

**Written Testimony of the
Manufacturers of Emission Controls Association
on the California State Nonroad Engine Pollution Control Standards; California Nonroad
Compression Ignition Engines – In-Use Fleets; Authorization Request**

Docket ID No. EPA-HQ-OAR-2008-0691

October 22, 2012

The Manufacturers of Emission Controls Association (MECA) is pleased to provide written comments in support of the California Air Resources Board's (ARB) request that EPA grant a waiver for ARB's in-use, off-road diesel vehicle regulation.

MECA is a non-profit association comprised of the world's leading manufacturers of emission control technology for motor vehicles. Our members have over 40 years of experience and a proven track record in developing and manufacturing emission control technology for a wide variety of diesel and gasoline on-road and off-road vehicles and equipment. A number of our members have extensive experience in the development, manufacture, and application of particulate matter (PM) and nitrogen oxide (NOx) emission control devices for in-use diesel vehicles and equipment, including a majority of the devices on ARB's Verified Diesel Emission Control System (VDECS) list.

MECA provided testimony in support of ARB's off-road diesel vehicle regulation when it was first proposed in May 2007. The original rulemaking presented a balanced, fair, and flexible approach that would achieve significant PM and NOx emission reductions from in-use, off-road diesel vehicles and equipment in California in a cost-effective manner. Since then, the regulation has been amended three times, each time with the intent to provide economic relief for the off-road industry. MECA supported the amendments to the regulation that the Board adopted in January 2009 and June 2009 because MECA members share first-hand the economic hardships of the construction, as well as the automotive and truck, industries. The December 2010 economic relief amendments, however, made major changes to the original rulemaking, delaying the first compliance date of the regulation to no earlier than January 1, 2014 (a four-year delay from the original timeline), and reducing the retrofit requirements to a voluntary compliance option. To address these concerns, MECA and its member companies have been actively engaged with ARB staff on various approaches that would provide economic relief to device manufacturers and would ensure that retrofit technologies are available when they are needed.

Regulatory stability is critical for retrofit manufacturers to justify and build a viable business that generates green jobs for California. The technology planning, development, and verification cycle for retrofit devices comes years ahead of a regulation. The economy has put a significant strain on businesses of all sizes, including manufacturers of retrofit technologies. Our members have invested and continue to invest significant resources in developing and verifying diesel retrofit technologies for the whole range of in-use diesel engines currently operating in California, including off-road diesel engines.

A number of advanced emission control technologies exist today to significantly reduce PM and NOx emissions from in-use, off-road diesel engines. These technologies include diesel particulate filters (DPFs), diesel oxidation catalysts (DOCs), selective catalytic reduction (SCR), lean NOx catalysts (LNCs), exhaust gas recirculation (EGR), and crankcase filters. MECA has previously provided detailed written comments to ARB on the capability of these technologies to effectively reduce PM and NOx emissions from in-use, off-road diesel vehicles and equipment. Currently, there are six passive DPFs (including one DPF+LNC device) and three active DPFs verified as Level 3 VDECS in California for off-road vehicles and equipment.

Although off-road applications can pose engineering challenges and special requirements compared to on-road applications, the use of exhaust emission control technology for off-road diesel engines is not new. Both PM and NOx emission control technologies are being used today on off-road applications in California and elsewhere. For over 30 years, off-road diesel engines used in the construction, mining, and materials handling industries have been equipped with exhaust emission control technology – initially with DOCs and followed later by DPFs. These systems have been installed on vehicles and equipment both as original equipment and as retrofit technology on over 250,000 off-road engines worldwide, including construction and mining equipment where vehicle integration has been challenging. Over 50,000 active and passive DPF retrofit systems have been installed worldwide on off-road applications. More than 20,000 of these filters have been successfully employed in Europe on construction equipment used in tunneling projects. A 2003 SAE survey (see: SAE Paper 2004-01-0076) of 3,848 construction retrofit installations from 2001 to 2003 in Europe found a failure rate of only 1-2%. In California, there have been a number of successful off-road diesel retrofit demonstration projects, such as the Off-Road Showcase Program (84 vehicles retrofitted with 52 devices) in the South Coast area and the subsequent Off-Road Showcase II Program currently on-going, as well as the runway expansion project at LAX airport (73 vehicles retrofitted with Level 3 devices).

Regarding the safe installation of retrofit devices, retrofit manufacturers have shown that off-road retrofits can be installed to comply with the Cal/OSHA retrofit visibility/safety requirements finalized last year (e.g., all of the construction equipment retrofit under the Off-Road Showcase II Program meets the Cal/OSHA requirements; see: www.arb.ca.gov/diesel/showcase/showcase2.php). Retrofit manufacturers are using the best engineering judgment and installation practices to ensure the safe installation of devices. In general, retrofit installations in California have had an excellent safety record. In response to California legislative action earlier this year, ARB staff reviewed retrofit field experience since 2002. Of the 25,000 DPFs deployed in the state, less than 15 safety-related issues were identified and all of these were shown to be attributed to poor engine or device maintenance, misapplication of devices, or the ignoring of warning alarms by the operator (see attached: SB 1230 legislative report, Comment 4, pgs. 4-5).

In summary, although the amendments to ARB's off-road diesel vehicle regulation have significantly delayed the emission reduction goals of the original rule, MECA commends ARB for taking important steps to reduce emissions of PM and NOx from in-use, off-road diesel vehicles in California. We ask EPA to grant ARB a waiver for this comprehensive regulatory program. Furthermore, MECA urges ARB to remain vigilant on any further attempts to stay or delay the overall goals of the agency's various in-use fleet rules or the agency's broader Diesel

Risk Reduction Plan. These important emission reduction strategies not only protect the health of the citizens of California but also provide an important source of economic growth and green jobs for the state. Our industry is prepared to do its part to deliver cost-effective, verified diesel emission control devices to the market.

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Senate Committee on Labor and Industrial Relations
Ted W. Lieu, Chair

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Bill No: SB 1230
Author: Wright
As Introduced/Amended: March 29, 2012

SUBJECT

Occupational Safety and Health Standards Board: emissions control.

KEY ISSUE

Should the Legislature delay the application of California Air Resource Bureau (CARB) regulations requiring on-road diesel emissions control strategies?

PURPOSE

To delay the application of CARB diesel emission and particulate matter control regulations until the Occupational Safety and Health Standards Board (OSHSB) issues additional safety regulations on the retrofitting of the diesel emission and particulate matter control technology.

ANALYSIS

Existing law declares that it is the intent of the Legislature that the State Air Resources Board (CARB) shall have the responsibility, except as otherwise provided in law, for control of emissions from motor vehicles and shall coordinate, encourage, and review the efforts of all levels of government as they affect air quality. (Health and Safety Code §39500)

Existing law requires that CARB adopt standards, rules, and regulations necessary for the proper execution of the powers and duties granted to, and imposed upon, CARB by state law. Such standards, rules, and regulations adopted by CARB must, to the extent allowed by state law, be consistent with the state goal of providing a decent home and suitable living environment for every Californian. (Health and Safety Code §39601)

Existing law provides a specific regulatory framework for controlling the emission of substances which are determined to be carcinogenic, teratogenic, mutagenic, or otherwise toxic or injurious to humans. Control measures can include but are not limited to, emission limitations, control technologies, the use of operational and maintenance conditions, closed system engineering,

design, equipment, or work practice standards, and the reduction, avoidance, or elimination of emissions through process changes, substitution of materials, or other modifications. (Health and Safety Code §§39650 to 39671)

Existing law provides that any person who violates any rule or regulation, emission limitation, permit condition, order fee requirement, or filing requirement is strictly liable for a civil penalty not to exceed ten thousand dollars (\$10,000) for each day in which the violation occurs. If the violation is found is established as unintentional, then such liability does not apply. (Health and Safety Code §39674)

Existing law provides for the Occupational Safety and Health Standards Board (OSHSB), which consists of seven individuals appointed by the Governor for four year terms. Two members must be from the field of management, two members must be from the field of labor, one member must be from the field of occupational health, one member must be from the field of occupational safety and one member must be from the general public. (Labor Code §§140 and 141)

Existing law empowers OSHSB, by an affirmative vote of four or more members, to adopt, amend, or repeal occupational safety and health standards. The procedure to adopt, repeal, or amend occupational safety and health standards must follow the process for promulgating regulations, unless otherwise stated in Labor Code. (Labor Code §§142.3 and 142.4)

Existing law requires that the Department of Occupational Safety and Health (DOSH) enforce all occupational safety and health standards adopted by OSHSB. (Labor Code §142)

Existing law requires that OSHSB develop or revise certain specific occupational safety and health standards, including bloodborne pathogens, hazardous substance removal work, agricultural field sanitation, and lead-related construction. (Labor Code §§142.7, 144.7, 6712, & 6717)

This bill requires that, by January 1, 2014, the OSHSB adopts standards designed to ensure the safety of the operator in the installation, use, and operation of a verified diesel emission control strategy on-road heavy-duty diesel-fueled motor vehicles. The standards shall, at a minimum, ensure all of the following:

- 1) The strategy shall not reduce the capacity, structural integrity, or safe performance of a vehicle;
- 2) The strategy shall not reduce an operator's ability to enter or exit a vehicle safely;
- 3) The strategy shall not increase the risk of a vehicle fire;
- 4) The strategy shall not, through routine maintenance, emergency maintenance, or normal operations, burn or harm the operator;
- 5) To the extent feasible, the strategy shall not cause the vehicle to stop operating while traveling on the highway or roadway; and
- 6) To the extent feasible, the strategy shall not affect the normal function and operation of the vehicle.

This bill would also prohibit the California Air Resources Board from requiring fleet owners to install verified diesel emission control strategies until six months after OSHSB approves the

occupational safety standards for verified diesel emission control strategies. This bill also provides that this safety requirement must not impact the on-going implementation of CARB regulations.

This bill would also make findings, declarations, and definitions that would further implement the intent of the bill.

COMMENTS

1. Diesel Emissions and Occupational Health:

Diesel emissions are produced when an engine burns diesel fuel. These emissions are a mixture of thousands of gases and fine particles, including more than 40 toxic air contaminants. These include many known or suspected cancer-causing substances, such as benzene, arsenic and formaldehyde. It also contains other harmful pollutants, including nitrogen oxides, which create smog.

In its 1998 assessment of diesel emissions, the Office of Environmental Health Hazard Assessment (OEHHA) analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers and equipment operators. The studies showed these workers were more likely to develop lung cancer than workers who were not exposed to diesel emissions. According to OEHHA, other researchers and scientific organizations, including the National Institute for Occupational Safety and Health, have calculated similar cancer risks from diesel emissions.

Diesel engines are also a major source of fine-particle pollution. According to OEHHA, studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks and premature deaths among those suffering from respiratory problems. OEHHA also notes that exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children.

Using 2006-2008 emission levels in California, the California Air Resources Bureau (CARB) estimates that diesel particulate matter contributes to between 1,500 to 2,400 premature deaths each year.

2. A Brief History of State and Federal Diesel Emission Regulations:

As was mentioned above, the Office of Environmental Health Hazard Assessment (OEHHA) completed a health assessment on diesel emissions in 1998. Upon releasing the findings of that health assessment, the California Air Resources Bureau (CARB) began its statutorily-required process of formally identifying particles in diesel emissions as a toxic air contaminant that may pose a threat to human health. In 2000, CARB released its risk reduction plan, calling for a 75% reduction in diesel particulate matter emissions by 2010 and an 85% reduction in diesel particulate matter by 2020.

In 2008, CARB approved truck and bus regulations to particulate matter and nitrogen oxide emissions from existing diesel vehicles operating in California. Updated in 2010, these emissions create a schedule for controlling emissions through either a verified diesel emission control strategy or by replacing the engine. This is discussed in greater detail below.

The federal Environmental Protection Agency (EPA) began studying diesel emissions in 1997, putting forward a stringent emissions-reducing plan to take effect from 2004 forward. The EPA signed an agreement with diesel engine manufacturers in 1998 that addressed several concerns with diesel emissions, including consent decrees to manufacturer cleaner engines by 2002 that would exceed the 2004 standards.

In December of 2000, the EPA reached a further series of agreements with diesel engine manufacturers and diesel refiners. Beginning in mid-2006, refiners were required to only produce low-sulfur diesel fuel for highway trucks. In 2007, diesel engine manufacturers began selling low-emission diesel engines, with low-emission diesel engines being the mandated minimum by 2010. These requirements ensured that post-2007 were 90% cleaner than pre-2007 trucks.

3. What is a “Verified Diesel Emission Control Strategy”?

A verified diesel emission control strategy (VDECS) is a device that is verified by CARB to capture diesel particulate matter from diesel emissions. This is frequently done by attaching a device to the vehicle that captures the exhaust and burns off the particulate matter by operating at a high heat. As per the federal standards, post-2007 trucks frequently have this technology already built into the vehicle. For pre-2006 vehicles, CARB requires the devices to be retrofitted to the trucks.

For example, a 2007 year engine, CARB requires no control technology until 2023, and then only requires a 2010 model year engine in 2023. For a 1997 model year engine, however, CARB requires a VDECS from 2012 to 2020, and then that the engine would need to be replaced with a 2010 model year engine. Vehicles with a 2010 model year engine automatically comply with these requirements. These regulations impact 1.25 million vehicles, and for many model year engines, these regulations went into effect on January 1, 2012.

These regulatory requirements also provide exemption for certain classes of vehicles. These include dedicated use vehicles, such as fuel delivery vehicles, concrete mixers, and on-road mobile cranes. CARB also delays the implementation schedule for certain vehicles, such as low-mileage construction vehicles, or vehicles where a VDECS is unavailable. The CARB regulations also provide a blanket exemption for emergency vehicles defined in Vehicle Code 165, which include police and firefighting vehicles.

4. Are “Verified Diesel Emission Control Strategies” Safe?

This question is the crux of this bill. The authors and the proponents of SB 1230 believe that the CARB verification process for Verified Diesel Emission Control Strategies (VDECS)

does not appropriately take into account operator safety. The authors and proponents also cite several examples, both in and outside of California, where VDECS failed, leading to small fires and one suspected forest fire.

The process for verifying VDECS is extensively laid out in CARB regulations. While the focus of regulations is on air quality, the regulations do require that the report that CARB requires for verification of the devices include a section that requires a “complete discussion of potential safety issues”. CARB regulations also prohibit the installation of a VDECS if it impairs the safe operation of the vehicle or violates occupational safety and health requirements.

All failures of VDECS must be reported to CARB. CARB was contacted by this Committee for specifics on how many devices are currently installed on vehicles in California and how many of these devices have failed to the point of possible fire, actual fire, or injury to operator. According to CARB, approximately 25,000 VDECS have been installed in California since 2002. Another approximately 215,000 original equipment manufactured diesel particulate filters (DPFs), which are essentially identical to VDECS, and have been in use in on-road heavy-duty trucks.

Of these devices, CARB is only aware of 15 or fewer cases where the devices have failed to the point where safety could have been an issue. In every case the failure was attributed to abuse, poor maintenance, tampering, improper use, inappropriate installation, or a combination of these factors. Additionally, CARB states that it is not aware of any visibility safety issues with the retrofitted VDECS nor have any visibility safety issues been raised with vehicles previously outfitted with emission control devices.

CARB also notes that their verification process to ensure that the VDECS are designed with sound scientific and engineering principles would almost certainly rule out any device that was fundamentally unsafe. CARB, however, will be considering amendments to their regulatory process in June of this year that will make this implicit requirement more explicit.

5. Proponent Arguments:

Proponents, who include Southern California Contractors Association and the California State Council of Laborers, argue that while the state does verify and certify diesel particulate filters, the verification process emphasizes the level of emission reductions and falls woefully short in ensuring operator safety. Proponents also argue that creating a safety standard for the installation of diesel particulate filters is not new for the state. Proponents note that the Occupational Safety and Health Standards Board adopted a standard for the safe installation of diesel particulate filters for off-road diesel-vehicles in December 2011. Proponents argue that if a standard was justified for 120,000 or so off-road diesel vehicles and equipment, it certainly should be justified for one million or so on-road diesel vehicles.

6. Opponent Arguments:

Opponents of the bill, who include the Diesel Retrofit Coalition and Sierra Club California, argue that the CARB In-Use Off Road Diesel Regulation already requires all VDECS to

undergo a rigorous verification process that specifically addresses safety issues including an identification of failure modes and associated consequences, and a complete discussion of all potential safety issues including uncontrolled regeneration, lack of proper maintenance, and unfavorable operating conditions. Proponents also note that manufacturers must regularly submit to ARB comprehensive reports detailing all product failures and the reasons for those failures so that CARB may assess whether any VDECS product poses a significant safety concern, should be subject to additional testing, or should be removed from the marketplace. Finally, opponents argue that SB 1230 will undermine the public health protections afforded by CARB's diesel rules by creating a duplicative regulatory process with the California Occupational Safety and Health Standards Board that actually preempts the CARB authority.

7. Prior Legislation:

SB 432 (De Leon) of 2011 would have required the Occupational Safety and Health Standards Board (OSHSB) to develop an occupational safety and health standard for lodging housekeepers, including the requirement of fitted sheets and long handled tools. SB 432 is currently on the Assembly Appropriations Committee suspense file.

SUPPORT

Southern California Contractors Association (sponsor)
California Construction Trucking Association
California Professional Association of Specialty Contractors
California State Council of Laborers
California Tow Truck Association
California-Nevada Conference of Operating Engineers
Golden State Builders' Exchanges
United Contractors

OPPOSITION

American Lung Association of California
Bay Area Air Quality District
Breathe California
California League of Conservation Voters
Coalition for Clean Air
Natural Resources Defense Council
Regional Asthma Management and Prevention (RAMP)
Sierra Club California
The Diesel Retrofit Coalition
Union of Concerned Scientists