



Air Resources Board



(Legal chron)

Mary D. Nichols, Chairman

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Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

December 10, 2008

Administrator Stephen L. Johnson
United States Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

RE: REQUEST FOR AUTHORIZATION DETERMINATION PURSUANT TO CLEAN AIR ACT SECTION 209(e) FOR AMENDMENTS TO CALIFORNIA'S OFF-ROAD EMISSIONS STANDARDS REGULATION FOR LARGE SPARK-IGNITION (LSI) ENGINES AND FLEET REQUIREMENTS FOR IN-USE LSI FORKLIFTS AND OTHER INDUSTRIAL EQUIPMENT

Dear Administrator Johnson:

I write to request the United States Environmental Protection Agency (EPA) authorize California to enforce its actions regulating emissions from new off-road large spark-ignition (LSI) engines and establishing in-use fleet requirements for forklifts and other industrial equipment with LSI engines.

The California Air Resources Board (CARB or Board) requests the Administrator to authorize the LSI standards and certification and test procedures, in part, as within the scope of EPA's prior authorization of California's LSI standards and procedures. This allows enforcement of amended CARB regulations when they harmonize and align with previously promulgated federal regulations for the same engine categories and air pollutants. Specifically, the within-the-scope request would be for the 2007-2009 standards and certification and test procedures adopted by CARB for new off-road LSI engines greater than 19 kilowatts (greater than 25 horsepower) that are not otherwise preempted by the federal Clean Air Act (CAA) and that are not subject to CARB requirements for Off-Highway Recreational Vehicles and Engines (article 3, chapter 9, title 13, California Code of Regulations). CARB's adopted regulations harmonize and align with EPA's 2002 promulgated emission standards during the 2007 through 2009 model years and with EPA's 2005 promulgated test procedures for those years.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

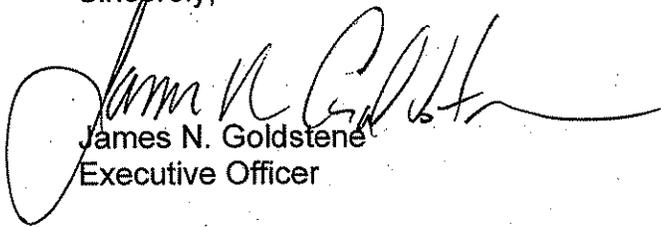
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For California's actions related to (1) LSI standards and test procedures for 2010 and subsequent model years, and (2) in-use fleet requirements for forklifts and other industrial equipment with LSI engines, CARB requests authorization pursuant to Clean Air Act section 209(e) as equivalent or more protective than applicable federal standards.

Attached for your review is an analysis setting forth California's basis for the authorization request. The analysis sets forth a summary of the regulatory actions, a review of the criteria governing EPA's evaluation of a California authorization request, and the legal arguments that support and compel EPA's granting of California's request. The analysis incorporates enclosures, included in CD-ROM format for your convenience.

If you need additional technical information on these actions, please contact Mr. Michael Carter, Chief of the Emission Research and Regulatory Development Branch of the Mobile Source Control Division, at (626) 575-6632 or mcarter@arb.ca.gov, for questions relating to emission standards and test procedures. For technical information relating to the in-use fleet requirements, please contact Ms. Elise Keddie, Manager for the ZEV Implementation Section at, (916) 323-8974 or ekeddie@arb.ca.gov. You may address legal questions to Ms. Diane Moritz Johnston, Senior Staff Counsel, at (916) 323-9609 or djohnsto@arb.ca.gov.

Sincerely,



James N. Goldstene
Executive Officer

Attachment

Enclosures

cc: See next page.

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cc: Robert Doyle, Attorney/Advisor
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Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Mail Code 6405J
Washington, D.C. 20460

Michael Carter, Chief (w/o enclosures)
Emission Research and Regulatory Development Branch
Mobile Source Control Division

Elise Keddie, Manager (w/o enclosures)
ZEV Implementation Section
Air Resources Board

Diane Moritz Johnston
Senior Staff Counsel
Office of Legal Affairs

**BEFORE THE
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

In the Matter of California's Request for)
Authorization Action Pursuant to Clean Air)
Act Section 209(e) for Amendments to)
California's Off-Road Emissions)
Standards Regulation for Large Spark-)
Ignition (LSI) Engines, Fleet Requirements)
for In-Use LSI Forklifts and Other)
Industrial Equipment)
_____)

**CLEAN AIR ACT § 209(e)(2) AUTHORIZATION SUPPORT DOCUMENT SUBMITTED
BY THE
CALIFORNIA AIR RESOURCES BOARD**

December 10, 2008

I. OVERVIEW

This document supports California's request that the United States Environmental Protection Agency (EPA) take authorization action pursuant to section 209(e) of the Clean Air Act (CAA) on a California Air Resources Board (CARB) 2006 rulemaking, which amended and adopted emission standards and accompanying test procedures for new off-road¹ large spark-ignition engines above 19 kilowatts (kW) and 1.0 liter displacement (LSI engines). CARB also adopted fleet average requirements for in-use forklifts and other industrial off-road equipment with LSI engines (Fleet Requirements). CARB adopted the amendments, in part, to meet commitments made as part of the Board's 2003 State and Federal Strategy for the State Implementation Plan (SIP) to reduce the public's exposure to hydrocarbon (HC) and oxides of nitrogen (NOx) emissions from forklifts and other industrial equipment powered by LSI engines.

The 2006 rulemaking amends the emission standards and test procedures adopted by CARB in 1999 for new LSI off-road engines.² The 1999 regulation applied to new 2001 and subsequent model-year engines, and established in-use durability and compliance standards for new 2004 and subsequent model year engines. EPA granted authorization for CARB to enforce these standards and test procedures on May 23, 2006.³

Among other things, in the 2006 rulemaking, CARB adopted new emission standards and related certification and test procedures for new 2007-2009 and 2010 and later

¹ The federal Clean Air Act refers to these engines as "nonroad". For purposes of this request the terms "off-road" and "nonroad" are used interchangeably.

² Title 13, California Code of Regulations (CCR), sections 2430 et seq.

³ 71 Fed.Reg. 29623 (May 23, 2006).

model-year engines. The new standards and certification and test procedures for 2007-2009 model-year engines, in general, harmonize with the federal LSI rules, which established Tier 2 emission standards for LSI engines in 2002⁴ and test procedures in 2005.⁵ The emission standards for 2010 and later model years are more stringent than federal Tier 2 standards for comparable model year engines.⁶ Finally, as stated, the rulemaking adopted in-use fleet average emission requirements for large and medium size fleets – fleets comprised of four or more pieces of equipment powered by LSI engines, including forklifts, industrial tow tractors, sweepers/scrubbers, and airport ground support equipment – that begin in 2009.

CARB respectfully requests that the Administrator confirm that the adopted regulations be treated as falling within the scope of the previously granted LSI authorization or, in the alternative – to the extent that he finds that any amendments cannot be so treated – grant a new authorization.

Section II below lays out the procedural history of CARB's adoption of the 2006 rulemaking. Section III provides the regulatory background for CARB's actions. Section IV summarizes the 2006 rulemaking. Section V identifies the principles applicable to the authorization process. Finally, Section VI demonstrates that EPA is authorized to take the actions requested.

II. PROCEDURAL HISTORY

The Board approved the amended and new LSI engine standards and test procedures and LSI Fleet Requirements at a public hearing on May 25, 2006, by Resolution 06-11 (Enclosure 1).⁷ At the direction of the Board, after making modifications to the regulation available on December 1, 2006 and February 1, 2007 for supplemental public comment, CARB's Executive Officer formally adopted the rulemaking in Executive Order R-07-001 on March 2, 2007. (The Executive Order and the final regulation order are included as Enclosures 2 and 3, respectively.)

The amended and new LSI engine standards are codified at sections 2430, 2431, 2433, 2434, and 2438, title 13, California Code of Regulations (CCR).⁸ The LSI Fleet Requirements are codified at sections 2775 through 2775.2, title 13, CCR. The California Office of Administrative Law approved the regulations on April 12, 2007, and they became operative on May 12, 2007.

⁴ Federal Tier 1 and 2 LSI Rule, 67 Fed.Reg. 68242 (November 8, 2002).

⁵ Federal LSI Test Procedures Rule, 70 Fed.Reg. 40420 (July 13, 2005).

⁶ The 2006 rulemaking did not modify the previously adopted emission standards for 2001 and subsequent model-year new LSI engines that apply to 2001 through 2006 model year engines in that the standards align with the federal Tier 1 standards for engines manufactured prior to 2006.

⁷ Additionally, the Board adopted retrofit verification procedures for LSI engines, which are codified at sections 2780 through 2789, title 13, CCR. These procedures establish a voluntary verification program for manufacturers of aftermarket retrofit devices and are not a part of this authorization request.

⁸ Unless otherwise noted, all section references are to title 13, California Code of Regulations (CCR).

III. BACKGROUND

The 1988 California Clean Air Act, specifically in Health and Safety Code sections 43013(b) and 43018, authorizes CARB to adopt emission standards and other regulations for off-road vehicles and nonvehicular engine categories. Since then, California has adopted regulations and amendments for a variety of engines and equipment in the off-road categories, ranging from spark-ignited (SI) and compression-ignited (CI) small off-road engines less than 19 kW to heavy-duty CI engines greater than 560 kW.

A. CARB's Preexisting Emission Standards for LSI Engines Above 19 kW and 1.0 Liter Displacement

In 1999, CARB first adopted emission standards for new off-road LSI engines and equipment over 25 horsepower (19 kilowatts) and 1.0 liter displacement. The first emission standard for new engines was 3.0 grams per brake-horsepower-hour (g/bhp-hr) of hydrocarbons (HC) and oxides of nitrogen (NOx). The standard was implemented beginning in the 2001 model year with full implementation in 2004. As stated, the Administrator granted authorization for these standards and accompanying test procedures on May 23, 2006.⁹ The table below sets forth the CARB standards that have been granted authorization.

Exhaust Emission Standards
(grams per brake horsepower-hour)
[grams per kilowatt-hour]

| Model Year | Engine Displacement | Durability Period | Hydrocarbon plus Oxides of Nitrogen | Carbon Monoxide |
|---------------------|---------------------|--------------------------|-------------------------------------|-----------------|
| 2001 - -2003 | > 1.0 liter | N/A | 3.0 [4.0] | 37.0 [49.6] |
| 2004 - -2006 | > 1.0 liter | 3500 hours or 5 years | 3.0 [4.0] | 37.0 [49.6] |
| 2007 and subsequent | > 1.0 liter | 5000 hours or 7 years | 3.0 [4.0] | 37.0 [49.6] |

B. Federal LSI Regulation

Section 213(a)(1) of the 1990 amendments to the federal CAA has required EPA to study the emissions from all categories of nonroad engines and equipment to determine, among other things, whether these emissions "cause or significantly contribute to, air pollution which may reasonably be anticipated to endanger public health and welfare." CAA sections 213(a)(2)-(4) authorize EPA to promulgate emission standards for those categories of new nonroad engines and vehicles that significantly

⁹ 71 Fed.Reg. 29623 (May 23, 2006).

contribute to ozone, carbon monoxide (CO), and particulate matter (PM) air pollution. In November 2002, EPA affirmatively determined that nonroad LSI engines rated above 19kW caused emissions that significantly contributed to air pollution that endangered the public health and welfare.¹⁰

In November 2002, EPA also established nationwide emission standards for new nonroad LSI engines, including those used in farm and construction equipment.¹¹ EPA required that LSI engines nationwide meet the same 3.0 g/bhp-hr standard beginning in 2004 as had been required in California. The federal regulation also included a more stringent standard beginning in 2007 that requires new LSI engines to meet a 2.0 g/bhp-hr standard using a more rigorous transient testing procedure. EPA's regulation additionally contained evaporative emission and in-use engine requirements that were not included in the 1999 California regulation.

C. In-Use Requirements

Prior to CARB's 2006 rulemaking neither California nor federal requirements applied to in-use off-road equipment powered by LSI engines. Hence neither EPA nor CARB had fleet requirements or testing procedures for retrofit control systems for LSI engines.

IV. SUMMARY OF THE 2006 OFF-ROAD LSI ENGINE RULEMAKING

A full discussion of the amended standards and other in-use requirements for non-preempted off-road LSI engines rated greater than 19kW is set forth in the *Staff Report: Initial Statement of Reasons* (Staff Report or ISOR; Enclosure 4), issued March 3, 2006. The provisions of the rulemaking are further described in the Final Statement of Reasons (FSOR; Enclosure 7) for that rulemaking. A summary of the adopted provisions follows.

A. Emission Standards for New LSI Engines

Underpinning CARB's 2006 rulemaking is a set of emission standards for new off-road LSI engines, implemented beginning in 2007. The proposed emission standards for new engines include the following components: adoption of EPA's 2007 model-year emission standards, more stringent 2010 model-year emission standards, optional certification standards, and more rigorous certification and test procedures.

2007-2009 Standards

Beginning with the 2007 model year, EPA's tailpipe emission standards for new LSI engines became more stringent than the emission standards adopted by CARB in 1999 for 2001 and subsequent model-year LSI engines. CARB adopted EPA's 2007 standards in the 2006 rulemaking to align with the federal requirements and to enable parallel enforcement in California in the 2007-2009 model years. Engine manufacturers

¹⁰ 67 Fed.Reg. 68242 (November 8, 2002).

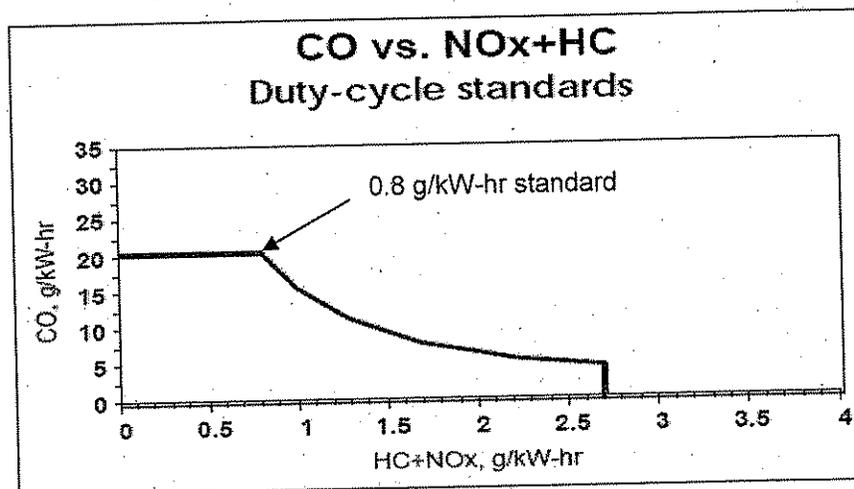
¹¹ *Id.*

are required both federally and in California to meet 2.0 g/bhp-hr (2.7 g/kW-hr) HC+NOx and 3.3 g/bhp-hr (4.4 g/kW-hr) CO emission standards. Alternatively, a manufacturer could certify to the following formula:

$$(HC+NOx) \times (CO)^{0.784} \leq 8.57$$

This formula, established by EPA, is represented by the curve shown in the figure below. The alternative certification standard provides manufacturers with the flexibility to certify engines with higher CO emissions if they achieve lower HC+NOx levels.

Figure 1: Alternative Federal Certification



In addition to the 2007-2009 emissions standards, CARB adopted the federal requirements or equivalent California provisions for evaporative emissions, warranties, and certification and test procedures, including in-use engine testing. By adopting the federal requirements in 2007, CARB's rulemaking harmonized as closely as possible with the federal program, while still maintaining the emission reduction benefits of the California program. The rulemaking accomplished the harmonization, in part, by incorporating new test procedures for certification and compliance into the regulations in section 2433(c).¹² The incorporated documents are:

"California Exhaust Emission Standards and Test Procedures for New 2007 through 2009 Off-Road Large Spark-ignition Engines (2007-2009 Test Procedure 1048)," adopted March 2, 2007; and

¹² These procedures also constitute CARB's accompanying enforcement requirements in that certification is required prior to sale of the LSI engines in California. While the procedures require CARB certification in place of, or in addition to, federal certification, the procedures do not mandate the use of incompatible test procedures. For this reasons the Administrator's granting of authorization for the associated enforcement requirements is appropriate.

“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),” adopted March 2, 2007.

2010 and Later Standards

CARB adopted more stringent emission standards for new 2010 and subsequent model-year LSI engines of 0.6 g/bhp-hr (0.8 g/kW-hr) HC+NOx and 15.4 g/bhp-hr (20.6 g/kW-hr) CO (2010 standards). However, the 2010 standards are within the 2007-2009 model-year standards’ alternative compliance curve, as shown by the arrow in Figure 1. By setting the standards within the compliance curve, the 2010 standards limit the calibration flexibility of the engine manufacturer in achieving the lowest feasible HC+NOx emission level. In the 2005 model year, CARB certified eight engine families used in industrial applications at levels at or below the 2010 standards. Since then, CARB has certified additional engine families at or below the 2010 standards.

These standards are underpinned by CARB’s adoption of incorporated certification and test procedures modeled on the federal certification and testing requirement, but revised (as fully described in the ISOR appendices and FSOR), to include California specific requirements, most notably production line testing and in-use compliance procedures:

“California Exhaust and Evaporative Emission Standards and Test Procedures for New 2010 and Later Off-Road Large Spark-ignition Engines (2010 and Later Test Procedures 1048),” adopted March 2, 2007.

The table below shows the standards for 2007-2009 and for 2010 and later model years along with CARB’s earlier standards.¹³

Exhaust Emission Standards
(grams per brake horsepower-hour)
[grams per kilowatt-hour]⁽¹⁾

| <i>Model Year</i> | <i>Engine Displacement</i> | <i>Durability Period</i> | <i>HC + NOx</i> | <i>Carbon Monoxide</i> |
|--|----------------------------|--------------------------|-----------------|------------------------|
| 2002 and subsequent | ≤1.0 liter | 1,000 hours or 2 years | 9.0 [12.0] | 410 [549] |
| 2001 - 2003 ^{(2),(3)} | > 1.0 liter | N/A | 3.0 [4.0] | 37.0 [49.6] |
| 2004 - 2006 ⁽⁴⁾ | > 1.0 liter | 3500 hours or 5 years | 3.0 [4.0] | 37.0 [49.6] |
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 2.0 [2.7] | 3.3 [4.4] |
| 2010 and subsequent ^{(5),(6)} | > 1.0 liter | 5000 hours or 7 years | 0.6 [0.8] | 15.4 [20.6] |

[Notes for the table are presented on the following page.]

¹³ Section 2433, title 13, CCR.

- Note:
- (1) For 2006 and previous model years, standards in grams per kilowatt-hour are given only as a reference. For 2007 and subsequent model years, pollutant emissions reported to ARB by manufacturers must be in grams per kilowatt-hour.
 - (2) Small volume manufacturers are not required to comply with these emission standards.
 - (3) Manufacturers must show that at least 25 percent of its California engine sales comply with the standards in 2001, 50 percent in 2002, and 75 percent in 2003.
 - (4) The standards for in-use compliance for engine families certified to the standards in the row noted are 4.0 g/bhp-hr (5.4 g/kW-hr) hydrocarbon plus oxides of nitrogen and 50.0 g/bhp-hr (67.0 g/kW-hr) carbon monoxide, with a useful life of 5000 hours or 7 years. In-use averaging, banking, and trading credits may be generated for engines tested in compliance with these in-use compliance standards. If the in-use compliance level is above 3.0 but does not exceed 4.0 g/bhp-hr hydrocarbon plus oxides of nitrogen or is above 37.0 but does not exceed 50.0 g/bhp-hr carbon monoxide, and based on a review of information derived from a statistically valid and representative sample of engines, the Executive Officer determines that a substantial percentage of any class or category of such engines exhibits within the warranty periods noted in Section 2435, an identifiable, systematic defect in a component listed in that section, which causes a significant increase in emissions above those exhibited by engines free of such defects and of the same class or category and having the same period of use and hours, then the Executive Officer may invoke the enforcement authority under Section 2439, Title 13, California Code of regulations to require remedial action by the engine manufacturer. Such remedial action is limited to owner notification and repair or replacement of defective components, without regard to the requirements set forth in Section 2439(b)(5) or Section 2439(c)(5)(B)(vi). As used in the section, the term "defect" does not include failures that are the result of abuse, neglect, or improper maintenance.
 - (5) For severe-duty engines, the HC+NOx standard is 2.7 g/kW-hr and the CO standard is 130.0 g/kW-hr.
 - (6) Small volume manufacturers are required to comply with these emission standards in 2013.

Optional Certification LSI Engine Standards

The rulemaking also established optional emission standards that are numerically lower than the 2007-2009 and the 2010 and later model year mandatory standards. During model years 2007-2009, engines could be certified to the optional new engine standards of 0.1, 0.2, 0.4, 0.6, 1.0, or 1.5 g/bhp-hr HC+NOx. For model year 2010 and later, engines may be certified to optional standards of 0.1, 0.2, or 0.4 g/bhp-hr HC+NOx. The optional standards provide manufacturers that produce cleaner engines an opportunity to certify at lower emission levels. LSI engines certified to the optional standards may be more desirable products for the fleet owner who must meet the rulemaking's in-use Fleet Requirements.

The table below shows the optional standards.¹⁴

Optional Exhaust Emission Standards
(grams per brake horsepower-hour)
[grams per kilowatt-hour]⁽¹⁾

| Model Year | Engine Displacement | Durability Period | HC+NOx | Carbon Monoxide |
|---------------------|---------------------|-----------------------|--------------|-----------------|
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 1.5 [2.0] | 4.8 [6.4] |
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 1.0 [1.3] | 8.3 [11.1] |
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 0.6 [0.8] | 15.4 [20.6] |
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 0.4 [0.5] | 15.4 [20.6] |
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 0.2 [0.3] | 15.4 [20.6] |
| 2007 - 2009 | > 1.0 liter | 5000 hours or 7 years | 0.1 [0.1] | 15.4 [20.6] |
| 2010 and subsequent | > 1.0 liter | 5000 hours or 7 years | 0.4 [0.5] | 15.4 [20.6] |
| 2010 and subsequent | > 1.0 liter | 5000 hours or 7 years | 0.2 [0.3] | 15.4 [20.6] |
| 2010 and subsequent | > 1.0 liter | 5000 hours or 7 years | 0.1 [0.1] | 15.4 [20.6] |

Note: (1) Pollutant emissions reported to ARB by manufacturers must be in grams per kilowatt-hour.

B. In-Use Emission Standards

The rulemaking also requires that operators of large and medium size fleets of forklifts, sweeper/scrubbers, GSE, and industrial tow tractors with engine displacements of greater than one liter meet an average emission standard for their in-use fleet. Fleet size is determined by aggregating an operator's equipment located in California. Large LSI fleets are those with more than 25 pieces of equipment while medium LSI fleets would be those with 4 to 25 pieces of equipment. The requirements begin January 1, 2009.

Under the rulemaking, large fleets would have to meet a more stringent fleet average than medium fleets due to their greater flexibility in incorporating combinations of

¹⁴ Section 2433, title 13, CCR.

emission-reduction strategies. Likewise, the fleet average is more stringent for the forklift portion of the fleet than for the non-forklift portion of the fleet, reflecting the greater availability of zero- and low-emission technologies. The fleet averages were determined using the certification levels of 2001 and newer LSI engines and the retrofit verification levels of engines with retrofit kits.

The LSI fleet operator has flexibility to use any combination of retrofits, lower-emission purchases, and zero-emission electric engine and equipment purchases to meet the fleet-average emission level, which becomes progressively more stringent over time. A detailed discussion of the various compliance scenarios identified by CARB staff can be found in ISOR Appendix B.2.¹⁵ The following table summarizes the proposed fleet average emission levels for forklift fleets and non-forklift fleets.

In-Use Fleet Average Emission Requirements
[g/bhp-hr (g/kW-hr) of HC+NOx]

| LSI Fleet Type | Number of units | By 1/1/2009 | By 1/1/2011 | By 1/1/2013 |
|-------------------------------------|-----------------|--------------------------------|-------------|-------------|
| Large fleet – forklift component | 26 + | 2.4 (3.2) | 1.7 (2.3) | 1.1 (1.5) |
| Mid-size fleet – forklift component | 4-25 | 2.6 (3.5) | 2.0 (2.7) | 1.4 (1.9) |
| Non-forklift fleet ¹ | 4 + | 3.0 (4.0) | 2.7 (3.4) | 2.5 (3.6) |
| Small fleet | 1-3 | Exempt from Fleet Requirements | | |

¹ Mixed fleets are to be determined individually for forklift and non-forklift fleets; a mixed fleet with three or fewer forklifts and three or fewer non-forklift pieces of equipment shall be considered to be a small fleet.

The Fleet Requirements are underpinned with retrofit verification procedures (test procedures) for retrofitting LSI forklifts and other industrial equipment. The retrofit verification procedures (contained and described in ISOR Appendix C)¹⁶ would apply to manufacturers of retrofit systems sold in California. These systems include but are not limited to, closed-loop fuel-control systems, fuel-injection systems, and three-way catalysts. There are no comparable federal requirements.

VI. CRITERIA FOR GRANTING AN AUTHORIZATION OR CONFIRMING AMENDMENTS ARE WITHIN THE SCOPE OF PREVIOUS AUTHORIZATIONS

A. New Authorizations and Within-the-Scope Confirmations

Section 209(e)(2) of the CAA sets forth the protocol for granting California authorization to adopt and enforce standards and other requirements relating to controlling emissions from nonroad engines that are not otherwise conclusively preempted from state regulations under section 209(e)(1). Under section 209(e)(2), the Administrator is

¹⁵ Enclosure 4.

¹⁶ *Id.*

directed to grant the authorization to California if California has made a protectiveness determination that its adopted standards will be, in the aggregate, at least as protective of public health and welfare as applicable federal standards, and the Administrator does not find that: (1) the protectiveness finding of the state is arbitrary and capricious; (2) California does not need separate state standards to meet compelling and extraordinary conditions; or (3) the state standards and accompanying enforcement procedures are not consistent with section 209 of the CAA.¹⁷

The authority granted to California under section 209(e)(2) to adopt and enforce not otherwise preempted nonroad engine emission standards and regulations is similar to that which Congress granted to the State in section 209(b) – the right to adopt and enforce independent emission standards for new motor vehicles. Section 209(e)(2), like section 209(b), requires California to obtain the Administrator's approval (i.e., waiver or authorization). In reviewing a California request for an authorization under section 209(e)(2), the Administrator must consider nearly identical criteria as under section 209(b). In light of these almost identical protocols, EPA has confirmed that it would similarly interpret sections 209(b) and (e) where the language is similar.¹⁸

One deviation in language is that CAA section 209(e)(2), requires that the Administrator must consider consistency with not only section 202(a) – as required under section 209(b)(1)(C) – but also other subsections of section 209. In its *209(e) Final Rule*, EPA interpreted this provision to require that California's standards and accompanying enforcement provisions must also be consistent with sections 209(a), 209(e)(1), and 209(b)(1)(C).¹⁹ As explained by the Administrator in a subsequently issued authorization determination:

In [o]rder to be consistent with section 209(a), California's [nonroad] standards and enforcement procedures must not apply to new motor vehicles or new motor vehicle engines. Secondly, California's nonroad standards and enforcement procedures must be consistent with section 209(e)(1), which identifies the categories permanently preempted from state regulation. California's nonroad standards and enforcement procedures would be considered inconsistent with section 209 if they applied to the categories of engines or vehicles identified and preempted from State regulation in section 209(e)(1). Finally, and most importantly in terms of application to nonroad within the scope requests such as these, California's nonroad standards and enforcement procedures must be consistent with section 209(b)(1)(C). EPA will review nonroad authorization requests under the same "consistency" criteria that are applied to motor vehicle waiver requests. Under section 209(b)(1)(C), the Administrator shall not grant California's motor vehicle waiver if she finds

¹⁷ References to section 209 or section 202 are to those sections of the federal Clean Air Act Amendments of 1990.

¹⁸ *Final 209(e) Rule*, 59 Fed.Reg. 36969, 36981 (July 20, 1994); see also *Utility Authorization*, Decision Document, at p. 11; see also 65 Fed.Reg. 69763, 69763-69764 (November 20, 2000).

¹⁹ 59 Fed.Reg. 36969, 36983 (July 20, 1994).

that California "standards and accompanying enforcement procedures are not consistent with section 202(a)" of the Act.²⁰

In specifically addressing a within-the-scope request, the Administrator explained when he would find subsequent regulatory action by California to be within the scope of a previously granted authorization:

If California acts to amend a previously authorized standard or accompanying enforcement procedure, the change may be included within the scope of the previously granted authorization if it does not undermine California's determination that its standards, in the aggregate, are as protective of public health and welfare as applicable Federal standards, does not affect the consistency of California's requirements with section 209 of the [CAA], and raises no new issues affecting the Administrator's previous authorization determination.²¹

B. The Principles for Granting Section 209(b) Waivers Should Apply to Section 209(e) Authorization Requests

As previously recognized, in light of the similar language of sections 209(b) and 209(e)(2), CAA, EPA analyzes California's authorization requests under section 209(e)(2) using the same principles that it has historically applied in analyzing motor vehicle waiver requests under section 209(b). These principles include: (1) EPA should limit its inquiry to the specific criteria identified in section 209(e)(2); (2) it should give substantial deference to the policy judgments California made in adopting its regulations; and (3) those parties opposed to the granting of authorization have the burden of persuading the Administrator that no basis exists for granting the authorization request.

1. The Scope of the Authorization Hearing Should Be Limited

The scope of the Administrator's inquiry in determining whether to deny an authorization request is limited by the express terms of section 209(e)(2). In the *Final 209(e) Rule*, EPA acknowledged that its inquiry would be so limited.²² Thus, once California determines that its standards are, in the aggregate, at least as protective of public health and welfare as applicable federal standards, the Administrator must grant the authorization request unless one of the three specified findings can be made. This reading of the statute is consistent with the decision in *Motor and Equipment Manufacturers Association v. EPA*, 627 F.2d 1095 (D.C. Circuit 1979) (*MEMA I*) and prior EPA waiver decisions interpreting section 209(b), which hold that the review of California's decision to adopt separate standards is a narrow one.²³ As Administrator William D. Ruckleshaus stated in a 1971 decision:

²⁰ 65 Fed.Reg. 69763, 69764 (November 20, 2000).

²¹ *Id.*

²² *Final 209(e) Rule*, 59 Fed.Reg. at 36983 (July 20, 1994).

²³ See 40 Fed.Reg. 23102, 23103 (May 28, 1975), See also *Utility Authorization*, 60 Fed.Reg. 37440.

The law makes it clear that the waiver request cannot be denied unless the specific findings designated in the statute can properly be made. The issue of whether a proposed California requirement is likely to result in only marginal improvement in air quality not commensurate with its cost or is otherwise an arguably unwise exercise of regulatory power is not legally pertinent to my decision under section 209....²⁴

2. Deference Should be Given to California's Policy Judgments

As indicated in the waiver decisions cited above, in granting waivers and authorizations to California, EPA has routinely deferred to the policy judgments of California's decision-makers. In doing so, EPA has recognized that Congress intended that the federal government not second-guess the wisdom of California's policy judgments in determining that the state needs its own separate standards.²⁵ Administrators have recognized that the deference is wide-ranging:

The structure and history of the California waiver provision clearly indicate both a Congressional intent and an EPA practice of leaving the decision on ambiguous and controversial matters of public policy to California's judgment.

* * * * *

It is worth noting . . . I would feel constrained to approve a California approach to the problem which I might also feel unable to adopt at the federal level in my own capacity as a regulator. The whole approach of the Clean Air Act is to force the development of new types of emission control technology where that is needed by compelling the industry to "catch up" to some degree with newly promulgated standards. Such an approach . . . may be attended with costs, in the shape of a reduced product offering, or price or fuel economy penalties, and by risks that a wider number of vehicle classes may not be able to complete their development work in time. Since a balancing of these risks and costs against the potential benefits from reduced emissions is a central policy decision for any regulatory agency under the statutory scheme outlined above, I believe I am required to give very substantial deference to California's judgments on this score.²⁶

In allowing California to adopt its own emission standards for nonroad vehicles and engines and by establishing almost identical requirements for EPA review of

(July 20, 1995), Decision document at pp. 12-13, 60.

²⁴ 36 Fed.Reg. 17158 (August 31, 1971). See also 40 Fed.Reg. 23102, 23104; 58 Fed.Reg. 4166 (January 7, 1993), Decision Document, at p. 20.

²⁵ See 40 Fed.Reg. 23102, 23103 (May 26, 1975).

²⁶ 40 Fed.Reg. 23102, 23104 (May 26, 1975) (emphasis added). See also 58 Fed.Reg. 4166 (January 13, 1993), Decision Document, at p. 64.

authorization requests under section 209(e)(2) as it requires for waiver decisions under section 209(b), Congress unmistakably intended that EPA accord similar deference to California's decisions under 209(e)(2).²⁷

3. The Burden of Proof Should Be on Those Opposed to the Authorization Request

As stated above, under both CAA sections 209(b) and (e)(2), the Administrator must deny a waiver or an authorization if he makes one of the three findings set forth in those sections. In interpreting the language of section 209(b), it has been held that the burden of proof to show that there is a basis for making one of the three findings is squarely on the opponents of a waiver. As the appellate court stated in *MEMA I*²⁸ at 1120-21:

It is not necessary for the Administrator affirmatively to find that these conditions do not exist before granting a waiver. The statute does not say "the Administrator shall grant a waiver only if he makes the negative of these findings. That he must deny a waiver if certain facts exist does not mean that he must independently proceed to make the opposite of those findings before he grants the waiver regardless of the state of the record The language of the statute and its legislative history indicate that California's regulations, and California's determination that they comply with the statute, when presented to the Administrator are presumed to satisfy the waiver requirements and that the burden of proving otherwise is on whoever attacks them. California must present its regulations and findings at the hearing, and thereafter the parties opposing the waiver request bear the burden of persuading the Administrator that the waiver request should be denied.

Given the identical structure and near identical language of sections 209(b) and 209(e)(2), the opponents of an authorization request bear a similar burden of proof when arguing that authorization should be denied. EPA has so stated in all off-road authorization decisions to date.²⁹

²⁷ See discussion in *Engine Manufacturers Association v. EPA*, 88 F.3d 1075, 1090 (D.C. Cir. 1996) (*EMA*), wherein the court recognized California's leadership in emission control regulation in both new motor vehicles and new and in-use nonroad engines.

²⁸ *Motor and Equipment Manufacturers Association v. EPA*, 627 F.2d 1095 (D.C. Circuit 1979) (*MEMA I*).

²⁹ *OHRV Authorization*, Decision Document, at pp. 16-17; *Utility Authorization*, Decision Document, at p. 14; 60 Fed. Reg. 48981 (September 21, 1995) (*HDOR Authorization*), Decision Document, at p. 13. See also *Waiver of Federal Preemption California Low-Emission Vehicle Standards*, 58 Fed. Reg. 4166 (January 7, 1993) (*LEV Waiver*), Decision Document, at p. 21.

VII. AUTHORIZATION ANALYSIS

A. The Amendments to the Previously Authorized Standards for 2007-2009 Model-Year LSI Engines and Equipment Above 19 kW and Accompanying Enforcement Procedures (2007-2009 LSI Engine Standards) Are Within the Scope of a Previously Granted Authorization

1. Amendments Harmonizing California's Previously Authorized Standards With New More Stringent Federal Standards Should Be Treated as Within the Scope of the Previous Authorization If CAA Criteria Are Met

The amendments to the emission standards for new LSI engines adopted in the 2006 rulemaking were directed at the same engines and equipment covered by the authorization granted in 2006 for LSI engines.³⁰ In that rulemaking, CARB sought to harmonize its 2007-2009 LSI Engine Standards, including optional compliance standards, and certification and test procedures with those promulgated by EPA in 2002 and 2005.³¹ As suggested in its recently submitted authorization request for amendments to California's emissions regulations for new off-road compression-ignition engines, dated July 18, 2008, CARB respectfully submits that the Administrator confirm that 2006 amendments to the 2007-2009 LSI Engine Standards be similarly treated as falling within the-scope of previously granted authorizations. The increased stringency of the amended standards and procedures results from harmonization with the federal standards and test procedures and no new issues exist that would prevent the Administrator from confirming that the standards and certification and test procedures fall within the scope of the previously granted authorization. As long as the state and federal standards and procedures are aligned, there should be no question about California's finding that the California standards and certification and test procedures are as protective as their federal counterparts.

CARB submits that in the limited instances where California increases the stringency of state standards to align with more stringent federal standards that have "leapfrogged" the state standards, EPA should apply the within-the-scope criteria and issue a within-the-scope confirmation when those criteria are satisfied. There are three important reasons that recommend this approach.

First, instances in which CARB is aligning the California standards with the federal standards are unique in that they are virtually guaranteed to satisfy the within-the-scope criteria on protectiveness and consistency. To the extent that new California standards are identical to the comparable federal standards, they are necessarily as protective as the federal standards. Similarly, identical state and federal emission standards make it virtually certain that the state standards are consistent with section 202(a). In promulgating its regulations under CAA section 213, EPA has effectively considered

³⁰ 71 Fed.Reg. 29623 (May 23, 2006).

³¹ 67 Fed.Reg. 68242 (November 8, 2002) and 70 Fed.Reg. 40420 (July 13, 2005), respectively.

and determined that those standards meet the test for consistency under CAA section 202(a). And, given identical emission standards, state and federal certification and test procedures will be sufficiently consistent for a manufacturer to use the same test engines to determine compliance.³²

Second, in situations where EPA's emission standards for a vehicle or engine category "leapfrog" the California standards with more stringent federal standards, the applicability of standards to California vehicles or engines could become clouded if the within-the-scope mechanism were not available. In such instances, the prior California standards, in part, would no longer be as protective as the comparable federal standards that EPA would be enforcing nationally. Yet even after California amends its standards to harmonize with the more stringent federal standards, the state could be temporarily barred from enforcing the harmonized standards if a new authorization (or waiver in the motor vehicle context) is the only available mechanism. Allowing the within-the-scope mechanism to be considered in such a situation would facilitate CARB's ability to administer its program seamlessly during the authorization process.

Third, in situations where EPA is evaluating whether the strengthening of a California standard to harmonize it with a federal standard is within the scope of a previous authorization, EPA has the option to provide the same sort of notice and comment as it does for a request for a new authorization. This would ensure that all parties have an opportunity for input before the determination is made. With respect to a within-the-scope confirmation, the Administrator typically has announced his or her determination before interested parties have the opportunity to be heard; the notice announcing the determination allows parties to file objections within 30 days, and indicates EPA will consider conducting a hearing if an objection is timely filed.³³ But where CARB is harmonizing with a more stringent federal standard, it makes sense for EPA to continue the practice recently followed by EPA – of providing the opportunity for a pre-determination hearing where interested parties may comment both on the appropriateness of using the within-the-scope mechanism and on the underlying authorization issues.³⁴

In Resolution 06-11,³⁵ the Board found that the amended emission standards and test procedures do not undermine its previous determinations that California's emission standards for off-road LSI engines above 19 kW are at least as protective of public health and welfare as applicable federal standards. This finding was clearly justified because it reflects the fact that the state's amended 2007-2009 LSI Engine Standards are identical to the Tier 2 standards that have been promulgated by EPA and that the associated enforcement procedures discussed above, indeed, strengthen, not weaken, the public health and welfare benefits.

³² CARB's certification of 2007-2009 LSI engines constitutes CARB's accompanying enforcement requirements for the 2007-2009 LSI Engine Standards.

³³ See, e.g. 65 Fed.Reg. 69763, 69766 (November 20, 2000).

³⁴ 73 Fed.Reg. 58583 (October 7, 2008).

³⁵ Enclosure 1.

The Board further found that the adopted standards and test procedures are not inconsistent with CAA section 209. Just like the preexisting authorized standards, they do not apply to new motor vehicles and engines preempted under CAA section 209(a), or to nonroad engines that are specifically preempted under section 209(e)(1).³⁶ Moreover, the adopted amendments are consistent with section 209(b)(1)(C), which requires consistency with section 202(a) that standards “permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within [the time provided for compliance].” Since the CARB amendments effectively mirror EPA’s Tier 2 standards, they essentially impose no costs beyond those previously estimated by EPA in its rulemaking. Finally, given the identical state and federal emission standards and virtually identical state and federal certification and test procedures, manufacturers will be able to use the same test engines to determine compliance.

EPA’s construct for “within the scope” determinations is an administrative creation that was developed to provide administrative efficiency and flexibility to the state (allowing California to obtain expedited and retroactive enforcement of its regulations) while guaranteeing fairness to affected stakeholders. As suggested above, CARB believes that the Administrator will provide fairness to all interested persons by providing them with an opportunity to request a hearing and present evidence to show that a within-the-scope confirmation is not appropriate and that there are issues to be addressed through a full authorization determination.³⁷

2. Alternative Construct for California Regulations that Harmonize with Federal Standards

In the alternative, if the Administrator concludes that the within-the-scope construct does not fit the circumstances surrounding regulations for which there is federal-California alignment, CARB respectfully requests that the Administrator develop a similar type construct that will enable California to retroactively enforce its regulations in these instances. When the State merely acts to align federal and state standards and requirements, affected stakeholders have clearly already been provided with due process on the issues in question, having fully participated in the California and federal rulemakings. This is especially true in the case of nonroad LSI engines, where EPA and CARB have adopted identical standards for the 2007-2009 model years. Moreover, whether or not within-the-scope confirmation or other form of authorization construct were granted to California, stakeholders would, nonetheless, still be required to fully comply with the federal harmonized standards, which are presently in effect.

CARB suggests that the harmonization construct be designed similarly to the within-the-scope construct, which would provide notice to affected stakeholders and the opportunity to request a hearing that could be granted at the discretion of the Administrator for good reason. Concurrently, CARB would be provided, as with a

³⁶ *LSI Authorization*, 71 Fed.Reg. 29623 (May 23, 2006); see definition of “LSI Engines” and “Off-Road Vehicle” or “Off-Road Equipment,” sections (a)(28) and (29), title 13, CCR.

³⁷ 67 Fed.Reg. 68242 (November 8, 2002).

within-the-scope determination, with immediate and effective authority to implement and enforce retroactively the harmonized off-road regulations in California.

Retroactive enforcement should be allowed unless a stakeholder establishes basic unfairness. CARB believes that it would be difficult for a stakeholder to prove unfairness, given that manufacturers are required to meet the federal LSI emission standards and requirements anyway. The proposed construct would ensure fairness to stakeholders and would maximize federal and state efforts to address the serious air quality problems in California consistent with the intent of Congress. The construct would also ensure seamless administration of the aligning amendments of a regulation for which authorization has already been granted to California. The alternative would result in flip-flopping from CARB to EPA to CARB administration of the regulation. Changing of administrative authority would be confusing, inefficient, and unfair to the regulated stakeholder. Indeed, during the interim period between California's adoption of the regulatory amendments in 2006 and EPA's determination regarding the authorization, stakeholders have been voluntarily complying with the amendments, seeking both certificates of conformity from EPA and executive orders from CARB.

In summary, whether the Administrator concludes that this request should be considered as a within the scope determination or some new administrative construct that applies to harmonized regulations, the Administrator should grant California authority to fully and effectively enforce the amended 2007-2009 LSI Engine Standards.

3. Alternatively, the Administrator Must Grant a New Authorization

Alternatively, if the Administrator were to find that he cannot confirm that the amendments to the 2007-2009 LSI Engine standards fall within the scope of the previously granted authorization or cannot apply the suggested administrative construct for harmonized regulations, CARB requests that he grant a new authorization covering the amendments. As stated, in adopting these amendments, the Board found in Resolution 06-11 that California's emission standards for this classification, in the aggregate, are at least as protective of public health and welfare as applicable federal standards.³⁸ No basis exists for finding that CARB's protectiveness determination is arbitrary and capricious.

As the Administrator's analysis applies to CAA section 209(e)(2)(A)(ii), it is CARB's longstanding position that California continues to need its own nonroad engine and vehicle program to meet serious air pollution problems unique to the State. The Administrator has previously and consistently recognized California's compelling and extraordinary needs when granting both waivers for motor vehicles under section 209(b) and authorizations for California's nonroad regulations under section 209(e)(2).³⁹

³⁸ Enclosure 1.

³⁹ *Heavy-Duty OBD Waiver*, 73 Fed.Reg. 52042 (September 8, 2008); *LSI Authorization*, 71 Fed.Reg. 29623 (May 23, 2006).

The relevant inquiry under section 209(e)(2)(A)(ii), is whether California needs its own emission control program to meet compelling and extraordinary conditions, not whether any given standard is necessary to meet such conditions.⁴⁰ In approving waivers under section 209(b), the Administrator has determined that:

“compelling and extraordinary conditions” does not refer to levels of pollution directly, but primarily to the factors that tend to produce them: geographical and climatic conditions that, when combined with large numbers and high concentrations of automobiles, create serious air pollution problems.⁴¹

California and the South Coast and San Joaquin Valley air basins in particular continue to experience some of the worst air quality in the nation.⁴² The unique geographical and climatic conditions, and the tremendous growth in vehicle population and use that moved Congress to authorize California to establish separate vehicle standards in 1967, still exist today.

In the California Clean Air Act of 1988, the California Legislature found that despite the significant reductions in vehicle emissions which have been achieved in recent years, continued growth in population and vehicle miles traveled throughout California have the potential not only to prevent attainment of the state standards, but in some cases, to result in worsening of air quality.⁴³

In response to the undisputed severe air quality problems in California, the California Legislature authorized CARB to consider adopting standards and regulations for nonroad engines.⁴⁴ Given the serious air pollution problems California faces and the resultant need to achieve the maximum reductions in emissions, the California Legislature and CARB believe it is necessary to develop emission controls for nonroad sources as well as for motor vehicles.⁴⁵ CARB continues to find such nonroad engines to be significant emission sources for which more stringent emission controls are necessary to meet federal and state air quality standards.⁴⁶

By adding federal and state authority to regulate nonroad engines, Congress and California's Legislature, respectively, acknowledged the increasing importance of reducing emissions from all mobile sources, including nonroad engines. The Administrator has repeatedly agreed with CARB that California's continuing

⁴⁰ *Final 209(e) Rule*, 59 Fed.Reg. at 36982. The Administrator has recognized that even if such a standard by standard test were applied to California, it "would not be applicable to its fullest stringency due to the degree of discretion given to California in dealing with its mobile source pollution problems," (41 Fed.Reg. 44209, 44213, (October 7, 1976); 49 Fed.Reg. 18887, 18892 (May 3, 1984).)

⁴¹ See, e.g., 46 Fed.Reg. 2371, 26373 (May 12, 1981); 43 Fed.Reg. 32182 (July 25, 1978).

⁴² See e.g. *Approval and Promulgation of State Implementation Plans; California--South Coast*, 64 Fed.Reg. 1770, 1771 (January 12, 1999).

⁴³ California Health and Safety Code section 43000.5.

⁴⁴ California Health and Safety Code sections 43013 and 43018.

⁴⁵ See California Health and Safety Code sections 41750, 41754, 43000.5, 43013 and 43018.

⁴⁶ Resolution 00-3. See also Staff Report at pp. 51-56.

extraordinary conditions justify separate California nonroad programs.⁴⁷ Nothing in these conditions has changed to warrant a change in this determination.⁴⁸ Accordingly, for all the aforementioned reasons, there can be no doubt of the continuing existence of compelling and extraordinary conditions justifying California's need for its own nonroad vehicle and engine emissions control program.

Finally, for the reasons previously outlined above in section VII.A.1., the adopted 2007-2009 LSI Engine Standards are fully consistent with CAA sections 209(b)(1)(C) and 202(a).

B. CARB's Adoption of New Standards for 2010 and Later Model Years and Accompanying Enforcement Procedures for LSI Engines and Equipment Above 19 kW (2010 LSI Engine Standards) Are Entitled to Authorization

1. The Adopted 2010 LSI Engine Standards Are Not Preempted

Section 209(e)(1) of the Clean Air Act preempts all states, including California, from establishing emission standards and other related requirements for new engines under 175 horsepower used in farm and construction equipment. The 2010 LSI Engine Standards are not emission standards or other requirements related to the control of emissions for new engines under 175 horsepower that are primarily used in farm or construction equipment or vehicles. The LSI regulation specifically excludes engines that fall within the scope of the farm and construction preemption of section 209(e)(1).⁴⁹ Moreover, the 2010 LSI standards apply to those engines greater than 1.0 liter displacement for which California received EPA's approval in its 2006 authorization decision.⁵⁰

2. Protectiveness Determination for 2010 LSI Engine Standards Is Not Arbitrary or Capricious

In Resolution 06-11, the Board, acting on behalf of the State, determined that the 2010 LSI Engine Standards, among other elements of the 2006 rulemaking, will be, in the aggregate, at least as protective of public health and welfare as applicable federal standards. In adopting the final LSI Regulations, the Board's Executive Officer reaffirmed the protectiveness and other waiver-related determinations based on the information available at that time.⁵¹ Both the Board's protectiveness determination and the Executive Officer's reaffirmation of it were easily assessed and confirmed because for 2010 and later model-year LSI engines, California's standard for HC+NOx at 0.8 g/kW-hr is more stringent than applicable federal standard at 2.0 g/kW-hr and California's other LSI engine standards are equivalent to federal standards for these

⁴⁷ *Utility Authorization*, Decision Document, at p. 33; *OHRV Authorization*, Decision Document, at pp. 27-29; and *HDOR Authorization*, Decision Document, at pp. 16-18.

⁴⁸ See *Heavy-Duty OBD Waiver*, 73 Fed.Reg. 52042 (September 8, 2008).

⁴⁹ Sections 2430 and 2431 (a)(28).

⁵⁰ 71 Fed.Reg. 29623 (May 23, 2006).

⁵¹ Executive Order R-07-001, March 2, 2007 (Enclosure 2).

model years. Accordingly, California's LSI program remains at least as stringent as applicable federal regulations, a conclusion that clearly is not arbitrary or capricious.

3. 2010 LSI Engine Standards Are Necessary to Meet Compelling and Extraordinary Circumstances

For the reasons set forth in section VII.A.3. above, California's needs its own nonroad engine and vehicle programs to meet serious air pollution problems unique to the State.

4. Consistency of 2010 LSI Engine Standards with CAA Section 209

The 2010 LSI Engines Standards are fully consistent with CAA section 209. As EPA noted in approving CARB's initial LSI engine standards, EPA has interpreted the consistency requirement for off-road vehicles and engines to mean that California standards and accompanying enforcement procedures must be consistent with federal Clean Air Act sections 209(a), 209(e)(1), and 209(b)(1)(C).⁵²

To be consistent with section 209(a) California's nonroad standards and enforcement procedures must not apply to new motor vehicles or new motor vehicle engines. The LSI regulation specifically applies only to off-road vehicles and does not apply to engines used in motor vehicles as defined in CAA section 216(2).⁵³ Additionally, the Board ensured consistency under section 209(e)(1), by specifically excluding new off-road engines under 175 horsepower primarily used in farm and construction vehicles and equipment from the definition of off-road LSI engines.⁵⁴

As set forth below, the 2010 LSI Engine Standards are consistent with section 209(b)(1)(C).

a. Technological Feasibility and Lead Time

As stated, in make determinations under section 209(b)(1)(C), the Administrator has relied upon federal court decisions applying the requirements of section 202(a)(2) to federal standards. Section 202(a)(2) provides that a regulation shall take effect after such period as necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance. The leading federal cases construing section 202(a)(2) are *Natural Resources Defense Council v. EPA*⁵⁵ and *International Harvester Co. v. Ruckelshaus*.⁵⁶

⁵² 71 Fed.Reg. 29621 (May 23, 2006), LSI Authorization Decision Document, at p. 3; see also 59 Fed.Reg. 36969, 36983 (July 20, 1994), and regulations set forth therein, 40 CFR Part 85, Subpart Q, §§ 85.1601 – 85.1606.

⁵³ Section 2431(a)(29), title 13, CCR.

⁵⁴ Sections 2431(a)(28), title 13, CCR.

⁵⁵ 655 F.2d 318 (D.C. Cir. 1981) (*NRDC*).

⁵⁶ 478 F.2d 615 (D.C. Cir. 1973) (*International Harvester*).

NRDC and *International Harvester* make clear that Congress intended EPA to project future advances in pollution control technology rather than be limited to the technology existing when the standards were set.⁵⁷ The *NRDC* Court noted that a longer lead time "gives the EPA greater scope for confidence that theoretical solutions will be translated successfully into mechanical realization."⁵⁸ In addition, "[t]he presence of substantial mass production of a chosen prototype gives the agency greater leeway to modify its standards if the actual future course of technology diverges from expectation."⁵⁹ The court concluded:

We think that the EPA will have demonstrated the reasonableness of its basis for prediction if it answers any theoretical objections to the [projected control technology], identifies the major steps necessary in refinement of the [technology], and offers plausible reasons for believing that each of those steps can be completed in the time available.⁶⁰

CARB's adopted 2010 LSI Engine Standards satisfy the criteria set forth in the *International Harvester* and *NRDC* cases. In both its Staff Report and FSOR,⁶¹ CARB has demonstrated that either the necessary technology presently exists to meet the established objections raised by industry regarding that technology, and has explained its reasons for believing that each of the steps can be completed in the time available.⁶²

CARB anticipated that to meet the 2010 LSI Engine Standard manufacturers would use advanced technologies and base emissions on the curve represented on page 5 above. This is consistent with EPA's establishment of optional Blue Sky standards that were yet more stringent than CARB's 2010 LSI Engine Standards. In establishing the Blue Sky standards, EPA recognized the potential to achieve extremely low HC+NOx emission levels. In discussing the Blue Sky standards, U.S. EPA stated "manufacturers may be able to use technologies such as advanced fuel injection, electronic controls, and catalytic converters that automotive manufacturers have already developed to achieve extremely low emission levels."⁶³

As ARB noted in the FSOR for the 2006 rulemaking, within six months of CARB's May 2006 Board hearing, manufacturers were in the process of certifying to the 2010 LSI Engine Standards at 0.8 g/kW-hr for HC + NOx.⁶⁴ For the 2007 and 2008 model years, six manufacturers certified 11 LSI engine families to the 0.8 g/kW-hr standard for use in forklifts, tractors, aerial lifts, sweepers, tractor/tugs, generators, compressors, and other industrial equipment, fueled by either gasoline or liquid petroleum gas (LPG). These certifications have been achieved through use of technologies for gasoline and

⁵⁷ 655 F.2d at 328 and 478 F.2d at 628.

⁵⁸ *Id.* at 329.

⁵⁹ *Id.*

⁶⁰ *Id.* at 331-332.

⁶¹ Enclosures 5 and 6, respectively.

⁶² *International Harvester* at 331-332.

⁶³ U.S. EPA Draft Regulatory Support Document, September 2002, Public Docket EPA-HQ-OAR-2001-0014.

⁶⁴ FSOR at pp. 20-21, Enclosure 5.

LPG fueled engines such as three-way catalytic converters, heated oxygen sensors, sequential and non-sequential multiport fuel injection, and as applied specifically to LPG engines, gaseous fuel mixers and throttle body injection. These certifications demonstrate that the technologies presently exist and that lead time is adequate to meet the 2010 LSI Engine Standards.⁶⁵

b. Consistency of Test Procedures

The 2010 LSI Engine Standards are consistent with CAA sections 209(b)(1)(C) or 202(a) if the state and federal test procedures do not impose certification requirements that make it impossible for a manufacturer to meet both sets of requirements with the same test vehicle or engine. CARB's certification and test procedures for 2010 and later model years are principally based on the federal LSI test procedures.⁶⁶ To the extent that the California test procedures differ from the federal procedures, CARB received no comments from affected stakeholders that certification with CARB's certification and test procedures, would impose inconsistent requirements. Accordingly, CARB believes that the second prong of the section 202(a) consistency test is satisfied.⁶⁷

C. The Optional Certification LSI Engine Standards for 2007-2009 and 2010 and Later Model Years Are Not Emission Standards Requiring Authorization

The optional emission standards that are numerically lower than the 2007-2009 and 2010 and later model years are not mandatory compliance requirements that require authorization. As stated, the requirements are intended to provide manufacturers that produce cleaner engines an opportunity to certify at lower emission levels and thereby make an LSI engine certified to the optional standards a potentially more desirable product to fleet owners who must meet the rulemaking's in-use Fleet Requirements.

Authorization is not required for these optional emission standards in that manufacturers have been provided with an alternative, technically feasible compliance path to meet both the 2007-2009 and 2010 model year emission standards.⁶⁸

⁶⁵ See <http://www.arb.ca.gov/msprog/offroad/cert/cert.php> for the CARB Executive Orders that certify these engine families.

⁶⁶ CARB's changes to the federal test procedures are fully described in the ISOR and FSOR; enclosures 4 and 7; see ISOR at Appendix A, Part 5.

⁶⁷ These procedures also constitute CARB's accompanying enforcement requirements in that certification is required prior to sale of the LSI engines in California. While the procedures require CARB certification in place of, or in addition to, federal certification, the procedures do not mandate the use of incompatible test procedures. For this reasons the Administrator's granting of authorization for the associated enforcement requirements is appropriate.

⁶⁸ See *Motor and Equipment Mfrs. Ass'n, Inc. v. Environmental Protection Agency (MEMA II)*, 627 F.2d 1128, 1132 (D.C. Cir. 1979) (a regulatory compliance option is only a mandate that can result in a denial of a waiver if the regulation does not specify another technically feasible compliance option.)

D. CARB's Adoption of Large Spark-Ignition Engine Fleet Requirements for Forklifts and Other Industrial Equipment with Nonroad LSI Engines Above 19 kW (Fleet Requirements) Are Entitled to Authorization⁶⁹

The Administrator must grant California authorization for its in-use Fleet Requirements as no basis exists under the criteria set forth in CAA section 209(e)(2) for the Administrator to deny California's request.

1. CARB's Protectiveness Determination for the Fleet Requirements Is Not Arbitrary or Capricious

The Board, in Resolution 06-11, specifically found that the adopted Fleet Requirements, when considered together with other amendments to the LSI regulation, were, in the aggregate, at least as protective of public health and welfare as applicable federal standards. The Board's protectiveness determination in Resolution 06-11 is supported by the anticipated modernization of off-road LSI engine fleets that will occur through purchases of new equipment and engines that meet either the 2007-2009 or the 2010 LSI Engine Standards and/or through the installation of verified aftermarket retrofit emission control systems on these engines and equipment.⁷⁰ The Board's determination is further supported because there are no corresponding federal standards or requirements for in-use LSI engines or equipment. Indeed, California is the only governmental jurisdiction in the nation entrusted with authority to adopt emission standards and other emission-related requirements for in-use nonroad engines.⁷¹ For these reasons, no basis exists for the Administrator to find that the Board's protectiveness determination is arbitrary and capricious.

2. Fleet Requirements Necessary to Meet Compelling and Extraordinary Circumstances

For the reasons set forth in section VII.A.3. above, the Board also reaffirmed in Resolution 06-11 its longstanding position that California continues to need its own off-road engine and vehicle program to meet serious air pollution problems confronting the State.⁷²

⁶⁹ Arguably, fleet owners could meet the NOx fleet average requirements using engines that have been certified to California's emission standards for new LSI engines. However, CARB is requesting a new authorization in recognition that full compliance with the in-use fleet average requirements will often be accomplished either in part or in full with the use of the retrofit technologies that will be verified with the verification procedure adopted by the California in sections 2780-2789, title 13, CCR. The fleet average requirements are not presently covered by an existing authorization. In taking this position, CARB, however, does not waive any future arguments that compliance with in-use regulatory requirements fall within the scope of previously granted authorizations.

⁷⁰ See ISOR Appendix B, Part 2, Enclosure 4.

⁷¹ Section 213, CAA. Also see discussion in *EMA*, 88 F.3d at 1089-1090.

⁷² See *Utility Authorization* 60 Fed.Reg. 37440, 37441 (July 20, 1995) and *LSI Authorization*, 71 Fed.Reg. 29623, 29624.

3. Consistency of LSI Fleet Requirements with CAA Section 209

The Fleet Requirements are consistent with CAA section 209(a). As with the LSI new engine standards, the Fleet Requirements expressly apply only to off-road vehicles and equipment and do not apply to new motor vehicles or motor vehicle engines as defined in CAA section 216(2).⁷³ The Fleet Requirements are also consistent with CAA section 209(e)(1). As with the LSI engine standards described and discussed above, the Fleet Requirements expressly exclude vehicles and equipment with off-road engines that are preempted under section 209(e)(1)(A).⁷⁴

Finally, for the reasons set forth below, the Fleet Requirements are consistent with sections 209(b)(1)(C) and 202(a)(2). As stated, under section 202(a)(2), the Administrator has developed a two-prong test that considers: (1) whether there is sufficient lead time to permit the development of technology necessary to meet the standards and other requirements, giving appropriate consideration to the cost of compliance in the time frame provided and (2) whether the California and federal test procedures are sufficiently compatible to permit manufacturers to meet both the state and federal test requirements with one test vehicle or engine.

a. Technological Feasibility and Lead Time

The reference to "cost of compliance" in CAA section 202(a) refers to the economic costs to develop the requisite technology to meet the regulation's requirements in the time provided for compliance rather than to the social impact of the costs of the regulation. EPA has traditionally deferred to California's judgments on these latter costs. In *EPA's Final 209(e) Rule*, EPA carried over this analysis to new and in-use nonroad engines. As described above in discussing the LSI new engine standards, manufacturers of new off-road engines will be able to develop the technology necessary in the time required for compliance consistent with section 202(a). CARB has similarly determined that the technology for manufacturers to verify retrofit devices for LSI engines is technically feasible giving consideration to costs. Separate and apart from the section 202(a) analysis, CARB further considered and found that the purchasers of these products, the fleet owners, will be able to absorb or pass on their costs under this regulation to their customers.

The Fleet Requirements in sections 2775, 2775.1, and 2775.2 have been set so that they become progressively more stringent over the years to ensure that fleets modernize to achieve the emission reductions necessary to meet the goals of California's 2003 SIP. The Fleet Requirements provide the fleet operator with flexibility to use any combination of retrofits, lower-emission purchases, and zero-emission electric purchases to meet the fleet-average emission levels. A detailed discussion of

⁷³ Sections 2775(a) and (c), title 13, CCR.

⁷⁴ See definition of LSI Engines at sections 2775(c), title 13, CCR; see *Final 209(e) Rule*, 59 Fed. Reg. 36969, 36983 (July 20, 1994).

various compliance scenarios identified by CARB is found in Appendix B.2 of the ISOR.⁷⁵

Depending on the options available to, and chosen by, fleet operators, estimated incremental capital costs vary as presented in the table below:

Incremental Capital Cost

| Compliance Option | |
|-------------------|-------------------|
| Retrofit | \$3,500 |
| Lower-Emission | \$30 - \$80 |
| Zero-Emission | \$1,500 - \$5,000 |

As noted in the ISOR, the incremental capital cost for equipment does not account for the reduction in fuel use and maintenance costs that are expected to occur with retrofitted and zero-emission equipment. Cost savings from lowered fuel use and lessened maintenance may exceed the incremental capital costs projected above.⁷⁶

Additionally, in recognition of the costs of compliance, the fleet requirements apply selectively to California LSI fleets and provide several exemptions. Most significantly, the fleet requirements apply to operators of large fleets (26+ units) and medium fleets (4-25 units) of forklifts, sweeper/scrubbers, GSE, and industrial tow tractors.⁷⁷ Large fleet operators are required to meet more stringent fleet averages over time than medium fleet operators in recognition of opportunities for greater flexibility in large fleets to incorporate combinations of emission-reduction strategies. The fleet average requirements for non-forklift fleets (4+ units) are also less stringent in recognition that fewer zero- and low-emission technologies may be available for non-forklift fleets. Small fleet operators (1-3 units) are exempted from the fleet requirements. Fleets of forklifts, sweepers/scrubbers, and industrial tow tractors used in agricultural crop-preparation services are subject to less stringent fleet average requirements and may use an alternative compliance option in recognition of cost issues unique to agriculture.⁷⁸ Additional exemptions apply to low-hours-of-use equipment and specialty equipment.⁷⁹

The technologies for those operators who choose retrofit options are available at the levels specified in the retrofit verification procedures and represented in the table below:

⁷⁵ ISOR, Enclosure 4.

⁷⁶ *Id.*, p. 25.

⁷⁷ See p. 9, *infra*.

⁷⁸ Section 2775.1, Enclosure 3, pp. 21-22.

⁷⁹ *Id.*

LSI Engine Retrofit System Verification Levels

| <i>Classification</i> | <i>Percentage Reduction (HC+NOx)</i> | <i>Absolute Emissions (HC+NOx)</i> |
|--------------------------------|--|--|
| LSI Level 1 ⁽¹⁾ | > 25% ⁽²⁾ | Not Applicable |
| LSI Level 2 ⁽¹⁾ | > 75% ⁽³⁾ | 3.0 g/bhp-hr ⁽³⁾ |
| LSI Level 3a ⁽¹⁾ | > 85% ⁽⁴⁾ | 0.5, 1.0, 1.5, 2.0, 2.5 g/bhp- hr |
| LSI Level 3b ⁽⁵⁾ | Not Applicable | 0.5, 1.0, 1.5, 2.0 g/bhp-hr |

Notes:

- (1) Applicable to uncontrolled engines only
- (2) The allowed verified emissions reduction is capped at 25% regardless of actual emission test values
- (3) The allowed verified reduction for LSI Level 2 is capped at 75% or 3.0 g/bhp-hr regardless of actual emission test values
- (4) Verified in 5% increments, applicable to LSI Level 3a classifications only
- (5) Applicable to emission-controlled engines only

The following technologies have been CARB verified under the retrofit verification procedure, demonstrating the technological feasibility and sufficiency of lead time for the fleet requirements' retrofit strategy:

EXECUTIVE ORDER G-08-007

| Executive Order Date | Level 3a | Manufacturer | Emission Control System |
|-------------------------|---|------------------------|----------------------------|
| 6/16/2008 | 1.0 g/bhp-hr of NOx and HC 1.3g/kW-hr of NOx and HC | Engine Control Systems | TermiNOx™ |

EXECUTIVE ORDER G-07-019

| Executive Order Date | Level 3a | Manufacturer | Emission Control System |
|-------------------------|---|------------------------|----------------------------|
| 6/25/2007 | 1.0 g/bhp-hr of NOx and HC 1.3g/kW-hr of NOx and HC | Engine Control Systems | TermiNOx™ |

The TermiNOx™ systems for Engine Control Systems employ engine management diagnostics controllers with closed-loop catalytic control of nitrogen oxides, hydrocarbon and carbon monoxide to achieve emission reductions qualifying them as Level 3a verifications for use on uncontrolled large spark ignited equipment.

EXECUTIVE ORDER G-08-005

| Executive Order Date | Level 3a | Manufacturer | Emission Control System |
|----------------------|--|------------------------|-------------------------|
| 6/16/2008 | 1.5 g/bhp-hr of NOx and HC 2.0g/kW-hr of NOx and HC | Nett Technologies Inc. | Nett® BlueCAT 200™ |

The Nett® BlueCAT 200™ system maintains optimal air / fuel ratios at all engine-operating conditions and maximizes the three-way catalyst for emission reductions of nitrogen oxides, hydrocarbon and carbon monoxide. The emissions reduced qualify it as a Level 3a verification for use on uncontrolled large spark ignited equipment.

EXECUTIVE ORDER G-07-017

| Executive Order Date | Level 3a | Manufacturer | Emission Control System |
|----------------------|--|------------------------|-------------------------|
| 6/1/2007 | 1.0 g/bhp-hr of NOx and HC 1.3g/kW-hr of NOx and HC | Nett Technologies Inc. | Nett® BlueCAT 300™ |

Nett® BlueCAT 300™ is appropriate for use on transient and constant speed applications. The system maintains optimal air / fuel ratios at all engine-operating conditions and maximizes the three-way catalyst for emission reductions of nitrogen oxides, hydrocarbon and carbon monoxide. The emissions reduced qualify it as a Level 3a verification for use on uncontrolled large spark ignited equipment.

EXECUTIVE ORDER G-08-008

| Executive Order Date | Level 2 | Manufacturer | Emission Control System |
|----------------------|-----------------------------|-------------------------|-------------------------|
| 6/16/2008 | 3.0 g/bhp-hr 4.0 g/kW-hr | Engine Control Systems. | TerminoX™ |

EXECUTIVE ORDER G-07-066

| Executive Order Date | Level 2 | Manufacturer | Emission Control System |
|----------------------|-----------------------------|------------------------|-------------------------|
| 11/1/2007 | 3.0 g/bhp-hr 4.0 g/kW-hr | Engine Control Systems | TerminoX™ |

The TerminoX™ emission control systems from Engine Control Systems are for use on uncontrolled equipment applications sizes greater than 3.0 liters up to 8.2 liters. The TerminoX™ emission control systems employ engine management diagnostics

controllers with closed-loop catalytic control of nitrogen oxides, hydrocarbon and carbon monoxide to achieve emission reductions qualifying it for Level 2 verification.

The fleet requirements are also supported by the availability of new forklifts and other off-road non-forklift equipment with new California certified engines that significantly lower NOx emissions. The certifications of a number of LSI engine families to 2010 LSI Engine Standards beginning in the 2007 model year have made the option of meeting the Fleet Requirements with new purchases of 0.8 g/kW-hr engines and equipment technologically feasible within the lead time provided.⁸⁰ The new 0.8 g/kW-hr engines are also available to repower in-use forklifts and non-forklift equipment. Additionally, as when the rulemaking was considered by CARB in 2006, electric forklifts continue to be available to meet the Fleet Requirements.⁸¹

Lastly, if operators of large or medium fleets find that retrofits are not available for particular engines and equipment combination, CARB's Executive Officer may grant compliance extensions to the fleet operators as specified.⁸²

b. Compatible Test Procedures

The Fleet Requirements raise no issue regarding incompatibility between California and federal test procedures because there are no federal test procedures for retrofit technologies for LSI engines. The California's LSI retrofit verification procedure is a unique test procedure. Fleet owners themselves are not required to conduct any independent verification testing. The retrofit verification procedure is a voluntary program available to guide LSI retrofit device manufacturers who seek to have their products verified by CARB.

4. Accompanying Enforcement Requirements Must Be Granted Authorization

The Fleet Requirements include several associated enforcement requirements for maintaining records at the fleet operator's facility: a fleet baseline inventory; ongoing records of equipment type, make, model, serial number, and emission certification standards or retrofit verification levels; and fuel quality records if propane fueled equipment is in the fleet.⁸³ These compliance requirements strengthen the in-use performance standards of the Fleet Requirements without affecting the technological feasibility of the requirements or mandating the use of incompatible test procedures. For these reasons, the Administrator's granting of authorization to California for the associated enforcement requirements is appropriate.

⁸⁰ *Infra*, p. 23.

⁸¹ ISOR, Enclosure 4.

⁸² Section 2775.2, Enclosure 3, pp. 24-25.

⁸³ Section 2775.2, Enclosure 3, pp. 23-25.

V. CONCLUSION

Based on the foregoing, CARB respectfully request that the Administrator grant California's request for the authorization determinations described above for the Off-Road Emissions Standards Regulation for Large Spark-Ignition (LSI) Engines and Fleet Requirements for In-Use LSI Forklifts and Other Industrial Equipment. The following documents pertaining to the 2006 rulemaking covered by this request are enclosed on compact disc:

1. Board Resolution 06-11, May 25, 2006.
2. Executive Order R-07-001, March 2, 2007.
3. Secretary of State Face Sheet and Final Regulation Order, effective May 12, 2007.
4. Notice of Public Hearing to Consider Adoption of, and Staff Report for, New Emission Standards, Fleet Requirements, and Test Procedures for Forklifts and Other Industrial Equipment [Initial Statement of Reasons (ISOR)], both issued March 3, 2006.
5. Notice of Availability of Modified Text, issued December 1, 2006.
6. Notice of Availability of Modified Text, issued February 1, 2007.
7. Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Responses [FSOR], filed March 2, 2007.
8. CARB Staff's Presentation, May 25, 2006.
9. May 25, 2006, Air Resources Board Hearing Transcript.

