

State of California
AIR RESOURCES BOARD

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

**PUBLIC HEARING TO CONSIDER AMENDMENTS TO CALIFORNIA'S
SMALL OFF-ROAD ENGINE AND TIER 4 OFF-ROAD COMPRESSION-IGNITION
ENGINE REGULATIONS AND TEST PROCEDURES; AND AMENDMENTS TO
THE EXHAUST EMISSION CERTIFICATION TEST FUEL FOR OFF-ROAD
SPARK-IGNITION ENGINES, EQUIPMENT, AND VEHICLES**

Public Hearing Date: December 16, 2011
Agenda Item No.: 11-10-4

I. GENERAL

In this rulemaking, the Air Resources Board (ARB or Board) is amending California's off-road exhaust emission regulations for new small off-road engines (SORE) and tier 4 compression-ignition (ORCI) engines. The amendments, overall, provide better harmonization with federal certification and exhaust emission testing requirements for SORE and tier 4 ORCI engine regulations and associated test procedures. The amendments create a more efficient certification process for engine and equipment manufacturers by removing the burden to perform duplicative testing for California and federal certification. The amendments to the tier 4 ORCI engine regulations also provide for more descriptive labeling requirements, which will facilitate the implementation and enforcement of ARB's various in-use programs in California.

Furthermore, the Board approved modifications to the exhaust-emission certification test fuel requirements used in the gasoline-fueled SORE, large spark-ignition (LSI) engines, off-highway recreational vehicles (OHRV), and spark-ignition marine engine (SIME) off-road categories. These amended requirements require a ten-percent ethanol-blend of gasoline, which would be the same as the on-road motor vehicle test fuel requirement that was approved by the Board on January 27, 2012, or other fuel blends approved by ARB as appropriate for use in off-road categories.

This rulemaking was initiated by the October 18, 2011, "Notice of Public Hearing to Consider Amendments to California's Small Off-Road Engine and Tier 4 Off-Road Compression-Ignition Engine Regulations and Test Procedures; and Amendments to the Exhaust Emission Certification Test Fuel for Off-Road Spark-Ignition Engines, Equipment, and Vehicles," which was published in the California Regulatory Notice Register on October 28, 2011. The Initial Statement of Reasons (Staff Report or ISOR) was also made available for public review and comment starting October 26, 2011. The Staff Report, which is incorporated by reference herein, described the rationale for the proposal.

The Board-approved amendments to the California Code of Regulations, Title 13, (13 CCR) are as follows:

Small Off-Road Engines sections 2403 and 2407; and to the following document as incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for 2005 and Later Small Off-Road Engines,” as adopted July 26, 2004, and as last amended February 24, 2010; and the following documents incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1054)”; and “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065)”; and

Off-Road Compression-Ignition Engines sections 2421, 2423, 2424, 2425, 2425.1, 2426, and 2427; and to the following document as incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for New 2008 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-C,” adopted October 20, 2005; and to the following documents incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-D,” adopted October 20, 2005; and “California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-F,” adopted October 20, 2005; and adoption of the following document incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-E”; and

Off-Road Large Spark-Ignition Engines sections 2433, 2783, and 2784; and to the following documents incorporated by reference therein: “California Exhaust and Evaporative Emission Standards and Test Procedures For New 2010 and Later Off-Road Large Spark-Ignition Engines (2010 and Later Test Procedure 1048),” as adopted March 2, 2007, and as last amended November 21, 2008; and “California Exhaust and Evaporative Emission Standards and Test Procedures For New 2007 and Later Off-Road Large Spark-Ignition Engines (Test Procedures 1065 and 1068),” as adopted March 2, 2007; and

Off-Highway Recreational Vehicles section 2412; and to the following document incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for 1997 and Later Off-Highway Recreational Vehicles and Engines,” as adopted May 26, 1995, and as last amended June 1, 2007; and

Spark-Ignition Marine Engines section 2447; and to the following document incorporated by reference therein: “California Exhaust Emission Standards and Test Procedures for 2001 Model Year and Later Spark-Ignition Marine Engines,” as adopted October 21, 1999, and as last amended June 5, 2009.

These modifications and additions to the regulations and test procedures preserve the stringency of the existing emission standards and effectiveness of the associated test

procedures while creating greater harmonization with similar requirements already promulgated by the U.S. Environmental Protection Agency (U.S. EPA). The harmonization of requirements where possible facilitates certification and allows manufacturers to better utilize resources. A copy of Board Resolution 11-41 approving the regulatory action described above and the regulatory documents for this rulemaking were also posted on the ARB's internet site for this rulemaking at <http://www.arb.ca.gov/regact/2011/soreci2011/soreci2011.htm>

On December 16, 2011, the Board conducted a public hearing to consider the staff's proposal as described in the Staff Report. At the hearing, staff proposed to amend California's exhaust emission regulations for California's new engine off-road spark-ignition categories and tier 4 off-road compression ignition engines. Staff also proposed various editorial corrections and several modifications to the proposed regulatory action. Written and oral comments were received at the hearing concerning staff's proposal.

Through Resolution 11-41, the Board adopted the originally proposed regulations with the modifications presented by staff at the hearing while also directing staff to work with commenters to finalize the regulatory proposal. The staff's suggested modifications to the original proposal were appended to Resolution 11-41 in Attachment G. In accordance with section 11346.8 of the Government Code, the Board directed the Executive Officer to incorporate the modifications to the originally proposed regulatory text approved by the Board, including such other conforming modifications as may be appropriate, and to make the modified text available to the public for a period of at least fifteen days. The Executive Officer was then directed to consider the comments received and either adopt the amendments with such additional modifications as may be appropriate, or if warranted present a new proposal to the Board for further consideration.

The revised regulations and test procedures, with the modified text clearly indicated, were made available to the public for a supplemental 15-day comment period by the issuance of a "Notice of Public Availability of Modified Text." The Notice, including staff's modifications to the proposed regulation order and test procedures, a copy of Resolution 11-41, and the Attachment G document (relabelled as Appendix XV), were posted on ARB's internet website on March 22, 2012, concurrent with an announcement sent to all subscribers of ARB's off-road-related listserv directories and to other affected stakeholders regarding the availability of modified regulatory documents. Several written comments were received during the 15-day comment period.

After considering the comments received during the comment period, the Executive Officer issued Executive Order R-12-005, adopting the amendments, new regulatory text, and incorporated documents.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text. The FSOR also contains a summary of the comments received on the proposed

regulatory amendments during the formal regulatory process and ARB's responses to those comments.

Incorporation of Test Procedures. The test procedures are incorporated by reference because it would be cumbersome, unduly expensive, and otherwise impractical to print them in the California Code of Regulations (CCR). Existing ARB administrative practice has been to have the test procedures incorporated by reference rather than printed in the CCR because these procedures are highly technical and complex. They include the technical specifications and measurement protocols for emissions measurement test procedures (nuts and bolts), calibration requirements, computer modeling, and laboratory practices required for certification of the regulated engines and equipment and have a very limited audience. Because ARB has never printed complete test procedures in the CCR, the directly affected public is accustomed to the incorporation format used therein. Thus printing portions of ARB's test procedures that are incorporated by reference would be unnecessarily confusing to the affected public.

The test procedure documents are readily available from ARB upon request, with recently amended portions currently available online at ARB's website, and were made available in the context of this rulemaking in the manner specified in Government Code section 11346.5(b).

Staff Report Correction. The second paragraph on page 7 of the Staff Report under section 5, "California's Off-Road Exhaust Emission Certification Test Fuel" erroneously states that OHRVs may certify using federal tier II gasoline under the existing regulation. This is incorrect as OHRVs are required to certify using only Indolene as the test fuel. The error, however, is a mistake regarding the interpretation of the existing regulation, but does not impact the amendments adopted by the Board on December 16, 2011, and is, therefore, nonsubstantive.

References. Staff corrected two nonsubstantive errors in the identification of reference materials cited within the Staff Report. The first correction pertains to the fifth listed reference titled "ARB 2008," which included an erroneous date of publication for the document identified. The correct date of publication is October 3, 2008, which is clearly indicated on the actual document found at the internet address provided within the reference. The second correction pertains to the ninth listed reference titled "U.S. EPA 2007." In this instance, the internet address incorrectly linked to a "regulatory announcement" web page instead of the appropriate Federal Register volume. The correct internet address has been updated; however, the original reference did correctly and specifically identify the document referenced within the Staff Report, which could have been located through a casual search of the internet or via other services. The starting page of the reference document was revised by one page to correspond with the formatting of the document at the amended internet address.

Fiscal Impacts. The Board has determined that this regulatory action will not create 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, costs or mandate to

any local agency or school district, whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, or other non-discretionary costs or savings to local agencies.

Consideration of Alternatives. The amendments and new regulatory language proposed in this rulemaking were the result of extensive discussions and meetings involving staff and affected manufacturers, U.S. EPA, and other stakeholders. In the Staff Report, staff evaluated and rejected four potential alternatives to the proposed regulations: (1) Take “No Action”, (2) Harmonize Completely with the Federal Regulations, (3) Prospective Incorporation of Federal Regulations by Reference, and (4) Harmonize Through Executive Officer Discretion.

The first alternative was to take no action to modify either of the existing California SORE or tier 4 off road CI engine regulations and test procedures. The existing regulations and test procedures for both categories now differ significantly in several key areas from the current federal requirements for nonroad engines. Consequently, many of the engine and equipment manufacturers would be required to perform two different exhaust emission tests during the certification process or perform extra tests to prove the equivalency of the emission tests. Such separate testing is expensive and would unnecessarily increase the costs of compliance to the manufacturer, which would be passed down to the consumer, without any resulting emission benefit. Another consideration, with respect to SORE test procedures, is that test equipment manufacturers have indicated their intent to phase-out support of test equipment specified by the current test procedures. Thus, continued use of these test procedures would become impractical due to the eventual breakdown and unavailability of the test equipment. Additionally, with respect to the tier 4 CI engine regulations, the federal provisions contain additional compliance flexibility options lacking in the California regulation (i.e., a new combined oxides of nitrogen and hydrocarbon (NO_x+HC) standard and longer FEL [family emission limit] durations) that could result in certain product lines no longer being made available in California. With regard to the proposed E10 test fuel amendment, a “No Action” alternative is not practical because it would create an inconsistency with the on-road motor vehicle test fuel that was approved by the Board on January 27, 2012, as well as maintain the current inconsistency between the off-road categories’ test fuel and commercially available fuel. Therefore, staff rejected this alternative as both impractical and substantially more costly.

The second alternative was to adopt completely the U.S. EPA’s Parts 1054 and 1065, in the case of the SORE category, and Parts 1039, 1065, and 1068, in the case of the Tier 4 off-road CI engine category. However, a complete adoption of the federal regulations and test procedures differs from the proposal in that it creates a complete alignment while the proposal creates a less-than-complete alignment in order to preserve current California-specific provisions. This less-than-complete alignment is necessary because California has unique needs in controlling the off-road categories’ emissions and has established provisions in response to those needs that are not reflected in the federal provisions. For example, the Tier 4 off-road CI engine regulations differ from federal provisions in the flexibility engine Executive Order and

labeling requirements, engine replacement reporting and labeling requirements, and in-use compliance and engine recall programs, because these California-specific provisions better support California's emission reduction objectives. In addition, California's current SORE regulations and test procedures include provisions for two-stroke PM emissions and more representative supplemental engine cooling. Thus, a complete adoption of the federal regulations and test procedures would eliminate these provisions and likely compromise the level of stringency of the emission standards that is required by California in order to achieve the expected level of future emission reductions. Accordingly, staff rejected this alternative.

The third alternative was to allow ARB to dynamically incorporate federal regulations by reference, in part or as a whole, into California law without a date of publication. The benefits of such an alternative would be to ensure full regulatory harmonization with U.S. EPA revisions now and in the future, and to minimize the staff resources required in developing an alignment rulemaking in response to any future federal regulatory amendments. The downside of this alternative is that it would limit ARB's ability to independently implement or enforce its regulations should U.S. EPA make a change that is not in California's best interests. Also, title 1, CCR, section 20(c)(3), generally prohibits the incorporation by reference of material into California regulations without a date of publication or issuance. Therefore, staff rejected this alternative.

The fourth alternative was to allow ARB's Executive Officer to approve, case-by-case, requests from off-road engine/equipment manufacturers for permission to comply with specific federal provisions instead of provisions required by California regulations. This would give ARB the ability to harmonize with any federal requirements with which it agreed, providing timely relief to the off-road industry when necessary. Any changes allowed by the Executive Officer would then be formally codified into the applicable regulations at a future, more convenient date. While this option does have merits, such as the ability to address compliance issues more efficiently, less Board time devoted to harmonization issues, and more staff time and resources to devote to other projects, it is generally necessary that such changes undergo a public process with the opportunity for affected stakeholders to provide comment, and the Board to review and render judgment. Therefore, staff rejected this alternative.

For the reasons set forth in the Staff Report, in staff's comments and responses at the hearing, and in this FSOR, the Board has determined that none of the alternatives considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

II. MODIFICATIONS MADE TO THE ORIGINAL PROPOSAL

At the December 16, 2011, hearing, the Board approved staff's proposed regulatory amendments. Further, the Board directed staff to work with stakeholders regarding modifications or clarifications to the approved regulations. Staff made these

modifications available to the public for a 15-day comment period by issuance of a “Notice of Public Availability of Modified Text” on March 22, 2012. The following is a consolidated description of the modifications and clarifications by regulatory section. The phrase “new conforming modification” is used here to indicate modifications consistent with both the originally noticed proposal and the Board’s December 2011 approval action.

TITLE 13, CALIFORNIA CODE OF REGULATIONS

CHAPTER 9. OFF-ROAD VEHICLES AND ENGINES POLLUTION CONTROL DEVICES

Article 1. Small Off-Road Engines

Modifications to the Regulation Order for Small Off-Road Engines

§ 2403 – Exhaust Emission Standards and Test Procedures–Small Off-Road Engines

Paragraph (b)(2)(B) was revised to correct a clerical error in which staff incorrectly cited the titles of the newly incorporated “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine Testing Procedures (Part 1054),” and the “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off Road Engines; Engine-Testing Procedures (Part 1065).”

Paragraph (d) was revised to correct a clerical error in which staff incorrectly cited the titles of the newly incorporated “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine Testing Procedures (Part 1054),” and the “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065).”

§ 2404 – Emission Control Labels and Consumer Information - 1995 and Later Small Off-Road Engines.

Paragraph (c)(4)(a) was revised to include the option for the engine label heading to read “EMISSION CONTROL INFORMATION” to ensure alignment with existing federal requirements.

§ 2407 – New Engine Compliance and Production Line Testing–New Small Off-Road Engine Selection, Evaluation, and Enforcement Action.

Paragraph (a)(7) was revised to correct a clerical error in which staff incorrectly cited the titles of the newly incorporated “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine Testing Procedures (Part 1054),” and the “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065).”

Article 3. Off-Highway Recreational Vehicles and Engines

Modifications to the Regulation Order for New Off-Highway Recreational Vehicles and Engines

§ 2412 – Emission Standards and Test Procedures – New Off-Highway Recreational Vehicles and Engines.

Paragraph (c)(2) was revised to correct a clerical error that sought a new date of amendment for the previously retired test procedure document “California Exhaust Emission Standards and Test Procedures for 1995-2004 Small Off-Road Engines.” The last effective date of the document was also restored. Further, the paragraph was amended to specify that E10 test fuel is to be used for 2013 and later all-terrain vehicles utilizing the existing optional emission standards allowance. This was accomplished by referencing §1065.701, of the “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065).”

Article 4. Off-Road Compression-Ignition Engines and Equipment

Modifications to the Regulation Order for Tier 4 Off-Road Compression-Ignition Engines

§ 2426 – Emission Control System Warranty Statement.

Paragraph (a) was revised to correct a typographical error in the text of the California Emission Control Warranty Statement by replacing the parenthetical word “year” with the parenthetical word “years.” The plural form of the word better correlates to ARB’s longstanding practice of allowing manufacturers to specify a range of years on the warranty statement for carry-over engine families rather than to produce a unique warranty statement for each year when all other relevant information is identical.

Article 4.5. Off-Road Large Spark-Ignition Engines

Modifications to the Regulation Order for Large Spark-Ignition Engines

§ 2433 – Emission Standards and Test Procedures–Off-Road Large Spark-Ignition Engines.

Paragraph (d)(1) was revised to correct a clerical error in which staff incorrectly cited the titles of the newly incorporated “California Exhaust

Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1054),” and the “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines; Engine-Testing Procedures (Part 1065).”

CHAPTER 15. ADDITIONAL OFF-ROAD VEHICLES AND ENGINES POLLUTION CONTROL REQUIREMENTS

Article 3. Verification procedure, Warranty, and In-Use Compliance Requirements for Retrofits to Control Emissions from Off-Road Large Spark-Ignition Engines

Modifications to the Regulation Order for In-Use Compliance Requirements for Retrofits of Large Spark-Ignition Engines

§ 2783 – Emissions Reduction Testing Requirements.

Paragraph (d)(2) was revised to allow the optional use of E10 for certification testing through the 2019 calendar year instead of through 2018 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. Further, this paragraph was amended, per the Board’s direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Paragraph (d)(3) was revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-Road Test Procedures was updated to reflect the official working title of the document. Although this modification had been noted in the Notice of Public Availability of Modified Text posted on ARB’s website on March 22, 2012, the corresponding change to the regulation had been inadvertently omitted from Appendix III of that Notice. Further, this paragraph was amended, per the Board’s direction, to allow other fuel-blends certified by ARB to be used for certification testing.

§ 2784 – Durability Demonstration Requirements.

Paragraph (c)(2) was revised to allow the optional use of E10 for durability demonstration testing through the 2019 calendar year instead of through 2018 as originally proposed. Further, this paragraph was amended, per the Board’s direction, to allow other fuel-blends certified by ARB to be

used for durability demonstration testing.

Paragraph (c)(3) was revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-Road Test Procedures was updated to reflect the official working title of the document. Although this modification had been noted in the Notice of Public Availability of Modified Text posted on ARB's website on March 22, 2012, the corresponding change to the regulation had been inadvertently omitted from Appendix III of that Notice. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

TEST PROCEDURES

Modifications to the "California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines – Part 1054"

§ 1054.101 – What emission standards and requirements must my engines meet?

Paragraph (a)(1) of the SORE Test Procedures was revised to update the reference in footnote 3 of Table: "Exhaust Emission Standards for Spark-Ignition Engines" such that the footnote now cites 40 CFR Part 1054.101(a)(2)(ii) instead of the previous 40 CFR Part 90.103(a)(2)(ii).

§ 1054.105 – What exhaust emission standards must my nonhandheld engines meet?

Paragraph (a) of the SORE Test Procedures was revised to provide better consistency in referencing the appropriate standards for all engines regardless of displacement. With this change, all standards will be referenced within the test procedures, rather than referencing engines with displacement greater than 80 cc to identical standards within the California Code of Regulations.

§ 1054.115 – What other requirements apply?

Paragraph (c) of the SORE Test Procedures was revised to clarify the requirements for meeting emission standards at higher elevations based on engine displacement.

Modifications to the “California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines – Part 1065”

§ 1065.701 – General requirements for test fuels.

Paragraph (a)(2) of the SORE Test Procedures was revised to allow the optional use of E10 for certification testing through the 2019 calendar year instead of through 2018 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. Further, this paragraph was amended, per the Board’s direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Paragraph (a)(3) of the SORE Test Procedures was revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-Road Test Procedures was updated to reflect the official working title of the document. Further, this paragraph was amended, per the Board’s direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Modifications to the “California Exhaust Emission Standards and Test Procedures for 1997 and Later Off-Highway Recreational Vehicles and Engines”

§ 86.513-90 – Fuel and engine lubricant specifications.

The numerating order of paragraphs (a)(1)(A) and (a)(1)(B) of the OHRV Test Procedures were incorrectly cited in staff’s original proposal as (a)(1)(i) and (a)(1)(ii) and have been revised to correspond with State of California standardized hierarchical numbering conventions. Staff attempted to correct these non-substantive formatting errors in Appendix IX of the Notice of Public Availability of Modified Text posted on ARB’s website on March 22, 2012, but further modifications have been made to ensure numbering/lettering agreement with more recent versions of the federal test procedures. Paragraph (a)(1)(A) was further revised to allow the optional use of E10 for certification testing through the 2019 calendar year instead of through 2018 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. Further, this paragraph was amended, per the Board’s direction, to allow other fuel-blends certified by ARB to be used for certification testing.

The numerating/lettering order of paragraph (a)(2) of the OHRV Test

Procedures has been revised as (a)(1)(iii) to more accurately represent a dependent subsection of paragraph (a) and not a stand-alone provision. Paragraph (a)(1)(iii) was further revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-road Test Procedures was updated to reflect the official working title of the document. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Modifications to the “California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-C”

Appendix J was reformatted to facilitate the identification of amendments to the existing test procedures. The original Appendix J published on October 26, 2011, as part of the Initial Statement of Reasons for this rulemaking, contained virtually the entire text of the test procedures document despite staff’s proposed revisions being applicable to only a few sections. The revised Appendix J now makes use of the [* * * *] notation to designate the overwhelming majority of the document that was not affected by the Board’s December 16, 2011, amendments. No substantive changes occurred as a result of the reformatting.

Modifications to the “California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-D”

§ 1039.505 – How do I test engines using steady-state duty cycles, including ramped-modal testing?

Paragraph (b) of the ORCI Test Procedures was clarified to correct an oversight in which the applicable duty-cycles in Appendix II were not appropriately referenced. Previously, the duty-cycles in question were defined in Appendices III and IV, but after those Appendices were re-designated as paragraphs (b) and (c) in Appendix II, staff inadvertently failed to update the references in §1039.505(b) to reflect the change.

Modifications to the “California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-F”

§ 1068.261 – What provisions apply for selling or shipping certified engines that are not yet in the certified configuration?

Paragraph (g)(2) of the ORCI Test Procedures was revised to correct a typographical error in which the sentence “Such distributors must bring engines into their final certified configuration.” was inadvertently repeated twice in succession. The redundant sentence has been removed.

Modifications to the “California Exhaust and Evaporative Emission Standards and Test Procedures for New 2007 and Later Off-Road Large Spark-Ignition Engines, Parts 1065 and 1068”

§ 1065.701 – General requirements for test fuels.

Paragraph (a)(2) of the LSI Test Procedures was revised to allow the optional use of E10 for certification testing through the 2019 calendar year instead of through 2018 as originally proposed. This revision aligns with

the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Paragraph (a)(3) of LSI Test Procedures was revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-Road Test Procedures was updated to reflect the official working title of the document. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Modifications to the "California Exhaust and Evaporative Emission Standards and Test Procedures for New 2010 and Later Off-Road Large Spark-Ignition Engines, Part 1048"

§ 1048.101 – What exhaust emission standards must my engines meet?

Paragraph (e)(2)(B) of LSI Test Procedures was revised to allow the optional use of E10 for certification testing through the 2019 calendar year instead of through 2018 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Paragraph (e)(2)(C) of LSI Test Procedures was revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-Road Test Procedures was updated to reflect the official working title of the document. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

Modifications to the "California Exhaust Emission Standards and Test Procedures for 2001 Model Year and Later Spark-Ignition Marine Engines"

Part III – Emission Test Equipment Provisions.

44 – Lubricating Oil and Test Fuel.

The numerating order of paragraph (b)(1)(i) of SIME Test Procedures was incorrectly cited in staff's original proposal and has been changed back to (b)(1)(A) to correspond with the numerating order of the existing document. Similarly, the reference to the reporting requirement of 14(b)(2)(vi) was incorrectly cited and has been replaced with the correct citation of 14(b)(2)(G). In addition to the numerating order, this reference was also out of sequence, pointing to subparagraph (F) instead of the correct subparagraph (G).

The numerating order of paragraph (b)(1)(ii) of SIME Test Procedures was incorrectly cited in staff's original proposal and has been changed back to (b)(1)(B) to correspond with the numerating order of the existing document. Additionally, paragraph (b)(1)(B) was revised to allow the optional use of E10 for certification testing through the 2019 calendar year instead of through 2018 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

The numerating order of paragraph (b)(2) of SIME Test Procedures was incorrectly cited in staff's original proposal and has been changed to (b)(1)(C) to correspond with the numerating order of the existing document. Additionally, paragraph (b)(1)(C) was revised to require the use of E10 for certification testing beginning with the 2020 calendar year instead of 2019 as originally proposed. This revision aligns with the on-road requirements for certification fuels published by staff on October 28, 2011, and approved by the Board on January 27, 2012. The reference to the On-Road Test Procedures was updated to reflect the official working title of the document. Additional clarification was provided by citing 14(b)(2)(G), as already in paragraph (b)(1)(A), to reference existing reporting requirements. Further, this paragraph was amended, per the Board's direction, to allow other fuel-blends certified by ARB to be used for certification testing.

SUMMARY AND RATIONALE

Modifications to the Summary & Rationale of Amendments to SORE Test Procedures

Subpart H

§ 1065.701 – General requirements for test fuels.

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels.

Modifications to the Summary & Rationale of Amendments to OHRV Test Procedures

Subpart F

§ 86.513-90 – Fuel and engine lubricant specifications.

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels. Additionally, the commentary discusses the correction of clerical errors which had affected the numerating order of the affected paragraphs.

Modifications to the Summary & Rationale of Amendments to ORCI regulation and Test Procedures

§ 2424 – Emission Control Labels — 1996 and Later Off-Road Compression-Ignition Engines

The commentary was revised in response to a verbal request from industry that ARB clarify the intent of the provision in paragraph (l) to allow labels to be replaced by authorized dealers and distributors to repurpose an engine (e.g., flex to replacement) that has not yet been sold to an ultimate purchaser. Staff's commentary now includes this situation as an example of the acceptable use of the provision, but cautions that no downgrading of emissions performance may occur as the result of the repurposing of the engine, and that required tabulations, calculations, and reporting requirements are updated as appropriate. This clarification of applicability is consistent with the federal interpretation of the provision.

§ 2426 – Emission Control Warranty Statement

The commentary was updated to identify the correction of a typographical error in paragraph (a) that replaced the word “year” with the plural form “years” to better correlate with ARB's existing practice of allowing manufacturers to specify a range of applicable years on the warranty statement for carry-over engine families.

California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-D

§ 1039.505 – How do I test engines using steady state duty cycles, including ramped modal testing?

The commentary was updated to identify a change in reference for the applicable steady-state duty-cycles required for emissions measurement testing from the previously existing Appendices III and IV to the newly consolidated Appendix II.

California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-E

§ 1068.120 – What requirements must I follow to rebuild engines?

The commentary was updated to identify the correction of a typographical error in which the word “that” was inadvertently substituted for the word “than.”

Modifications to the Summary & Rationale of Amendments to LSI Test Procedures

Subpart B

§ 1048.101 – What exhaust emission standards must my engines meet?

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels.

Subpart H

§ 1065.701 – General requirements for test fuels.

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels.

§ 1065.710 – Gasoline

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels.

Modifications to the Summary & Rationale of Amendments to SIME Test Procedures

Part III – Emission Test Equipment Provisions.

44 – Lubricating Oil and Test Fuel.

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels. Additionally, the commentary discusses the correction of clerical errors which had affected the numerating order of the affected paragraphs.

Modifications to the Summary & Rationale of Amendments to LSI Retrofit Regulation

13 CCR §2783

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels.

13 CCR §2784

The commentary was updated to include the revised E10 implementation dates and a discussion on the allowance of other ARB-certified test fuels.

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

At the December 16, 2011, hearing, two representatives from the regulated industry provided oral testimony and written transcripts. Additional written comments were received from other affected stakeholders by the hearing date. Written comments were also received during the 15-day comment period for the Notice of Modified Text. A list of commenters is set forth below, identifying the date and form of all comments that were timely submitted.

| ORGANIZATION AND PERSON PROVIDING COMMENTS | WRITTEN COMMENTS | ORAL TESTIMONY |
|---|-------------------------|-----------------------|
| Michael Shanburg, Unaffiliated | 11/26/2011 [UA] | |
| Pamela Amette, Motorcycle Industry Council | 12/12/2011 [MIC] | |
| Timothy French, Truck and Engine Manufacturers Association | 12/13/2011 [EMA-1] | |
| J. Song/ J. Kubsh, Manufacturers of Emission Controls Association | 12/14/2011 [MECA] | |
| G. Coons/ W. Guerry, Outdoor Power Equipment Institute | 12/15/2011 [OPEI] | |
| Mark Riechers, Brunswick / Mercury Marine | 12/16/2011 [MM] | 12/16/2011 |
| John McKnight, National Marine Manufacturers Association | 12/16/2011 [NMMA-1] | 12/16/2011 |
| John McKnight, National Marine Manufacturers Association | 04/03/2012 [NMMA-2] | |
| Roger Gault, Truck and Engine Manufacturers Association | 04/09/2012 [EMA-2] | |

Set forth below is a summary of each objection or recommendation made regarding the proposed action together with an explanation of how the proposed action was changed to accommodate each objection or recommendation, or the reasons for making no change. The comments have been grouped by topic whenever possible. Comments not involving objections or recommendations specifically directed toward the rulemaking or to the procedures followed by ARB in this rulemaking are not summarized below.

In general, the Associations representing the regulated industry (i.e., MIC, EMA, OPEI, and NMMA) overwhelmingly supported the amendments to the regulations in that they provided greater harmonization with federal requirements. NMMA and MM had specific comments and recommendations for modification on the certification fuel requirements of the proposed regulations which are discussed in further detail below. The comments by MECA supported the adoption of the regulations with no request for modification.

A. General Supporting Comments

- 1. Comment:** We support staff's proposal to further harmonize certification requirements and emission standards for California's off-road engines with those of the U.S. EPA for nonroad engines. Harmonization is critical to any viable regulatory program to control emissions, and reduces the costs that would otherwise be needed for manufacturers to comply with more than one set of standards. [EMA-1] [MECA] [OPEI]
- 2. Comment:** We support the proposal to require a 10 percent ethanol fuel blend (E10) for certification testing in order to re-establish the consistency between certification test fuel and the dominant, commercially available fuel in California. [MIC] [EMA-1] [MECA] [OPEI]
- 3. Comment:** We support staff's 15-day amendments to broaden the certification test fuel requirement by including the option to use other ARB-certified fuels in addition to E10 (e.g., isobutanol). [NMMA-2] [EMA-2]
- 4. Comment:** We support staff's 15-day amendments to the SORE regulations and test procedures. [EMA-2]

Agency Response: We agree that the amendments are necessary and appropriate for enhancing harmonization with federal requirements and for streamlining certification efforts without sacrificing previously projected gains in air quality.

B. Comments Related to Federal Harmonization

- 5. Comment:** To facilitate future harmonization with federal regulations, we urge the Board to adopt an "incorporate by reference" approach for all analogous U.S. EPA regulations. By referencing the appropriate section of the Code of Federal Regulations (CFR) in California's regulations, staff would be able to accommodate ongoing amendments to the federal regulations in a timely manner and avoid situations where the regulated industry would have to comply with duplicative certification requirements for the same engine without a corresponding increase in emission benefits. [EMA-1]

Agency Response: We agree that harmonization is important, but disagree that incorporating the federal regulations by direct reference would accomplish all of our goals for air quality, as this would limit ARB's ability to independently implement or enforce its regulations should U.S. EPA make a change that is not in California's best interests. Also, title 1, CCR, section 20(c)(3), generally prohibits the incorporation by reference of material into California regulations without a date of publication or issuance, which would defeat the purpose of referencing the federal regulations in the first place.

One of staff's primary objectives in amending California's off-road regulations was to create a more efficient certification process for manufacturers by removing the burden to perform duplicative testing for ARB and U.S. EPA. We believe we have accomplished this by incorporating the overwhelming majority of provisions contained in the analogous federal regulations, including all emission standards and implementation schedules. However, in order to preserve California's independent enforcement authority over off-road engines within the State, specific modifications to the regulatory language have been made, such as the referencing of California regulations and test procedures whenever necessary.

Furthermore, to facilitate the operation of California's various in-use off-road diesel programs, some additional requirements were necessary. For example, California's amended off-road diesel regulations now require more extensive labeling for replacement engines than do U.S. EPA's regulations in order that repowered equipment can be accurately registered by end-users and easily identified in-use by ARB field inspectors. U.S. EPA does not have a similar, mandatory in-use program. Additionally, California decided not to align with U.S. EPA's E15 certification fuel requirement as it existed at the time of the December 16, 2011, Board hearing, which, based on the majority of comments received in response to ARB's proposed rulemaking, was a welcome departure from full harmonization.

Should differences between the federal and California regulations arise in the future that cannot be addressed within the Executive Officer's existing discretion, relief can be provided through a new rulemaking. Depending on the circumstances, an emergency hearing may be appropriate, provided the statutorily mandated findings for such a hearing can be made.

6. **Comment:** At a minimum, ARB should "incorporate by reference" the entirety of U.S. EPA's title 40 CFR, Part 1065, to avoid non-alignment issues in the future. Part 1065 contains the technical specifications and measurement protocols for emissions measurement test procedures and is constantly being refined to utilize the latest technologies and to more accurately represent typical engine and equipment operation. Several ARB staff are contributing members of the Emissions Measurement and Testing Committee (EMTC) that develops Part 1065; therefore, ARB should not have need for a separate set of procedures specific to California. [EMA-1]

Agency Response: We disagree, primarily for the same reasons we expressed in our response to **Comment 5** above. However, it is worth noting that just because ARB participated in the development of 40 CFR, Part 1065, through the EMTC, that does not ensure that California's requests and/or objections will be satisfactorily addressed in the final product. California still has the worst air quality in the nation and often requires unique provisions to better address this reality, provisions that may not be necessary for the rest of the country. Recognition of

this fact is stated in the Clean Air Act, which authorizes California to set its own standards for non-preempted engines. With that said, the overwhelming majority of provisions in the latest version of 40 CFR, Part 1065 have been incorporated in the California regulations without change and the Executive Officer has a wide degree of latitude for authorizing alignment of the §1065 standards with future federal modifications.

7. **Comment:** If ARB refuses to adopt an “incorporate by reference” approach for its off-road regulations to ensure alignment with analogous federal regulations, then staff needs to return to the Board more frequently to ensure harmonization with U.S. EPA’s updates. [EMA-1]

Agency Response: We disagree. Staff routinely presents items to the Board when approval is needed to adopt new or update existing regulations to ensure effectiveness and to provide relief to the regulated community as necessary. Until recently, there was no impediment to manufacturers certifying small off-road engines or off-road compression-ignition engines in California that would justify the expenditure of resources necessary to amend the regulations. Unlike U.S. EPA, ARB does not have a mechanism, such as the Direct Final Rulemaking process, to expedite minor revisions to our regulations and test procedures. We do have the option of an emergency hearing in the event that action needs to occur immediately, but this is typically reserved for situations where inaction would result in extreme consequences to the manufacturer, environment, or other affected stakeholders. Staff is unaware of any manufacturer that has been denied certification in California due to unintended differences between federal and State off-road regulations.

Additionally, the regulations contain provisions granting the Executive Officer authority to allow alternative means of compliance under circumstances that do not alter the stringency of the regulations nor increase the cost of compliance. The recent promulgation by U.S. EPA of a new “combined oxides of nitrogen and hydrocarbon exhaust emission” standard for off-road compression-ignition engines, and the transition to ethanol blended certification fuels for spark-ignition engines were the catalysts necessitating the December 16, 2011, Board hearing. Staff used this opportunity to “catch up” with the other amendments made by U.S. EPA, as appropriate, that had occurred since the adoption of the previous regulations, and to incorporate a few California specific amendments intended to enhance the effectiveness of ARB’s in-use programs.

C. Comments Related to E10 Certification Fuel

8. **Comment:** ARB should not require the use of certification fuel blends with more than 10 percent ethanol by volume (3.5 percent oxygen content) because such blends are likely to negatively impact the performance and durability of legacy off-highway recreational vehicles and marine engines. Our testing has shown that ethanol fuel blends consisting of 15 percent ethanol by volume (E15) can severely

damage marine engines and do not result in lower emissions. ARB is urged not to align with U.S. EPA's requirement for an E15 certification test fuel. [MIC] [NMMA-1] [MM]

Agency Response: We agree. In adopting E10 as the certification fuel for the future, ARB made the logical decision to correlate the certification fuel with the most dominant fuel commercially available in California. Additional testing of E15 to determine the effects on emissions, performance, and durability of engines should be undertaken before a decision to require its use in the off-road sector is rendered.

9. **Comment:** The requirement to use E10 as a certification test fuel is reasonable, but staff needs to ensure that the final specifications of the fuel do not conflict with the specifications required by other ARB regulations such as the Low Carbon Fuel Standard scheduled to be heard by the Board in 2012. [EMA-1]

Agency Response: We agree, and have updated the regulations and test procedures to reference the on-road requirements for certification fuels published in title 13, CCR, §1961.2, and the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures for 2015 and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," approved by the Board on January 27, 2012.

10. **Comment:** Ethanol fuel blends are susceptible to phase separation and can corrode fuel system components and fuel tanks making such fuels less than optimal for use in marine engines. [NMMA-1] [MM]

Agency Response: Although we do not dispute the commenters' observations, the majority of complaints seem to be related to older boats that are stored for extended periods with fuel left in the tank. The issues raised could be minimized by draining the fuel when putting the engine in storage and by adhering to manufacturer-recommended winterizing procedures. Most boat owners use commercially available gasoline when refueling their boat engines, which has been E10 in California since January 1, 2010, and they do not experience any problems when operating with fresh fuel.

11. **Comment:** ARB should consider revising the certification fuel requirement to allow other renewable fuel blends such as isobutanol, which our testing shows to be a better all-around alternative bio-fuel feedstock. Isobutanol has higher energy density than ethanol at the same oxygen content (3.5 percent) and can supplant a greater portion of gasoline (i.e., 16.1 percent isobutanol vs. 10 percent ethanol), which would have a greater impact than E10 on reducing America's dependence on foreign oil. [NMMA-1] [MM]

Agency Response: We agree in concept and have amended the new certification fuel requirements in our spark-ignition regulations and test procedures to include an option allowing manufacturers to use other ARB-certified renewable fuel blends. The potential of isobutanol as a fuel additive appears promising although more comprehensive testing will need to occur before its suitability can be determined.

D. Comments Related to Certification Requirements

- 12. Comment:** The Off-Highway Recreational Vehicle regulation should be amended to clarify that either carry-over or carry-across durability data generated using the previously approved service accumulation fuel will continue to be allowed for certification purposes even after the transition to E10 certification fuel. [MIC]

Agency Response: No modification to the regulation is necessary because the existing regulation does not specifically prohibit the carry-over/carry-across of durability data between identical engines in response to a change in the certification fuel. Furthermore, because the emission standards were not changed by the amendments, and because OHRVs have already been operating in-use on E10-based Phase 3 California Reformulated Gasoline (CaRFG3) since December 31, 2009, it would not be a reasonable application of the carry-over/ carry-across allowances to exclude the carry-over/carry-across of durability data in this circumstance. To do so would require manufacturers to retest identical engines that have already been operating in-use on CaRFG3 for over two years.

- 13. Comment:** ARB should clarify §1054.235(g) of the Small Off-Road Engine test procedures such that the emissions reporting requirements for methane (CH₄) and nitrous oxide (N₂O) are applicable to new certification testing only. Additionally, previously conducted engine family certification testing for which the measurement of CH₄ and/or N₂O data was not required should be allowed to continue to be utilized for on-going or carry-over certification, as is allowed by U.S. EPA. [EMA-1]

Agency Response: To maintain alignment with federal provision, no modification will be made to §1054.235(g). However, it is a reasonable interpretation of the carry-over provisions that the CH₄ and N₂O reporting requirements would not apply to the certification of carry-over engine families. Any other interpretation would be contrary to the intention of this rulemaking, which is to reduce the burden on manufacturers of unnecessary duplicative certification efforts by harmonizing with federal requirements to the extent feasible and which best achieve California's air quality goals.

14. **Comment:** To avoid potentially costly dis-harmonization situations, manufacturers should be allowed to utilize the amendments approved by the Board on December 16, 2011, to certify engine families for the 2012 model year without having to wait for final review by the Office of Administrative Law and signature by the Secretary of State, which may take up to a year. Otherwise, we request an expedited review by the Office of Administrative Law. [EMA-1] [EMA-2]

Agency Response: Although no modification was enacted in response to this comment, staff is aware of and acknowledges the commenter's concerns and request to utilize the latest amendments on an expedited basis. ARB is committed to working with the regulated industry to ensure a reasonable implementation during this period of transition and is committed to finalizing the amendments in a timely manner.

15. **Comment:** ARB should clarify §1065.5(a)(3) of the 2011 and Later Off-Road Compression-Ignition Engine Test Procedures such that it permits manufacturers the option to estimate, rather than measure directly, CH₄ and N₂O emissions from total hydrocarbon and carbon dioxide measurements, respectively, just like U.S. EPA does. [EMA-1]

Agency Response: No modification to the original proposal was enacted in response to this comment. We proposed, and the Board approved, complete harmonization with U.S. EPA's promulgation of §1065.5(a)(3) in our original proposal at the December 16, 2011, Board hearing, which allows manufacturers to certify engines using indirect measurements of N₂O and CH₄, as appropriate. We also clarified in our original proposal the provisions in §1039.235(g) of the 2011 and Later Off-Road Compression-Ignition Test Procedures, making clear that the provisions in §1065.5(a)(3) would be applicable to off-road diesel certification. ARB's Mobile Source Operations Division will be responsible for approving specific techniques for estimating or indirectly measuring CH₄ and N₂O emissions on a case by case basis.

E. Miscellaneous Comments

16. **Comment:** California's small off-road engine regulation has forced manufacturers to produce underperforming lawn and garden equipment and is bad for business. [UA-1]

Agency Response: We disagree. In addition to requiring more stringent emission standards for lawn and garden equipment, California's small off-road engine regulation requires new engines to be warranted by the manufacturer to ensure that the engines continue to operate as designed in-use. As a result of this, modern engines have become more durable than engines produced only a few years ago and generally see longer service lives. Furthermore, any regulation adopted in California must be shown to be cost-effective, meaning that any cost increase to implement the new requirements is reasonable and would not affect

the availability of equipment in California nor significantly impact the operation of California businesses in a negative manner. Additionally, U.S. EPA has promulgated similar emission standards for all new lawn and garden equipment under federal regulations, and so, beginning this year (2012), all new lawn and garden equipment sold across the United States must comply with similar emission standards as required in California.

17. **Comment:** Why weren't our comments regarding corrections to the proposed amendments to the Tier 4 off-road compression-ignition regulation and test procedures addressed in staff's 15-day notice? [EMA-2]

Agency Response: The Truck and Engine Manufacturers Association identified four technical corrections to the off-road compression-ignition component of staff's original proposal. Three of those corrections were clarifications of a typographical nature and have been corrected in the final regulatory package. Staff saw no need to formalize those corrections as part of the 15-Day Modification process because they were non-substantive and because no other corrections to the off-road compression-ignition regulations and test procedures had been requested to warrant the publication of an amended document at that time. The fourth item had already been addressed in favor of the commenter's request prior to the receipt of comments as part of staff's original proposal (see the agency response to **Comment 15** above), which was approved by the Board on December 16, 2011.

LIST OF APPENDICES

- A. Technical Support Document – For Proposed Amendments Related to Tier 4 Off-Road Compression-Ignition Engine Regulations
- B. Final Regulation Order Summary & Rationale – Small Off-Road Engine Regulations
- C. Final Regulation Order Summary & Rationale – Tier 4 Off-Road Compression-Ignition Engine Regulations
- D. Final Regulation Order Summary & Rationale – New Large Spark-Ignition Engines; and In-Use Large Spark-Ignition Engine Retrofits
- E. Final Regulation Order Summary & Rationale – Off-Highway Recreational Vehicles
- F. Final Regulation Order Summary & Rationale – Recreational Marine Spark-Ignition Engines