

Large Spark-Ignition (LSI) Engine Fleet Regulation



Fleet Requirements for Off-Road Large Spark-Ignition (LSI) Engine-Powered Forklifts and Other Industrial Equipment

In 2006, the California Air Resources Board (ARB) adopted, and later amended in 2010 and 2016, new regulations to reduce emissions from existing fleets operating large spark-ignited (LSI) engine powered equipment. This document provides information regarding the fleet average provisions for medium and large fleets (four or more forklifts or non-forklift equipment) and the 2016 amendments that require recordkeeping, reporting, and labeling.

What types of equipment are subject to the regulation?

Only forklifts, floor scrubbers and sweepers, airport ground support equipment (GSE), and industrial tow tractors with LSI engines of 25 horsepower (19 kilowatt) or greater, and greater than 1.0 liter displacement, including electric equipment are subject to the regulation. LSI engines are fueled with gasoline, propane, and compressed natural gas.

What are the reporting and labeling requirements?

- Report all equipment subject to a Fleet Average Emission Level (FAEL) beginning June 30, 2017 and until June 30, 2023;
- Label of each piece of equipment subject to a FAEL beginning June 30, 2017 and until June 30, 2023; and
- Maintain records until June 30, 2023.

How is equipment reported and labeled?

Equipment is reported into DOORS. DOORS is an on-line reporting system that has been used for many years by fleets that own and operate diesel off-road equipment. ARB has expanded DOORS to include a portal for LSI equipment which may be accessed at: https://ssl.arb.ca.gov/ssldoors/doors_reporting/doors_login.html

If fleets are unable to access the on-line reporting tool, they should contact ARB by phone at 1-877-59-DOORS (1-877-593-6677), or by email at doors@arb.ca.gov. Initial reporting is required by June 30, 2017, or if after June 30, 2017, within 60 days of a fleet becoming subject to the FAEL.

After a fleet reports their LSI equipment to ARB, each piece of equipment is assigned a unique Equipment Identification Number (EIN). The fleet must label its equipment within 30 days of receiving EINs. Note that ARB does not issue EIN labels; it is the fleet's responsibility to follow ARB's label specifications and to make or purchase the labels or placards, or paint the EINs on its equipment. ARB uses the same label specifications for both LSI and diesel off-road equipment; however, only one label is required for LSI equipment. More information on label specifications is available at <http://www.arb.ca.gov/msprog/offroad/orspark/lsireglang.htm>.

While this document is intended to assist fleets with their compliance efforts. It does not alter or modify the terms of any ARB regulation, is not a substitute for reading the regulation, nor does it constitute legal advice. It is the sole responsibility of fleets to ensure compliance with the Large Spark-Ignition Engine Fleet Requirements Regulation.

A list of label vendors is available at:
www.arb.ca.gov/msprog/ordiesel/labelvendors.htm.

What does the regulation require of off-road LSI fleets?

LSI fleets must meet the FAEL requirements in the table below.

Fleet Type	Number of units	Fleet Average Emission Level g/kw-hr (g/bhp-hr)		
		1/1/2009	1/1/2011	1/1/2013
Large forklift fleet	26+	3.2 (2.4)	2.3 (1.7)	1.5 (1.1)
Mid-size forklift fleet	4-25	3.5 (2.6)	2.7 (2.0)	1.9 (1.4)
Non-forklift fleet	4+	4.0 (3.0)	3.6 (2.7)	3.4 (2.5)

What actions can a fleet take to meet these requirements?

The quickest way for a fleet to reduce its fleet average is to phase out older equipment with newer used or new equipment that has engines already certified to the 2010 0.6 g/bhp-hr level. Uncontrolled equipment may be addressed through retrofit (available for 1990 and newer model year engines), or repower with a complying engine.

Fleets may also incorporate zero-emission equipment where feasible. The capabilities of zero emission equipment such as electric forklifts have increased dramatically in recent years with the advent of more powerful and energy-efficient alternating current traction motors, higher voltage batteries, waterproofing of electronics and batteries, and fast charging.

Are there any exemptions?

- Fleets with one to three pieces of forklift and/or non-forklift equipment are considered small fleets;
- In-field agricultural forklifts;
- Equipment that is leased or rented for a period of no more than 30 aggregated calendar days per year; and
- Off-road military tactical vehicles or equipment exempt under the federal national security exemption.

Where can I find more information about the regulation?

Further information, is available on the LSI regulation website at
<http://www.arb.ca.gov/msprog/offroad/orspark/orspark.htm>.

For additional general information:

Please contact ARB's DOORS Hotline toll-free at (877)593-6677.

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In-Use Off-Road Diesel-Fueled Fleets Regulation

Overview, Revised October 2016



The Off-Road Regulation Applies To:

All self-propelled off-road diesel vehicles 25 horsepower (hp) or greater used in California and most two-engine vehicles (except on-road two-engine sweepers) are subject to the Regulation for In-Use Off-Road Diesel Fueled Fleets (Off-Road regulation). This includes vehicles that are rented or leased (rental or leased fleets).

Personal use vehicles, vehicles used solely for agriculture, vehicles that are awaiting sale, and vehicles already covered by the Regulation for Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards (Cargo Handling regulation), are exempt from the Off-Road regulation.

Emergency operations vehicles, dedicated snow removal vehicles, low-use vehicles (used under 200 hours per year, as confirmed by a non-resettable hour meter), and vehicles used a majority of the time (but not solely) for agricultural operations, must be reported to ARB and labeled, but are exempt from the performance requirements of the Off-Road regulation.

Summary:

The overall purpose of the Off-Road regulation is to reduce emissions of oxides of nitrogen (NO_x) and particulate matter (PM) from off-road diesel vehicles operating within California. The Off-Road regulation:

- Imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all vehicles to be reported to ARB (using the Diesel Off-Road Online Reporting System, DOORS) and labeled;
- Restricts the adding of older vehicles into fleets starting on January 1, 2014; and
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies, VDECS (i.e., exhaust retrofits).

The requirements and compliance dates of the Off-Road regulation vary by fleet size. For a fleet to determine their size, it must add up all of the off-road horsepower under common ownership or control in the fleet.

Fleet Size Category	Description
Small	Fleet or municipality <= 2,500 hp, or Municipality fleet in low population county, captive attainment area fleet, or non-profit training center, regardless of total hp
Medium	Fleet with 2,501 to 5,000 hp
Large	Fleet with more than 5,000 hp, or All state and federal government fleets, regardless of total hp

Requirements Currently in Effect:

Effective June 2008 for All Fleets: Idling and Disclosure

The following requirements are in effect and being enforced:

Idling Limited to 5 Minutes – Fleets must limit their unnecessary idling to 5 minutes; there are exceptions for vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or in a queue waiting for work.

More information – www.arb.ca.gov/enf/advs/advs377.pdf

Written Idling Policy – Medium and large fleets must have a written idling policy.

More information – www.arb.ca.gov/enf/advs/advs391.pdf

Suggested language – www.arb.ca.gov/msprog/ordiesel/faq/idlepolicyfaq.pdf

Disclosure for Selling Vehicles – The seller (whether a dealer or a contractor with just one vehicle) must provide disclosure of the Off-Road regulation (exact language provided in the regulation) on the bill of sale or invoice, and must keep records that the disclosure was provided for three years after the sale. The seller must also report the vehicle sale to ARB via DOORS within 30 days of the sale.

More information and necessary language – www.arb.ca.gov/enf/advs/advs378.pdf

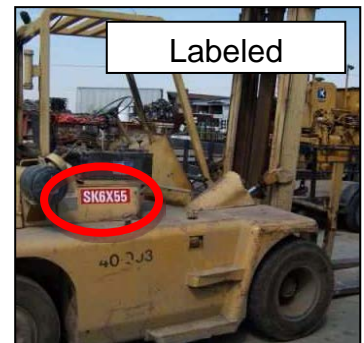
Effective 2009 for All Fleets: Reporting and Labeling

The following requirements are in effect and being enforced:

Reporting – Reporting can be completed using DOORS, which is ARB's free online reporting tool for the Off-Road regulation. Additionally, hard copy reporting forms are also available. More information on how to report and what information is required is available on the DOORS website at

https://ssl.arb.ca.gov/ssldoors/doors_reporting/doors_login.html.

Labeling – After a fleet reports their vehicles to ARB, each vehicle is assigned a unique Equipment Identification Number (EIN). The fleet must label its vehicles within 30 days of receiving EINs. Note that ARB does not issue EIN labels; it is the fleet's responsibility to follow ARB's label specifications and to make or purchase the labels or placards, or paint the EINs on its vehicles. More information on label specifications is available at www.arb.ca.gov/msprog/ordiesel/faq/faq-labeling.pdf.



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A list of label vendors is available at www.arb.ca.gov/msprog/ordiesel/labelvendors.htm.

Previously, fleets were only required to label the right (starboard) side of the vehicle. However, the labeling provisions of the Off-Road regulation were amended in December 2010 to require labels on both sides of each vehicle. Additionally, fleets reported as 'captive attainment area fleets' must have labels with a green background instead of red. Fleets had until January 1, 2013, to implement both of these changes.

More information on these labeling amendments is available at <http://www.arb.ca.gov/msprog/mailouts/msc1208/msc1208.pdf>.

Annual Reporting – All fleet owners must review and update their information by March 1st each year that annual reporting is required. Large fleets must report annually from 2012 to 2023, medium fleets from 2016 to 2023, and small fleets from 2018 to 2028. For each annual reporting date, a fleet must report any changes to the fleet, hour meter readings (for low-use vehicles and vehicles used a majority of the time, but not solely, for agricultural operations), and also must submit the Responsible Official Affirmation of Reporting (ROAR) form. All of these items should be submitted using DOORS.

**Effective January 1, 2014
for All Fleets:
Restrictions on Adding
Vehicles**

Effective January 1, 2014, there are restrictions on adding older vehicles to a fleet.

ARB received authorization from the United States Environmental Protection Agency (U.S. EPA) on September 13, 2013, to enforce the Off-Road regulation's restrictions on fleets adding vehicles with older tier engines, and will start enforcing beginning January 1, 2014.

Ban on adding Tier 0s – Effective January 1, 2014, a fleet may not add a vehicle with a Tier 0 engine to its fleet.

Prohibition on adding Tier 1s – Also effective January 1, 2014, for large and medium fleets, and January 1, 2016 for small fleets, a fleet may not add any vehicle with a Tier 1 engine. The engine tier must be Tier 2 or higher.

Prohibition on adding Tier 2s – Beginning January 1, 2018, for large and medium fleets, and January 1, 2023, for small fleets, a fleet may not add a vehicle with a Tier 2 engine to its fleet. The engine tier must be Tier 3 or higher.

More information on the adding vehicles requirements is available at <http://www.arb.ca.gov/msprog/ordiesel/faq/addingvehicles.pdf>.

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Upcoming Requirements:

Upcoming Requirements for all Fleets: Performance Requirements

**The performance requirements begin:
July 1, 2014, for large fleets
January 1, 2017, for medium fleets
January 1, 2019, for small fleets**

Compliance Options – By each annual compliance deadline, a fleet must demonstrate that it has either met the fleet average target for that year, or has completed the Best Available Control Technology requirements (BACT). Large fleets have compliance deadlines each year from 2014 through 2023, medium fleets each year from 2017 through 2023, and small fleets each year from 2019 through 2028. These requirements are described further below. Note that although the first deadline for large fleets in 2014 is on July 1, the compliance deadline in all future years will be January 1 (for example, the second compliance deadline for large fleets will be on January 1, 2015).

Meeting the fleet average targets – The fleet average index is an indicator of a fleet's overall emissions rate, and is based on the fleet's average NOx emissions which is determined by the horsepower and model year of each engine in the fleet. If the fleet average index is equal to or less than the fleet average target for a given year, the fleet is not required to take further action to reduce emissions from its vehicles.

OR

Complying with BACT requirements – If a fleet cannot, or does not want to meet the fleet average target in a given year, it may instead choose to comply with the BACT requirements. A fleet may meet the BACT requirements each year by turning over or installing VDECS on a certain percentage (referred to as the BACT rate) of its total fleet horsepower. 'Turnover' means retiring a vehicle, designating a vehicle as permanent low-use (a vehicle used less than 200 hours per year), repowering a vehicle with a higher tier engine, or rebuilding the engine to a more stringent emission standard. 'Installing VDECS' means installing the highest level VDECS verified by ARB to reduce PM, or installing a VDECS verified to reduce NOx. In order to fulfill the BACT requirements for large and medium fleets, if a VDECS cannot be installed on a vehicle, then that vehicle must be turned over. However, for small fleets, if a VDECS cannot be installed, that vehicle is exempt from the BACT requirements. The BACT rates for each fleet size are shown below.

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<p>Large fleets: 2014: 4.8 percent 2015 to 2017: 8 percent 2018 to 2023: 10 percent</p> <p>Medium fleets: 2017: 8 percent 2018 to 2023: 10 percent</p> <p>Small fleets: 2019 to 2028: 10 percent</p>

Optional Compliance Schedule for Fleets with 500 Hp or Less – Small fleets with 500 hp or less may comply with the small fleet requirements listed above, or may comply with an optional compliance path which requires the fleet to phase out Tier 0 and Tier 1 vehicles by 2029. This optional compliance schedule is shown in the table below.

Optional Compliance Schedule for Fleets with 500 HP or Less

Compliance Date: January 1 of Year	Percent of Fleet (by horsepower) Which Must Have a Tier 2 or Higher Engine
2019	25
2022	50
2026	75
2029	100

By 2029, all of the fleet’s vehicles must have Tier 2 or higher engines. If small fleets with 500 hp or less choose not to pursue this compliance path, they must meet the small fleet requirements above.

Additional Information:

Off-Road regulation homepage:
www.arb.ca.gov/ordiesel

For more information on the Off-Road regulation, including Fact Sheets, Frequently Asked Questions (FAQs), and DOORS User Guides, please visit the Off-Road Knowledge Center at www.arb.ca.gov/msprog/ordiesel/knowcenter.htm

For assistance with Off-Road reporting or using ARB’s online reporting system DOORS, please contact the DOORS hotline by phone at (877) 59DOORS (877-593-6677), or by email at doors@arb.ca.gov

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Diesel Engine Idling Program

I. Policy

In accordance with the California Air Resources Board or South Coast Air Quality Management District, California State University, Fullerton will implement a Diesel Idling Program to reduce the emissions of toxic gases from idling campus diesel fueled vehicles. .

II. Authority

California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, 1956.8

California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, 2485

California Code of Regulations, Title 13, Division 3, Article 1, Chapter 10, 2449(d)(3)

III. Scope

This policy applies to the operation of all diesel powered vehicles or equipment, owned by or located on, California State University Fullerton (CSUF) campus or any locations under the control of CSUF staff or personnel.

IV. Definitions

CARB – California Air Resources Board

SCAQMD – South Coast Air Quality Management District

Diesel off-road on-line reporting system (DOORS) - CARB on-line fleet reporting system

LSI – Large Spark Ignition Engine-Powered Forklifts and other Industrial Equipment

LSI engines of 25 horsepower (19 kilowatts) or greater are commonly found in forklifts, scrubbers and sweepers, specialty vehicles, portable generators, large turf care equipment, irrigation pumps, welders, air compressors, airport ground support equipment (GSE) and other agricultural, construction and industrial equipment. Fleet designation applies to forklifts, sweepers/scrubbers, industrial tugs and GSEs.

PTO – Power Take-Off – Device connected to the engine of a motor vehicle providing power to an auxiliary unit e.g. pumps, lift, crane, pump, drill, hoist, mixer, etc.

V. Accountability

Environmental Health & Safety is responsible for the development and dissemination of the Diesel Idling Program. Physical Plant has the responsibility for implementing the program.

Design & Construction is responsible for assuring all contractors and subcontractors providing construction services on CSUF property comply with this program.

VI. Program

Diesel exhaust from idling engines can accumulate in and around the emission source and pose an exposure risk to the students, staff, driver, operator and the community at large. California's Office of Environmental Health Hazard Assessment (OEHHA) has determined that diesel exhaust is "toxic" and that long-term exposure to diesel exhaust has a potential for increased risk of cancer. The California Air Resources Board (CARB) has issued restrictive regulations for diesel idling in the state.

The following standard operating procedure shall apply to all diesel powered vehicles or equipment located on or used on CSUF property. All CSUF personnel or agents of CSUF operating diesel powered equipment shall be made aware of this policy prior to operation of this type equipment. Questions regarding the policy may be directed to the Environmental Health and Safety Department (657) 278-7233, Environmental Compliance Manager. It is the responsibility of the department supervisor, operations manager, or other designated personnel where diesel equipment is operating to implement and enforce this policy.

1. All drivers/operators of diesel powered equipment and/or their companies shall be made aware of this policy when they operate on CSUF property and shall be provided a copy of the policy and requirements if requested.
2. CSUF staff or agents functioning as operators of diesel powered vehicles or equipment on behalf of CSUF shall be instructed on this policy. Records of the training must be maintained for a minimum of three (3) years.
3. When drivers of diesel powered **on-road** vehicles arrive at loading or unloading areas to drop-off or pick-up passengers, supplies, food, goods, equipment, etc., they shall turn off their vehicle's engine as soon as possible but no later than five (5) minutes after arrival.
4. Operators of **off-road** diesel powered equipment shall **turn off their engines within five (5) minutes after the equipment is not performing its primary function.**
5. Idling for "**warm-up**" prior to diesel vehicle or equipment operations on CSUF property shall be **limited to a maximum of five (5) minutes.**
6. Locations where diesel powered vehicles normally work/idle or are expected to arrive and idle shall have a sign posted that informs the driver of the 5 minute idling restriction.
7. Diesel powered equipment associated with CSUF construction projects shall limit engine idling to equipment working periods only and only if the availability of the equipment's function is required as part of an ongoing task.

8. Diesel powered vehicles delivering goods and products to CSUF controlled construction sites shall be **limited to a maximum idle time of five (5) minutes**.

If the diesel engine is being used to provide power for loading and off-loading operations, the equipment is exempt from this policy.

Exceptions:

Exceptions to the five (5) minute maximum idling requirement are included in this policy for specific special situations. Special situations exempting equipment/operations to this policy must be approved by Environmental Health and Safety (657.278.7233). Such exemptions will be documented and limited to specific situations. Such “special exemptions” should not be considered a “general” exemption to this policy.

1. Idling when the vehicle/equipment must remain motionless due to traffic conditions, an official traffic control device, an official traffic control signal, at the direction of a peace officer, or other situation where the driver has no discretionary control;
2. Idling when the vehicle/equipment is “queuing” as part of normal operations and procedures;
3. Idling when the vehicle/equipment is forced to remain motionless due to weather or any other condition adversely affecting the safe operation of the vehicle;
4. Idling when the vehicle/equipment is forced to remain motionless due to mechanical difficulties over which the driver has no control;
5. Operation of the diesel engine for required testing, servicing, repairing, security or diagnostic purposes outside the normal maintenance area;
6. Idling of the diesel engine to operate equipment necessary to prevent a safety or health emergency or for providing emergency services for which the vehicle was designed;
7. Idling of the diesel engine when it is directly connected to or providing auxiliary power either as a “power take-off” (PTO) or equivalent for:
 - a. Operating a lift, crane, pump, drill, hoist, mixer, etc.
 - b. Providing mechanical work functions for which the vehicle or equipment was designed.
 - c. Collection or transfer of waste or recyclable materials by an authorized agency or contractor.

Any questions or situations related to this policy or requests for exemptions to this policy should be directed through CSUF Environmental Health and Safety Department (657) 278-7233.

Responsible Executive:

Vice President for Administration and Finance

Responsible Office:

Physical Plant

Design & Construction

Environmental Health & Instructional Safety

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