

**Proposed Modifications to the
Proposed Airborne Toxic Control Measure for
In-Use Diesel-Fueled Transport Refrigeration Units
(TRU)
and TRU Generator Sets,
and Facilities Where TRUs Operate**

February 20, 2004

This document provides ARB staff's proposed modifications to the proposed Airborne Toxic Control Measure for Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate, which is set forth in Appendix A of the Initial Statement of Reasons (ISOR) released on October 24, 2003.

Modifications that were proposed in the version that was posted on February 9, 2004 show deleted text in ~~striketrough~~ format and added text in underline format. Changes made since the February 9, 2004 and posted on February 20, 2004 show added text in double underline and deleted text in ~~double striketrough~~ format.

These are staff's proposed modifications. These modifications have not been reviewed or approved by the Board and should not be construed to be final language.

If approved by the Board at the February 26-27, 2004 Board hearing, the 15-Day Change version of the ATCM will be made available for public review and comment for a period of 15 days, subsequent to the February 26-27, 2004 board hearing.

Formal regulatory comments should be sent directly to trude03@listserve.arb.ca.gov

**** PROPOSED REGULATION ORDER ****

Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate

Adopt new Section 2022, Title 13, Article 4, within Chapter 3, Division 3, California Code of Regulations, to read as follows: (Note: the entire text of section 2022 set forth below is new language proposed to be added to the California Code of Regulations.)

- (a) **Purpose.** Diesel particulate matter (PM) was identified in 1998 as a toxic air contaminant. This regulation implements provisions of the Diesel Risk Reduction Plan, adopted by the Air Resources Board in October, 2000, as mandated by the Health and Safety Code Sections 39650-39675, to reduce emissions of substances that have been determined to be toxic air contaminants. Specifically, this regulation will use a phased approach to reduce the diesel PM emissions from in-use transport refrigeration units (TRUs) and TRU generator (gen) set equipment used to power electrically driven refrigerated shipping containers and trailers that are operated in California.
- (b) **Applicability.**
- (1) Except as provided in subsection (c), this regulation applies to owners and operators of diesel-fueled TRUs and TRU gen sets (see definition of operator and owner in section (d)) that operate in the State of California. This specifically includes:
- (A) Operators and owners of California-based TRUs and TRU gen sets that are installed on trucks, or trailers, shipping containers, or railcars; and-
- (B) Operators and owners of non-California-based TRUs and TRU gen sets that are installed on trucks, trailers, shipping containers, or railcars.
- (2) This regulation applies to facilities located in California with 20 or more loading dock doors serving refrigerated areas where perishable goods are loaded or unloaded for distribution on trucks, trailers, shipping containers, or rail cars that are equipped with TRUs and TRU gen sets and that are owned, leased, or contracted for by the facility, its parent company, affiliate, or subsidiary that are under facility control (see definition).
- (3) To the extent not already covered under subsections (b)(1) and (b)(2), above, subsection (g) of this regulation shall apply to any person engaged in this State in the business of selling to an ultimate purchaser, or renting or leasing new or used TRUs or TRU gen sets, including, but not limited to, manufacturers, distributors, and dealers.

- (4) Severability. If any subsection, paragraph, subparagraph, sentence, clause, phrase, or portion of this regulation is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions of the regulation.
- (c) **Exemptions.** This regulation does not apply to military tactical support equipment.
- (d) **Definitions.** For purposes of this regulation, the following definitions apply:
- (1) "Affiliate or Affiliation" refers to a relationship of direct or indirect control or shared interests between the subject business and another business.
 - (2) "Alternative Fuel" means natural gas, propane, ethanol, methanol, or advanced technologies that do not rely on diesel fuel, except as a pilot ignition source at an average ratio of less than 1 part diesel fuel to 10 parts total fuel on an energy equivalent basis. Alternative fuels also means any of these fuels used in combination with each other or in combination with other non-diesel fuels. Alternative-fueled engines shall not have the capability of idling or operating solely on diesel fuel at any time.
 - (3) "Alternative-Fueled Engine" means an engine that is fueled with a fuel meeting the definition of alternative fuel.
 - (4) "Alternative Diesel Fuel" means any fuel used in diesel engines that is not commonly or commercially known, sold or represented as diesel fuel No. 1-D or No. 2-D, pursuant to the specification for Diesel Fuel Oils D975-81 a reformulated diesel fuel as defined in Sections 2281 and 2282 of Title 13, of the California Code of Regulations, and does not require engine or fuel system modifications for the engine to operate, although minor modifications (e.g. recalibration of the engine fuel control) may enhance performance. Examples of alternative diesel fuels include, but are not limited to, biodiesel, Fischer Tropsch fuels, and emulsions of water in diesel fuel. Natural gas is not an alternative diesel fuel. An emission control strategy using a fuel additive will be treated as an alternative diesel fuel based strategy unless:
 - (A) The additive is supplied to the vehicle or engine fuel by an on-board dosing mechanism, or
 - (B) The additive is directly mixed into the base fuel inside the fuel tank of the vehicle or engine, or
 - (C) The additive and base fuel are not mixed until vehicle or engine fueling commences, and no more additive plus base fuel combination is mixed than required for a single fueling of a single engine or vehicle.

- (5) "ARB" means the California Air Resources Board.
- (6) "B100 Biodiesel Fuel" means 100% biodiesel fuel derived from vegetable oil or animal fat and complying with ASTM D 6751-02 and commonly or commercially known, sold, or represented as " neat" biodiesel or B100. B100 biodiesel fuel is an alternative diesel fuel.
- (7) "B100 Biodiesel-Fueled" (compression-ignition engine) means a compression-ignition engine that is fueled by B100 biodiesel fuel.
- (8) "Business" means an entity organized for profit including, but not limited to, an individual, sole proprietorship, partnership, limited liability partnership, corporation, limited liability company, joint venture, association or cooperative; or solely for purposes of the Prompt Payment Act (Government Code 927 et seq.), a duly authorized nonprofit corporation.
- (9) "California-Based TRUs and TRU Gen Sets" means TRUs and TRU gen sets equipped on trucks, trailers, shipping containers, or railcars that a reasonable person would find to be owner/operators have been regularly assigned to terminals within California.
- (10) "CARB Diesel Fuel" means any diesel fuel that is commonly or commercially known, sold or represented as diesel fuel No. 1-D or No. 2-D, pursuant to the specification for Diesel Fuel Oils D975-81 and meets the specifications defined in 13 CCR 2281, and 13 CCR 2282, and 13 CCR 2284.
- (11) "Carbon Monoxide (CO)" means a colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels.
- (12) "Carrier" means any person, party, or entity who undertakes the transport of goods from one point to another.
- (13) "Certification" means the obtaining of an Executive Order for a new offroad compression-ignition engine family that complies with the off-road compression-ignition emission standards and requirements specified in the California Code of Regulations, Title 13, Section 2423. A "certified engine" is an engine that belongs to an engine family that has received a certification Executive Order.
- (14) "Certification Data" means the ARB Executive Order number and related exhaust emission data for each test cycle mode used to certify the engine family and obtain the certification level shown in the certification Executive Order. Such data includes modal exhaust emissions data for nitrogen oxides, nonmethane hydrocarbons, carbon monoxide, and particulate matter includes, as a minimum, torque, engine speed, weighting factor, power, mass emission rate (grams per hour), and certification test fuel.

- (15)(13)–“Compression Ignition (CI) Engine” means an internal combustion engine with operating characteristics significantly similar to the theoretical diesel combustion cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignition engine.
- (16)(14)–“Consignee” (see receiver).
- (17)(15)–“Consignor” (see shipper).
- (18)(16)–“Cryogenic Temperature Control System” means a heating and cooling system that uses a cryogen, such as liquid carbon dioxide or liquid nitrogen that is routed through an evaporator coil that cools air blown over the coil. The cryogenic system uses a vapor motor to drive a fan and alternator, and a propane-fired heater superheats the carbon dioxide for heating and defrosting. Electrically driven fans may be used instead of a vapor motor and heating and defrost needs may be met by using electric heaters and/or vehicle engine coolant.
- (19) “Deterioration Factor (DF)” means a factor that is applied to the certification emission test data to represent emissions at the end of the useful life of the engine. Separate DFs apply to each measured pollutant, except that a combined NMHC+NOx DF applies to engines that do not use aftertreatment devices. Decreasing emissions over time would not be allowed to offset increasing emissions of the other pollutant in this combined DF.
- (20)(17)–“Diesel Fuel” means any fuel that is commonly or commercially known, sold, or represented as diesel fuel ~~No. 1-D or 2-D, pursuant to the specifications in ASTM Standard Specification for Diesel Fuel Oils D975-98,~~including any mixture of primarily liquid hydrocarbons – organic compounds consisting exclusively of the elements carbon and hydrogen – that is sold or represented as suitable for use in an internal combustion, compression-ignition engine.
- (21)(18)–“Diesel-Fueled” means fueled by diesel fuel or CARB diesel fuel in whole or in part, except as allowed for a pilot ignition source under the definition for “alternative fuel”.
- (22)(19)–“Diesel Oxidation Catalyst (DOC)” means the use of a catalyst to promote the oxidation processes in diesel exhaust. Usually refers to an emission control device that includes a flow-through substrate where the surfaces that contact the exhaust flow have been catalyzed to reduce emissions of the organic fraction of diesel particulates, gas-phase hydrocarbons, and carbon monoxide.
- (23)(20)–“Diesel Particulate Filter (DPF)” means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate.

Periodically the collected particles are either physically removed or oxidized (burned off) in a process called regeneration.

- (24)(21) “Diesel Particulate Matter” means the particles found in the exhaust of diesel-fueled CI engines. Diesel PM may agglomerate and adsorb other species to form structures of complex physical and chemical properties.
- (25)(22) “Dual-Fuel Engine” means an engine designed to operate on a combination of alternative fuel, such as compressed natural gas (CNG) or liquefied petroleum gas (LPG), and conventional fuel, such as diesel or gasoline. These engines have two separate fuel systems, which either inject both fuels simultaneously into the engine combustion chamber or fumigate the gaseous fuel with the intake air and inject the liquid fuel into the combustion chamber.
- (26)(23) “Emergency” means any of the following times:
- (A) A failure or loss of normal power service that is not part of an “interruptible service contract” (see definition in subsection (d));
 - (B) A failure of a facility’s internal power distribution system, provided the failure is beyond the reasonable control of the operator;
 - (C) When an affected facility is placed under an involuntary “rotating outage” (see definition in subsection (d)).
- (27)(24) “Emission Control Strategy” means any device, system, or strategy employed with a diesel-fueled CI engine that is intended to reduce emissions. Examples of emission control strategies include, but are not limited to, particulate filters, diesel oxidation catalysts, selective catalytic reduction systems, alternative fuels, fuel additives used in combination with particulate filters, alternative diesel fuels, and combinations of the above.
- (28)(25) “Emissions Rate” means the weight of a pollutant emitted per unit of time (e.g., grams per second).
- (29)(26) “Executive Officer” means the Executive Officer of the California Air Resources Board or his or her delegate.
- (30)(27) “Facility” means any facility where TRU-equipped trucks, trailers, shipping containers or railcars are loaded or unloaded with perishable goods. This includes, but is not limited to, grocery distribution centers, food service distribution centers, cold storage warehouses, and intermodal facilities. Each business entity at a commercial development is a separate facility for the purposes of this regulation, provided the businesses are “independently owned and operated” (see definition in subsection (d)).

(31)(28) "Facility Control (of TRUs or TRU Gen Sets)" means the TRUs or TRU gen sets located at the facility are owned or leased by the facility, its parent company, affiliate, or a subsidiary, or under contract for the purpose of providing carrier service to the facility, and the TRUs' or TRU gen sets' arrival, departure, loading, unloading, shipping and/or receiving of cargo is determined by the facility, parent company, affiliate, or subsidiary (e.g. scheduled receiving, dispatched shipments).

(32)(29) "Fischer-Tropsch Diesel Fuel" See " ultra-low-aromatic synthetic diesel fuel".

(33)(30) "Fuel Additive" means any substance designed to be added to fuel or fuel systems or other engine-related engine systems such that it is present in-cylinder during combustion and has any of the following effects: decreased emissions, improved fuel economy, increased performance of the engine; or assists diesel emission control strategies in decreasing emissions, or improving fuel economy or increasing performance of the engine.

(34)(31) "Generator Set (gen set)" means a CI engine coupled to a generator used as a source of electricity.

(35)(32) "Hybrid Cryogenic Temperature Control System" means a temperature control system that uses a cryogenic temperature control system in conjunction with a ~~diesel-fueled engine~~ conventional TRU.

(36)(33) "Independently Owned and Operated" means a business concern that independently manages and controls the day-to-day operations of its own business through its ownership and management, without undue influence by an outside entity or person that may have an ownership and/or financial interest in the management responsibilities of the applicant business or small business.

(37)(34) "Intermodal Facility" means a facility involved in the movement of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves in changing modes. Such a facility is typically involved in loading and unloading refrigerated shipping containers and trailers ~~vans~~ to and from railcars, trucks, and ocean-going ships.

(38)(35) "Interruptible Service Contract" means any arrangement in which a nonresidential electrical customer agrees to reduce or consider reducing its electrical consumption during periods of peak demand or at the request of the System Operator in exchange for compensation, or assurances not to be blacked out or other similar non-monetary assurances.

(39)(36) "In Use TRU, TRU gen set, or engine" means a TRU, TRU gen set, or engine that is not a " new" TRU, TRU gen set, or engine.

(40)(37) "Low Emission TRU (LETRU or L)" means a TRU or TRU gen set that meets the performance standards described under paragraph (e)(1)(A)(i) or (ii).

(41)(38) "Manufacturer" means a business as defined in Government Code § 14837(c).

(42)(39) "Military tactical support equipment (TSE)" means equipment that meets military specifications, owned by the U.S. Department of Defense and/or the U.S. military services, and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

(43)(40) "Model Year (MY)" means diesel-fueled engine manufacturer's annual production period, which includes January 1st of a calendar year, or if the manufacturer has no annual production period, the calendar year.

(44)(41) "New TRU, TRU Gen Set, or Engine" means any TRU, TRU gen set, or engine that has never been subject to a retail sale or lease to an "ultimate purchaser" (see definition in subsection (d)).

(45)(42) "Nitrogen Oxide (NOx)" means compounds of nitric oxide (NO), nitrogen dioxide (NO₂), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition.

(46) "Non-California-Based TRUs and TRU Gen Sets" means TRUs and TRU gen sets that are equipped on or used in trucks, trailers, shipping containers, or railcars that a reasonable person would find to be regularly assigned to terminals outside of California and operate in California from time to time for the purpose of transporting perishable goods into or out of the state.

(47)(43) "Non-methane Hydrocarbons (NMHC)" means the sum of all hydrocarbon air pollutants except methane. NMHCs are precursors to ozone formation.

(48)(44) "Operate" means to start, cause to function, program the temperature controller, select an operating program or otherwise control, fuel, monitor to assure proper operation, or keep in operation.

(49)(45) "Operator" means any person, party or entity that operates a TRU or TRU gen set for the purposes of transporting perishable goods, excluding an employee driver and third party maintenance and repair service, and including but not limited to:

(D) Manufacturer, producer, supplier, carrier, shipper, consignor, consignee, receiver, distribution center, or warehouse of perishable goods;

- (E) An individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, or corporation including but not limited to, a government corporation;
 - (F) Any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law; or
- (50)(46) "Owner" means any person that legally holds the title (or its equivalent) showing ownership of a TRU or TRU gen set, excluding a bank or other financial lending institution, and including but not limited to:
- (A) Manufacturer, producer, supplier, carrier, shipper, consignor, consignee, receiver, distribution center, warehouse;
 - (B) An individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, or corporation including but not limited to, a government corporation;
 - (C) Any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law; or
- (51)(47) "Owner/Operator" means a requirement applies to the owner and/or operator of a TRU or TRU gen set, as determined by agreement or contract between the parties if the two are separate business entities.
- (52)(48) "Parent Company" means a company that has a controlling interest in another company, usually through ownership of more than one-half the voting stock.
- (53)(49) "Particulate Matter (PM)" means the particles found in the exhaust of CI engines, which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.
- (54)(50) "Rated Brake Horsepower" means the power delivered, according to the statement of the engine manufacturer, at the rated speed.
- (55)(51) "Real Emission Reductions" means that an action is taken that results in reductions in the PM emission rate of an in-use engine (e.g. a VDECS is installed that reduced the PM emissions rate by more than 50%).
- (56)(52) "Receiver" means the person, party, or entity that receives shipped goods, cargo, or commodities.

- (57)(53) “Refrigerated Trailer” Shipping Container-TRU” means a trailer van, railcar, or shipping container equipped with a TRU or TRU gen set. Pursuant to Health and Safety Code section 39618, refrigerated trailers are mobile sources and shall be regulated by the ARB on a statewide basis.
- (58)(54) “Rotating Outage” means a controlled involuntary curtailment of electrical power service to consumers as ordered by the system operator - see definition in subsection (d).
- (59)(55) “Shipper” means the person, party, or entity who usually owns or supplies the commodities shipped by a carrier.
- (60)(56) “System Operator” means one of the several organizations that control energy in California. System operators include, but are not limited to, the California Independent System Operator, the Los Angeles Department of Water and Power, the Imperial Irrigation District, the Sacramento Municipal Utility District.
- (61)(57) “Terminal” means any place where a TRU- or TRU gen set equipped truck, trailer, shipping container, railcar or TRU gen set is regularly garaged, maintained, operated, or dispatched from, including a dispatch office, cross-dock facility, maintenance shop, business, or private residence.
- (62) “Tier 4 Nonroad/Offroad Emission Standards” means the emission standards and associated procedures that were proposed by U.S. Environmental Protection Agency in their Notice of Proposed Rule Making (Federal Register Vol. 68 No. 100, pp. 28327-28603, May 23, 2003) for nonroad diesel engines.
- (63)(58) “Transport Refrigeration Unit (TRU)” means refrigeration systems powered by integral internal combustion engines designed to control the environment of temperature sensitive products that are transported in ~~semi-trailer vans, trucks and vans, refrigerated trailers, reefer railcars, or shipping containers.~~ TRUs may be capable of both cooling and heating.
- (64)(59) “TRU Generator Set (TRU gen set)” means a generator set that is designed and used to provide electric power to electrically driven refrigeration units of any kind. This includes, but is not limited to gen sets that provide electricity to electrically powered refrigeration systems for semi-trailer vans and shipping containers.
- (65)(60) “Ultimate Purchaser” means with respect to a new TRU, TRU gen set, or engine, the first person who in good faith purchases a new TRU, TRU gen set, or engine for purposes other than resale.

(66)(64) “Ultra-Low-Aromatic Synthetic Diesel Fuel” means fuel produced from natural gas, coal, or biomass by the Fischer-Tropsch gas-to-liquid chemical conversion process, or similar process that meets the following properties:

Table 1

Property	ASTM	Value
Sulfur Content (ppmw)	D5453-93	<1
Total Aromatic Content (wt %)	D5186-96	<1.5%
Polynuclear Aromatic Content (wt %)	D5186-96	<0.5%
Natural Cetane Number	D613-84	>74

(67)(62) “Ultra-Low Emission TRU (ULETRU or U)” means a TRU or TRU gen set that meets the performance standards described under subparagraph (e)(1)(A)(i) and (ii) or that uses an “alternative technology” in accordance with subparagraph (e)(1)(A)(iii).

(68)(63) “Verification Classification Level” means the classification assigned to a Diesel Emission Control Strategy by the Executive Officer as defined in the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emission from Diesel Engines (13 CCR Sections 2700 – 2710)*. PM reductions correspond as follows: Level 1: $\geq 25\%$; Level 2: $\geq 50\%$; Level 3: $\geq 85\%$ or 0.01 g/hp-hr.

(69)(64) “Verified Diesel Emission Control Strategy” (VDECS) 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)*. Examples of diesel retrofit systems that may be verified include, but are not limited to, diesel particulate filters, diesel oxidation catalysts, fuel additives (e.g. fuel-borne catalysts), alternative fuels (e.g. dual fuel), alternative diesel fuels, and combinations of the above.

(e) Requirements.

(1) In-use Operation:

(A) In-Use Performance Standards: In accordance with the schedule set forth below in paragraph (e)(1)(B), no owner/operator shall operate a TRU or TRU gen set in California unless it meets the in-use emission category performance standards set forth below.

(i) In-Use performance standard categories for TRU and TRU gen set engines with rated brake horsepower less than 25 horsepower (<25 hp) are shown in Table 2, along with the engine certification standards or the

level of Verified Diesel Emission Control Strategy (VDECS) (see definition) that is necessary to qualify for each category.

**Table 2
<25 HP TRU and TRU Gen Set In-Use PM Performance Standards**

In-Use Emission Category	Engine Certification (g/hp-hr)	Level of VDECS Equipped with
Low Emission TRU (LETRU or L)	0.30 ¹	Level 2
Ultra-Low Emission TRU (ULETRU or U)	NA ²	Level 3

- a. Compliance can be achieved by:
1. ~~Replacing the~~ Using a certified engine with a certified engine meeting the applicable Tier 4 "Interim" nonroad/offroad emissions standards for all regulated pollutants and the in-use PM performance standard. Only engines for which certification data and deterioration factors ~~has~~ have been provided to ARB Stationary Source Division shall be considered ~~in~~ when determining compliance. The Executive Officer will consider such submittals, publish, and make available a list of qualifying engines.
 2. Equipping the engine with the required Level of VDECS.
- (ii) In-Use performance standard categories for TRU and TRU gen sets engines with rated brake horsepower greater than or equal to 25 horsepower (= 25 hp) are shown in Table 3, along with the engine certification standards or the level of VDECS that is necessary to qualify for each category.

¹ The Engine Certification value for the Low Emission TRU category corresponds to the "Interim" Tier 4 Nonroad/Offroad Emission Standards that will go into effect in 2008.

² Not Applicable - ARB and U.S. EPA will perform a technical review in 2007 to evaluate DOC or filter-based standard for <25 hp category new engines in 2013. If a more stringent "long term" level for new tier 4 (as identified in the May 23, 2003 Notice of Proposed Rulemaking to Control Emissions of Air Pollution from Nonroad Diesel Engines and Fuel) engines is adopted by U.S. EPA for this horsepower category, the Board will consider adopting an engine certification in-use performance standard for ULETRU for <25 hp TRUs and TRU gen sets.

Table 3
= 25 HP TRU and TRU Gen Set In-Use PM Performance Standards

In-Use Emission Category	Engine Certification (g/hp-hr)	Level of VDECS Equipped with
Low Emission TRU (LETRU or L)	0.22 ³	Level 2
Ultra-Low Emission TRU (ULETRU or U)	0.02 ⁴	Level 3

- a. Compliance can be achieved by:
1. ~~Replacing the~~ Using a certified engine with a certified engine meeting the applicable ~~Tier 4 "Interim"~~ nonroad/offroad emissions standards for all regulated pollutants and the in-use PM performance standard. Only engines for which certification data and deterioration factors ~~has~~ have been provided to ARB Stationary Source Division shall be considered ~~in~~ when determining compliance. The Executive Officer will consider such submittals, publish, and make available a list of qualifying engines.
 2. Equipping the engine with the required Level of VDECS.

(iii) As an alternative to meeting the ULETRU in-use performance standards in subsection (e)(1)(A)(i) and (ii), an owner/operator may operate a TRU or TRU gen set in California meeting one of the *Alternative Technology* options listed below. Alternative Technologies qualify to meet the ULETRU in-use performance standard only if the TRU or TRU gen set is operated under the conditions included in the description listed below.

- a. Electric standby, provided that the TRU is not operated under diesel engine power while at a facility, except during an emergency.
- b. Cryogenic temperature control systems or hybrid cryogenic temperature control systems, provided that the TRU does not operate under diesel engine power while at a facility, except during an emergency.
- c. Alternative-fueled engines (see definition in subsection (d)). If the engine is a CI engine, a VDECS is required.

Note: If the engine is not a compression ignition diesel fueled engine, this regulation would not apply, but the engine may have to meet other

³ The Engine Certification value for Low Emission TRU category corresponds to the "Interim" Tier 4 Nonroad/Offroad Emission Standards that will go into effect in 2008.

⁴ The Engine Certification value for the Ultra-Low Emission TRU category corresponds to the "Long Term" Tier 4 Nonroad/Offroad Emission Standards that will go into effect in 2012 or 2013.

emission standards (e.g. large spark-ignited engine standards if >25 hp).

- d. Fuel exclusively with an ~~alternative-diesel-fuel~~alternative diesel fuel (see definition in subsection (d)) that has been verified as a VDECS, provided it is used in accordance with the requirements of subsection (e)(2)(A) and the ~~alternative-diesel-fuel~~alternative diesel fuel contains no conventional diesel or CARB diesel fuel.
- e. Power by fuel cells. If a reformer is used, then emissions must be evaluated and verified through the *Verification Procedure Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines*.
- f. Equip with any other system approved by the Executive Officer to not emit diesel PM or increase public health risk while at a facility.

(B) In-Use Compliance Dates.

- (i) No owner/operator shall operate a 2001 and older model year (MY) TRU or TRU gen set engine in California unless it meets the in-use performance criteria set forth in paragraph (e)(1)(A) for
 - a. LETRU on or before December 31, 2008, and
 - b. ULETRU on or before December 31, 2015, as shown in Tables 4 and 5.
- (ii) No owner/operator shall operate a 2002 MY TRU or TRU gen set engine in California unless it meets the in-use performance criteria set forth in paragraph (e)(1)(A) for
 - a. LETRU on or before December 31, 2009, and
 - b. ULETRU on or before December 31, 2016, as shown in Tables 4 and 5.
- (iii) No owner/operator shall operate a 2003 MY and subsequent MY TRU or TRU gen set engine in California unless it meets the in-use performance criteria set forth in paragraph (e)(1)(A) for ULETRU on or before December 31st of the seventh year past the unit's model year, as shown in Tables 4 and 5.

**Table 4: <25 HP TRU and TRU Gen Set Engines
In-Use Compliance Dates**

MY	In-Use Compliance Year ⁵													
	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
'01 & Older		L	L	L	L	L	L	L	U	U	U	U	U	U
'02			L	L	L	L	L	L	U	U	U	U	U	U
'03 ⁶				U	U	U	U	U	U	U	U	U	U	U
'04					U	U	U	U	U	U	U	U	U	U
'05						U	U	U	U	U	U	U	U	U
'06							U	U	U	U	U	U	U	U
'07								U	U	U	U	U	U	U
'08									U	U	U	U	U	U
'09										U	U	U	U	U
'10											U	U	U	U
'11												U	U	U
'12													U	U
'13														U

⁵ Compliance date is December 31st of the compliance year shown. "MY" means model year. Black shaded areas are years with no requirements since in-use compliance year precedes model year. Dark shaded areas without letter codes have no requirements, pending in-use compliance date. "L" means must meet LETRU in-use performance standards. "U" means must meet ULETRU in-use performance standards.

⁶ TRUs and TRU gen sets with MY 2003 engines and subsequent MY engines shall be required to comply with ULETRU requirements by the end of the seventh year after the model year. The exception to this is =25 hp 2013 and subsequent model years, since these model years would meet ULETRU in-use performance standards as new engines.

**Table 5: = 25 HP TRU and TRU Gen Set Engines
In-Use Compliance Dates**

MY	In-Use Compliance Year ⁷													
	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
'01 & Older		L	L	L	L	L	L	L	U	U	U	U	U	U
'02			L	L	L	L	L	L	U	U	U	U	U	U
'03 ⁸				U	U	U	U	U	U	U	U	U	U	U
'04					U	U	U	U	U	U	U	U	U	U
'05						U	U	U	U	U	U	U	U	U
'06							U	U	U	U	U	U	U	U
'07								U	U	U	U	U	U	U
'08									U	U	U	U	U	U
'09										U	U	U	U	U
'10'											U	U	U	U
'11												U	U	U
'12													U	U
'13														

(C) Replacements Due to Failures.

- (i) If a VDECS fails within its warranty period, the owner/operator of the TRU or TRU gen set must replace it with the same VDECS or a higher verification classification level, if available.
- (ii) If a VDECS fails outside its warranty period and a higher verification classification level VDECS is available, then the owner/operator of the TRU or TRU gen set shall upgrade to the highest level VDECS required under paragraph (e)(1)(A)(i) and (ii) that is determined to be cost-effective by the Executive Officer.

(D) In-Use recordkeeping and reporting. In-use recordkeeping and reporting shall be completed by the operator in accordance with the requirements of subsection (f)(1).

(E) ARB Identification Numbering Requirements. Identification numbers will be issued to help expedite the inspection procedure and prevent shipping delays.

⁷ Compliance date is December 31st of the compliance year shown. "MY" means model year. Black shaded areas are years with no requirements since in-use compliance year precedes model year. Dark shaded areas without letter codes have no requirements, pending in-use compliance date. "L" means must meet LETRU in-use performance standards. "U" means must meet ULETRU in-use performance standards.

⁸ TRUs and TRU gen sets with MY 2003 engines and subsequent MY engines shall be required to comply with ULETRU requirements by the end of the seventh year after the model year. The exception to this is ≥25 hp 2013 and subsequent model years, since these model years would meet ULETRU in-use performance standards as new engines.

- (i) California-based TRUs and TRU gen sets:
 - a. On or before January 31, 2009, owner/operators of all California-based TRUs and TRU gen sets subject to this regulation shall apply for an ARB identification number for all California-based TRUs or TRU gen sets operated by the operator by submitting an application that includes the information listed below.
 - 1. Operator name, address, and contact information for the responsible official (e.g. phone number, email address, fax number)
 - 2. Owner name, address, and contact information (if other than operator)
 - 3. TRU or TRU gen set make, model, model year, and serial number
 - 4. TRU engine make, model, model year, and serial number
 - 5. Terminal or terminals that the TRU-equipped truck or trailer is assigned to with address and contact information
 - 6. Other associated identification numbers, which may include (as applicable):
 - A. Vehicle Identification Number (~~truck's or trailer's~~ VIN) of the TRU-equipped truck or trailer.
 - B. Vehicle license number (~~e.g. of the TRU-equipped truck's or trailer's~~).
 - C. Railcar recording mark and car number
 - D. Shipping Container number (for TRU-equipped shipping containers only)
 - E. Company equipment number (if any)
 - 7. Compliance status with paragraph (e)(1)(A) requirements. If compliance not as-yet required, mark N/A.
 - A. Date when compliance was achieved
 - B. What performance standard was met (e.g. LETRU or ULETRU)

- C. How compliance was achieved (e.g. new compliant TRU, TRU engine replacement, or description of VDECS that was used)
 - D. Identify who did the installation work (if applicable)
- b. Applications shall be submitted by one of the following methods:
- 1. Mail or deliver a physical report to ARB at the address listed immediately below:

California Air Resources Board
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812
 - 2. Electronically submit through ARB's web site. The web address will be identified in an advisory.
- c. TRUs and TRU gen sets added to an operator's TRU operations after January 31, 2009 shall be brought into compliance with subsection (e)(1)(E). An application shall be submitted to ARB within 30 days of the unit entering the operator's control:
- 1. Requesting an ARB I.D. number for a new TRU or TRU gen set that was not previously numbered, or
 - 2. Requesting a change in owner or operator (or other pertinent application information) for used equipment that already has an ARB I.D. number.
- d. Failure to apply or submittal of false information is a violation of state law subject to civil penalty.
- e. On or before February 1, 2009, the Executive Officer shall begin issuing identification numbers to TRU and TRU gen set operators for each unit based in California for which a complete application has been filed. The number will include a 2-digit prefix for model year (e.g. 2001 model year would have a prefix 01); a 6-digit serial number; a check-digit, and a letter indicating compliance status with in-use performance standards (either "L" or "U"). In the event that an operator applies for an early compliance certificate in accordance with subsection (e)(1)(F), ARB will also issue a certificate which acknowledges early compliance per (e)(1)(F)(iii).

- f. Within 30 days of receipt of the ARB-issued identification number, owner/operators shall permanently affix or paint the identification number on the TRU or TRU gen set chassis housing in clear view according to the following specification:
 - 1. The ARB identification number shall be preceded by the letters “**ARB**”
 - 2. Letters and numbers shall contrast sharply in color with the color of the background surface on which the letters are placed.
 - 3. The location of the I.D. number shall be as follows:
 - A. Truck and trailer TRUs - both sides of TRU chassis housing
 - B. Rail car and shipping container TRUs– both sides of the TRU
 - C. TRU gen sets – both sides of gen set housing
 - 4. Letters and numbers shall be readily legible during daylight hours, from a distance of 50 feet (15.24 meters) while unit is stationary.
 - 5. Marking shall be kept maintained in a manner that retains the legibility required by the subparagraph immediately above.
- (ii) Non-California-based TRUs and TRU Gen Sets:
 - a. Operators of non-California-based TRUs and TRU gen sets may voluntarily apply for ARB identification numbers for TRUs that are based outside of California but operate within California during the normal course of business. Non-California-based operators may voluntarily submit the same application information listed above in subparagraph (e)(1)(E)(i)a., above, using the same methods of submittal listed in subparagraph (e)(1)(e)(i)b., above. Upon application approval, ARB would issue identification numbers to the operator in accordance with subparagraph (e)(1)(E)(i)e., above. The non-California-based operator would then permanently affix or paint the identification number on the TRU or TRU gen set chassis in clear view, in accordance with (e)(1)(E)(i)f., above.

(F) Early Compliance with LETRU In-Use Performance Standards.

- (i) For 2002 and older MY TRU and TRU gen set engines, operators or owners that meet the LETRU in-use performance standard earlier than required in paragraph (e)(1)(B) may apply to the Executive Officer for a delay in the ULETRU in-use performance standard. Except as provided

below, early compliance would be achieved through any of the options available in paragraph (e)(1)(A).

- a. This delay would not be available to the operator or owner if the engine manufacturer of the replacement engine is using the early compliance with engine emissions standards in U.S. EPA's Averaging, Banking, and Trading Program (or California's equivalent program)
 - b. Early compliance is conditioned upon real emission reductions (refer to definition in sub section (d)) occurring earlier than the applicable compliance deadline.
- (ii) Early LETRU compliance with real emission reductions would allow specific units to delay compliance with ULETRU in-use performance standards by up to three years, according to the rounding conventions and examples listed below.
- a. Each year of early compliance with the LETRU in-use performance standards would be rewarded with 1 year delay in the ULETRU in-use performance standard.
 - 1. One full year early compliance qualifies for one full year delay in meeting ULETRU compliance.
 - 2. Two full years early compliance qualifies for two full years delay in meeting ULETRU compliance.
 - 3. Three full years early compliance qualifies for three full years delay in meeting ULETRU compliance.
 - b. A partial year of early LETRU compliance would be rounded to the nearest full year for the delayed ULETRU requirements.
 - 1. Early LETRU compliance of 183 days or more in a calendar year would count toward a one year ULETRU delay
 - 2. Early LETRU compliance of 182 days or less in a calendar year would not count toward a ULETRU delay.
- (iii) Upon receipt of an application to delay ULETRU compliance, the Executive Officer shall determine if the application demonstrates early compliance with LETRU in-use performance standards in accordance with subsection (e)(1)(F)(i), and if the application is approved, shall delay the in-use ULETRU compliance date for specific TRUs and TRU gen sets operating in California in accordance with subparagraph (e)(1)(F)(ii).

- (iv) Upon approval of the application, ARB shall issue a certificate and ARB identification number in accordance with subsection (e)(1)(E)(i)e. which acknowledges early compliance with LETRU requirements and discloses the number of years delay granted, and resulting ULETRU compliance date.
- (v) The operator shall maintain a legible copy of the certificate in a water-tight sleeve mounted inside the TRU or TRU gen set chassis housing. The operator shall paint the identification number in clear view in accordance with subsection (e)(1)(E)(i)f. on the specific TRU or TRU gen set that was granted the compliance extension.

(2) Fuel Requirements.:

(A) Operators Choosing to Use ~~Alternative-Diesel-Fuels~~Alternative Diesel Fuels. Operators choosing to use ~~alternative-diesel-fuels~~alternative diesel fuels in compression ignition TRU and TRU gen set engines to meet the requirements of subsection (e)(1) shall:

- (i) Maintain records in accordance with subsection (f)(1)(B) of this regulation.
- (ii) Use only fuel that is a VDECS alternative diesel fuel that contains no conventional diesel or CARB diesel fuel in TRUs or TRU gen sets operated in California.
- (iii) Permanently affix a label in clear view near the fill spout that identifies the proper fuel that is required to be in compliance.
- (iv) In the event that the operator decides to revert to using conventional diesel or CARB diesel fuel, the operator shall comply with the requirements of subsection (e)(1) within 10 days of discontinuation of alternative diesel fuel use. Within 10 days of discontinuation, the operator shall notify the Executive Officer in writing of this change in fuel use and shall include an update to any ARB I.D. number application or annual report submitted to comply with subsections (e)(1)(E), (e)(1)(F), or (f)(1).

(B) Operators that Retrofit TRUs or TRU Gen Sets with a VDECS. Operators that retrofit TRUs or TRU gen sets with a VDECS that requires certain fuel properties to be met in order to achieve the required PM reduction or PM emissions shall only fuel the subject TRU or TRU gen set with fuel that meets these specifications when operating in the state of California. In addition, operators that choose a VDECS that requires certain fuel properties to be met in order to prevent damage to the VDEC or an increase in toxic air contaminants, other harmful compounds, or in the nature of the emitted PM

shall only fuel the subject TRU or TRU gen set with fuel that meets these specifications.

(f) Monitoring, Recordkeeping, and Reporting Requirements.

(1) TRU and TRU gen set operator recordkeeping and reporting.

(A) Operator Reporting.

- (i) All operators subject to this regulation shall submit an Operator Report to ARB by January 31, 2009 that shall include the following information:
 - a. Operator name, address, and contact information for the responsible official (phone number, email address, fax number).
 - b. List of all terminals owned or leased by the operator located within California, with address, phone number, and terminal contact name.
 - c. TRU and TRU gen set inventory information for each TRU and TRU gen set based in California that is owned or leased by the operator:
 - 1. TRU or gen set make, model, model year, and serial number
 - 2. TRU owner, and if other than operator, owner name, address, and contact.
 - 3. Engine make, model, model year, and serial number
 - 4. Terminal(s) that the TRU is assigned to
 - 5. ARB TRU or TRU gen set identification number, if already issued. If the ARB identification number has not been issued or there has been a change in the other identification numbers listed below since the prior annual report, then provide the following identification numbers (as applicable):
 - A. Vehicle Identification Number
 - B. Vehicle license number
 - C. Railcar recording mark and car number
 - D. Shipping Container number (for TRU-equipped shipping containers only)
 - E. Company equipment number

6. Compliance status with paragraph (e)(1)(A) requirements.

(ii) The Operator Report shall be updated within 30 days when changes to any of the above operator information occur.

a. Operator Reports shall be submitted by one of the following methods:

1. Mail or deliver a physical report to ARB at the address listed immediately below:

California Air Resources Board
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812

2. Electronically submit through ARB's web site. The web address will be identified in an advisory.

(iii) Failure to report or submittal of false information is a violation of state law subject to civil penalty.

(B) Alternative Diesel Fuel Use and Fuel Additive Recordkeeping and Reporting.

(i) Operators that choose a compliance pathway that involves the use of ~~alternative diesel fuel~~ alternative diesel fuel in accordance with subparagraph (e)(1)(A)(iii)d. (e.g. B100 biodiesel fuel or ultra-low-aromatic synthetic diesel fuel) and/or a VDECS that includes the use of a fuel additive (e.g. fuel-borne catalyst) shall maintain records that document exclusive use of the chosen fuel or additive for each affected CI engine and hours of operation. Appropriate records would be copies of receipts or invoices of appropriate fuel and/or fuel additive and daily operating hour logs.

(ii) Records shall be kept available for a minimum of three (3) years and shall be compiled and made available to the ARB upon request.

(iii) Failure to keep records or submittal of false information is a violation of state law subject to civil penalty.

(2) Facility monitoring, recordkeeping, and reporting.

(A) Facility Reporting. All facilities subject to this subsection shall submit a Facility Report to ARB by January 31, 2005, containing the following information, as of December 31, 2004:

- (i) Contact information for the facility's responsible official.
 - (ii) Provide all North American Industrial Classification System codes (NAICS) applicable to the facility.
 - (iii) The number of loading dock doors serving refrigerated storage space.
 - (iv) The number of square feet of refrigerated storage space.
 - (v) The number of TRUs or TRU gen sets under facility control by model year and horsepower category.
 - (vi) The number of refrigerated trucks, trailers, shipping containers, or railcars leased or rented.
 - (vii) The total annual TRU engine operating hours for all TRUs or TRU gen sets under facility control during 2004.
 - (viii) The average weekly number of inbound refrigerated trucks, trailers, shipping containers, and railcars delivering goods to the facility during 2004.
 - (ix) The average weekly number of outbound refrigerated trucks, trailers, containers and railcars delivering goods from the facility during 2004.
 - (x) The average total number of hours per week that outbound TRU or TRU gen set engines operate while at the facility during 2004.
 - (xi) The average total number of hours per week that inbound TRU or TRU gen set engines operate while at the facility during 2004.
 - (xii) The number of refrigerated trailers (as defined) that are used at the facility for cold storage, the total annual number of hours of TRU engine operation associated with these refrigerated trailers, and the total annual number of hours of operation using electric standby associated with these refrigerated trailers.
- (B) **Recordkeeping.** Recordkeeping that substantiates the information reported in the Facility Report shall be maintained and shall be compiled and made available to State inspectors upon request for a minimum of three (3) years.
- (C) **Facility Report Submittals.** Facility Reports shall be submitted by one of the following methods:

- (i) Mail or deliver a physical report to ARB at the address listed immediately below:

California Air Resources Board
Stationary Source Division
P.O. Box 2815
Sacramento, CA 95812

- (ii) Electronically submit through ARB's web site. The web address will be identified in an advisory.

(D) **Failure to report or submittal of false information.** Failure to report or submittal of false information is a violation of state law subject to civil penalty.

(g) **Prohibitions.**

- (1) No person who is engaged in this State in the business of selling to an ultimate purchaser, or renting or leasing new or used TRUs or TRU gen sets, including, but not limited to, manufacturers, distributors, and dealers, shall intentionally or negligently import, deliver, purchase, receive, or otherwise acquire a new or used TRU or TRU gen set engine that does not meet the performance requirements or alternatives set forth in section (e)(1) above.
- (2) No person who is engaged in this State in the business of selling to an ultimate purchaser new or used TRU or TRU gen set engines, including, but not limited to, manufacturers, distributors, and dealers, shall sell, or offer to sell, to an ultimate purchaser who is a resident of this State or a person that could reasonably be expected to do business in this State a new or used TRU or TRU gen set engine that does not meet the performance requirements or alternatives set forth in section (e)(1) above.
- (3) No person who is engaged in this State in the business of renting or leasing new or used TRU or TRU gen set engines, including, but not limited to, manufacturers, distributors, and dealers, shall lease, offer to lease, rent, or offer to rent, in this state any new or used TRU or TRU gen set engine that does not meet the performance requirements or alternatives set forth in section (e)(1) above.
- (4) Operators of affected facilities and operators of affected TRUs and TRU gen sets are prohibited from taking action to divert affected TRUs to alternate staging areas in order to circumvent the requirements of this section.

(h) **Penalties.**

- (1) All persons, as defined in section 19 of the Health and Safety Code, found to be in violation of title 13, CCR, section 2022 shall be cited and subject to the civil or

administrative penalty provisions set forth in Health and Safety Code sections 39674 and 42402 et seq., and 42410.

NOTE: Authority cited: sections 39600, 39601, 39618, 39658, 39659, 39666, 39667, 39674, 42402 et seq., 42410, 43013, 43018, California Health and Safety Code.
Reference: sections 39618, 39650, 39658, 39659, 39666, 39667, 39674, 42402 et seq., 42410, 40717.9, 43013, and 43018.