

## UPDATED INFORMATIVE DIGEST

**Sections Affected:** Adoption of section 2480, title 13, California Code of Regulations (CCR).

### Background

In 1998 the Air Resources Board (ARB or Board) identified diesel particulate matter (PM) emissions from diesel-fueled engines as a toxic air contaminant (TAC). Two years later, the Board adopted the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan)* in September 2000, which established a goal of reducing emissions and the resultant health risk from virtually all diesel-fueled engines and vehicles within the State of California by the year 2020. This Plan envisions that particulate matter emissions from diesel-fueled engines and vehicles should be reduced by 75 percent in 2010 and 85 percent in 2020. The Plan identified various methods for achieving the goals including new, more stringent standards for all new diesel-fueled engines and vehicles, the replacement of older in-use engines with new, cleaner engines, the use of diesel emission control strategies on in-use engines, and the use of low-sulfur diesel fuel.

The major sources of diesel PM are the approximately 1,250,000 diesel-fueled engines in vehicles and equipment used in California. The health impacts of diesel PM include increased incidence of lung cancer, chronic respiratory problems (such as asthma and bronchitis), cardiovascular disease, and increased hospital admissions and mortality. In California, diesel PM emissions are estimated to comprise 70 percent of the total potential cancer risk from all identified toxic air contaminants.

TRU diesel engines currently emit approximately two tons per day of diesel PM. The diesel PM emissions from TRUs are expected to increase to about 2.5 tons per day in 2010, and to about three tons per day in 2020 as more TRUs are placed into service. Because of the high potency of diesel PM and the potential for large numbers of TRUs to operate at one location, often times near residential areas, staff believes that there are situations where the estimated 70-year potential cancer risk resulting from exposure to diesel PM emissions from TRUs will be in excess of a 100 in a million.

On May 16, 2002, the Board approved the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines* (13 CCR Sections 2700-2710). This rule establishes procedures for the verification of emission control strategies by ARB that can be applied on various diesel-fueled engines and vehicles to significantly reduce diesel PM emissions.

It is important to reduce diesel PM emissions from TRUs. H&SC sections 39666 and 39667 requires the ARB to adopt regulations to achieve the maximum possible reduction in public exposure to TACs through the application of best available control technology (BACT), or a more effective control method, in consideration of cost, risk, environmental impacts, and other specified factors.

Furthermore, the Children's Environmental Health Protection Act (Stats. 1999, Ch. 731) requires the California Environmental Protection Agency to specifically consider children

in setting Ambient Air Quality Standards and in developing criteria for TACs. OEHHA identified diesel PM and several other TACs associated with motor vehicle exhaust among the top priority pollutants affecting children's health.

ARB staff prepared an Initial Statement of Reasons (ISOR) for the *Airborne Toxic Control Measure for In-Use Diesel-Fueled TRUs and TRU Gen Sets, and Facilities Where TRUs Operate* (ATCM) that, together with the needs assessment (*Diesel Risk Reduction Plan*), serves as the report on the need and appropriate degree of regulation for in-use TRUs.

## **Description of the Regulatory Action**

The ATCM is designed to reduce the general public's exposure to diesel PM, other toxic contaminants, and criteria air pollutants from TRUs.

### *Applicability*

The requirements of the ATCM affect owners and operators of "in-use" diesel-fueled TRUs and TRU generator sets that operate in California, including out-of-state-based TRUs and TRU generator sets that operate in California. Most TRUs are owned or operated by corporations, businesses, and individuals. There are a few local municipalities, school districts, and correctional institutions that operate TRUs that may be affected. Staff estimates that there are currently approximately 32,000 California-based TRUs operating in California. There are also approximately 7,500 on-highway truck and trailer equipped TRUs and 1,700 railcar TRUs that are based outside of California that operate in California at any given time. The ATCM also applies to large facilities where TRUs or TRU generator sets operate where perishable goods are loaded or unloaded for distribution, and TRUs are owned, leased, or contracted for by the facility and under the facility's control. Large facilities have 20 or more loading dock doors serving refrigerated areas.

### *Requirements for In-Use TRU Engines*

The ATCM requires in-use TRU engines to meet specific in-use performance standards that vary by horsepower range. The TRU in-use performance standards have two levels of stringency that will be phased in over time, beginning in 2008 and ending by 2020.

By December 31, 2008, all 2001 and older TRU engines that operate in California have to meet Low Emission TRU In-Use Performance Standards. All 2002 TRU engines have to meet the Low Emission TRU In-Use Performance Standard by December 31, 2009. The 2003 and subsequent model year TRUs will skip the Low Emission TRU In-Use Performance Standards and comply with the more stringent Ultra-Low Emission TRU In-Use Performance Standards seven (7) years after the engine model year. For example, 2003 model year TRU engines must meet the Ultra-Low Emission TRU In-Use Performance Standard in 2010 and 2004 model year TRU engines in 2011, etc. And in 2015, any 2001 and older model year engines that are still in operation have to meet the Ultra-Low Emission TRU In-Use Performance Standards. In 2016, any 2002 model

year TRU engines in operation have to meet the Ultra-Low Emission TRU In-Use Performance Standards. This phased retrofit or replacement schedule will ensure that the entire TRU fleet operating in California will be Ultra-Low Emission TRUs by 2020.

The TRU In-Use Performance Standards are as follows:

(1) For engines less than (<) 25 hp:

- Low Emission TRU In-Use Performance Standards
  - Use an engine certified to meet a 0.3 g/bhp-hr PM emission standard, or
  - Retrofit with a Level 2 Verified Diesel Emission Control System<sup>1</sup>, or
  - Use an "Alternative Technology" (discussed on page 4).
  
- Ultra-Low Emission TRU In-Use Performance Standards
  - No engine certification PM emission standard applies at this time<sup>2</sup>, or
  - Retrofit with a Level 3 Verified Diesel Emission Control System, or
  - Use an "Alternative Technology".

(2) For engines equal to or greater than ( $\geq$ ) 25 hp:

- Low Emission TRU In-Use Performance Standards
  - Use and engine certified to meet a 0.22 g/bhp-hr PM emission standard, or
  - Retrofit with a Level 2 Verified Diesel Emission Control System, or
  - Use an "Alternative Technology".
  
- Ultra-Low Emission TRU In-Use Performance Standards
  - Use an engine certified to meet a 0.02 g/bhp-hr PM emission standard, or
  - Retrofit with a Level 3 Verified Diesel Emission Control System, or
  - Use an "Alternative Technology".

The engine certification values for the TRU In-Use Performance Standards for PM are based on the Tier 4 nonroad standards promulgated by U.S. EPA on June 29, 2004, for Control of Emissions of Air Pollutants from Nonroad Diesel Engines and Fuel (hereinafter referred to as U.S. EPA's Tier 4 Nonroad Standards). The verified retrofit control levels are based on staff's technical evaluation of what retrofits are likely to be verified by 2008. Given this uncertainty, staff will conduct technology reviews in 2007 and 2009 to evaluate technology readiness for the in-use requirements. Part of that technology evaluation will be to consider whether more stringent emission standards are feasible in the later years of the ATCM and if so what implementation schedule is appropriate.

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<sup>1</sup> Verified Diesel Emission Control Strategy means an emission control strategy designed primarily for the reduction of diesel particulate matter emissions that has been verified per the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (13 CCR Sections 2700-2710)*. PM reduction Level 1:  $\geq 25\%$ ; Level 2:  $\geq 50\%$ ; Level 3:  $> 85\%$  or 0.01 g/bhp-hr.

<sup>2</sup> ARB will conduct a technology review in 2007 and determine what PM emission standard is appropriate and recommend amendment to the ATCM as needed.

### *Alternative Technologies*

TRUs that elect to use one of the “Alternative Technologies” listed in the ATCM will qualify as an Ultra-Low Emission TRU if diesel PM emissions are virtually eliminated while at a distribution facility. These Alternative Technologies include the use of electric standby, cryogenic temperature control systems, alternative fuel, alternative diesel fuel, fuel cell power, or any other system approved by the Executive Officer. Certain Alternative Technologies may qualify as Low-Emission TRU if they operate under an Alternative Technology Compliance Plan that has been approved by the Executive Officer.

### *Early Compliance Incentive*

The ATCM includes a provision that encourages operators of model year 2002 and older TRU engines to comply with the Low Emission TRU In-Use Performance Standard earlier than required. Each year of early compliance with the Low Emission TRU In-Use Performance Standard earns a year of delay in the compliance date with the subsequent, more stringent Ultra-Low Emission TRU In-Use Performance Standard. For example, 2001 and older TRUs that comply prior to December 31, 2008, and 2002 TRUs that comply prior to December 31, 2009, will earn a delay of up to three years in complying with the Ultra-Low Emission TRU In-Use Performance Standard.

### *Compliance Provision*

The ATCM creates a TRU registration and ARB identification numbering system. The I.D. numbers will include codes that indicate key compliance information such as model year of engine and compliance status. California-based TRUs are required to have I.D. numbers. For out-of-state-based TRUs that operate in California, the use of ARB I.D. numbers will be voluntary. However, without such a coding system an inspector would have to physically open up the TRU compartment to verify that the unit contains a complying engine or retrofit system. This could result in more downtime than units with an I.D. number. The coding allows a quick inspection so that the trucks can get back on the road as quickly as possible. Given this situation, we anticipate that most owners of out-of-state TRUs will obtain ARB I.D. numbers for their TRUs. Applications for ARB identification numbers are required by January 31, 2009.

### *Initial and Annual Reporting Requirements*

The ATCM contains two reporting provisions. Operators of TRUs subject to this regulation are required to submit an initial report to ARB by January 31, 2009 that provides information about the TRUs they operate in California. Updates will need to be provided as TRUs are purchased or sold. The information is needed to assist in the implementation of the ATCM. The second reporting provision applies to large facilities where TRUs operate. Facilities with 20 or more loading dock doors serving refrigerated storage areas will be required to submit a one-time report to ARB by January 31, 2006. This information is needed to evaluate the overall effectiveness of the regulation in reducing diesel PM concentrations near facilities where numerous TRUs operate.

## *Warranty*

If a Verified Diesel Emission Control Strategy (VDECS) fails during the warranty period, the owner or operator of the TRU or TRU generator set must replace it with the same VDECS or a higher verification classification, if available.

If a VDECS fails outside its warranty period and a higher verification classification level VDECS is available, then the owner or operator of the TRU or TRU generator set shall upgrade to the highest level VDECS that is determined to be cost-effective by the Executive Officer.

## **Comparable Federal Regulations**

There are no federal regulations comparable to the ATCM for in-use TRUs; however, the ATCM relies on the U.S. EPA's Tier 4 Nonroad Standards for new diesel engines since engine replacement is one of many compliance pathways.