

## UPDATED INFORMATIVE DIGEST

### AMENDMENTS TO THE REGULATIONS FOR IN-USE OFF-ROAD DIESEL-FUELED FLEETS AND OFF-ROAD LARGE SPARK IGNITION ENGINE FLEET REQUIREMENTS

#### Off-Road Regulation

##### *Sections Affected*

Adopted amendments to California Code of Regulations, title 13, sections 2449, 2449.1, 2449.2, and 2449.3, the regulation for In-Use Off-Road Diesel Vehicles (Off-Road regulation).

##### *Background*

The Off-Road regulation is intended to significantly reduce emissions of diesel particulate matter (PM) and oxides of nitrogen (NO<sub>x</sub>) from the nearly 150,000 in-use off-road diesel vehicles that operate in California and consequently significantly reduce the public's exposure to these pollutants and their by-products. The Off-Road regulation is structured to achieve these environmental benefits by requiring fleet owners of in-use off-road diesel vehicles to reduce emissions from their fleets by accelerating the use of newer, cleaner engines. Fleet owners may also choose to comply by installing exhaust retrofits in their vehicles. The Off-Road regulation was designed to support the Diesel Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, which was adopted by the Board on September 30, 2000, as well as the 2007 State Implementation Plans (SIPs) for the South Coast and San Joaquin Valley air basins.

The Off-Road regulation was originally approved by the Air Resources Board (Board or ARB) on July 26, 2007, and became effective on June 15, 2008. Additional amendments were approved by the Board on December 11, 2008, and January 26, 2009, and became effective on January 8, 2010, and January 1, 2010, respectively. On February 20, 2009, the Governor signed Assembly Bill 8 2X (AB 8 2X) in which the Legislature added section 43018.2 to the Health and Safety Code, directing ARB to amend the Off-Road regulation. The Board approved the AB 8 2X amendments and additional minor amendments to the Off-Road regulation on July 23, 2009. The AB 8 2X amendments became effective on December 3, 2009 (the AB 8 2X amendments were exempt from the Administrative Procedure Act and Office of Administrative Law review); the additional amendments approved by the Board in July 2009 became effective on August 15, 2010.

## *Description of the Regulatory Action*

### *1. Applicability Section*

The amendments adopted have restructured section 2449(b) to specifically list the vehicle and engine types affected by the Off-Road regulation.

Among the vehicles and engines listed are both engines of all off-road and on-road two-engine vehicles, except for the following:

- Two-engine on-road sweepers regulated by the Truck and Bus regulation;
- Vehicles already subject to the Public Agencies and Utilities regulation (PAU regulation); and
- Two-engine vehicles that have Tier 0 auxiliary engines and were not previously included in the Off-Road regulation.

### *2. Two-Engine Vehicle Requirements*

ARB adopted the following language to address two-engine vehicles:

- A definition for two-engine vehicles (section 2449(c)(57));
- Inclusion of two-engine vehicles in the definitions and coverage of the year-by-year and permanent low-use definitions (sections 2449(c)(39) and (63));
- Reference to two-engine vehicles has been added to the rounding provisions of the regulation to show how rounding applies to such vehicles and engines (section 2449(e));
- A requirement that all two-engine vehicles must initially begin filing reports to ARB starting on March 1, 2012 (section 2449(g)(1)); and
- A provision excluding the horsepower of two-engine vehicles from the SOON program (section 2449.2(b)(2)(C)).

### *3. Definitions*

In addition to the definitions described above that apply to two-engine vehicles, the definitions in section 2449(c), have been modified as follows:

- Modified the “captive attainment area fleet” definition (section 2449(c)(6)) to: address the proposed major modification to combine the PM and NOx fleet average and BACT requirements, include Northern Sonoma County in the list of counties, and clarify that state and federally owned fleets cannot be considered captive attainment area fleets, since those fleets are required to meet the large fleet requirements;
- Added a definition of “fleet portion” under the fleet definition in section 2449(c)(20).
- Added a definition for “flexibility engine” (section 2449(c)(25)), and removed the definition of a “post-2007 flexibility engine,” formerly section 2449(c)(39).
- Deleted the definition for “low-use vehicle” (section 2449(c)(32)), and added definitions for “permanent low-use vehicle” (section 2449(c)(39)) and “year-by-year low-use vehicle” (section 2449(c)(63)) to clarify that there are two types of

low-use vehicles under the regulation.

- Modified the definition of “retire” in section 2449(c)(45) to “retire or retirement”, which clarifies that retire and retirement have the same meaning in the regulation. Staff also clarified in this definition that the return of a rented or leased vehicle by a fleet to a rental or leasing company is not considered to be a retirement, and that similarly, the rental or leasing of a vehicle by a rental or leasing company does not count as a retirement for the rental or leasing company.
- Modified the “turnover” definition in section 2449(c)(55) to remove NOx VDECS from this definition. Additionally, staff also clarified that rented or leased vehicles that are returned to a rental or leasing company do not count as turnover for the lessee, and that similarly, vehicles leased or rented out by a rental or leasing company do not count as turnover for the rental or leasing company.

#### *4. Increase Low-Use Threshold*

The low-use threshold described in sections 2449(c)(39) and (63) has been increased for both permanent low-use vehicles and year-to-year low-use vehicles from 100 hours annually to 200 hours annually.

#### *5. New Provisions for Fleets Under 500 Horsepower*

A new provision (section 2449(e)(16)) has been added to allow fleets with under 500 horsepower the option to comply with the requirements of the regulation solely by phasing out their Tier 0 and Tier 1 vehicles over a prescribed schedule between 2019 and 2029.

#### *6. Public Funds for Purchases, Repowers, or Retrofits*

New section 2449(e)(17) has been added to clarify that if a fleet receives public funding to replace, repower, or retrofit a vehicle subject to the Off-Road regulation, credit towards the BACT and fleet average requirements will be awarded in accordance with the applicable funding guidelines. In addition, section 2449(g)(1)(H) of the reporting requirements was also added to require the reporting of additional information on this funded equipment.

#### *7. Delay Initial Compliance Dates*

Section 2449.1(a) has been amended to delay the initial compliance date of the Off-Road regulation for all fleets as described below:

- Large fleets: from March 1, 2010, to January 1, 2014,
- Medium fleets: from March 1, 2013, to January 1, 2017, and
- Small fleets: from March 1, 2015, to January 1, 2019.

The regulation has been amended throughout to reflect that compliance dates would begin January 1 rather than March 1 of each year.

### *8. New Combined PM and NOx Fleet Average Requirements*

Sections 2449.1 and 2449.2 have been amended to combine the PM and NOx fleet average targets under section 2449.1. The amended fleet average targets are based on the fleet's NOx fleet average. Considering the new singular fleet average, section 2449.2 was deleted completely. The targets in section 2449.3 (now 2449.2) for the Surplus Off-Road Opt-in for NOx (SOON) program were revised to be more consistent with the amended fleet targets.

In addition, the final compliance date for large and medium fleets has been changed to January 1, 2024 (from March 1, 2020), and for small fleets to January 1, 2029 (from March 1, 2025). Since the PM requirements of the regulation have been deleted, there are no final PM compliance requirements. Section 2449.1(a)(1)(A)1. has been amended to increase the stringency of the final fleet average targets.

### *9. Combine the Best Available Control Technology (BACT) Requirements*

Sections 2449.1 and 2449.2 have been amended to combine the PM and NOx BACT requirements (with section 2449.2 being deleted completely). The combined BACT requirements will require annual actions on no more than 4.8 to 10 percent of a fleet's horsepower (depending on year) in each year the fleet did not meet the fleet average target.

### *10. Restructuring and Clarifying the BACT Requirements*

Section 2449.1(b) has been restructured and modified to streamline the subsections, remove or combine unnecessary headings, and to group similar provisions together as a result of combining the PM and NOx sections 2449.1 and 2449.2. In addition to the restructuring of this section, clarifying language has been added to several provisions, as follows:

- Section 2449.1(b) has been amended to provide that BACT credits cannot be generated from vehicles that are exempt from the performance requirements.
- Section 2449.1(b)(1) has been amended to add an example of how a fleet calculates its BACT requirements each year.
- Section 2449(b)(2) has been amended to clarify the turnover exemption for vehicles with early VDECS installations by adding additional descriptive language.
- Section 2449.1(b)(4) has been amended to avoid requiring fleets to distinguish between Tier 1s with a PM standard and those without.
- Section 2449.1(b)(10) has been amended to provide an outline of how BACT credit is calculated for turnover and VDECS installations.
- Section 2449.1(b)(15) has been modified to further describe the calculations for early VDECS installations, and has extended the period during which a fleet may receive double credit for the installation of a VDECS until 12 months prior to the initial compliance deadline for that fleet.
- Section 2449.1(b)(16) has been amended to reduce each fleet's early retirement credits by 50 percent and provide that fleets may not use these early retirement

credits to satisfy all or part of their BACT requirements for the March 1, 2014, compliance date.

- Section 2449.1(b)(19) has been renamed to “Credit for 2010 to 2011 Reduced Fleet Hp” so it more appropriately describes the content of this section, and to clarify that low-use vehicles must also be included in the calculations (as also required by section 2449.1(b)(16)).
- Section 2449.1(b)(18) has been renamed to include “Retirement,” and to clarify that vehicles replaced under this section must be replaced with a vehicle containing a Tier 2 or higher engine.
- Former section 2449.1(a)(2)(A)6. has been deleted. That section described credits that were to be given for designating a vehicle as permanent low-use. Designating a vehicle as a permanent low-use vehicle is considered to be “turnover” (per section 2449(c)(55)), and is now included in the BACT calculations for turnover as described in section 2449.1(b)(10), and not as a separate subsection.
- Former section 2449.1(a)(2)(A)2.a.iv. has been deleted. That section described the reduced activity credit per AB 8 2X, which were scheduled to expire on March 1, 2011. Because these amendments would delay the initial requirements for fleets until January 1, 2014, staff removed the regulatory language implementing reduced activity credits.

#### *11. Excess PM VDECS Credits Used for Compliance with the Off-Road and Truck and Bus Regulations*

New section 2449.1(b)(11) has been added to allow fleets with vehicles in both the Off-Road regulation and Truck and Bus regulation (title 13, CCR, section 2025) to generate credits (called excess PM VDECS credits) when additional Level 3 PM VDECS are installed beyond the compliance requirements in either one of the two regulations in a given year. These credits may be transferred between the two regulations until January 1, 2017.

#### *12. Additional Minor Amendments*

The following minor amendments were made to the Off-Road regulation to clarify provisions, simplify compliance, and provide consistency with the major amendments discussed above. These amendments include, but are not limited to:

- Replaced the word “should” with “shall” wherever it appears in the regulation;
- Modified the flexibility engine provisions to simplify the reporting requirements for post-2007 flexibility engines and remove the requirement to account for such “flex” engines differently in the fleet average calculations;
- Clarified the alternative fuel regulatory language;
- Added additional incentives for electric vehicles;
- Removed the requirement for a fleet to show that a diesel vehicle was retired from the fleet within six months of the date a gasoline powered vehicle being added to the fleet;
- Included a provision to provide incentive for the use of hybrid vehicles;
- Removed the hours in fleet average compliance option;

- Added language to the new fleet provisions to clarify what requirements must be met by new fleets;
- Added language to the fleet transferred provisions that further describes the requirements that must be met by new and existing fleet owners who have acquired fleets (or fleet portions);
- Simplified the adding vehicle provisions;
- Added language to the VDECS removal provisions to clarify what happens if a VDECS is removed when it has not been damaged or otherwise failed;
- Combined the final compliance requirements for all fleets, and clarified that after the final compliance date, the turnover and retrofit exemptions are still applicable, and that fleets may no longer use accrued BACT carryover credits;
- Amended the compliance extension for equipment manufacturer or installer delays to reduce the lead time required for claiming this extension from four months to two months;
- Modified the reporting requirements to include the reporting of whether or not a vehicle has a VDECS safety exemption, and if the vehicle is exempt from the BACT requirements for the early installation of highest level PM VDECS;
- Modified the reporting deadlines for all fleets;
- Modified the labeling requirements for all vehicles; and
- Clarified the Compliance Certification process.

## **LSI Fleet Regulation**

### *Sections Affected*

Proposed amendments to CCR, title 13, sections 2775(b), 2775(d), 2775.1(a), (c)(3), (d)(1), (d)(2), and (e)(1)(B), 2775.2(b), and 2775.2(e)(1)(A), the Large Spark-Ignition (LSI) Engine Fleet Requirements regulation.

### *Background*

At its May 12, 2006, public meeting, ARB approved the Off-Road LSI Fleet Requirements Regulation (LSI Fleet Regulation) with the adoption of California Code of Regulations, title 13, sections 2775 through 2775.2. The LSI Regulation established fleet requirements for operators of in-use LSI fleets (the LSI fleet regulation).

The intent of the LSI fleet requirements was to reduce hydrocarbon and oxides of nitrogen (HC+NO<sub>x</sub>) emissions from the nearly 90,000 pieces of LSI equipment sold into and operating in the state by accelerating the introduction of new zero- and near zero-emissions equipment and the retrofit or retirement of uncontrolled in-use equipment.

The LSI fleet regulation affects any operator of four or more forklifts, sweepers/scrubbers, tugs, and GSE, the four largest categories of LSI engine equipment. These vehicles are found in thousands of fleets in California, in industries

as diverse as manufacturing, wholesale, transportation and utilities, retail, services, and construction, as well as public agencies.

The 2006 rulemaking required operators of in-use fleets to achieve specific HC+NOx fleet average emission level standards that are more stringent with fleet size and time. The standards are also more stringent for forklifts than they are for non-forklift LSI equipment. The stringency of the standards reflects the availability of retrofit devices for LSI equipment as well as the greater ability of large fleets to incorporate zero- and near zero-emission new and used equipment into their operations.

### *Description of the Regulatory Action*

#### *1. In-field Equipment Exemption*

Section 2775(b) has been amended to add subsection (4) exempting in-field equipment from the requirements of the regulation. This had always been the intent of the regulation, but had never been specified.

#### *2. Limited Hours of Use Provision*

Sections 2775.1(c)(3), (d)(1), (d)(2), and (e)(1) have been amended to reestablish the limited hours of use (LHU) exclusion for LSI equipment operated fewer hours than the yearly threshold described in the new LHU definition. Staff extended the LHU provisions for equipment operated no more hours than the threshold established in the LHU definition and clarified that operators desiring to exclude equipment under the LHU provisions must use non-resettable hour meters.

#### *3. Compliance Extension Provision*

Section 2775.2(e)(1)(A) has been amended to allow a two-year compliance extension with a provision for an additional two years in the event of non-availability of retrofit kits. After the extension(s) expire(s), the operator may no longer exclude the LSI equipment from the fleet average emission level standard and may have to retire or replace it to achieve the standard. Staff also clarified an incomplete reference in section 2775.2(e)(1)(A) to “subsections 2775.1(a), (c), and (d).

#### *4. Definitions*

The definitions in section 2775(d) have been modified as follows:

- Modified the “Agricultural Crop Preparation Services” definition (section 2775(d)(2)) to add a description of those agricultural crop preparation services associated with forest operations;
- Modified the “Airport Ground Support Equipment,” “Ground Service Equipment,” or “GSE” definition (section 2775(d)(4)) to eliminate the “other” category and limit the “cart” category so that it only allows electric carts into fleet average emission level standards calculations if they perform the work equivalent of an LSI engine-powered cart;

- Modified the “Baseline Inventory” definition (section 2775(d)(5)) to clarify that the baseline inventory requirement applies to all operated LSI equipment by replacing the word “owned” with the word “operated”;
- Modified the “Fleet Average Emission Level” definition (section 2775(d)(15)) to clarify, for fleet average emission level standards calculations, that: (1) the default emission rate for uncontrolled LSI equipment is 12.0 grams HC+NO<sub>x</sub> per brake horsepower-hour, (2) electric equipment of less than 19 kilowatts power may be included in calculations as long as it performs, with similar efficiency, the same function as an LSI engine-powered piece of equipment subject to the standards, and (3) “Boneyard” and “Retired equipment” shall be excluded from fleet average emission level calculations;
- Modified the “Operator” definition (section 2775(d)(34)) to clarify that only service equipment (regardless of usage) and operations equipment (operated above a 50 hour per year threshold) operated by equipment dealers and rental equipment company operators is subject to the FAEL standards calculations. Operations or rental equipment that is primarily intended for rental, lease, or sale and in the fleet of an equipment dealer or rental equipment company operator is not subject to the FAEL standards calculations; and
- Modified the “Uncontrolled LSI Engine” definition (section 2775(d)(45)) to specify the default emission rate for an uncontrolled engine in grams HC+NO<sub>x</sub> per brake horsepower-hour.

Several definitions in section 2775(d) were added, as follows:

- “Agricultural Operations” definition (section 2775(d)(3)) to clarify that forestry and nursery operations are considered agricultural operations;
- “Boneyard” definition (section 2775(d)(6)) to describe decommissioned equipment that could be excluded from fleet average emission level calculations;
- “Forest operations” definition (section 2775(d)(16)) to specify forest operations since it is referenced in the “Agricultural Operations” definition in the same section;
- “In-field equipment” definition (section 2775(d)(19)) to describe equipment that is exempt from the provisions of the regulation;
- “Limited Hours of Use equipment” definition (section 2775(d)(23)) describing the parameters that allow a piece of equipment to be excluded from the fleet average emission level calculations. ;
- “Operations equipment” definition (section 2775(d)(33)) since it is referenced in the “Operator” definition;
- “Retired equipment” definition (section 2775(d)(37)) to describe equipment that could be excluded from fleet average emission level calculations provided certain decommissioning steps are taken; and
- “Service equipment” definition (section 2775(d)(40)) since it is referenced in the “Operator” definition.



## *5. Record keeping Requirements*

The record keeping requirements in section 2775.2(b) have been amended to remove the fuel quality record-keeping requirement, and also clarified ARB's intent that the record keeping requirement apply to each piece of LSI equipment and that serial numbers be recorded for both engines and equipment.

## *6. Other Amendments*

In addition to the amendments listed above, staff also corrected errors that had been found since the December 2010 hearing, made consistent the use of certain terms, and streamlined the formatting throughout the regulation. All of these changes are intended to improve the clarity and to simplify the regulation by making the language more consistent and organized.

## **Comparable Federal Regulations**

### *Off-Road Regulation*

The United States Environmental Protection Agency (U.S. EPA) has promulgated federal emission standards for new non-road engines. However, no federal standards have been promulgated addressing emission reductions from in-use diesel vehicle engines.

Under section 209(e)(2), California may adopt and enforce emission standards and other requirements for off-road engines and equipment not expressly subject to federal preemption, so long as California applies for and receives authorization from the Administrator of U.S. EPA. California submitted its initial request for authorization on August 12, 2008, and filed a supplemental request on February 11, 2010. The U.S. EPA conducted hearings on the requests on October 27, 2008, and April 14, 2010. The requests for authorization are presently pending.

### *LSI Fleet Regulation*

In 2002, the U.S. EPA followed California's lead and adopted emission standards for new LSI engines (Volume 67, Federal Register, page 68242, November 8, 2002; title 40, Code of Federal Regulations, part 1048). As the preamble to the federal regulations notes, the federal regulations extend California's 1998 standards for new LSI engines to the rest of the United States in 2004 through 2006 and adopt more stringent standards for new LSI engines beginning in 2007.

In 2006, the ARB harmonized with the federal standards for new 2007 through 2009 model year LSI engines, but went a step further adopting more stringent California new engine standards that became effective January 1, 2010. The ARB also adopted fleet average emission level standards for operators of LSI engine-powered equipment. The federal regulations do not impose the more stringent 2010 new engine standards. They additionally do not impose requirements on fleet operators or on in-use engines.

Under section 209(e)(2), California may adopt and enforce emission standards and other requirements for off-road engines and equipment not expressly subject to federal preemption, so long as California applies for and receives authorization from the Administrator of U.S. EPA. California's request for authorization was submitted on December 10, 2008; the request for authorization is presently pending.