

PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES

Adopt new section 2416, in Title 13, Chapter 9, California Code of Regulations (CCR), to read as follows:

(a) Purpose

The purpose of this regulation is to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use off-road vehicles.

(b) Applicability

Except as provided in the paragraph below, the regulation applies to any person, business, or government agency who owns or operates within California any diesel-fueled off-road compression ignition vehicle engine with maximum power of 25 horsepower (hp) or greater that is used to provide motive power in a workover rig or to provide motive power in any other motor vehicle that (1) cannot be registered and driven safely on-road, and (2) is not an implement of husbandry or off-highway vehicle (recreational). This regulation also applies to any person who sells a vehicle with such an engine.

Vehicles with engines subject to this regulation are used in construction, mining, rental, government, landscaping, recycling, landfilling, manufacturing, warehousing, ski industry, composting, airport ground support equipment, industrial, and other operations. The regulation does not cover locomotives, commercial marine vessels, marine engines, recreational vehicles, or combat and tactical support equipment. The regulation also does not cover stationary or portable equipment, or equipment or vehicles used in agricultural operations, or at ports or intermodal railyards.

(c) Definitions

- (1) **Agricultural operations** means (1) the growing or harvesting of crops (including logging) or the raising of fowl or animals for the primary purpose of making a profit, providing a livelihood, or conducting agricultural research or instruction by an educational institution, or (2) agricultural crop preparation services such as packinghouses, cotton gins, nut hullers and processors, dehydrators, and feed and grain mills. Agricultural crop preparation services include only the first processing after harvest, not subsequent processing, canning, or other similar activities.
- (2) **Airport ground support equipment (GSE)** is mobile diesel-fueled off-road compression ignition vehicles with maximum power of 25 horsepower or greater used to service and support aircraft operations. GSE vehicles perform a variety of functions, including but not limited to: starting aircraft, aircraft maintenance, aircraft fueling, transporting cargo to and from aircraft, loading cargo, baggage

handling, lavatory service, and food service. GSE vehicles include equipment types such as baggage tugs, belt loaders, and cargo loaders.

- (3) **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.
- (4) **Best Available Control Technology (BACT)** means the exhaust retrofit and accelerated turnover requirements in section 2416(d)(2).
- (5) **Combat and Tactical Support Equipment** means equipment that meets military specifications, is owned by the U.S. Department of Defense and/or the U.S. military services or its allies, and is used in combat, combat support, combat service support, tactical or relief operations or training for such operations.
- (6) **Diesel particulate matter (diesel PM)** 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. The Air Resources Board (ARB) has identified diesel PM toxic air contaminant.
- (7) **Diesel PM Index** means an indicator of a fleet's overall diesel PM emission rate. The diesel PM Index for a specific fleet is determined by summing the product of the maximum power of each engine times the diesel PM Emission Factor, and dividing by the fleet's total maximum power.
- (8) **Diesel PM Target Rate** means the fleet average that a specific fleet must meet in a compliance year in order to show compliance with the fleet average requirements. The Diesel PM Target Rate varies depending on a fleet's horsepower distribution. The Diesel PM Target Rate for a specific fleet for each compliance year is determined by summing (adding) for each horsepower group the product of the fleet's total maximum power (Max Hp) in each horsepower group multiplied by the Diesel PM target, and dividing the resulting sum by the fleet's total maximum power.
- (9) **Emergency operation** means helping 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 maintenance or construction to prevent public health risks does not constitute emergency operation.

- (10) **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 Appendix A, unless the engine is a Post-2007 Flexibility Engine (see definition).
- (A) Engines certified to Family Emission Limits and flexibility engines certified before January 1, 2007 should still use the emission factors in Appendix A.
- (B) If the model year is unknown, the emission factor is the emission factor shown in Appendix A for 1900-1969 model years.
- (C) For engines that have been retrofit with VDECS, the PM Emission Factor is reduced 50% for a Level 2 VDECS, and 85% for a Level 3 VDECS; the NO_x Emission Factor is reduced by the percentage NO_x emission reductions that are verified, if any. The PM Emission Factor is not reduced for a Level 1 VDECS.
- (11) **Equipment Identification Number** means a unique identification number assigned by ARB to each vehicle in an owner's fleet subject to this regulation. All reporting and recordkeeping will link vehicle data with this number.
- (12) **Executive Officer** means the Executive Officer of the ARB or his or her authorized representative.
- (13) **Fleet** means all off-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. 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 lease agreement. 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 separately and be reported separately. However, the total maximum power of the vehicles under common ownership determines whether the fleet must meet the small, medium, or large fleet requirements. A fleet must meet large fleet requirements if the total vehicles under common ownership would be defined as a large fleet. A fleet must meet medium fleet requirements if the total vehicles under common ownership would be defined as a medium fleet. Individual federal or state agencies may report their vehicles separately, but all vehicles owned by agencies of the United States or the State of California agencies must meet the large fleet requirements. Fleets are classified by size as follows:
- (A) **Large fleet** – Fleet with total maximum power (as defined below) greater than 20,000 horsepower (hp). All fleets owned by agencies either of the United States or the State of California will be considered as a unit whole and (i.e., an agency in the judicial, legislative, or executive branch of the federal or state government) must meet the large fleet requirements.

- (B) **Medium Fleet** – Fleet with total maximum power less than or equal to 20,000 hp that is not a small fleet.
- (C) **Small fleet** – Fleet that is owned by a small business with total maximum power of less than or equal to 1,500 hp and fleets of low population counties or municipalities irrespective of total maximum power.

(14) **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, California Code of Regulations (CCR), sections 2700-2710, for a specific engine as of 10 months prior to the compliance date, which (1) can be used without impairing the safe operation of the vehicle, and (2) the diesel emission-control strategy manufacturer or authorized diesel emission-control strategy dealer agrees can be used on a specific engine and vehicle combination without jeopardizing the original engine warranty in effect at the time of application.

Plus designations do not matter; that is, a Level 3 Plus is the same diesel PM level as Level 3; and Level 2 Plus is the same diesel PM level as Level 2.

The highest level VDECS is determined solely based on verified diesel PM reductions. All Level 3 diesel PM devices are higher than all Level 2 diesel PM devices. Level 1 devices are never considered highest level VDECS for the purpose of this regulation.

- (15) **Implement of husbandry** is as defined in California Vehicle Code (VC) Division 16.
- (16) **Low-use vehicle** means a vehicle that operated in California less than 100 hours during the preceding 12-month period running from March 1 to end of February. For example, when reporting in 2008, the hours of use between March 1, 2007 and February 29, 2008 would be used to determine low-use status. Vehicles that operate both inside and outside of California can meet the low-use vehicle definition if they are used less than 100 hours per year in California. Engine operating hour data must be from a non-resettable hour meter; a vehicle without a properly functioning non-resettable hour meter cannot be defined as a low-use vehicle. Hours used for emergency operations are not counted when determining low-use status.
- (17) **Low-Population County or Municipality** means a county as defined in title 13, CCR, section 2022(b)(2), a municipality that is headquartered in a low-population county, or a county or municipality that has been issued designation by the Executive Officer as a fleet located in a designated low-population county per the procedures in Title 13, CCR, section 2022.1(c)(4). Fleets owned

by such municipalities are treated as small fleets even if their total maximum power exceeds 1,500 horsepower.

- (18) **Maximum power** means the maximum rated horsepower output of an engine at rated speed as stated by the manufacturer in the manufacturer's sales and service literature.
- (19) **Motor vehicle** has the same meaning as defined in VC Section 415.
- (20) **New fleet** means a fleet that is acquired or that enters California after March 1, 2008. Such fleets may include new businesses or out-of-state businesses that bring vehicles into California for the first time after March 1, 2008.
- (21) **NOx Index** means an indicator of a fleet's overall NOx emission rate. The NOx Index for a specific fleet is determined by summing the product of the maximum power of each engine times the NOx Emission Factor, and dividing by the fleet's total maximum power.
- (22) **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 horsepower distribution. The NOx Target Rate for a specific fleet for each compliance year is determined by summing (adding) for each horsepower group the product of the fleet's total maximum power (Max Hp) in each horsepower group multiplied by the NOx target, and dividing the resulting sum by the fleet's total maximum power.
- (23) **Off-highway vehicle** is defined in VC Division 16.5.
- (24) **Oxides of nitrogen (NOx)** mean 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.
- (25) **Post-2007 Flexibility Engine** means an engine certified on or after January 1, 2007 to the implementation flexibility standards in title 13, CCR, section 2423(d). Such flexibility engines are generally labeled as follows by the engine manufacturer:
"THIS ENGINE COMPLIES WITH CALIFORNIA EMISSION REQUIREMENTS UNDER 13 CCR 2423(d)..." or
"THIS ENGINE CONFORMS TO CALIFORNIA OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS UNDER 13 CCR 2423(d)."
Post-2007 flexibility engines should use the emission standard to which the engine is certified. For example, a Tier 4 engine flexed back to Tier 2 emission

levels should use the Tier 2 PM standard as the emission factor (converted from grams per kilowatt hour (g/kW-hr) to g/bhp-hr by multiplying by 0.746).

- (26) **Queuing** means the intermittent starting and stopping of a vehicle while the driver, in the normal course of doing business, is waiting to perform work or a service, and when shutting the vehicle engine off would impede the progress of the queue and is not practicable. Queuing does not include the time a driver may wait motionless in line in anticipation of the start of a workday or opening of a location where work or a service will be performed.
- (27) **Registered and driven safely on-road** means a vehicle meets the requirements to be registered for on-road operation in VC Division 3, Chap. 1, Article 1, Sec. 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 VC Division 12, Chap. 1, Sections 24000 et seq. and "Size, Weight, and Load" requirements in VC Division 15, Sections 35000 et seq. (Being registered as Special Construction Equipment as defined in VC section 565 does not mean a vehicle can be registered for on-road operation.)
- (28) **Repower** means to replace the engine in a vehicle with another engine meeting a subsequent engine emissions standard (e.g., replacing a Tier 0 engine with a Tier 1 or later engine).
- (29) **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).
- (30) **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 outside of California, sold, or scrapped.
- (31) **Small business** is as defined in Government Code section 11342.610.
- (32) **Specialty vehicle** means a vehicle for which no used vehicle with a cleaner engine that can serve an equivalent function and perform equivalent work is available.
- (33) **Sum** means the aggregate of two or more numbers as determined by the mathematical process of addition.

- (34) **Tier 0 Engine** means an engine not subject to the requirements in title 13, CCR, section 2423; Title 40, Code of Federal Regulations (CFR), Part 89; or Title 40, CFR, Part 1039.
- (35) **Tier 1 Engine** means an engine subject to the Tier 1 new engine emission standards in title 13, CCR, Section 2423(b)(1)(A) and/or Title 40, CFR, Part 89.112(a). This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 1 Family Emission Limits (FEL) listed in Title 13, CCR, 2423(b)(2)(A) and/or Title 40, CFR, Part 89.112(d).
- (36) **Tier 2 Engine** means an engine subject to the Tier 2 new engine emission standards in title 13, CCR, Section 2423(b)(1)(A) and/or Title 40, CFR, Part 89.112(a). This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 2 FEL listed in Title 13, CCR, 2423(b)(2)(A) and/or Title 40, CFR, Part 89.112(d).
- (37) **Tier 3 Engine** means an engine subject to the Tier 3 new engine emission standards in title 13, CCR, Section 2423(b)(1)(A) and/or Title 40, CFR, Part 89.112(a). This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 3 FEL listed in Title 13, CCR, 2423(b)(2)(A) and/or Title 40, CFR, Part 89.112(d).
- (38) **Tier 4 Final Engine** means an engine subject to the final after-treatment-based Tier 4 emission standards in title 13, CCR, Section 2423(b)(1)(B) and/or Title 40, CFR, Part 1039.101. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in Title 13, CCR, 2423(b)(2)(B) and/or Title 40, CFR, Part 1039.101.
- (39) **Tier 4 Interim Engine** means an engine subject to the interim Tier 4 emission standards (also known as transitional) in title 13, CCR, Section 2423(b)(1)(B) and/or Title 40, CFR, Part 1039.101. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in Title 13, CCR, 2423(b)(2)(B) and/or Title 40, CFR, Part 1039.101.
- (40) **Total maximum power** means the sum of maximum power for all of a fleet's engines that are subject to this regulation. Low-use vehicles and vehicles used solely for emergency operations need not be included in the sum.
- (41) **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%), Level 2 diesel PM reductions (50%), or Level 3 diesel PM reductions (85%). VDECS may also be verified to achieve NOx reductions. See also definition of Highest Level VDECS.

(42) **Workover rig** means a mobile self-propelled rig used to perform one or more remedial operations, such as deepening, plugging back, pulling and resetting liners, on a producing oil or gas well to try to restore or increase the well's production.

(d) **Performance Requirements –**

(1) **Fleet Average Requirements –**

Each fleet must meet the fleet average requirements below by March 1 of each year or demonstrate that it applied the best available control technology (BACT) as described in section 2416(d)(2). There are differing requirements for large, medium, and small fleets. Fleets owned by low-population counties or municipalities are subject to the small fleet requirements, even if their total maximum power exceeds 1,500 horsepower. Section 2416(d)(4) describes requirements for fleets that change size.

(A) Fleet Average Requirements for Large and Medium Fleets

1. **NOx Fleet Average** - For each compliance date, a large or medium fleet must demonstrate that its overall fleet average NOx Index was less than or equal to the calculated NOx Target Rate.

The equation for calculating NOx Target Rate is below:

$$\text{NOx Target Rate} = [\text{Target}_{25-49} \times (\text{SUM of Max Hp for all engines with 25-49 max hp}) + \text{Target}_{50-74} \times (\text{SUM of Max Hp for all engines with 50-74 max hp}) + \text{Target}_{75-99} \times (\text{SUM of Max Hp for all engines with 75-99 max hp}) + \text{Target}_{100-174} \times (\text{SUM of Max Hp for all engines with 100-174 max hp}) + \text{Target}_{175-299} \times (\text{SUM of Max Hp for all engines with 175-299 max hp}) + \text{Target}_{300-599} \times (\text{SUM of Max Hp for all engines with 300-599 max hp}) + \text{Target}_{600-750} \times (\text{SUM of Max Hp for all engines with 600-750 max hp}) + \text{Target}_{>750} \times (\text{SUM of Max Hp for all engines with >750 max hp})] \div [\text{SUM of (Max Hp) for all engines in fleet}]$$

where Target_{25-49} , Target_{50-74} , Target_{75-99} , $\text{Target}_{100-174}$, $\text{Target}_{175-299}$, $\text{Target}_{300-599}$, $\text{Target}_{600-750}$ and $\text{Target}_{>750}$ are in Table 1.

The equation for calculating NOx Index is below:

$$\text{NOx Index} = \frac{[\text{SUM of (Max Hp} \times \text{NOx Emission Factor) for each engine in fleet}]}{[\text{SUM of (Max Hp) for all engines in fleet}]}$$

Table 1 shows the targets used to calculate the NOx Target Rate for each compliance date for large and medium fleets. The Emission Factors are defined in Appendix A.

**Table 1 – Large and Medium Fleet NOx Targets
For Use in Calculating Fleet Target Rates [g/bhp-hr]**

Compliance Date: March 1 of Year	NOx Targets for each Max Hp Group							
	25-49 hp	50-74 hp	75-99 hp	100-174 hp	175-299 hp	300-599 hp	600-750 hp	>750 hp
2009 (large fleets only)	5.9	6.7	7.2	6.4	6.2	5.9	6.1	7.1
2010	5.8	5.6	6.1	5.5	5.3	5.0	5.2	6.1
2011	5.8	5.6	6.1	5.5	5.3	5.0	5.2	6.1
2012	5.6	5.0	5.4	4.9	4.6	4.4	4.5	5.5
2013	5.6	5.0	5.4	4.9	4.6	4.4	4.5	5.5
2014	5.1	4.5	4.8	4.4	4.0	3.8	3.9	5.0
2015	5.1	4.5	4.8	4.4	4.0	3.8	3.9	5.0
2016	4.7	4.1	4.1	3.7	3.3	3.2	3.3	4.5
2017	4.7	4.1	4.1	3.7	3.3	3.2	3.3	4.5
2018	4.4	3.7	3.5	3.1	2.8	2.7	2.8	4.0
2019	4.4	3.7	3.5	3.1	2.8	2.7	2.8	4.0
2020	4.1	3.4	2.9	2.6	2.3	2.3	2.3	3.7

2. **Diesel PM Fleet Average** - For each compliance date, a large or medium fleet must demonstrate that its overall fleet average Diesel PM Index was less than or equal to the calculated Diesel PM Target Rate.

The equation for calculating Diesel PM Target Rate is below:

Diesel PM Target Rate =
$$\frac{[\text{Target}_{25-49} \times (\text{SUM of Max Hp for all engines with 25-49 max hp}) + \text{Target}_{50-74} \times (\text{SUM of Max Hp for all engines with 50-74 max hp}) + \text{Target}_{75-99} \times (\text{SUM of Max Hp for all engines with 75-99 max hp}) + \text{Target}_{100-174} \times (\text{SUM of Max Hp for all engines with 100-174 max hp}) + \text{Target}_{175-299} \times (\text{SUM of Max Hp for all engines with 175-299 max hp}) + \text{Target}_{300-599} \times (\text{SUM of Max Hp for all engines with 300-599 max hp}) + \text{Target}_{600-750} \times (\text{SUM of Max Hp for all engines with 600-750 max hp}) + \text{Target}_{>750} \times (\text{SUM of Max Hp for all engines with >750 max hp})]}{[\text{SUM of (Max Hp) for all engines in fleet}]}$$

where Target_{25-49} , Target_{50-74} , Target_{75-99} , $\text{Target}_{100-174}$, $\text{Target}_{175-299}$, $\text{Target}_{300-599}$, $\text{Target}_{600-750}$ and $\text{Target}_{>750}$ are in Table 2.

The equation for calculating Diesel PM Index is below:

Diesel PM Index =
$$\frac{[\text{SUM of (Max Hp} \times \text{PM Emission Factor) for each engine in fleet}]}{[\text{SUM of (Max Hp) for all engines in fleet}]}$$

Table 2 shows the targets used to calculate the Diesel PM Target Rate for each compliance date for large and medium fleets. The Emission Factors are defined in Appendix A.

**Table 2 – Large and Medium Fleet PM Targets
For Use in Calculating Fleet Target Rates [g/bhp-hr]**

Compliance Date: March 1 of Year	PM Targets for each Max Hp Group							
	25-49 hp	50- 74 hp	75- 99 hp	100- 174 hp	175- 299 hp	300- 599 hp	600- 750 hp	>750 hp
2009 (large fleets only)	0.50	0.69	0.70	0.37	0.25	0.20	0.23	0.34
2010	0.46	0.60	0.62	0.33	0.23	0.18	0.20	0.30
2011	0.46	0.60	0.62	0.33	0.23	0.18	0.20	0.30
2012	0.39	0.43	0.46	0.26	0.16	0.14	0.14	0.24
2013	0.39	0.43	0.46	0.26	0.16	0.14	0.14	0.24
2014	0.29	0.23	0.24	0.18	0.11	0.11	0.11	0.18
2015	0.29	0.23	0.24	0.18	0.11	0.11	0.11	0.18
2016	0.21	0.18	0.19	0.14	0.08	0.08	0.08	0.11
2017	0.21	0.18	0.19	0.14	0.08	0.08	0.08	0.11
2018	0.12	0.12	0.13	0.10	0.06	0.06	0.06	0.08
2019	0.12	0.12	0.13	0.10	0.06	0.06	0.06	0.08
2020	0.08	0.08	0.07	0.06	0.03	0.03	0.03	0.06

(B) Fleet Average Requirements for Small Fleets

Small fleets must meet a PM fleet average beginning in 2012. Small fleets are not required to meet a NOx fleet average. To meet the PM fleet average, for each compliance date, a small fleet must demonstrate that its overall fleet average Diesel PM Index was less than or equal to the calculated Diesel PM Target Rate.

The equations for calculating Target Rates and Diesel PM Index are below:

Diesel PM

$$\text{Target Rate} = [\text{Target}_{25-49} \times (\text{SUM of Max Hp for all engines with 25-49 max hp}) + \text{Target}_{50-74} \times (\text{SUM of Max Hp for all engines with 50-74 max hp}) + \text{Target}_{75-99} \times (\text{SUM of Max Hp for all engines with 75-99 max hp}) + \text{Target}_{100-174} \times (\text{SUM of Max Hp for all engines with 100-174 max hp}) + \text{Target}_{175-299} \times (\text{SUM of Max Hp for all engines with 175-299 max hp}) + \text{Target}_{300-599} \times (\text{SUM of Max Hp for all engines with 300-599 max hp}) + \text{Target}_{600-750} \times (\text{SUM of Max Hp for all engines with 600-750 max hp})]$$

750 max hp) + Target_{>750} x (SUM of Max Hp for all engines with >750 max hp) ÷ [SUM of (Max Hp) for all engines in fleet]

where Target₂₅₋₄₉, Target₅₀₋₇₄, Target₇₅₋₉₉, Target₁₀₀₋₁₇₄, Target₁₇₅₋₂₉₉, Target₃₀₀₋₅₉₉, Target₆₀₀₋₇₅₀ and Target_{>750} are in Table 3.

Diesel PM Index = [SUM of (Max Hp x PM Emission Factor) for each engine in fleet] ÷ [SUM of (Max Hp) for all engines in fleet]

Table 3 shows the targets used to calculate the Diesel PM Target Rate for each compliance date for small fleets. The Emission Factors are defined in Appendix A.

**Table 3 – Small Fleet PM Targets
For Use in Calculating Fleet Target Rates [g/bhp-hr]**

Compliance Date: March 1 of Year	PM Targets for each Max Hp Group							
	25-49 hp	50-74 hp	75-99 hp	100-174 hp	175-299 hp	300-599 hp	600-750 hp	>750 hp
2012	0.95	0.98	0.98	0.54	0.54	0.49	0.49	0.49
2013	0.95	0.98	0.98	0.54	0.54	0.49	0.49	0.49
2014	0.95	0.98	0.98	0.54	0.54	0.49	0.49	0.49
2015	0.46	0.60	0.62	0.33	0.23	0.18	0.20	0.30
2016	0.46	0.60	0.62	0.33	0.23	0.18	0.20	0.30
2017	0.39	0.43	0.46	0.26	0.16	0.14	0.14	0.24
2018	0.39	0.43	0.46	0.26	0.16	0.14	0.14	0.24
2019	0.29	0.23	0.24	0.18	0.11	0.11	0.11	0.18
2020	0.29	0.23	0.24	0.18	0.11	0.11	0.11	0.18
2021	0.21	0.18	0.19	0.14	0.08	0.08	0.08	0.11
2022	0.21	0.18	0.19	0.14	0.08	0.08	0.08	0.11
2023	0.12	0.12	0.13	0.10	0.06	0.06	0.06	0.08
2024	0.12	0.12	0.13	0.10	0.06	0.06	0.06	0.08
2025	0.08	0.08	0.07	0.06	0.03	0.03	0.03	0.06

(C) **Adding Vehicles to Fleet Before Final Compliance Date** - If a fleet that meets the fleet average requirements in 2416(d)(1) on a compliance date adds a vehicle before the final compliance date shown (i.e., before March 1, 2020 for large or medium fleets or March 1, 2025 for small fleets), within three months of adding the vehicle, the fleet must demonstrate that the fleet still meets the fleet average requirements. That is, fleets may not add vehicles that cause them to exceed the most recent fleet average target rate. The added vehicle also must be included in the fleet average demonstration on the next compliance date. Requirements related to adding vehicles for fleets that do not meet the fleet average requirements are in section 2416(d)(2)(C).

(D) **Compliance After the Final Compliance Date** –

1. Commencing respectively on March 1, 2020 for large and medium fleets, and March 1, 2025 for small fleets, no fleet owner may add a vehicle to his fleet, unless the vehicle is equipped with a Tier 3, Tier 4 interim, or Tier 4 final engine and the highest level VDECS within 3 months of acquisition.
2. Commencing respectively on March 1, 2020 for large and medium fleets, and March 1, 2025 for small fleets, if a fleet does not meet the fleet average target rate for the final compliance date in section 2416(d)(1), the fleet must continue to meet the BACT requirements in Section 2416(d)(2) and report annually each year until it does so.

(E) Electric and Alternative Fuel Vehicles and Systems Used to Replace Diesel Vehicles - Fleets with electric or alternative fuel vehicles may include such vehicles in their fleet average under the following conditions:

1. **Electric and Alternative Fuel Vehicles on or after January 1, 2007**
 - a. Fleets may apply to the Executive Officer to include an electric and alternative fuel vehicle purchased on or after January 1, 2007, with a maximum rated power 25 horsepower or greater in their fleet average if all of the following conditions are met:
 - i. The owner can demonstrate it serves a function and performs the work equivalent to that of diesel vehicles and is used for a purpose for which diesel vehicles are predominantly used,
 - ii. The electric or alternative fuel vehicle is used predominantly outdoors,
 - iii. The electric or alternative fuel vehicle is not already included in the fleet average emission level requirements for large spark ignition engine fleets in title 13, Section 2775.1; and
 - iv. If the vehicle is an alternative fuel vehicle, the owner can demonstrate it is certified to a NOx standard less than or equal to the Tier 1 NOx standard for the same horsepower in title 13, CCR, Section 2423(b)(1)(A) and less than or equal to the NOx emissions of a diesel engine of the same model year and horsepower.
 - b. For the purposes of compliance with sections 2416(d)(1)(B) and (d)(1)(C), electric vehicles shall be credited as follows:
 - i. **Double Credit for Electric in 2009-2016** - For compliance dates in 2009 through 2016, the maximum rated power of all electric vehicles may be doubled in determining the *Max Hp* that is used in calculating the Target Rate, Diesel PM Index, and as appropriate, NOx Index. An *Emission Factor* of 0 may be used.
 - ii. **Single Credit for Electric in 2017 and Later** - For compliance dates in year 2017 and later, the maximum rated power of all electric vehicles is used in determining the *Max Hp* that is used in calculating the Target Rate, Diesel PM Index, and, as appropriate, NOx Index. An *Emission Factor* of 0 may be used.

- c. For the purposes of compliance with sections 2416(d)(1)(B) and (d)(1)(C), each alternative fuel vehicle should use an Emission Factor equal to the emission standard to which its engine is certified in g/bhp-hr. If the alternative fuel vehicle is not certified to a NOx or diesel PM emission standard, the owner may provide an appropriate emission factor, as demonstrated to the Executive Officer.
2. **Stationary or Portable System Used to Replace Mobile Diesel Vehicle**

Fleet owners may apply to the Executive Officer to include portable or stationary systems that replace mobile diesel vehicles, such as a conveyor system used to replace diesel haul trucks at a mine, in the fleet average. The system may be considered in the fleet average by including the maximum horsepower of the diesel vehicles replaced in the calculations of Target Rate, Diesel PM Index, and NOx Index above, along with an *Emission Factor* of 0. In order to count such a system, all the following conditions must be met:

 - a. The owner can demonstrate that it replaced an off-road diesel fueled vehicle subject to this regulation in 2007 or later, and
 - b. The system is not already counted toward the fleet average emission level requirements for large spark ignition engine fleets in title 13, CCR section 2775.1 or for portable diesel engine fleets in title 17, CCR section 93116.3.
3. **Electric and Alternative Fuel Vehicle Purchased Prior to January 1, 2007**
 - a. Electric airport GSE vehicles purchased prior to January 1, 2007, may be partially counted in the fleet average as follows:
 - i. Include such vehicle's maximum rated power times 0.2 as the *Max Hp* in the calculating the Target Rate, Diesel PM Index, and, as appropriate, NOx Index in section 2416(d)(1)(A) and (d)(1)(B), along with an *Emission Factor* of 0.
 - b. Fleet owners may apply to the Executive Officer to count a non-GSE electric or alternative fuel vehicle purchased prior to January 1, 2007 in the fleet average if all of the following conditions are met:
 - i. The owner can demonstrate it serves a function and performs the work equivalent to that of diesel vehicles and is used for a purpose for which diesel vehicles are predominantly used,
 - ii. the electric or alternative fuel vehicle is used predominantly outdoors,
 - iii. the vehicle is not already counted toward the fleet average emission level requirements for large spark ignition engine fleets in Title 13, CCR section 2775.1; and
 - iv. if the vehicle is alternative fuel vehicle, certified NOx emission levels are lower than the NOx standard for the same model year

and horsepower in Title 13, CCR, Section 2423(b)(1) and Title 40, CFR, Part 89.112(a) and Title 40, CFR, Part 1039.101.

- (2) **BACT Requirements** – Each year, each fleet must determine if it will be able to meet the fleet averages for the next March 1 compliance date, and if not, the following BACT requirement must be met. If a fleet does not meet the NOx Fleet Average in 2416(d)(1), it must meet the BACT turnover requirements in 2416(d)(2)(A) below. If a fleet does not meet the Diesel PM Fleet Average in 2416(d)(1), it must meet the BACT Retrofit Requirements in 2416(d)(2)(B).

(A) **Turnover Requirements for Fleets Not Meeting NOx Fleet Average** – A fleet may meet the turnover requirements by retiring a vehicle, selling a vehicle, designating a vehicle as a low-use vehicle, repowering a vehicle, or replacing a vehicle. If repowering or replacing a vehicle, the new engine must be Tier 2 or higher and must be a higher tier than the engine replaced.

1. **Turnover Rate** - If a fleet does not meet the NOx Fleet Average in 2416(d)(1), it must demonstrate one of the following on the compliance date:
 - a. It turned over 10% of its total maximum power that existed on March 1 of the previous year since March 1 of the previous year, or
 - b. It turned over 10% of its total maximum power on average annually since March 1, 2008 for large fleets or March 1, 2009 for medium fleets.
2. **Order of turnover** - All engines that were not subject to a PM standard for new engines (Tier 0 and Tier 1 with no PM standard) must be turned over first, before any other higher tier engines.
3. **Exemptions** – Vehicles meeting the criteria below are exempt from the turnover requirement:
 - a. Vehicles less than 10 years old – If all vehicles in a fleet will be less than 10 years old on the compliance date, no turnover is required.
 - b. Specialty vehicles if all the following criteria are met:
 - i. The fleet has turned over all other vehicles first,
 - ii. No repower is available for the specialty vehicle, as demonstrated to the Executive Officer,
 - iii. A used vehicle with a cleaner engine is not available to serve a function and perform the work equivalent to that of the specialty vehicle, as demonstrated to the Executive Officer, and
 - iv. The specialty vehicle has been retrofit with highest level VDECS.
 - c. A vehicle retrofit within the last six years with a Level 2 or 3 VDECS that was highest level VDECS at the time of retrofit.
 - d. A vehicle with a Tier 4 interim engine or Tier 4 final engine.

(B) **Retrofit Requirements for Fleets Not Meeting Diesel PM Fleet Average** –

1. **Retrofit Rate** - If a fleet does not meet the Diesel PM Fleet Average in 2416(d)(1), it must demonstrate that it did one of the following:

- a. Retrofit 20 percent of its total maximum power (not including specialty vehicles retrofitted and exempted from turnover in section 2416(d)(2)(A)3.b.) with highest level VDECS since March 1 of the previous year, or
 - b. On average, annually retrofit 20 percent of its total maximum power (not including specialty vehicles retrofitted and exempted from turnover in section 2416(d)(2)(A)3.b.) with highest level VDECS since March 1, 2008 for large fleets, March 1, 2009 for medium fleets, or March 1, 2014 for small fleets.
2. **Order of Retrofit** – No Level 2 VDECS may be installed until all engines in vehicles older than 5 years for which the highest level VDECS available is a Level 3 VDECS have been retrofit, except for specialty vehicles utilizing the exemption in Section 2416(d)(2)(A)3.b. for which Level 2 is the highest level VDECS.
 3. **Exemptions** – The following exemptions from the retrofit requirement apply, provided that retrofits have been or are being applied to all other engines in the owner’s fleet not subject to these exemptions:
 - a. Engines in vehicles less than 5 years old,
 - b. Engines for which there is no highest level VDECS (i.e., for which there is no Level 2 or 3 VDECS, or for which there is a Level 2 or 3 VDECS, but it cannot be used without impairing the safe operation of the vehicle),
 - c. Engines equipped with a diesel particulate filter and Tier 4 final engines, or
 - d. Engines already retrofit with a Level 2 or 3 VDECS that was the highest level VDECS available at time of installation.
- (C) **Adding vehicles** – A fleet meeting the BACT requirements in lieu of the fleet average requirements may not add a vehicle to its fleet that would further increase its emissions above the fleet average target rate, as described below.
1. **Large and Medium Fleets** - A large or medium fleet meeting the BACT requirements in section 2416(d)(2) instead of the fleet average requirements in section 2416(d)(1) may not add a vehicle to its fleet unless both of the following conditions are met:
 - a. The vehicle engine’s PM Emission Factor (after being adjusted for any VDECS) is less than or equal to the Diesel PM target in Table 1 for the appropriate maximum power and the next compliance date, and
 - b. The vehicle engine’s NOx Emission Factor (after being adjusted for any VDECS) is less than or equal to the NOx target in Table 2 for the vehicle engine’s maximum power and the next compliance date.
 2. **Small Fleets** – A small fleet meeting the BACT requirements in section 2416(d)(2) instead of the fleet average requirements in section 2416(d)(1) may not add a vehicle to its fleet unless the vehicle engine’s Diesel PM Emission Factor is less than or equal to the Diesel PM target in Table 3 for the vehicle engine’s maximum power and the next compliance date.

- (D) **Rounding** - If the horsepower required to be turned over or retrofit under section 2416(d)(2)(A) or (d)(2)(B) is less than half of the maximum power of the next engine in the fleet that is subject to the turnover or retrofit requirements, the next engine is not required to be turned over or retrofitted. Once the required horsepower to be turned over or retrofitted equals or exceeds half of the maximum power of the next engine in the fleet that is subject to the turnover or retrofit requirements, the next engine must be turned over or retrofitted.
- (3) **Idling** - As of March 1, 2008, fleets must meet the following idling limits.
- (A) **Idling Limit** - No vehicle or engines subject to this regulation may idle for more than 5 consecutive minutes. Idling of a vehicle that is owned by a rental company is the responsibility of the renter or lessee, and the rental agreement should so indicate. The idling limit does not apply to:
1. idling when queuing,
 2. idling to verify that the vehicle is in safe operating condition,
 3. idling for testing, servicing, repairing or diagnostic purposes,
 4. idling necessary to accomplish work for which the vehicle was designed (such as operating a crane),
 5. idling required to bring the machine system to operating temperature, and
 6. idling necessary to ensure safe operation of the vehicle.
- (B) **Written Idling Policy** - As of March 1, 2008, medium and large fleets must also have a written idling policy that is made available to operators of the vehicles and informs them that idling is limited to 5 consecutive minutes or less.
- (C) **Waiver** - A vehicle owner may apply to the Executive Officer for a waiver to allow additional idling in excess of 5 consecutive minutes. The Executive Officer shall grant such a request upon finding that the vehicle owner has provided sufficient justification that such idling is necessary.
- (4) **Changing Fleet Size** –
- (A) Small fleets that become medium fleets must meet the medium fleet requirements on the reporting date two years subsequent.
- (B) Large fleets that become medium fleets must meet the medium fleet requirements on the next reporting date.
- (C) Medium fleets that become small fleets must meet the small fleet requirements on the next reporting date.
- (5) **New Fleets** – New fleets must meet the fleet average requirements in section 2416(d)(1) within three months of purchasing vehicles subject to the regulation or bringing such vehicles into the State of California for the first time after March 1, 2008. New fleets do not have the option of complying with the BACT requirements in section 2416(d)(2). New fleets must comply with the idling requirements in section 2416(d)(3) immediately upon purchasing vehicles subject to the regulation or upon bringing such vehicles into the State. New fleets 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 in section 2416(g).

(e) **Special Provisions/ Compliance Extensions**

- (1) **VDECS Failure:** For any fleet not meeting the fleet average and complying with the BACT requirements instead, if a VDECS fails or is damaged within its warranty period and it can not be repaired, the owner must replace it with same level VDECS or higher for the vehicle within 90 days of the failure. If a VDECS fails or is damaged outside of its warranty period and it can not be repaired, within 90 days of the failure, the owner must replace it with highest level VDECS available for the engine at time of failure or meet another available BACT option for the vehicle.
- (2) **Fuel-based Strategy VDECS:** If an owner elects to use Level 2 fuel-based diesel emission control strategy across its fleet, and some vehicles can use a Level 3 hardware diesel emission control strategy, then the owner must request prior approval from the Executive Officer to use the Level 2 fuel-based diesel emission control strategy across his whole fleet under the BACT requirements.
- (3) **Vehicles Used for Emergency Operations:** Vehicles used solely for emergency operations are exempt from the performance requirements in section 2416(d) but still must be labeled and reported in accordance with sections 2416(f) and (g). Owners of vehicles brought into California for emergency operations that last longer than three months must report such entry to ARB and request an equipment identification number within three months of entering the state. Vehicles used solely for emergency operations and that stay in California for less than three months do not have to be labeled. For vehicles used both for emergency operations and for other purposes, hours of operation 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.
- (4) **Use of Experimental Diesel PM Emission Control Strategies:** An owner may apply to the Executive Officer for a compliance extension for the use of an experimental, or non-verified, diesel PM control strategy if a VDECS is not available or if the owner can demonstrate that an existing VDECS is not feasible for their vehicle or application. The owner or operator shall keep documentation of this use in records as specified. The application must include emissions data and detailed control technology description demonstrating the experimental control achieves at least a Level 2 diesel PM emission reduction. If the application demonstrates that the device achieves at least 50 percent reductions in diesel PM, it may be treated like a Level 2 VDECS. If the application demonstrates that the device achieves at least 85% reductions in PM, it may be treated like a Level 3 VDECS.

Each vehicle engine retrofit with the experimental strategy will be considered to be in compliance for the duration of the experiment, until it expires. The owner must bring the fleet into compliance prior to the expiration of the experimental diesel PM emission control strategy extension.

- (5) **Compliance Extension for Equipment Manufacturer Delays:** An owner or operator 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 the following conditions 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; and
 - (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.
- (6) **Compliance Extension for Low-Use Vehicles:** Until March 1, 2020 for medium and large fleets and March 1, 2025 for small fleets, low-use vehicles are not subject to the compliance requirements (i.e., not counted in the fleet average and exempt from the BACT requirements). Low-use vehicles also need not be included in the sum of maximum power when determining fleet size.

Vehicles that formerly met the low-use vehicle definition, but whose use increases to 100 hours per year 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 100 hours per year between March 1, 2013 and February 28, 2014 must be included in the fleet average reported in 2014.

For medium and large fleets, the exemption for low-use vehicles ends in 2020. For small fleets, the exemption for low-use vehicles ends in 2025. As of the reporting dates in 2020 for medium and large fleets and 2025 for small fleets, each fleet owner must either demonstrate that his fleet, including low-use vehicles, meets the fleet average requirement in Section 2416(d)(1), or install the highest level VDECS on all low-use vehicles.

- (f) **Labeling** – All vehicles with engines subject to the regulation must be labeled with an ARB-issued equipment identification number (EIN). ARB will issue unique EIN to the fleet owner for each vehicle subject to the regulation in response to the initial reporting described in Section 2416(g)(1) and the annual reporting described in

Section 2416 (g)(2). All owners of vehicles subject to the regulation must comply with the following labeling requirements.

- (1) Application for EIN for added vehicle – Notwithstanding the requirements for vehicles used for emergency operations in section 2416(e)(3), if a fleet owner adds a vehicle to his California fleet or brings a vehicle into California from outside the state, the owner has 30 days from the date of purchase or the date the vehicle enters California to apply to ARB for an EIN or, if the vehicle already has an EIN, to inform ARB of the purchase. If the reporting date under Section 2416(g)(2) occurs before 30 days after purchase, the annual reporting may serve as the application for an EIN.

Applications for an equipment identification number should be submitted electronically per the guidelines approved by the Executive Officer for electronic data reporting, or mailed or delivered to ARB at the address listed immediately below:

California Air Resources Board
Mobile Source Control Division (In-Use Off-road Diesel)
P.O. Box 2815
Sacramento, CA 95812.

- (2) Affixing EIN – Within 30 days of receipt of the ARB-issued EIN, owners shall permanently affix or paint the EIN(s) on the vehicle in clear view according to the following specification:
 - (A) The EIN shall be white on a red background.
 - (B) The EIN shall be located in clear view on the left (port) side of the outside of the vehicle approximately 5 feet above the ground, or, if the vehicle is not 5 feet tall, on the highest point of the vehicle.
 - (C) Each character shall be at least 3 inches (7.6 centimeters) in height and 1.5 inches (3.8 centimeters) in width.
 - (D) The EIN shall be maintained in a manner that retains its legibility for the entire life of the vehicle.

(g) **Reporting** – Reporting is required for each and every fleet. Large and medium fleets may report separately for different divisions or subsidiaries of a given company. Fleet owners must submit reporting information using forms approved by the Executive Officer.

- (1) Initial reporting – All fleet owners must submit the information in section 2416(g)(1)(A) through (C) to ARB by their initial reporting date. In the initial reporting, fleet owners must report information regarding each vehicle subject to this regulation in their fleet as of March 1, 2008. The initial reporting date for large fleets is April 1, 2008. The initial reporting date for medium fleets is June 1, 2008. The initial reporting date for small fleets is August 1, 2008.
 - (A) **Owner Contact Information** – Responsible person name, corporate parent (if applicable), company or agency name, street address, phone number, email address (if available), and taxpayer identification number.

- (B) **Vehicle List** – A list of each vehicle subject to this regulation along with the following information for each vehicle:
1. Vehicle manufacturer;
 2. Vehicle model;
 3. Vehicle model year;
 4. Whether the vehicle is a low-use vehicle;
 5. Whether the vehicle is a specialty vehicle;
 6. Whether the vehicle is one that the owner intends to retire within one year; and
 7. For each engine that propels the vehicle, the engine manufacturer, engine family, engine serial number, engine model year, engine maximum horsepower, type of 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 two hour meter readings, one from on or before March 1, 2007 and one from on or after March 1, 2008, and the dates of reading.
- (D) **Specialty Vehicles** – For vehicles that owners intend to define as specialty vehicles, report demonstration that no repower is available, per criteria approved by the Executive Officer and no used vehicle with a cleaner engine is available to serve a function equivalent to and perform work equivalent to that of the specialty vehicle.
- (2) **Annual Reporting and Compliance Certification** – All fleet owners must review and update the information submitted under section 2416(g)(1) annually, and submit the information in section 2416(g)(2)(A) through (C) to ARB by the reporting date of each subsequent reporting year. The large fleet reporting date is April 1, the medium fleet reporting date is June 1, and the small fleet reporting date is August 1. Large fleets must report annually each year from 2009 to 2020. Medium fleets must report annually each year 2010 to 2020. Small fleets must report annually each year from 2012 to 2025. Any fleet that fails to meet the fleet average target rate for the final compliance date in section 2416(d)(1) must continue to report annually each year until it does so. Fleets must use forms approved by the Executive Officer for submittal of the required reporting information.
- (A) **Compliance Certification** – A certification signed by a responsible official that the information reported is accurate and that the fleet is in compliance with the regulation. The certification must be submitted on a form approved by the Executive Officer.
- (B) **Changes Since Last Reporting** – Any additions, deletions, or changes to the fleet must be reported. Such changes may include vehicles removed from the fleet, vehicles added to the fleet through purchase or by bringing into California, vehicles newly defined as low use or specialty vehicles, repowers, and retrofits. If there are no changes, the fleet may indicate there are no changes.
- (C) **Low-Use Vehicles** – For vehicles defined as low-use, report the hour meter readings for the last 12 months and the dates of reading. Fleets must report

two hour meter readings, one from before or on March 1 of the previous year and one from on or after March 1 of the current year.

- (3) **New Fleet Reporting** – New fleets must submit the information in section 2416(g)(1)(A) through (C) to ARB for vehicles subject to the regulation to ARB within 30 days of purchase or bringing such vehicles into the State. Beginning the first March 1 that is more than 30 days after the date of purchase or bringing a vehicle into the State, new fleets must comply with the annual reporting requirements in section 2416(g)(2).
- (h) **Record keeping** – Fleet owners must maintain copies of the information reported under section 2416(g), as well as the records described in section 2416(h)(1) to (6) below, and provide them 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) **Vehicles Not Yet Labeled** – For newly purchased or acquired vehicles or vehicles recently brought into the state that have not yet been labeled per section 2416(f)(2), records must be kept of the vehicle purchase date or the date the vehicle entered the state.
- (3) **Added Vehicles** – For fleets meeting the fleet average requirements in 2416(d)(1), records of a demonstration that the fleet still met the fleet average requirements within three months of adding a vehicle.
- (4) **VDECS Failure** – Records of any VDECS failure and replacement.
- (5) **Fuel-based Strategy** – Records of any approval from ARB Executive Officer to use a fuel strategy as in Section 2416(e)(2).
- (6) **Experimental Diesel PM Control Strategy** – For fleets using an experimental diesel PM control strategy, 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.
- (7) **Manufacturer Delay** – For any vehicles or VDECS for which the fleet owner is utilizing the equipment manufacturer delay provision in section 2416(e), 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.
- (8) **Record Retention** – Each owner shall maintain the records for each vehicle subject to the regulation until it is retired and for the overall fleet as long as the owner has a fleet. If vehicle ownership is transferred, the seller shall convey the vehicle records to the buyer. If fleet ownership is transferred, the seller shall convey the fleet records to the buyer.
- (i) **Right of Entry** – For the purpose of inspecting off-road vehicles and their records to determine compliance with these regulations, an agent or employee of ARB, upon presentation of proper credentials, has the right to enter any facility (with any necessary safety clearances) where off-road vehicles are located or off-road vehicle records are kept.

- (j) **Disclosure of Regulation Applicability** – Any person selling a vehicle with an engine subject to this regulation must provide the following disclosure in writing to the buyer, “When operated in California, this vehicle is subject to the California Air Resources Board In-Use Off-road Diesel Vehicle Regulation. It therefore could be subject to 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/ordiesel/ordiesel.htm>.”

Appendix A –

Use the values in these tables unless engine is a flexibility engine certified January 1, 2007 or later to the implementation flexibility standards 13 CCR 2423(d). Flexibility engines certified January 1, 2007 or later should use the emission standard to which the engine is certified. Engines certified to Family Emission Limits should still use the emission factors in the table below.

For engines that have been retrofit with VDECS, the PM Emission Factor is reduced 50% for a Level 2 VDECS, and 85% for a Level 3 VDECS; the NOx Emission Factor is reduced by whatever percentage NOx emission reductions are verified. The PM Emission Factor is not reduced for a Level 1 VDECS.

PM Emission Factors by Horsepower and Year (g/bhp-hr)								
Engine Model Year	Horsepower Group							
	25-49	50-74	75-99	100-174	175-299	300-599	600-750	Over 750
1900-1969	0.950	1.200	1.200	1.100	1.100	0.950	0.950	0.950
1970-1971	0.950	1.200	1.200	0.940	0.940	0.810	0.810	0.810
1972-1987	0.950	1.200	1.200	0.780	0.780	0.680	0.680	0.680
1988	0.950	0.980	0.980	0.540	0.540	0.490	0.490	0.490
1989-1995	0.950	0.980	0.980	0.540	0.540	0.490	0.490	0.490
1996	0.950	0.980	0.980	0.540	0.40	0.40	0.40	0.500
1997	0.950	0.980	0.980	0.600	0.40	0.40	0.40	0.500
1998	0.950	1.090	1.090	0.600	0.40	0.40	0.40	0.500
1999	0.60	1.090	1.090	0.600	0.40	0.40	0.40	0.500
2000	0.60	1.090	1.090	0.600	0.40	0.40	0.40	0.40
2001	0.60	1.090	1.090	0.600	0.40	0.15	0.40	0.40
2002	0.60	1.090	1.090	0.600	0.40	0.15	0.15	0.40
2003	0.60	1.090	1.090	0.22	0.15	0.15	0.15	0.40
2004	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.40

PM Emission Factors by Horsepower and Year (g/bhp-hr)								
Engine Model Year	Horsepower Group							
	25-49	50-74	75-99	100-174	175-299	300-599	600-750	Over 750
2005	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.40
2006	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.15
2007	0.45	0.30	0.30	0.22	0.15	0.15	0.15	0.15
2008	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15
2009	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15
2010	0.22	0.22	0.30	0.22	0.15	0.15	0.15	0.15
2011	0.22	0.22	0.30	0.22	0.015	0.015	0.015	0.07
2012	0.22	0.22	0.015	0.015	0.015	0.015	0.015	0.07
2013	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.07
2014	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.07
2015 and later	0.02	0.02	0.015	0.015	0.015	0.015	0.015	0.03

NOx Emission Factors by Horsepower and Year (g/bhp-hr)								
Engine Model Year	Horsepower Group							
	25-49	50-74	75-99	100-174	175-299	300-599	600-750	Over 750
1900 – 1969	7.2	14.8	14.8	15.9	15.9	15.2	15.2	15.2
1970 – 1971	7.2	14.8	14.8	14.8	14.8	14.1	14.1	14.1
1972 – 1979	7.2	14.8	14.8	13.6	13.6	13.0	13.0	13.0
1980 – 1987	7.2	14.8	14.8	12.5	12.5	11.9	11.9	11.9
1988	7.1	9.9	9.9	9.3	9.3	8.9	8.9	8.9
1989 – 1995	7.1	9.9	9.9	9.3	9.3	8.9	8.9	8.9

NOx Emission Factors by Horsepower and Year (g/bhp-hr)								
Engine Model Year	Horsepower Group							
	25-49	50-74	75-99	100-174	175-299	300-599	600-750	Over 750
1996	7.1	9.9	9.9	9.3	6.9	6.9	6.9	8.9
1997	7.1	9.9	9.9	6.9	6.9	6.9	6.9	8.9
1998	7.1	6.9	6.9	6.9	6.9	6.9	6.9	8.9
1999	6.2	6.9	6.9	6.9	6.9	6.9	6.9	8.9
2000	6.2	6.9	6.9	6.9	6.9	6.9	6.9	6.9
2001	6.2	6.9	6.9	6.9	6.9	4.2	6.9	6.9
2002	6.2	6.9	6.9	6.9	6.9	4.2	4.2	6.9
2003	6.2	6.9	6.9	4.3	4.3	4.2	4.2	6.9
2004	4.9	4.9	4.9	4.3	4.3	4.2	4.2	6.9
2005	4.9	4.9	4.9	4.3	4.3	4.2	4.2	6.9
2006	4.9	4.9	4.9	4.3	2.6	2.6	2.6	4.2
2007	4.9	4.9	4.9	2.6	2.6	2.6	2.6	4.2
2008	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2009	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2010	4.9	3.0	3.0	2.6	2.6	2.6	2.6	4.2
2011	4.9	3.0	3.0	2.6	1.5	1.5	1.5	2.6
2012	4.9	3.0	2.5	2.5	1.5	1.5	1.5	2.6
2013	3.0	3.0	2.5	2.5	1.5	1.5	1.5	2.6
2014	3.0	3.0	2.5	2.5	0.3	0.3	0.3	2.6
2015 and later	3.0	3.0	0.3	0.3	0.3	0.3	0.3	2.6