PUBLIC HEARING TO CONSIDER REQUIRING CERTAIN CALIFORNIA LIGHT- AND MEDIUM-DUTY VEHICLES TO BE SUBJECT TO FEDERAL TIER 2 EXHAUST EMISSION STANDARDS, AND ADOPTING ADDITIONAL EXHAUST EMISSION STANDARDS FOR HEAVY-DUTY GASOLINE VEHICLES AND ENGINES

Staff's Suggested Modifications to the Original Proposal

PRESENTED AT THE DECEMBER 7, 2000 HEARING OF THE AIR RESOURCES BOARD

The following text contains staff's suggested modifications to the originally proposed amendments to title 13 of the California Code of Regulations. The text of the originally proposed amendments is shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. The modifications now proposed by staff are shown in double underline to indicate additions and ~~double strikeouts~~ to show deletions. Except for captions to the paragraphs and tables within the sections, all text shown in italic font is not part of the regulations. The italicized commentaries provide explanations of the reasons for the suggested modifications to the original proposal. All proposed modifications will be made available to the public for a supplemental fifteen-day comment period prior to final adoption.

A. Modifications Pertaining to the Exhaust Emission Standards and Test Procedures for Heavy-Duty Engines and Vehicles.

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)(i) The exhaust emissions from (A) 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) 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-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	1.9[E]	1.7[E]	37.1[E]	5.0
	1.9[E]	1.7[E]	37.1[E]	2.5 to 5.0[F]
1998 - 2003[G]	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		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, carbon monoxide emissions from engines utilizing exhaust aftertreatment 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 for such configuration(s) being certified to these emission standards represent no more than 5 percent of total model-year sales of all Otto-cycle heavy-duty engines intended for use in vehicles with a Gross Vehicle Weight Rating of up to 14,000 pounds by the manufacturer.

F These are optional standards and apply to all heavy-duty engines intended for use only in vehicles 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.

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

Commentary: *The addition of footnote "G" allows manufacturers that choose to certify to Option 1 or Option 2 standards federally, to also certify California engines to those optional standards.*

(ii) 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 Heavy-Duty Otto-Cycle Engines[A]
(in g/bhp-hr)

Model Year	*Emission Category*	*NMHC + NOx*	*CO*	*HCHO*
Standards for Heavy-Duty Otto-Cycle Engines Used In Incomplete Medium-Duty Vehicles 8,501 - 14,000 pounds GVW[B]				
2005 and subsequent	~~LEV~~	~~1.0[C]~~	~~37.1~~	~~0.05~~
	ULEV	1.0[C]	14.4	0.05
	SULEV	0.5	7.2	0.025
Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW				
2005 and subsequent	n/a	1.0[C]	37.1	0.05[D]

[A] These standards apply to petroleum-fueled, alcohol-fueled, liquefied petroleum gas-fueled and natural gas-fueled Otto-cycle engines.

[B] A manufacturer of engines used in incomplete medium-duty vehicles may choose to comply with these standards as an alternative to the primary emission standards and test procedures for complete vehicles specified in section 1961, title 13, CCR. A manufacturer that chooses to comply with these optional heavy-duty engine standards and test procedures shall specify, in the Part I application for certification, an in-use compliance test procedure, as provided in section 2139(c), title 13 CCR.

[C] A manufacturer may request to certify to the Option 1 or Option 2 federal NMHC + NOx standards as set forth in 40 CFR § 86.005-10(f), as adopted October 6, 2000. However, for engines used

in medium-duty vehicles 8,500~~0~~1 - 14,000 lbs. GVW, the formaldehyde and carbon monoxide standards must meet the levels specified above.

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

Commentary: *The original staff proposal erroneously reintroduced a LEV emission category and standards for heavy-duty Otto-cycle engines used in incomplete medium-duty vehicles 8,501-14,000 pounds gross vehicle weight. This emission category and set of standards have been eliminated. The modifications also correct the lower weight limit for this class of vehicles from 8,500 to 8,501 pounds gross vehicle weight. The added date of the referenced Code of Federal Regulations provisions identifies the specific version being incorporated.*

(c)(2) [No change.]

~~(c)(3) The exhaust emissions from new 2004 and subsequent model heavy-duty Otto-cycle engines shall not 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 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.]~~

(d) The test procedures for determining compliance with standards applicable to 1987 and subsequent model heavy-duty 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 lasted amended ~~June 24, 1996~~ [insert date of amendment], and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," adopted [insert date of adoption], 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*	*NMHC + NOx[B]*	*Particulates[C]*
1995[D] ~~and subsequent~~ through 2003	14.4	3.9	~~0.01~~ 0.10

Commentary: *The original staff proposal contained a typographical error that erroneously lists the particulate standard in the subsection (g) table as 0.01 g/bhp-hr. The correct standard is 0.10 g/bhp-hr. The subsection (g) table has been corrected accordingly.*

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

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

Exhaust Emission Standards for Engines Used in Incomplete <u>Otto-Cycle</u> Medium-Duty Low-Emission Vehicles, Ultra-Low-Emission Vehicles, and Super Ultra-Low-Emission Vehicles, and for Diesel Engines Used in Medium-Duty Low-Emission Vehicles, Ultra-Low-Emission Vehicles, and Super Ultra-Low-Emission Vehicles[A,F]

(grams per brake horsepower-hour)

Model Year	*Vehicle Emissions Category*[B]	*Carbon Monoxide*	*Non-Methane Hydrocarbons and Oxides of Nitrogen*[C]	*Formaldehyde*	*Particulates*[D]
1992[E] - 2001	LEV	14.4	3.5 [K]	0.050	0.10 [K]
2002-2003[E]	LEV	14.4	3.0 [K]	0.050	0.10 [K]
1992-2003[E,H]	ULEV	14.4	2.5 [K]	0.050	0.10 [K]
2004 and subsequent	ULEV - Opt A.	14.4	2.5 ~~[C,]~~[I,J,K]	0.050	0.10 [J,K]
2004 and subsequent	ULEV - Opt. B	14.4	2.4 ~~[C,]~~[I,J,K]	0.050	0.10 [J,K]
1992 and subsequent	SULEV	7.2	2.0 [K]	0.025	0.05 [K]

[A] This set of standards is optional. 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 comply with these standards as an alternative to the primary emission standards and test procedures specified in section 1960.1, 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, an in-use compliance test procedure, as provided in section 2139(c), Title 13, California Code of Regulations.

[B] "LEV" means low-emission vehicle.
"ULEV" means ultra-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~~ April 15, 1999, ~~[insert date of amendment],~~ 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~~ April 15, 1999, ~~[insert date of amendment],~~ incorporated by reference in paragraph (b), above.

Commentary: *Footnotes "J" and "K" in the paragraph (h) table unnecessarily cite the date of adoption of the "California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles." Because these references to the adoption date duplicate the date in paragraph (b), they have been eliminated.*

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 (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 ~~is~~ 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.

Commentary: *The added subsection (B) would exclude a federal vehicle model if the manufacturer is generally marketing it to fleet operators under the federal*

clean fuel fleet program only; it would be inappropriate to require manufacturers to sell such a limited-application vehicle statewide in California. The added subsection (C) would allow manufacturers the option of certifying federal vehicles in California that are cleaner than their California counterparts earlier than the originally proposed timeframe.

(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] ÷
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

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 models, a small volume manufacturer shall not exceed a fleet average NMOG value of 0.075 g/mi for PCs and LDTs from 0-3750 LVW or 0.100 g/mi for LDTs from 3751-5750 lbs. LVW calculated in accordance with section 1962(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 - 8,500 lbs. GVW calculated in accordance with section 1961(b)(1)(B).

2. [No change]

3. [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 [Insert date of amendment] , 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, 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.

3. Amend the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines" as follows:

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Part ~~1~~I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS

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10. **Emission standards for Otto-cycle heavy-duty engines and vehicles** [§86.xxx-10]

* * * *

B. California provisions.

California Emission Standards for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines[A]

(in g/bhp-hr)

Model Year	Emission Category	NMHC + NOx	CO	HCHO
Standards for Heavy-Duty Otto-Cycle Engines Used In Medium-Duty Vehicles 8,501 to 14,000 pounds GVW[B]				
2004 ~~and subsequent~~	ULEV	2.4 **or** 2.5 with 0.5 NMHC cap[C]	14.4	0.05
2004 ~~and subsequent~~	SULEV	2.0	7.2	0.025
Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW				
2004 ~~and subsequent~~	n/a	2.4 **or** 2.5 with 0.5 NMHC cap[C]	37.1	0.05[D]
Standards for Heavy-Duty Otto-Cycle Engines Used In Incomplete Medium-Duty Vehicles 8,50~~0~~1 - 14,000 pounds GVW				
	~~LEV~~	~~1.0[C]~~	~~37.1~~	~~0.05~~
2005 and subsequent	ULEV	1.0[C]	14.4	0.05
	SULEV	0.5	7.2	0.025
Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW				
2005 and subsequent	n/a	1.0[C]	37.1	0.05[D]

[A] These standards apply to petroleum-fueled, alcohol-fueled, liquefied petroleum gas-fueled and natural gas-fueled Otto-cycle engines. Alcohol-fueled engines have the option of certifying to the organic material hydrocarbon equivalent ("OMHCE") or organic material non-methane hydrocarbon equivalent ("OMNMHCE") standard.

[B] A manufacturer of engines used in incomplete medium-duty vehicles may choose to comply with these standards as an alternative to the primary emission standards and test procedures for complete vehicles specified in section 1961, title 13, CCR. A manufacturer that chooses to comply with these optional heavy-duty engine standards and test procedures shall specify, in the Part I application for certification, an in-use compliance test procedure, as provided in section 2139(c), title 13 CCR.

[C] A manufacturer may request to certify to the Option 1 or Option 2 federal NMHC + NOx standards as set forth in 40 CFR §86.005-10(f), as adopted October 6, 2000. However, for engines used in medium-duty vehicles 8,500 - 14,000 lbs. GVW, the formaldehyde and carbon monoxide standards must meet the levels specified above.

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

Commentary: *The original staff proposal erroneously reintroduced a LEV emission category and standards for heavy-duty Otto-cycle engines used in incomplete medium-duty vehicles 8,501-14,000 pounds gross vehicle weight. This emission category and set of standards have been eliminated. The modifications also correct the lower weight limit for this class of vehicles from 8,500 to 8,501 pounds gross vehicle weight. The added date of the referenced Code of Federal Regulations provisions identifies the specific version being incorporated.*

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4. Amend the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as follows:

PART I: GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS

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E. California Exhaust Emission Standards

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1. Exhaust Emission Standards

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1.12 ~~Certification of a Federal Vehicle in California~~ When a Federally-Certified Vehicle Model is Required in California.

1.12.1. **Basic 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 vehicle emissions 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 Tables S04-1 and S04-2 of 40 CFR section 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 these test procedures.

1.12.2. **Exception for Clean Fuel Fleet Vehicles.** This requirement 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 requirements 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.

1.12.3. **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 E.1.12.1 prior to the 2004 model year.

Commentary: *Added subsection 1.12.2. would exclude a federal vehicle model if the manufacturer is generally marketing it to fleet operators under the federal clean fuel fleet program only; it would be inappropriate to require manufacturers to sell such a limited-application vehicle statewide in California. Added subsection 1.12.3. would allow manufacturers the option of certifying federal vehicles in California that are cleaner than their California counterparts earlier than the originally proposed timeframe.*

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2. **Emission Standards Phase-In Requirements for Manufacturers**

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2.1.2.3 **Federally-Certified Vehicles**. A vehicle certified to the standards for a federal exhaust emissions bin in accordance with Section H.1 of these test procedures shall use the corresponding NMOG emission category value set forth in the table in Section E.2.1.2 of these test procedures for the fleet average calculation. If a vehicle is certified to 150,000 mile standards for a federal exhaust emission bin and the corresponding California NMOG emission category is LEV I or LEV II LEV, it may use the emission standard value for the optional 150,000 mile LEV II LEV standards set forth in the Section E.2.1.2 table. If a vehicle is certified to 150,000 mile standards for a federal exhaust emission bin and the corresponding California NMOG emission category is LEV I or LEV II ULEV, it may use the emission standard value for the optional 150,000 mile LEV II ULEV standards set forth in the Section E.2.1.2 table.

Commentary: *This modification provides manufacturers with credit for the additional emission benefits achieved by certifying vehicles to optional 150,000 mile emission standards rather than the 120,000 mile requirement. This additional credit will provide an incentive for manufacturers to certify vehicles to the optional requirement.*

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H. Certification, Information and Reporting Requirements

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1. §86.1841 Compliance with ~~certification~~ emission standards for the purpose of certification

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1.4 **Certification of a Federal Vehicle in California.** 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 vehicle emissions 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 Tables S04-1 and S04-2 of 40 CFR section

86.1811-04(c) as adopted February 10, 2000. A California vehicle model is to be treated as equivalent to a federal vehicle model if all of the following characteristics are identical:

(a) Vehicle make and model;
(b) Cylinder block configuration (e.g., L-6, V-8);
(c) Displacement;
(d) Combustion cycle; ~~and~~
(e) Transmission class~~.~~;
(f) Aspiration method (e.g., naturally aspirated, turbocharged); and
(g) Fuel (e.g., gasoline, natural gas, methanol).

The comparative stringency of the standards for the federal exhaust emissions bin and for the California vehicle emissions category shall be based on a comparison of the sum of the 100,000, 120,000, or 150,000 mile standards for NMOG and NOx.

Commentary: *Two additional characteristics ((f) and (g)) would be added to the list of characteristics that all must be identical so as not to unnecessarily and unreasonably restrict the types of vehicles that can be sold in California.*

1.4.1 If a federally-certified vehicle model is certified in California in accordance with subparagraph 1.4, the model shall be subject to the federal requirements for exhaust emissions, SFTP emissions, cold CO emissions and highway NOx. The vehicle model shall be subject to all other California requirements including evaporative emissions, OBD II and emission warranty, except that a 2004 or earlier model-year vehicle in the federal heavy light-duty truck or medium-duty passenger vehicle classes may at the manufacturer's option be subject to the federal requirements for evaporative emissions and OBD II.

Commentary: *The modifications will assure that federally-certified vehicles in the federal heavy light-duty truck and medium-duty passenger vehicle classes do not have to be certified to California evaporative emission standards or OBDII requirements in conjunction with the federal exhaust standards until the model year commencing 4 years after the standards in this rulemaking are promulgated. The staff expects that the amendments will be adopted by the Executive Officer no later than December 31, 2000.*

1.4.2 Prior to certification of a 2004 or subsequent model-year vehicle, a manufacturer must submit information sufficient to enable the Executive Officer to determine whether there is a federally-certified vehicle model for that model year that is equivalent to the California vehicle model based on the criteria listed in subparagraph 1.4.

1.4.3 If the Executive Officer determines that there is a federally-certified vehicle model for that model year that is equivalent to the California vehicle model, the following information shall be submitted with the Part I or Part II Application for Certification as set forth below:

(a) Part I Application for Certification: (i) Evidence of federal certification including, but not limited to, federal certification exhaust emission levels and compliance with federal SFTP, cold CO and highway NOx emission levels; and (ii) evidence of compliance with California evaporative emission requirements and California OBD II requirements or, where permitted under Section 1.4.1 for a 2004 or earlier model-year vehicle, evidence of federal certification evaporative emission levels and compliance with federal OBD II requirements.

(b) Part II Application for Certification: evidence of a warranty on emission-related parts in accordance with sections 2035 et seq., title 13 CCR as they apply to vehicles certified under the primary California standard.

Commentary: *The modifications accommodate the modifications in Section 1.4.1 above*

1.4.4 For purposes of meeting the California NMOG fleet average phase-in requirements or for determining vehicle equivalent credits, the applicable California NMOG value for passenger cars and light-duty trucks or vehicle equivalent credits for medium-duty vehicles shall be determined as follows:

(a) The sum of the federal full useful life (100,000, 120,000 or 150,000) NMOG and NOx value shall be compared with the next less stringent California full useful life NMOG plus NOx value to determine which emission category (e.g., LEV, ULEV or SULEV) is to be used for the fleet average value or vehicle equivalent credit calculation.

(b) For passenger cars and light-duty trucks, once the equivalent California emission category is determined (e.g., whether the vehicle is considered a LEV, ULEV or SULEV), the applicable NMOG value to be used in the fleet average calculation is set forth in the table in section E.2.1.2 of these test procedures for passenger cars and light-duty trucks. For example, if the full useful life (120,000 miles) NMOG plus NOx standard to which the federal vehicle is certified is 0.110 grams per mile, that vehicle would be considered a LEV II ULEV for fleet average purposes because the combined LEV full useful life NMOG plus NOx value is 0.125 and is the next less stringent emission category. The applicable emission standard to be used in the fleet average calculation would therefore be 0.040 grams per mile.

1.4.5 The vehicle shall be subject to the federal in-use requirements and the emission standard applicable for in-use compliance purposes shall be the federal standard to which the vehicle was federally-certified.

1.4.6 The tune label shall meet the federal requirements applicable to such a vehicle with an additional sentence which reads: "This vehicle conforms to federal regulations and is certified for sale in California." The value used in the smog index label shall be the California emission category to which the vehicle was deemed certified for fleet average NMOG purposes.

1.4.7 The requirements in Section E.1.4 do 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 requirements 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.

1.4.8 A manufacturer may certify a passenger car, light-duty truck or medium-duty vehicle to federal exhaust emission standards pursuant to Section E.1.4 prior to the 2004 model year.

Commentary: *New sections 1.4.7 and 1.4.8 are identical to the language added to Section E.1.12 above.*