

DRAFT PROPOSED REGULATION TO REDUCE EMISSIONS OF DIESEL PARTICULATE MATTER, AND OTHER POLLUTANTS FROM IN-USE ON-ROAD HEAVY-DUTY DIESEL-FUELED VEHICLES

Adopt new section 2027, in title 13, article 4.5, chapter 1, California Code of Regulations (CCR) to read as follows: (Note that the entire text of section 2027 set forth below is new language proposed to be added to the California Code of Regulations.)

Section 2027. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, and Greenhouse Gases from In-Use On-Road Heavy-Duty Diesel-Fueled Vehicles

- (a) *Purpose.* The purpose of this regulation is to reduce emissions of diesel particulate matter (PM), oxides of nitrogen and other criteria pollutants, and greenhouse gases from in-use on-road diesel-fueled vehicles.
- (b) *Scope and Applicability.* Except as provided in subsection (c), this regulation applies to all heavy duty diesel-fueled or alternative diesel-fueled vehicles with engine model-year 2006 and older, and manufacturer's gross vehicle weight rating (GVWR) greater than 14,000 pounds that operate on the streets or highways within the State of California. It specifically applies to:
- (1) Any person, business, or government agency who owns, leases, rents, or operates such a vehicle within California;
 - (2) Any person, business, or government agency who sells such a vehicle within California;
 - (3) Vehicles that were designed to be driven on-road, have on-road engines, and still meet the original manufacturer's on-road engine emission certification standard even though they might not be registered to be driven on-road; and
 - (4) Placeholder for inclusion of cranes – both on-road and off-road.
- (c) *Exemptions.* This regulation does not apply to:
- (1) Vehicles subject to the solid waste collection vehicle rule commencing with title 13, CCR, section 2021;
 - (2) Vehicles subject to the public agency and utility fleet rule commencing with title 13, CCR, section 2022;
 - (3) Vehicles subject to the fleet rule for transit agencies commencing with title 13, CCR, section 2023;
 - (4) Vehicles subject to the rule for heavy-duty drayage trucks commencing with title 13, CCR, section XXXX;

- (5) School buses owned by a public school district or a joint powers authority formed by several public school districts;
 - (6) Military tactical support vehicles, as described in title 13, CCR, section 1905;
 - (7) Emergency vehicles as described in California Vehicle Code (Veh. Code), section 27156.2;
 - (8) Off-road vehicles subject to title 13, CCR, sections 2401, 2421, 2411, 2432, and 2449;
 - (9) Historic vehicles as defined in section 2027(d)(20);
 - (10) Persons who provide financing in the form of "finance leases," as defined in California Uniform Commercial Code, section 10103(a)(7), for in-use on-road diesel-fueled vehicles, do not "own" such vehicles for the purposes of this regulation.
- (d) *Definitions.* For purposes of this regulation, the following definitions apply:
- (1) "Alternative Diesel Fuel" means any fuel used in diesel engines that is not 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 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 engine, or
 - (C) the additive and base fuel are not mixed until 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.
 - (2) "Alternative Fuel" means natural gas, propane, ethanol, methanol, gasoline (when used in hybrid electric vehicles only), hydrogen, electricity, fuel cells, or advanced technologies that do not rely on diesel fuel. "Alternative fuel" also means any of these fuels used in combination with each other or in combination with other non-diesel fuels.
 - (3) "Base Registration State" means the state where the vehicle is primarily operated, or from which it is primarily dispatched, or where it is principally garaged or maintained and where the fleet owner has an established place of business.

- (4) “Best Available Control Technology” (BACT) means the exhaust PM and NO_x standards that must be met according to the requirements of sections 2027(f)(1) and 2027(f)(2).
- (5) “Common Ownership or Control” means being owned or managed day to day by the same person, corporation, partnership, or association. Vehicles managed by the same directors, officers, or managers, or by corporations controlled by the same majority stockholders are considered to be under common ownership or control even if their title is held by different business entities.
- (6) “Compression Ignition 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.
- (7) “Dedicated Snow Removal Vehicle” means a vehicle that has permanently affixed snow removal equipment such as a snow blower or auger and is operated exclusively to remove snow from public roads, private roads, or other paths to allow on-road vehicle access.
- (8) “Diesel Fuel” has the same meaning as defined in Title 13, CCR, sections 2281 and 2282.
- (9) “Diesel Particulate Filter” means an emission control technology that reduces diesel particulate matter emissions by directing all of the exhaust through a filter that physically captures particles but permits gases to flow through. Periodically, the collected particles are either physically removed or oxidized (burned off) in a process called regeneration.
- (10) “Diesel PM Index” for the purposes of section 2027(g)(7)(A) means an indicator of the overall PM emission rate for all the vehicles in an owner’s fleet that are registered in California and operate only in California, and are subject to the fleet averaging compliance option.
- (11) “Diesel PM Target Rate” means the diesel PM fleet average that a specific fleet must meet in a compliance year in order to show compliance with the fleet average requirements.
- (12) “Emergency Vehicle” is as defined in California Veh. Code, section 27156.2.
- (13) “Emergency Operation” means operation of a vehicle to help alleviate an immediate threat to public health or safety. Examples of emergency operation include repairing or preventing damage to roads, buildings, terrain, and infrastructure as a result of an earthquake, flood, storm, fire, terrorism, or other infrequent act of nature. Routine operation to prevent public health risks does not constitute emergency operation.
- (14) “Engine Emission Factor” means diesel PM or oxides of nitrogen (NO_x) emission rate in grams per brake horsepower-hour (g/bhp-hr) as shown in Attachment A.

- (15) "Executive Officer" means the Executive Officer of the ARB or his or her authorized representative.
- (16) "Fleet" means the total number of on-road vehicles and engines owned by a person, business, or government agency that are operated within California and are subject to the regulation. A fleet includes one or more vehicles. A fleet does not include vehicles that have never operated in California.
- (A) "Rental Fleets" - Vehicles that are owned by a rental company and that are leased by the same lessee for a period of one year or more may be excluded from the rental company fleet and included in the fleet of the lessee only if such arrangement is delineated in the written lease agreement.
- Vehicles that are rented or leased for a period of less than one year must be included in the fleet of the rental company.
- On-road heavy-duty diesel-fueled vehicles and engines owned by a lessor and leased to a lessee under a "lease" as defined in California Uniform Commercial Code, section 10103(a)(10), for a duration of at least one year, dated prior to the effective date of these regulations, are considered part of the fleet of the lessee rather than the lessor.
- (17) "Gross Vehicle Weight Rating" is as defined in California Veh. Code section 350.
- (18) "Heavy-Duty Pilot Ignition Engine" means an engine designed to operate using an alternative fuel, except that diesel fuel is used for pilot ignition at an average ratio of no more than one part diesel fuel to ten parts total fuel on an energy equivalent basis. An engine that can operate or idle solely on diesel fuel at any time does not meet this definition
- (19) "Highest Level Verified Diesel Emission Control System (VDECS) " means the highest level VDECS verified by ARB under its Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emission from Diesel Engines (Verification Procedure), title 13, CCR, sections 2700-2710, for a specific engine as of 10 months prior to the compliance date, which the diesel emission-control strategy manufacturer and authorized diesel emission-control strategy dealer agree can be used on a specific engine and vehicle combination without jeopardizing the original engine warranty in effect at the time of application.
- (A) The highest level VDECS is determined solely based on verified diesel PM reductions, not based on verified NOx reductions. Plus designations do not affect the diesel PM level assigned to a VDECS; that is, a Level 3 Plus is the same diesel PM level as Level 3.
- (B) Level 1 devices are never considered highest level VDECS for the purpose of this regulation.
- (20) "Historic Vehicle" means a vehicle that qualifies for a historical vehicle license plate pursuant to the California Veh. Code, section 5004, and is operated or

moved over the highway primarily for the purpose of historical exhibition or other historic vehicle club activities.

- (21) "Hybrid Diesel Electric Vehicle" means a heavy-duty vehicle that combines two motive power sources: an energy storage system such as batteries or ultra-capacitors, and an auxiliary power unit which converts consumable fuel energy into mechanical or electrical energy. The electric motors must provide partial or complete power to drive the vehicle's wheels. In addition, energy otherwise lost as heat during braking is captured through regenerative braking to charge the energy storage system.
- (22) "Hybrid Diesel Hydraulic Vehicle" means a heavy-duty vehicle that combines a diesel engine with a hydraulic system. The fluid remains on the vehicle in a closed system and used repeatedly. The hydraulic system provides one or more of the following processes: motive power for starting the vehicle from a stop; motive power for accelerating the vehicle, and; recapture of energy when the vehicle decelerates.
- (23) "Hybrid Diesel Pneumatic Vehicle" means a heavy-duty vehicle that combines a diesel engine with a pneumatic system. The pneumatic fluid is compressed air. The pneumatic fluid may be expanded to provide motive power and compressed to capture energy within the diesel engine, or in a separate assembly. The pneumatic system provides one or more of the following processes: motive power for starting the vehicle from a stop; motive power for accelerating the vehicle, and; recapture of energy when the vehicle decelerates.
- (24) "Implement of Husbandry" is as defined in California Veh. Code, division 16, chap. 1, sections 36000 et seq.
- (25) "International Registration Plan" (IRP) is as described in California Veh. Code, division 3, chap. 4, article 4, sections 8050 et seq.
- (26) "Low-use Vehicle" means a vehicle whose propulsion engine was operated in California for fewer than 1,000 miles and less than 100 hours during the preceding 12-month period running from January 1 to the end of December. For example, for a fleet reporting on January 1, 2010, the mileage and hours of use between January 1, 2009 and December 31, 2009 would be used to determine low-use status. To be considered a low-use vehicle, the fleet owner must submit engine operation data from a properly functioning odometer and non-resettable hour meter. Hours and mileage used in emergency operations are not counted when determining low-use status.
- (27) "Motor Home" means a vehicular unit built on, or permanently attached to, a self-propelled motor vehicle chassis, chassis cab, or van, which becomes an integral part of the completed vehicle, designed for human habitation for recreational or emergency occupancy.
- (28) "New Fleet" means a fleet that is acquired or that enters California after December 31, 2009. Such fleets may include new businesses or out-of-state

businesses that bring vehicles into California for the first time after December 31, 2009.

- (29) “NOx Index” for the purposes of section 2027(g)(6)(C) means an indicator of the overall NOx emission rate for all the vehicles in an owner’s fleet that are registered in California and operate only in California, and are subject to the fleet averaging compliance option.
- (30) “NOx Target Rate” means the NOx fleet average that a specific fleet must meet in a compliance year in order to show compliance with the fleet average requirements. The NOx Target Rate varies depending on a fleet’s model-year distribution.
- (31) “Oxides of Nitrogen (NOx)” means compounds of nitric oxide, nitrogen dioxide, and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition.
- (32) “Owner” is as defined in California Veh. Code, section 460
- (33) “Registered and driven safely on-road” means a vehicle meets the requirements to be registered for on-road operation in California Veh. Code division 3, chap. 1, article 1, section 4000 et seq. (i.e., required to be registered or could be registered), and the requirements to be driven safely on-road in “Equipment of Vehicles” requirements in Veh. Code division 12, chap. 1, sections 24000 et seq. and “Size, Weight, and Load” requirements in Veh. Code division 15, sections 35000 et seq.
- (34) “Repower” means to replace the engine in a vehicle with a newer engine certified to lower emission standards for PM or NOx or both as applicable.
- (35) Responsible Official means one of the following:
 - (A) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation,
 - (B) For a partnership or sole proprietorship: a general partner or the proprietor, respectively
 - (C) For a municipality, state, federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the U.S. EPA).
- (36) “Retire” means to take an engine out of service and not operate it again in the State of California. To retire an engine, the vehicle with the engine may be moved or sold outside of California, or scrapped.

- (37) "Small Business" is as defined in Government Code section 11342.610.
- (38) "Special Equipment Registration" means registration of specialized vehicles, which are incidentally operated on the highway, fall under the definition of Special Equipment (SE) and are exempt from regular registration. These vehicles are not designed for transportation of persons or property and are only occasionally operated or moved over the highways.
- (39) "Verified Diesel Emission Control System" (VDECS) means an emissions control strategy, designed primarily for the reduction of diesel PM emissions, which has been verified pursuant to the Verification Procedures. VDECS can be verified to achieve Level 1 diesel PM reductions (25 percent), Level 2 diesel PM reductions (50 percent), or Level 3 diesel PM reductions (85 percent). VDECS may also be verified to achieve NOx reductions. See also definition of Highest Level VDECS.
- (40) "VDECS Failure" means the condition of not achieving the emissions reductions to which the VDECS is verified. Such condition could be due to inappropriate installation, damage, or deterioration during use. If a Level 3 VDECS is emitting visible smoke, it should be assumed to have failed.

(e) *Requirements*

Beginning with the applicable effective dates, all fleets must comply with the following requirements of this regulation:

- (1) Each fleet must comply with the best available control technology (BACT) requirements of subsection (f) or the fleet average requirements of subsection (g), or a combination of both, as applicable.
- (2) Engines and vehicles must be labeled as specified in subsection (j).
- (3) Information specified in subsection (k) must be reported to the Executive Officer.
- (4) Records must be kept as specified in subsection (l).
- (5) An owner is required to keep each vehicle in compliance with this regulation once it is in compliance, so long as the owner is operating the vehicle in California.
- (6) Placeholder for strategy to reduce greenhouse gas emissions (GHG). Regulatory language for GHG emissions reduction will be added between the current sections (g) and (h).

(f) *Best Available Control Technology (BACT)*

- (1) Beginning with the applicable effective date, the owner must comply with the BACT emission standards of paragraphs A and B for each vehicle according to the phase-in schedule shown in Table 1.

- (A) The NO_x exhaust emissions from a vehicle must be less than or equal to the NO_x emissions from an engine certified to the NO_x emission standard for a 2004 model-year heavy-duty diesel engine, as specified in title 13, CCR, section 1956.8(a)(2)(A).
- (B) The PM exhaust emissions from a vehicle must be less than or equal to the PM emissions from an engine certified to the 0.1 g/bhp-hr PM emission standard for a 2004 model-year heavy-duty diesel engine, as specified in title 13, CCR, section 1956.8(a)(2)(A), in conjunction with the highest level diesel emission control strategy as defined in subsection (d)(19).

Table 1: Phase 1 Schedule for Compliance with 2004 Engine MY Standard.

<i>Engine Model-Years of Fleet Vehicle</i>	<i>Compliance Deadline, as of December 31</i>
Pre-1994	2009
1994 – 1997	2010
1998 - 1999	2011
2000 – 2002	2012
2003 – 2006	2013

- (2) After December 31, 2013, the fleet owner must meet the BACT emissions standards of paragraphs A and B of this subsection according to the phase-in schedule shown in Table 2.
 - (A) The NO_x exhaust emissions from each fleet vehicle must be less than or equal to the NO_x emissions from a 2007 model-year heavy-duty diesel engine certified to the NO_x emission standards, as specified in title 13, California Code of Regulations, section 1956.8(a)(2)(A).
 - (B) The PM exhaust emissions from each fleet vehicle must be less than or equal to 0.01 grams per brake horsepower hour (g/bhp-hr). Vehicles not certified to this standard, per title 13, CCR, section 1956.8(a)(2)(A), may meet the requirements of this section so long as they were certified to the 0.1 g/bhp-hr standard and are used in conjunction with a diesel particulate filter.

Table 2: Phase 2 Schedule for Compliance with 2007 Engine MY Standard

<i>Engine Model-Years</i>	<i>Compliance Deadline, as of December 31</i>
Pre-2003	2017
2003 - 2004	2018
2005 – 2006	2019

(g) *Optional Fleet Averaging*

- (1) Owners may, at their option, include any or all of their vehicles in the fleet averaging provisions. To qualify for this option, an owner must satisfy all the requirements of paragraph (A) of this subsection. All other vehicles in the fleet that do not qualify for fleet averaging, or are not included in the fleet averaging, must comply with the BACT requirements of subsection (f).
 - (A) The vehicles are registered only in California and do not operate outside of California. Vehicles with a base registration state other than California are excluded from fleet averaging.
- (2) If various portions of a fleet are under the control of different responsible officials because they are part of different subsidiaries, divisions, or other organizational structures of a company or agency, the fleet portions may comply with the fleet averaging performance requirements separately and be reported separately.
- (3) A fleet owner who elects to be subject to the fleet averaging compliance option of section 2027(g) is subject to the reporting requirements of subsection (k) for the applicable portion of the fleet.
- (4) An owner of a new fleet who elects to be subject to the fleet averaging compliance option of section 2027(g) must meet the fleet average requirements in sections 2027(g)(6) and (7) immediately on purchasing vehicles subject to the regulation or bringing such vehicles into the State of California for the first time after December 31, 2009.
- (5) An owner of a new fleet must report vehicles subject to the fleet averaging requirements of the regulation to ARB within 30 days of purchasing or bringing such vehicles into the State, in accordance with the reporting requirements in subsection (k).
- (6) NOx Fleet Average.
 - (A) A fleet owner must demonstrate that on December 31 of each year, starting in 2009 and ending on December 31, 2018, the NOx Index of the applicable portion of the fleet was less than or equal to the calculated NOx Target Rate.
 - (B) By December 31, 2019, all vehicles in the fleet subject to the fleet averaging option must meet the NOx BACT standard of section 2027(f)(2)(A).
 - (C) NOx Index: The following equation is to be used to calculate the NOx Index.

$$\text{NOx Index} = \frac{(\text{Sum of } EF_{(MY)} \text{ for all HHD vehicles}) + (\text{Sum of } (EF_{(MY)} \times 0.5) \text{ for all MHD vehicles})}{\text{Total number of HHD vehicles} + \text{Total number of MHD vehicles}}$$

Where:

$EF_{(MY)}$ = NOx Emissions Factor (g/bhp-hr) is as defined in Attachment A for each engine model year

HHD = Number of heavy heavy-duty vehicles (over 33,000 lbs GVWR)

MHD = Number of medium heavy-duty vehicles (14,001 to 33,000 lbs GVWR)

(D) NOx Target Rate: The following equation is to be used to calculate the NOx Target Rate.

$$NOx \text{ Target Rate} = \frac{(\text{Sum of } Target_{(CY)} \text{ for all HHD vehicles}) + (\text{Sum of } (Target_{(CY)} \times 0.5) \text{ for all MHD vehicles})}{\text{Total number of HHD vehicles} + \text{Total number of MHD vehicles}}$$

Where:

$Target_{(CY)}$ = Targets in Table 3 to be used to calculate the NOx target rate for each compliance year.

HHD = Number of heavy heavy-duty vehicles (over 33,000 lbs GVWR)

MHD = Number of medium heavy-duty vehicles (14,001 to 33,000 lbs GVWR)

*Table 3: Fleet NOx Targets
to be Used to Calculate NOx Target Rates (g/bhp-hr)*

<i>Compliance Deadline, as of December 31</i>	<i>Fleet NOx Targets for each compliance deadline</i>
2009	4.2
2010	3.7
2011	3.3
2012	2.8
2013	2.3
2014	2.0
2015	1.7
2016	1.4
2017	1.0
2018	0.7

(7) PM Fleet Average.

(A) A fleet owner must demonstrate that on December 31 of each year, starting in 2009 and ending on December 31, 2018, the PM Index of the applicable portion of the fleet was less than or equal to the calculated PM Target Rate.

(B) By December 31, 2019, all vehicles in the fleet subject to the fleet averaging requirements must meet the PM BACT standard of section 2027(f)(2)(B).

(C) PM Index. The following equation is to be used to calculate the PM Index:

$$PM\ Index = \frac{(Sum\ of\ PEF_{(MY)}\ for\ all\ HHD\ vehicles) + (Sum\ of\ (PEF_{(MY)} \times 0.5)\ for\ all\ MHD\ vehicles)}{Total\ number\ of\ HHD\ vehicles + Total\ number\ of\ MHD\ vehicles}$$

Where:

PEF_(MY) = PM Emissions Factor (g/bhp-hr) is as defined in Attachment A for each engine model year

HHD = Number of heavy heavy-duty vehicles (GVWR over 33,000 lbs)

MHD = Number of medium heavy-duty vehicles (14,001 to 33,000 lbs GVWR)

(D) PM Target Rate: The following equation is to be used to calculate the PM Target Rate.

$$PM\ Target\ Rate = \frac{(Sum\ of\ PTarget_{(CY)}\ for\ all\ HHD\ vehicles) + (Sum\ of\ (PTarget_{(CY)} \times 0.5)\ for\ all\ MHD\ vehicles)}{Total\ number\ of\ HHD\ vehicles + Total\ number\ of\ MHD\ vehicles}$$

Where:

PTarget_(CY) = Targets in Table 4 to be used to calculate the PM target rate for each compliance year.

HHD = Number of heavy heavy-duty vehicles (GVWR over 33,000 lbs)

MHD = Number of medium heavy-duty vehicles (14,001 to 33,000 lbs GVWR)

*Table 4: Fleet PM Targets
to be Used to Calculate PM Target Rates (g/bhp-hr)*

<i>Compliance Deadline, as of December 31</i>	<i>Fleet PM Targets for each compliance deadline</i>
2009	0.10
2010	0.079
2011	0.058
2012	0.036
2013	0.015
2014	0.015
2015	0.014
2016	0.013
2017	0.012
2018	0.011

(h) *Meeting the Compliance Requirements*. A fleet may meet the BACT or fleet averaging requirements by applying a VDECS that will achieve PM or NOx reductions or both as required, repowering a vehicle, or retiring a vehicle.

- (1) *New Fleets.* Owners of new fleets must meet the requirements of section 2027(e) immediately on purchasing vehicles subject to the regulation or bringing such vehicles into the State of California for the first time after December 31, 2009. The owner of the new fleet must report vehicles subject to the regulation to ARB within 30 days of purchasing or bringing such vehicles into the State, in accordance with the requirements of section 2027(k).
- (2) *Adding Vehicles.* A fleet owner who elects to be subject to the fleet averaging requirements of section 2027(g) may not add vehicles that cause the fleet to exceed the fleet average target rates for the previous compliance date. Within 30 days of adding the vehicle, the fleet owner must report the addition to the Executive Officer, and demonstrate that the fleet still meets the fleet average target rates of the previous compliance date.
- (3) *VDECS Installation*— Before installing a VDECS on a vehicle, the vehicle owner must ensure that:
 - (A) The VDECS is verified for use with the engine and vehicle, as described in the Executive Order for the VDECS.
 - (B) Use of the vehicle is consistent with the conditions of the Executive Order for the VDECS.
 - (C) The diesel emission control strategy is installed in a verified configuration.
 - (D) The engine to be retrofit is tuned up so that it meets engine manufacturer's specifications prior to VDECS installation.
 - (E) The VDECS label will be visible after installation.
- (4) *VDECS Maintenance.* The owner of a vehicle retrofit with a VDECS must ensure all maintenance on the VDECS and engine is performed as recommended by the respective manufacturers.
- (i) *Special Provisions and Compliance Extensions.* A fleet owner may be granted an extension to a compliance deadline based on one of the following reasons.
 - (1) *Credit for Diesel Hybrid-Electric Vehicles.* In order to qualify for this provision, the hybrid-electric drive system must be certified using the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles. (Placeholder for regulatory language to be added later).
 - (2) *Credit for Alternative Fuel Vehicles.* (Placeholder for regulatory language to be added later)
 - (3) *Failure or Damage of a VDECS.* In the event of a failure or damage of a diesel emission control strategy, the following conditions apply:
 - (A) *Failure or Damage During the Warranty Period.* If a VDECS fails or is damaged within its warranty period and the manufacturer or authorized dealer determines that it cannot be repaired, the owner must replace the

VDECS with the same level or higher level VDECS for the vehicle within 90 days of the failure.

- (B) *Failure or Damage Outside of Warranty Period.* If a VDECS fails or is damaged outside of its warranty period, and it cannot be repaired, then within 90 days of the failure, the owner must replace the failed VDECS with the highest level VDECS available for the engine at time of failure.
- (4) *Fuel-Based Strategy VDECS.*
 - (A) If a fleet owner determines that the highest level VDECS for a large percentage of the fleet would be a Level 2 fuel verified as a diesel emission control strategy, and implementation of this VDECS would require installation of a dedicated storage tank, then the owner may request prior approval from the Executive Officer to allow use of the Level 2 fuel-based strategy across its fleet.
 - (B) If a fleet owner who has relied upon a fuel verified as a diesel emission control strategy to meet the fleet average requirements in 2027(g) discontinues use of the fuel due to circumstances beyond the fleet owner's control, the owner may apply to the Executive Officer no later than 30 days after discontinuation for up to two years additional time to come back into compliance with the fleet average requirements in 2027(g). The Executive Officer then has 30 days to act upon the request. Fleets that did not meet the fleet average requirements in 2027(g) in the most recent compliance year may not apply for this extension.
- (5) *Exemption for Vehicles Used for Emergency Operations.*
 - (A) Emergency vehicles, as defined in section 2027(d)(12), are exempt from the performance requirements in section 2027(e), but must be labeled and reported in accordance with sections 2027(j) and (k). Emergency vehicles need not be included when calculating fleet average indices or target rates in section 2027(g).
 - (B) For vehicles used both for emergency operations as defined in section 2027(d)(13), and for other purposes, hours of operation and mileage accrued when the vehicle is used for emergency operations do not need to be included when determining whether the vehicle meets the low-use vehicle definition. If the vehicle meets the low-use definition of section (d)(26), it is exempt from the performance requirements of section 2027 (e), but it is subject to the requirements of section 2027(i)(6) for low-use vehicles.
- (6) *Exemption for Low-Use Vehicles.*
 - (A) Low-use vehicles are exempt from the performance requirements of section 2027(e) but must still be labeled and reported in accordance with sections 2027(j) (k) and (l). Low-use vehicles need not be included when calculating fleet average indices or target rates.

- (B) Vehicles that formerly met the low-use vehicle definition, but whose use increased to 100 hours per year or greater or whose mileage increased to 1,000 miles or greater, must meet the BACT requirements or be included in the fleet average calculation by the next compliance date. For example, a formerly low-use engine that exceeds 1000 miles or 100 hours per year between January 1, 2013 and December 31, 2013 must be included in the fleet average indices and target rates reported for the December 31, 2013 compliance deadline.
- (7) *Exemption for Vehicles Awaiting Sale.* Vehicles in the possession of dealers, financing companies, or other entities who do not intend to operate the vehicle or offer the vehicle for hire, that are operated only to demonstrate functionality to potential buyers or to move short distances while awaiting sale or for maintenance purposes, are exempt from all requirements in section 2027.
- (8) *Use of Experimental Diesel Emission Control Strategies.* If a fleet owner wishes to use an experimental diesel emission control strategy, the owner must first obtain approval from the Executive Officer for a compliance extension. To obtain approval, the owner must demonstrate either that (1) a VDECS is not available or not feasible for their vehicle or application, or (2) that use of the non-verified strategy is needed to generate data to support verification of the strategy.

The application to the Executive Officer must include emissions data and a detailed description of the control technology demonstrating the experimental control strategy achieves at least a Level 2 diesel PM emission reduction. If the application demonstrates that the strategy achieves at least 50 percent reduction in diesel PM, it may be treated like a Level 2 VDECS. If the application demonstrates that the strategy achieves at least 85 percent reductions in diesel PM, it may be treated like a Level 3 VDECS. If the application demonstrates that the strategy achieves a NO_x reduction over 15%, the NO_x reduction may be counted. The owner shall document the use of the experimental control technology in records as specified in the approval.

Upon approval by the Executive Officer, each vehicle engine retrofit with the experimental strategy will be allowed to operate for a specified time period necessary to make a determination that the experimental strategy can achieve the projected emissions reductions. The vehicle equipped with the experimental strategy will be considered to be in compliance during the specified time period.

The owner must bring the fleet into compliance prior to the expiration of the experimental diesel emission control strategy extension

- (9) *Compliance Extension for Equipment Manufacturer Delays:* An owner who has purchased new equipment (including VDECS) or vehicles in order to comply with this regulation, will be excused from immediate compliance if the new equipment or vehicles have not been received due to manufacturing delays as long as all the conditions below are met:

- (A) The equipment or vehicle was purchased, or the owner and seller had entered into contractual agreement for the purchase, at least six months prior to the required compliance date.
 - (B) Proof of purchase, such as a purchase order or signed contract for the sale, including engine specifications for each applicable piece of equipment, must be maintained by the owner and provided to an agent or employee of ARB upon request.
 - (C) The new equipment or vehicles are immediately placed into operation upon receipt.
- (10) *Availability of Highest Level VDECS.* (Placeholder for regulatory language to be added later)
- (j) *Labeling Requirements.* For each vehicle subject to this regulation, beginning January 1, 2010, the owner shall keep the following information in the form of a legible and durable label affixed to the driver's side door jamb, or another readily accessible location known to the driver of each vehicle. (Placeholder for regulatory language to be added later)
- (k) *Reporting.*
- The owner of a fleet is subject to the reporting requirements of sections 2027(k)(1) and (2) if the owner has elected to be subject to the optional fleet averaging requirements of section 2027(g). The owner must notify the Executive Officer of this election in writing by June 30, 2009. The notification letter must include the name of the responsible official and the location where the records will be kept. If a company or agency opts to comply with fleet averaging performance requirements separately for different divisions or subsidiaries according to section 2027(g)(2), then the company or agency must report separately for the different portions of the fleet.
- The owner of a vehicle subject to the special provisions of section 2027 (i) must comply with the reporting requirements of sections 2027(k)(1) and (2).
- (1) *Initial reporting for Fleet Averaging Option.* Fleet owners subject to the reporting requirement must submit the information set forth in section 2027(k)(1)(A) through (C) by December 31, 2009. The owner must use forms approved by the Executive Officer.
- (A) Owner contact information: Name of responsible person, corporate parent (if applicable), name of company or agency, street address, telephone number, email address (if available), and taxpayer identification number.
 - (B) Information for each vehicle subject to the Fleet averaging requirements must include:
 - 1. Vehicle type,
 - 2. Vehicle identification number,
 - 3. Vehicle manufacturer,

4. Vehicle model,
 5. Vehicle model year,
 6. State where the vehicle is registered and type of registration plate;
 7. Whether the vehicle is a low-use vehicle;
 8. Whether the vehicle is a dedicated emergency vehicle;
 9. Whether the vehicle is a dedicated snow removal vehicle;
 10. Whether the vehicle is a hybrid vehicle as defined in section 2027(d)(22) through (24); and
 11. For each engine that propels the vehicle:
 - a. the engine manufacturer,
 - b. engine family,
 - c. engine serial number,
 - d. engine model year,
 - e. type of exhaust retrofit emission control equipment installed (if any), date installed, and its verification level.
- (C) *Low-Use Vehicles*. For vehicles that owners intend to define as low-use, report:
1. Owner and vehicle information identified in section 2027 (k)(1),
 2. Mileage on January 1, 2009 and December 31, 2009, and
 2. two hour meter readings, one from on or before December 31, 2009 and one from on or after January 1, 2009, and the dates of reading.
 3. Vehicle and
- (2) *Annual Reporting*. (Placeholder for regulatory language to be added later)
- (A)
- (B) *Statement of Compliance*. (Placeholder for regulatory language to be added later)
- (I) *Record Keeping*. The owner of a fleet subject to the reporting requirements of section 2027(k) must maintain copies of the information reported under section 2027(k), as well as the records described in paragraphs (1) through (7) below. The owner shall provide these records to an agent or employee of the ARB within five business days upon request. Records must be kept at a location within the State of California.
- (1) Changes Since Last Reporting Period - Any additions, deletions, or changes to the fleet since the last reporting.
 - (2) VDECS Failure – Records of any VDECS failure and replacement.
 - (3) Fuel-based Strategy – Documentation of any approval from ARB Executive Officer to use a fuel strategy as in section 2027(i)(7) and the most recent two years' worth of records of purchase that demonstrate usage.

- (4) Experimental Diesel PM Control Strategy – For fleets using an experimental diesel PM control strategy, record of approval from the Executive Officer for use of the experimental diesel PM control strategy, the test plan and test data used in the experimental diesel PM control strategy application, etc.
- (5) Manufacturer Delay – For any vehicles or VDECS for which the fleet owner is utilizing the equipment manufacturer delay provision in section 2027(i)(9), proof of purchase, such as a purchase order or signed contract for the sale, including engine specifications for each applicable piece of equipment or vehicle.
- (m) *Record Retention* – Each owner shall maintain the records for each vehicle subject to section 2027(k) and (l) until it is retired or January 1, 2023, whichever is earlier. If vehicle ownership is transferred, the seller shall hand over the vehicle records to the buyer. If fleet ownership is transferred, the seller shall transfer the fleet records to the buyer. Dealers must maintain records of the disclosure of regulation applicability required by section 2027(n) for three years after the sale.
- (n) *Disclosure of Regulation Applicability* – Any person selling a vehicle with an engine subject to this regulation in California must provide the following disclosure in writing to the buyer on the bill of sale, “An on-road heavy-duty diesel or alternative-diesel vehicle operated in California may be subject to the California Air Resources Board Regulation to Reduce Particulate Matter and Criteria Pollutant Emissions from In-Use On-Road Heavy-Duty Diesel Vehicles. It therefore could be subject to exhaust retrofit or accelerated turnover requirements to reduce emissions of air pollutants. For more information, please visit the California Air Resources Board website at <http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm>
- (o) *Non-Compliance.* (Placeholder for language to be added later).

Authority and References –

ATTACHMENT A

PM and NOx Emissions Factors by Model Year

Engine Model-Year	Emissions Factors by Model-Year (g/bhp-hr)	
	PM	NOx
Pre-1987	1	10.7
1987-1990	0.60	6.0
1991-1993	0.25	5.0
1994-1997	0.10	5.0
1998-2003	0.10	4.0
2004-2006	0.10	2.5
2007-2009	0.01	1.2
2010	0.01	0.2