FINAL REGULATION ORDER

Amendments to Sections 1956.8 and 1961, Title 13, California Code of Regulations

Set forth below are the final amendments to title 13 of the California Code of Regulations. The text of the amendments is shown in underline to indicate additions and ~~strikeout~~ to indicate deletions.

1. Amend section 1956.8, title 13, California Code of Regulations, to read as follows:

§ 1956.8. **Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy-Duty Engines and Vehicles**.

(a) [No change.]

(b) [No change.]

(c)(1)(A) The exhaust emissions from ~~(A)~~ (i) new 1987 through ~~2003~~ 2004 model heavy-duty Otto-cycle engines (except methanol-fueled engines and except heavy-duty Otto-cycle natural-gas-fueled and liquefied-petroleum-gas-fueled Otto-cycle engines derived from diesel-cycle engines) and ~~(B)~~ (ii) from new 1993 through ~~2003~~ 2004 model heavy-duty methanol-fueled Otto-cycle engines (except in all cases engines used in medium-duty vehicles) shall not exceed:

Exhaust Emission Standards for Heavy-Duty Otto-Cycle Engines

(grams per brake horsepower-hour or g/bhp-hr)

Model Year	*Total Hydrocarbons or OMHCE*[A]	*Optional Non-~~m~~Methane Hydrocarbons*[A]	*Carbon Monoxide*[B]	*Oxides of Nitrogen*
1987[C]	1.1[D]	--	14.4[D]	10.6
	1.9[E]	--	37.1[E]	10.6
1988-1989	1.1[D]	--	14.4[D]	6.0
	1.9[E]	--	37.1[E]	6.0
1990	1.1	0.9[D]	14.4[D]	6.0
	1.9[E]	1.7[E]	37.1[E]	6.0
1991 - 1994	1.1[D]	0.9[D]	14.4[D]	5.0
	1.9[E]	1.7[E]	37.1[E]	5.0
1995 – 1997 ~~1995 – 1997~~	1.9[E]	1.7[E]	37.1[E]	5.0
	1.9	1.7[E]	[E]	2.5 to 5.0[F]
1998 - 2003[G] ~~1998 – 2003~~	1.9[E]	1.7[E]	37.1[E]	4.0
	1.9[E]	1.7[E]	37.1[E]	1.5 to 0.5[F]
	Non-Methane Hydrocarbons plus Oxides of Nitrogen (NMHC + NOx)		*Carbon Monoxide*	
2004[G]	2.4 g/bhp-hr; or 2.5 with 0.5 g/bhp-hr cap on NMHC		37.1	

A The total or optional non-methane hydrocarbon standards apply to petroleum-fueled, natural-gas-fueled and liquefied-petroleum-gas-fueled engines and methanol-fueled engines beginning in 2004. The Organic Material Hydrocarbon Equivalent, or OMHCE, standards apply to 1987 through 2003 methanol-fueled engines.

B Prior to the 2002 model year, ~~C~~carbon ~~M~~monoxide emissions from engines utilizing exhaust after treatment technology shall also not exceed 0.5 percent of the exhaust gas flow at curb idle.

C Manufacturers with existing heavy-duty Otto-cycle engines certified to the California 1986 steady-state emission standards and test procedures may as an option certify those engines, for the 1987 model year only, in accordance with the standards and test procedures for 1986 heavy-duty Otto-cycle engines established in Section 1956.7.

D These standards are applicable to Otto-cycle engines intended for use in all heavy-duty vehicles.

E Applicable to heavy-duty Otto-cycle engines intended for use only in vehicles with a gross vehicle weight rating greater than 14,000 pounds. Also, as an option, a manufacturer may certify one or more 1988 through 1994 model Otto-cycle heavy-duty engine configurations intended for use in all heavy-duty vehicles to these emission standards, provided that the total model-year sales of such configuration(s) being certified to these emission standards represent no more than 5 percent of total model-year sales of all Otto-

pounds by the manufacturer.

F les with a gross vehicle weight ____ greater than 14,000 pounds. A manufacturer may elect to certify to an optional standard between the values, inclusive, by 0.5 grams per brake horsepower-hour increments.

– A manufacturer may request to certify to Option 1 or Option 2 federal NMHC + NOx standards as set forth in 40 CFR §86.005-10(f), as adopted October 6, 2000.

) The exhaust emissions from new 2005 and subsequent model heavy-duty Otto-cycle engines shall not exceed:

California Emission Standards for 2005 and Subsequent Model Engines[A]

(bhp-hr)

	Emission	*NMHC + NOx*		*HCHO*
Standards for Vehicles 8,501 - 14,000 pounds GVWR[B]				
2005 and subsequent		1.0	14.4	
		0.5		0.025
Heavy-Duty Otto-Cycle Engines Used In				
2005 and subsequent		1.0	37.1	[D]

These standards apply to petroleum-fueled, alcohol-fueled, liquefied petroleum gas-fueled and

[B]

with these standards as an alternative to the primary emission standards and test procedures for complete

optional heavy-duty engine standards and test procedures shall specify, in the Part I application for .

A manufacturer may request to certify to the Option 1 or Option 2 federal NMHC + NOx

medium-duty vehicles

meet the levels specified above.

This standard only applies to methanol-fueled Otto-cycle engines.

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c)(2)

~~( ) The exhaust emissions from new 2004 and subsequent model heavy-duty Otto-exceed[A]~~

~~(a) Non-Methane Hydrocarbons plus Oxides of Nitrogen: 2.5 grams per brake horsepower-hour with non-methane hydrocarbons not to exceed 0.5 grams per brake horsepower-hour; or 2.4 grams per brake horsepower-hour;~~

~~(b) Carbon Monoxide: 37.1 grams per brake horsepower-hour.~~

~~[~~[A]~~The U.S. EPA is considering the adoption of amendments to the federal emission standards for heavy-duty Otto-cycle engines as they existed June 24, 1996. If the U.S. EPA promulgates amendments to the emission standards for this category, the ARB will hold a noticed public hearing within one year of such promulgation to consider the adoption of similar or identical standards in California.~~]~~

(d) The test procedures for determining compliance with standards applicable to 1987 and subsequent model heavy-duty ~~o~~Otto-cycle engines and vehicles are set forth in the "California Exhaust Emission Standards and Test Procedures for 1987 ~~and Subsequent~~ through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles," adopted April 25, 1986, as last amended ~~June 24, 1996~~ December 27, 2000, and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," adopted December 27, 2000, which ~~is~~ are incorporated by reference herein.

(e) A manufacturer may elect to certify complete heavy-duty vehicles of ~~10,000~~ 14,000 pounds or less maximum gross vehicle weight rating as medium-duty vehicles under section 1960.1 or section 1961 of this chapter, in which event the heavy-duty emission standards and test procedures in this section shall not apply.

(f) [No change.]

(g) The exhaust emissions from new 1995 through 2003 ~~and subsequent~~ model-year engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles shall not exceed:

Exhaust Emission Standards[A]

(grams per brake horsepower-hour, or g/bhp-hr)

Model Year	*Carbon Monoxide*	~~*Non-methane Hydrocarbon and Oxides of Nitrogen*~~ *NMHC + NOx*[B]	*Particulates*[C]
1995[D] ~~and subsequent~~ through 2003	14.4	3.9	0.10

[No change to remainder of subsection (g).]

The exhaust emissions from new ___ 1992 ~~and subsequent~~ through 2004 model-Otto-cycle engines used in incomplete medium-duty low-emission vehicles, (2) 1992 and subsequent model ~~for~~ diesel engines used in medium-duty low-emission vehicles shall not exceed:

Otto-Cycle

Medium-Duty , Ultra-Low-Emission Vehicles, and Super Ultra Low-Emission Vehicles, and for Diesel Engines Used in Medium-Duty Low-Emission Vehicles

Super Ultra-Low-Emission Vehicles [F]

(

Model Year	*Vehicle Category*[B]	*Monoxide*	~~*Non-methane Oxides of Nitrogen*~~ *NMHC +* [C]	*Formaldehyde*	s ~~*Matter*~~
1992[E]	LEV	14.4	[K]	0.050	[K]
2002-2003	LEV	14.4	[K]	0.050	[K]
1992-2003	ULEV	14.4	[K]	0.050	[K]
2004 and	ULEV - Opt A-	14.4	2.5 [I,J,K]	0.050	[J,K]
2004 and	ULEV - Opt. B		2.4 [G,]	0.050	0.10
1992 and subsequent		7.2	2.0	0.025	0.05

[A] This set Manufacturers of engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles from 8501-14,000 pounds gross vehicle weight rating may choose to section 1960.1, or section 1961, Title 13, California Code of Regulations. Manufacturers that choose to comply with these optional heavy-duty standards and test procedures shall specify, in the application for certification,

[B] "LEV" means low-emission vehicle.

"SULEV" means super ultra-low-emission vehicle.

[C] This standard is the sum of the individual non-methane hydrocarbon emissions and oxides of nitrogen emissions. For methanol-fueled engines, non-methane hydrocarbons shall mean organic material hydrocarbon equivalent ("OMHCE").

[D] This standard shall only apply to diesel engines and vehicles.

[E] Manufacturers may certify engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles to these standards to meet the requirements of section ~~1965.8(g)~~ 1956.8(g), Title 13, California Code of Regulations.

[F] In-use compliance testing shall be limited to vehicles or engines with fewer than 90,000 miles.

[G] ~~[The U.S. EPA is considering the adoption of amendments to the federal emission standards for engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles as they existed June 24, 1996. If the U.S. EPA promulgates amendments to the emission standards for this category, the ARB will hold a noticed public hearing within one year of such promulgation to consider the adoption of similar or identical standards in California.]~~ [Reserved]

[H] For engines certified to the 3.5 grams per brake horsepower-hour (g/bhp-hr) LEV standards, the in-use compliance standard shall be 3.7 g/bhp-hr for the first two model years of introduction. For engines certified to the 2002 and 2003 model year LEV standards, the in-use compliance standard shall be 3.2 g/bhp-hr. For engines certified to the 1992 through 2003 model year ULEV standards, the in-use compliance standard shall be 2.7 g/bhp-hr for the first two model years of introduction. For engines certified to the 1992 and subsequent SULEV standards, the in-use compliance standard shall be 2.2 g/bhp-hr for the first two model years of introduction.

[I] Manufacturers have the option of certifying to either option A or B. Manufacturers electing to certify to Option A must demonstrate that the NMHC emissions do not exceed 0.5 g/bhp-hr.

[J] Emissions averaging may be used to meet these standards for diesel engines, using the requirements for participation in averaging, banking and trading programs, as set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles", ~~adopted April 8, 1985, as last amended November 22, 2000,~~ incorporated by reference in paragraph (b), above.

[K] Engines of 1998 and subsequent model years may be eligible to generate averaging, banking and trading credits based on these standards according to the requirements of the averaging, banking and trading programs described in "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles", ~~adopted April 8, 1985, as last amended November 22, 2000,~~ incorporated by reference in paragraph (b), above.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, ~~43103,~~ 43104, and 43806, Health and Safety Code, and section 28114, Vehicle Code. Reference: Sections 39002, 39003, 43000, 43013, 43018, 43100, 43101, 43101.5, 43102, ~~43103,~~ 43104, 43106, 43204, and 43806, Health and Safety Code.

2. Amend section 1961, title 13, California Code of Regulations, to read as follows:

§ 1961. Exhaust Emission Standards and Test Procedures - 2004 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Introduction. [No change]

(a) *Exhaust Emission Standards.*

(a)(1) through (11): [No change]

(12) *NMOG Credit for Direct Ozone Reduction Technology*. A manufacturer that certifies vehicles equipped with direct ozone reduction technologies shall be eligible to receive NMOG credits that can be applied to the NMOG exhaust emissions of the vehicle when determining compliance with the standard. In order to receive credit, the manufacturer must submit the following information for each vehicle model, including, but not limited to:

(~~a~~A) a demonstration of the airflow rate through the direct ozone reduction device and the ozone-reducing efficiency of the device over the range of speeds encountered in the SFTP test cycle;

(~~b~~B) an evaluation of the durability of the device for the full useful life of the vehicle; and

(~~c~~C) a description of the on-board diagnostic strategy for monitoring the performance of the device in-use.

Using the above information, the Executive Officer shall determine the value of the NMOG credit based on the calculated change in the one-hour peak ozone level using an approved airshed model.

(13) [No change]

(14) *When a Federally-Certified Vehicle Model is Required in California.*

(A) *General Requirement.* Whenever a manufacturer federally-certifies a 2004 or subsequent model-year passenger car, light-duty truck or medium-duty vehicle model to the standards for a particular emissions bin that are more stringent than the standards for an applicable California emission category, the equivalent California model may only be certified to (i) the California standards for a vehicle emissions category that are at least as stringent as the standards for the corresponding federal emissions bin, or (ii) the exhaust emission standards to which the federal model is certified. However, where the federal exhaust emission standards for the particular emissions bin and the California standards for a vehicle emissions category are equally stringent, the California model may only be certified to either the California standards for that vehicle emissions category or more stringent California standards. The federal emission bins are those contained in Tables S04-1 and S04-2 of 40 CFR § 86.1811-04(c) as adopted February 10, 2000. The criteria for applying this requirement are set forth in Part I. Section H.1 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," as incorporated by reference in section 1961(d).

(B) *Exception for clean fuel fleet vehicles.* Section 1961(a)(14)(A) does not apply in the case of a federally-certified vehicle model that is only marketed to fleet operators for applications that are subject to clean fuel fleet requirements established pursuant to section 246 of the federal Clean Air Act (42 U.S.C. sec. 7586). In addition, the Executive Officer shall exclude from the requirement a federally-certified vehicle model where the manufacturer demonstrates to the Executive Officer's reasonable satisfaction that the model will primarily be sold or leased to clean fuel fleet operators for such applications, and that other sales or leases of the model will be incidental to marketing to those clean fuel fleet operators.

(C) *Opt-in for 2003 or prior model year vehicles.* A manufacturer may certify a passenger car, light-duty truck or medium-duty vehicle to federal exhaust emission standards pursuant to section 1961(a)(14)(A) prior to the 2004 model year.

(b) *Emission Standards Phase-In Requirements for Manufacturers.*

(1) *Fleet Average NMOG Requirements for Passenger Cars and Light-Duty Trucks.*

(A) [No change]

(B) *Calculation of Fleet Average NMOG Value.*

1. *Basic Calculation.*

a. Each manufacturer's PC and LDT1 fleet average NMOG value for the total number of PCs and LDT1s produced and delivered for sale in California shall be calculated as follows:

(Σ [Number of vehicles in a test group x applicable emission standard] +
Σ [Number of hybrid electric vehicles in a test group x HEV NMOG factor]) ÷ *[See note below]*
Total Number of Vehicles Produced, Including ZEVs and HEVs

b. Each manufacturer's LDT2 fleet average NMOG value for the total number of LDT2s produced and delivered for sale in California shall be calculated as follows:

(Σ [Number of vehicles in a test group x applicable emission standard] +
Σ [Number of hybrid electric vehicles in a test group x HEV NMOG factor]) ÷
Total Number of Vehicles Produced, Including ZEVs and HEVs

c. The applicable emission standards to be used in the above equations are as follows:

[Editorial note: the "÷" replaces the horizontal line that previously separated the two lines of the numerator and the single line of the denominator]

Model Year	*Emission Category*	*Emission Standard Value*	
		All PCs; LDTs 0-3750 lbs. LVW	*LDTs 3751-5750 lbs. LVW*
2001 and subsequent (§1960.5 "AB 965" vehicles only)	Tier 1	0.25	0.32
2001 - 2003 (§1960.1(f)(2))	Tier 1	0.25	0.32
2001 - 2006 model year vehicles certified to the "LEV I" standards in §1960.1(g)(1) (For TLEVs, 2001 - 2003 model years only)	TLEVs	0.125	0.160
	LEVs	0.075	0.100
	ULEVs	0.040	0.050
Model Year	*Emission Category*	*All PCs; LDTs 0-3750 lbs. LVW*	*LDTs 3751 lbs. LVW - 8500 lbs. GVW*
2004 and subsequent model year vehicles certified to the "LEV II" standards in §1961(a)(1)	LEVs	0.075	0.075
	ULEVs	0.040	0.040
	SULEVs	0.01	0.01
2004 and subsequent model year vehicles certified to the optional 150,000 mile "LEV II" standards for PCs and LDTs in 1961(a)(1)	LEVs	0.06	0.06
	ULEVs	0.03	0.03
	SULEVs	0.0085	0.0085

2. *HEV NMOG Factor.* The HEV NMOG factor for light-duty vehicles is calculated as follows:

LEV HEV Contribution Factor = 0.075 – [(Zero-emission VMT Factor) x 0.035]
ULEV HEV Contribution Factor = 0.040 – [(Zero-emission VMT Factor) x 0.030]

where Zero-emission VMT Factor for HEVs is determined in accordance with section 1962.

3. *Federally-Certified Vehicles.* A vehicle certified to the federal standards for a federal exhaust emissions bin in accordance with Section H.1 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as incorporated by reference in section 1961(d), shall use the corresponding intermediate useful life NMOG standard to which the vehicle is deemed certified in the fleet average calculation.

(C) *Requirements for Small Volume Manufacturers.*

1. In 2001 through ~~2003~~ 2006 model years, a small volume manufacturer shall not exceed a fleet average NMOG value of 0.075 g/mi for PCs and LDTs from 0-3750 lbs. LVW or 0.100 g/mi for LDTs from 3751-5750 lbs. LVW calculated in accordance with section 1961(b)(1)(B). In ~~2004~~ 2007 and subsequent model years, a small volume manufacturer shall not exceed a fleet average NMOG value of 0.075 for PCs and LDTs from 0-3750 lbs. LVW or 0.075 for LDTs from 3751 lbs. LVW - 8500 lbs. GVW calculated in accordance with section 1961(b)(1)(B).

2. [No change]

3. [No change]

(D) [No change]

(2) *LEV II Phase-In Requirement for PCs and LDTs.* [No change]

(3) *Medium-Duty Vehicle Phase-In Requirements.*

(A) A manufacturer of MDVs, other than a small volume manufacturer, shall certify an equivalent percentage of its MDV fleet according to the following phase-in schedule:

[No change to table]

(B) ~~Beginning with~~ For the 2004 through 2006 model years, a manufacturer, other than a small volume manufacturer must ~~shall~~ phase-in at least one test group per model year to the MDV LEV II standards. All 2007 and subsequent model year MDVs, including those produced by a small volume manufacturer, are subject to the LEV II MDV standards.

(C) [No change]

(D) *Requirements for Small Volume Manufacturers.* In 2001 ~~and subsequent~~ through 2003 model years, a small volume manufacturer shall certify, produce, and deliver for sale in

California ~~LEVs~~ vehicles or engines certified to the MDV Tier 1 standards in a quantity equivalent to 100% of its MDV fleet. In 2004 and subsequent model years, a small volume manufacturer shall certify, produce, and deliver for sale in California vehicles or engines certified to the MDV LEV standards in a quantity equivalent to 100% of its MDV fleet.

(c) *Calculation of NMOG Credits/Debits* [No change]

(d) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," ~~adopted on August 5, 1999~~ as amended December 27, 2000, which is incorporated herein by reference. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2003 and Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962(e).

(e) *Abbreviations.* [No change]

Note: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104, 42105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43204, and 43205.5, Health and Safety Code.