframe is short, it does allow the use of incentive funding if the operator is willing to bring the engine into compliance early.

With compliance dates of 2017 and 2018, the commenter has sufficient time to formulate a compliance plan for these engines. There are multiple options for compliance, including rebuilding or retrofitting engines to meet Tier 2 standards prior to the Tier 3 effective date, submitting an ACE compliance plan that utilizes alternative emission reduction strategies which obtain equivalent or more emission benefits, and applying for incentive funding for early compliance.

The extension was necessary for the first two years of the compliance schedule for a couple of reasons. For one, the first two years cover a wide range of engine model years (>1975 model year) compared to later compliance dates with engine model year ranges up to 10 years. A small number of fleets have a large number of 1975 and older engines on their vessels. These fleets will be heavily impacted in the first two years of the compliance schedule. Secondly, the timeframe does not allow for the use of incentive funding for early compliance, whereas compliance dates in later years do allow time for this.

3. **Comment:** Section 6(E)4b offers some operational and financial relief, we believe the E.O. should be granted greater flexibility when considering the length of an extension for those vessels having to comply after 2011, similar to that provided in section 6(E)4a. (RED AND WHITE)

Response: We disagree with this comment for reasons provided in the response to Comment B.2.

4. **Comment:** The proposed modification provides somewhat more flexibility for a covered owner with multiple engines on two or more vessels with a compliance date of 2011 or later. Such an owner can seek a one-time extension of one year, upon approval by the CARB Executive officer. PVA proposes that CARB reconsider this part of the proposed modification and restructure it to be equivalent to the potential relief afforded to covered owners with compliance dates of 2009-2010. PVA believes that there are a small number of vessel operators with multiple vessels and engines to be replaced in given years in 2011 and beyond; PVA has asked those owners to identify themselves and characterize their fleets in their submissions pursuant to this 15-day review and comment. The capital and financial challenges facing them will be the same as those facing owners with compliance years of 2009-2010. The proposed rule should be modified to allow the CARB Executive Officer to approve a compliance extension plan that embraces as much as four years (not a single year) beyond the original compliance date . . . [a compliance extension plan] gives the owner with multiple vessels and multiple vessels with a compliance year of 2011 or beyond the chance to propose an acceptable method of "spreading out" the heavy capital costs. (PVA)

Response: We disagree with this comment for reasons provided in the response to Comment B.2.

5. **Comment:** FOE believes that providing a three- to four-year compliance extension for owners of multiple vessels who need to comply by 2009 or 2010 is not warranted . . . we again urge that ARB remain vigilant to ensure that the cumulative emissions impacts from compliance extensions are not significant and do not forestall expected public health benefits . . . If ARB finds that compliance extensions and exemptions are hindering regulatory objectives, the agency should scale back or eliminate those provisions, as needed. (FOTE)

Response: The original proposal provides a one-year compliance extension for vessel owners or operators with sets of engines on multiple vessels requiring engine compliance in a single year. However, these initial compliance dates occur within two years of the final adoption of the regulation, leaving vessel owners or operators minimal time to plan for these expenses and no time to comply early with the help of incentive funding. There are at least two fleets with a large number of vessels with engines older than 1975 model year that would need to bring all of the engines on these vessels into compliance in the first two compliance years, 2009 and 2010. The modified compliance

extension approved by the Board for these vessels allows a phased compliance schedule, wherein the portion of the fleet required to comply in 2009 and 2010 would be brought into compliance over a period of up to four years, as long as all engines are brought into compliance by 2013. Because all engines would be in compliance by 2013, this does not jeopardize the early reductions necessary in the South Coast to meet federal standards and has minimal impact on the expected health benefits.

D. Reporting Requirements

1. **Comment:** Covered owners of in-use harborcraft vessels must submit a report as to how they intend to comply. The proposed modification sets the due date for this report as February 28 of the year compliance is required. CARB needs to further clarify this reporting requirement for owners of multiple vessels with different compliance years. Is such an owner to submit a single report addressing the compliance plan for the entire fleet as of February 28 of the year of compliance for the first vessel? Or does that report cover only the vessel or vessels with a compliance date of that year, with subsequent reports required in later years when additional vessels must comply? (PVA)

Response: We disagree that clarification is required in the regulatory text. The requirement is clear in the text. Vessel owners and operators may report a compliance plan for their entire fleet by February 28 of the year of the first compliance date, or they may choose to report for each engine in the year of its compliance date. Any revisions to the compliance plan will need to be reported by February 28 of the compliance year for the affected engine. ARB staff will work with operators during implementation to ensure they understand their reporting obligations.

E. Appendix H: Estimated Ticket Price Increase for Ferry/Excursion Businesses

1. **Comment:** The estimated ticket price increase calculation [for ferry/excursion businesses] is an interesting method to demonstrate the cost to the consumer for a non-funded state mandate. By way of an actual example, WETA will demonstrate that CARB's estimate errors on the low side. It is important to note that WETA ferries, constructed to a 85% better than EPA Tier II (2007) standard are a method to reduce congestion and improve air quality; but, the increase in ticket prices tend to deter ridership; consequently, the air quality improvement benefits may be lost. State assistance to meet CARB's emission reduction goals is required in order for the concept to be successful. Unfunded state mandates are not productive and do not set up the ferry operators for success. (WETA)

Response: The estimated ticket price increase presented in the new Appendix H, included as Attachment 4 in the 15-day Notice, dealt with the costs to bring engines into compliance with the in-use engine regulation requirements. The commenter is addressing the cost to include BACT on new ferry propulsion engines. This was not the purpose of the analysis. The ticket price increase was estimated to range from 5 to

10 percent. This magnitude of increase will not deter ridership, so the air quality benefits will not be lost. This estimated increase does not include the added benefit of the possible use of public incentive funds if engines are brought into compliance earlier than required. These funding sources are discussed in Chapters VI and VIII of the Technical Support Document.

WETA is building a new ferry that is 85 percent cleaner than Tier 2 standards, independent of the ARB requirements. The ARB requirements do not become effective until January 1, 2009. Since WETA is already required to provide additional emission controls for the new ferry propulsion engines, it is not appropriate to assign the additional cost for these controls to the ARB regulation.

2. **Comment:** One must consider emission reduction equipment (SCR) catalyst replacement cycles, maintenance of the additional system, etc., and CARB's estimate of 5-10% just doesn't compute. . . WETA suggests that CARB re-evaluate their financial estimates. (WETA)

Response: The commenter is referring to the cost of applying BACT for new ferry engines. The estimated ticket price increase presented in Appendix H dealt with the costs to bring in-use engines into compliance with the regulation requirements, not the cost of applying BACT for new ferry propulsion engines. As discussed in the response to Comment E.2, WETA is already required to provide additional emission controls to the ferry propulsion engines, independent of the ARB regulation.

3. **Comment:** The proposed amortization of costs does not account for the down time needed to make required modifications to the vessels. (HORNBLOWER)

Response: This is true. As stated in Chapter VIII of the Technical Support Document, "Staff has not assigned an out-of-service cost for the regulation. We assumed that engine replacement for excursion vessels would occur during their low-use season and not have an impact on revenue. For transit ferries, tugboats, and towboats, we assumed that most companies have sufficient excess capacity to schedule engine replacements so as to maintain the current level of service and minimize the "out-of-service" cost. An additional factor we considered is that companies currently, as a normal business practice, take the vessels out of service every five years for an engine overhaul. We believe that the out-of-service time for a repower would replace the out-of-service time for an overhaul." Consistent with the previous economic analysis, down time, or out-of-service time, was not included in the economic analysis.

4. **Comment:** The owner will experience several other costs associated with the down time including laying off vessel staff during the period (approximately 6-8 staff members per vessel); indirect effects on suppliers and vendors who depend on the activity of the vessel to generate demand for their products; lost income to the landlords (many of which are public enterprise agencies such as Port authorities) as many excursion vessels are on a percentage lease provision (if

the vessel does not operate then it does not generate income to share with the underlying landlord). (HORNBLOWER)

Response: See response to Comment E.3 regarding out-of-service costs. As discussed in the response to Comment E.3, there is routine maintenance that also requires out-of-service time. These out-of-service times could be planned for a low-use season or to occur at the same time as a planned out-of-service time. It would be expected that operators will plan this out-of-service time for the low-use season.

5. **Comment:** Staff (cost) assumptions are based on 2004 costs. Obviously costs have changed since 2004. As mentioned in the November hearing, as more and more vessels are pressed into the shipyards for work, prices will rise in the shipyards due to availability of time slots and schedules of workers. It was also pointed out by the engine manufacturers that as demand increases for available engines, supplies will contract leading to inevitable price increases for available products. (HORNBLOWER)

Response: As stated in Chapter VIII of the Technical Support Document, costs are presented in 2006 dollars. Use of 2006 dollars would not impact the percentage increase in ticket price that was calculated. The commenter suggests that costs will increase due to increased demand for parts and services. However, ARB has organized compliance dates so as not to overtax the statewide capacity for this type of work, and would not expect this to occur.

6. **Comment:** Amortization is not an accurate means of looking at the ability of owners to implement equipment improvements. The underlying premise of the analysis is the owner can somehow finance the improvements over time. Ticket revenue from excursion operations is seasonal and driven by the economy. During poor weather months the number of clients may drop as much as 50% which will affect total revenue. Similarly when the economy is in a recession, or gas prices spike limiting discretionary travel, the number of clients will drop accordingly. (HORNBLOWER)

Response: We disagree with this comment. Staff assumed a typical interest rate and period of time to amortize the costs assuming normal business practice. ARB does not believe that increasing ticket prices by five to ten percent will significantly reduce ticket sales of this recreation. The ticket sales assumptions in the analysis were an overall yearly average, not a seasonal maximum.

7. **Comment:** Staff assumes the owner can simply raise ticket prices and gain additional revenue. This assumption does not reflect market reality. Increased ticket prices will force the customer to look for more economical ways of access the water, driving business away from excursion vessels to less expensive resources. Staff analysis makes a static revenue assumption that does not reflect the reality of revenue flows in small businesses. (HORNBLOWER)

Response: Given the history of excursion vessel activity in California, the Board does not believe that a five- to ten-percent increase in ticket price would deter the public from utilizing this service. See also response to Comment D.6.

8. **Comment:** Staff should re-evaluate the economic impact of the proposed regulations on vessel owners, and develop measures to mitigate the potential devastation to many small business owners throughout the State. Possible measures could include:

a. Revise the eligibility guidelines of various incentive grants (i.e., Carl Moyer, Prob. 1B, etc.) of the Board to provide a necessary stream of revenue to achieve the air quality goals.
b. Provide low or no interest loans to vessel owners so that amortization can actually take place with ticket revenues.
c. Allow adjustment in implementation dates for financial hardship.

(HORNBLOWER)

Response: Staff has already conducted the economic impact analysis using the best available data. As discussed in the Staff Report Technical Support Document (Chapter VIII), ARB staff analyzed the potential impacts of regulation compliance on affected tugboat and towboat businesses and estimated that the average impact on businesses' return on equity (ROE) was a decrease of 3.6 percent and 0.5 percent, respectively.

The regulation has not developed further measures to mitigate the cost to small business owners because we believe there are sufficient incentive funding opportunities to help mitigate costs for those with compliance dates after the first two years. Compliance dates within the first two years do not allow sufficient time to obtain incentive funding for early compliance.

For those cases where compliance is required for sets of engines on multiple vessels in one of the first two compliance years, a 15-day change has been made to the original regulation. The original proposal provided a one-year compliance extension for vessel owners or operators with multiple vessels requiring engine compliance in a single year. Based on Board direction at the November Hearing, staff made changes in the 15-day Notice to provide an extension to allow a phased compliance schedule for owners and operators with sets of engines on multiple vessels requiring compliance in either 2009 or 2010. The phased compliance schedule would require that a portion of the fleet be brought into compliance each year and that all engines be brought into compliance by the end of 2013. This would allow up to four years for the engines to be brought into compliance but would not jeopardize the early reductions necessary in the South Coast or the rest of California.

Finally, a revision in the eligibility guidelines of the various incentive programs is outside the scope of this rulemaking and would affect many other control programs. These guidelines were decided by the Board in a separate proceeding.

The legislature has not authorized funding for low or no interest loans for vessel owners. The legislature would need to authorized these funds and direct them to ARB for administration.

There are no provisions for adjusting compliance dates for financial hardship because the determination of economic need is very subjective in nature, which makes equitable evaluation difficult.

F. Appendix G: Assumptions for Estimating Greenhouse Gas Emissions from Commercial Harbor Craft Operating in California

1. **Comment:** To use private ferry vessel characteristics as a generic model for all vessels in California inherently over estimates the amounts of CO2 emission projected. Private ferry operations are:

- Scheduled services from one point to another point on New York Harbor,
- Vessels run every 15 to 20 minutes with little or no down time,
- Operations that produce a large number of annual hours.

This is inconsistent with typical excursion, tug and tow operations in California which have low vessel annual hours, not scheduled on a daily time schedule, and have large amounts of down time between operations. Staff should adjust CO2 calculations for vessels that do not have ferry operational characteristics, such as crew, tug and excursion vessels. (HORNBLOWER)

Response: The emission factor used was based on the only available source for commercial harbor craft CO2 emissions, the New York private ferry fleet emission study. However, this emission factor is also consistent with the ARB OFFROAD Model factor used to estimate emissions from off-road equipment. The agreement between the factor from the ferry fleet and the general factor for off-road equipment in the off-road model indicates that the factor can be used for a more broad range of applications, such as the commercial harbor craft fleet.

G. Miscellaneous

1. **Comment:** To achieve more certainty in the legislation, in various places in the text, the word “may” needs to be changed to “shall”. (HORNBLOWER) (2)

Response: We disagree with the comment. In cases where there are specified conditions that must be met, once the conditions have been met, the verb “may” indicates a non-discretionary result and the indicated action will be taken. For example, the E.O. may grant a one-year extension for No Suitable Engine Replacement for Harbor Craft, “only if the person demonstrates to the E.O.’s written satisfaction that there is no suitable Tier 2-certified or Tier 3-certified replacement engine available anywhere that can be used in the person’s specific vessel, and the person cannot otherwise meet the requirements . . .” (subsection (e)(6)(E)(2)) In this example, once the specified conditions have been met, “may” indicates a non-discretionary result, and the compliance extension will be granted.

2. **Comment:** 93118.5.e.6.C.3.b. (Method C3) Mentions that DECS can be implemented for meeting tier 3 standards but appears to not mention that simply meeting tier 2 might be appropriate for some engines prior to EPA tier 3 being available. (PPS)

Response: We disagree with the comment. The referenced text is specifically dealing with compliance requirements after Tier 4 engine emission standards have come into effect. In (e)(6)(C)(2), Compliance Method C2 explains that compliance can be met by meeting Tier 2 engine emission standards prior to the date when Tier 3 marine engine emission standards come into effect.

3. **Comment:** There is a verb omitted at the bottom of page A-41 where the current text reads, "Upon written request, the E.O. grant to the person . . ." (PVA)

4. **Comment:** There is a typo – on page A41, the text should read "The E.O. MAY grant . . ." (HORNBLOWER)

Response: We agree with these comments. To fix this typographical error, ARB added the word "may" so the text reads "the E.O. may grant".