

**Frequently Asked Questions  
Regulation for In-Use Off-Road Diesel-Fueled Fleets  
(Off-Road Regulation)**

**Verified Diesel Emission Control Strategy (VDECS)**

Revised December 2015

**Q – What is a Verified Diesel Emission Control Strategy (VDECS)?**

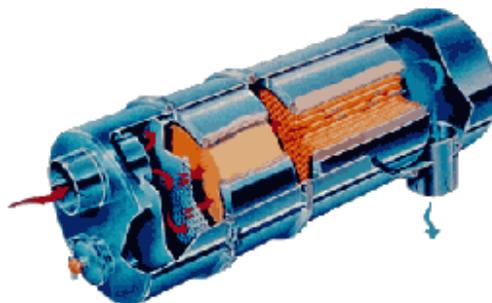
A – A VDECS is an emissions control strategy evaluated and verified (pursuant to the verification procedure laid out in title 13, California Code of Regulations, sections 2700-2710) by the California Air Resources Board (CARB) to reduce either particulate matter (PM) or oxides of nitrogen (NO<sub>x</sub>), or both. PM VDECS are classified into three levels by the amount of verified emission reductions achieved: Levels 1, 2, and 3.

- Level 1 PM VDECS is verified to reduce PM emissions by at least 25%,
- Level 2 by at least 50%, and
- Level 3 by at least 85% or to achieve PM emission levels of 0.01 grams per brake-horsepower-hour (g/bhp-hr) or less.

NO<sub>x</sub> VDECS, on the other hand, are classified by the percentage of NO<sub>x</sub> reduction achieved.

**Q – What is the most common type of VDECS?**

A – Diesel particulate filters (DPFs) are the most common type of VDECS that provide credit toward the performance requirements of the Off-Road Regulation. These filters direct the exhaust flow through a filter, which captures a large portion of the PM emissions, or soot, while allowing the exhaust gases to flow through. The resulting exhaust carries much less PM. DPFs are the most effective filters for removing harmful PM emissions.



*While this document is intended to assist fleets with their compliance efforts, it does not alter or modify the terms of any CARB regulation, nor does it constitute legal advice. It is the sole responsibility of fleets to ensure compliance with the Regulation for In-Use Off-Road Diesel Fueled Fleets.*

**Q – What types of DPFs are available?**

A – DPFs are categorized by their method of regeneration (i.e., how the accumulated soot is removed from the filter media). There are two main categories of DPFs: active and passive devices.

Active devices require heat from an outside energy source, such as diesel fuel or electricity, to induce chemical reactions with the soot accumulated during operation. Certain systems require the vehicle to run through a regeneration cycle, during which the vehicle cannot be operated. The time between regeneration cycles and the amount of time necessary for regeneration varies depending on the DPF and how much PM the engine emits (dirtier engines must regenerate more often than cleaner engines). There are also some active regeneration devices that utilize a catalyst-based filter to allow regeneration to occur at a lower temperature or to shorten the amount of time needed for regeneration; these are also known as passive-active systems.

Passive devices remove soot while the vehicle operates. Often an oxidation catalyst lowers the activation energy needed to cause chemical reactions with the soot. Vehicle exhaust gas must be sufficiently hot for a certain percent of operation time to make passive regeneration possible. VDECS manufacturers or installers can help determine if your vehicles meet the temperature requirements necessary to install a passive device.

**Q – How do I deal with the ash produced by a DPF that cannot be burned off?**

A – The VDECS collects emissions from the engine in the form of soot and ash during operation. The soot is removed through regeneration but over time metal oxides, or ash, collect and cannot be burned off. This ash is considered hazardous waste. For more information on how to dispose of hazardous waste from DPFs, please see CARB's guidance document at <http://www.arb.ca.gov/diesel/tru/documents/ashguide.pdf>.

**Q – I have a Cleaire AllMetal™ or LongMile™ VDECS installed on my off-road vehicle engine; now that the VDECS has been recalled, what are my options?**

A – Owners of Cleaire LongMile™ and AllMetal™ products are subject to a voluntary recall. Vehicles impacted by the recall may still be in compliance with the Off-Road Regulation (see below for further explanation). Recalled Cleaire LongMile™ or AllMetal™ off-road VDECS may remain installed or removed at the business' discretion.

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If the owner chooses to leave the device installed in a verified configuration or if the core is removed and replaced with a Cleaire Metal Material (CMM), it is treated as any other VDECS so long as the appropriate documentation previously provided by Cleaire is carried with the affected vehicle at all times. The fleet can keep the BACT credit granted at the time of original installation and the VDECS factor continues to be included in the vehicle's fleet average calculation. Also, the vehicle is exempt from BACT for six years from installation date (indefinitely if installed prior to 1/1/2013 or if the fleet size is small). As with any VDECS, the fleet is required to continue to ensure all maintenance on the VDECS is performed, as required by the manufacturer.

If the owner chooses to remove the recalled Cleaire LongMile™ or AllMetal™ product, it is treated like any other VDECS removal for safety reasons (see section 2449(d)(8)(A) of the Off-Road Regulation). The fleet may keep the BACT credit earned from the VDECS installation, but must remove the VDECS from its fleet average calculations. If the fleet cannot meet its fleet average target for the most recent compliance date without including the removed VDECS, the fleet owner must bring the fleet back into compliance through some other means within 90 days of removing the VDECS.

Additional Cleaire recall and VDECS information can be found on the following CARB webpage at:

<http://www.arb.ca.gov/diesel/verdev/companies/cleaire/cleairepage.htm>.

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