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## 40 CFR Part 86

### Subpart R--General Provisions for the Voluntary National Low Emission Vehicle Program for Light-Duty Vehicles and Light-Duty Trucks

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#### § 86.1701-99 General applicability.

(a) The provisions of this subpart may be adopted by vehicle manufacturers pursuant to the provisions specified in § 86.1705. The provisions of this subpart are generally applicable to 1999 and later model year light-duty vehicles and light light-duty trucks to be sold in the Northeast Trading Region, and 2001 and later model year light-duty vehicles and light light-duty trucks to be sold in the United States. In cases where a provision applies only to certain vehicles based on model year, vehicle class, motor fuel, engine type, vehicle emission category, intended sales destination, or other distinguishing characteristics, such limited applicability is cited in the appropriate section or paragraph. The provisions of this subpart shall be referred to as the "National Low Emission Vehicle Program" or "National LEV" or "NLEV."

(b) All requirements of 40 CFR parts 85 and 86, unless specifically superseded by the provisions of this subpart, shall apply to vehicles under the National LEV Program. Compliance with the provisions of this subpart will be deemed compliance with some of the requirements of 40 CFR parts 85 and 86, as set forth elsewhere in this subpart.

(c) The requirements of this subpart apply to new vehicles manufactured by covered manufacturers through model year 2003. In addition, the requirements of this subpart apply to new vehicles manufactured by covered manufacturers for model

years prior to the first model year for which a mandatory federal exhaust emissions program for light-duty vehicles and light light-duty trucks is at least as stringent as the National LEV program with respect to NMOG, NOx, and CO exhaust emissions, as determined by the Administrator, provided that such a program is promulgated no later than December 15, 2000, and is effective no later than model year 2006.

(d) Adoption of the National LEV program does not impose gasoline or other in-use fuel requirements and is not intended to require any new federal or state regulation of fuels. Vehicles under National LEV will be able to operate on any fuels, including conventional gasoline, that, in the absence of the National LEV program, could be sold under federal or state law.

### § 86.1702-99 Definitions.

(a) The definitions in subpart A of this part apply to this subpart, except where the same term is defined differently in paragraph (b) of this section.

(b) The following definitions shall apply to this subpart:

Advanced technology vehicle (ATV) means any light-duty vehicle or light light-duty truck that is covered by a federal certificate of conformity or an Executive Order, as defined in § 86.1002, which is either:

(1) A dual fuel, flexible fuel, or dedicated alternatively fueled vehicle certified as a TLEV or more stringent when operated on the alternative fuel;

(2) A ULEV or Inherently Low-Emission Vehicle (ILEV), as defined in 40 CFR 88.302, either conventionally or alternatively fueled;

(3) An HEV or ZEV.

Alcohol fuel means either methanol or ethanol as those terms are defined in this subpart.

All-electric range test means a test sequence used to determine the range of an electric vehicle or of a hybrid electric vehicle without the use of its auxiliary power unit. The All-Electric Range Test cycle is defined in § 86.1770.

All States Trading Region (ASTR) means the region comprised of all states except the OTC States that have not opted into National LEV pursuant to the opt-in provisions at § 86.1705 or that have opted out of National LEV and whose opt-outs have become effective, as provided at § 86.1707; California; and any state outside the OTR with a Section 177 Program in effect that does not allow

National LEV as a compliance alternative.

Averaging sets are the categories of LDVs and LDTs for which the manufacturer calculates a fleet average NMOG value. The four averaging sets for fleet average NMOG value calculation purposes are:

(1) Class A delivered to a point of first sale in the Northeast Trading Region;

(2) Class A delivered to a point of first sale in the All States Trading Region;

(3) Class B delivered to a point of first sale in the Northeast Trading Region;

(4) Class B delivered to a point of first sale in the All States Trading Region.

Axle ratio means the number of times the input shaft to the differential (or equivalent) turns for each turn of the drive wheels.

Battery assisted combustion engine vehicle means any vehicle which allows power to be delivered to the driven wheels solely by a combustion engine, but which uses a battery pack to store energy which may be derived through remote charging, regenerative braking, and/or a flywheel energy storage system or other means which will be used by an electric motor to assist in vehicle operation.

Battery pack means any electrical energy storage device consisting of any number of individual battery modules which is used to propel electric or hybrid electric vehicles.

Certification level means the official exhaust emission result from an emission-data vehicle which has been adjusted by the applicable mass deterioration factor and is submitted to the Administrator for use in determining compliance with an emission standard for the purpose of certifying a particular engine family. For those engine families which are certified using reactivity adjustment factors developed by the manufacturer pursuant to Appendix XVII of this part, the exhaust NMOG certification level shall include adjustment by the ozone deterioration factor.

Class A comprises LDVs and LDTs 0-3750 lbs LVW that are subject to the provisions of this subpart.

Class B comprises LDTs 3751-5750 lbs LVW that are subject to the provisions of this subpart.

Continually regenerating trap oxidizer system means a trap oxidizer system that does not utilize an automated regeneration mode during normal driving conditions for cleaning the trap.

Conventional gasoline means any

certification gasoline which meets the specifications of § 86.113(a). The ozone-forming potential of conventional gasoline vehicle emissions shall be determined by using the methods and gasoline specifications contained in Appendix XVII of this part.

Core Stable Standards means the standards and other requirements listed in § 86.1707(d)(9)(i)(A) through (F).

Covered manufacturer means an original equipment manufacturer (OEM), as defined at 40 CFR 85.1502(9), that meets the conditions specified under § 86.1705(a).

Covered state means a state that meets the conditions specified under § 86.1705(d).

Covered vehicle or engine means a vehicle specified in § 86.1701(a), or an engine in such a vehicle, that is manufactured by a covered manufacturer.

Credits means fleet average NMOG credits as calculated from the amount that the manufacturer's applicable fleet average NMOG value is below the applicable fleet average NMOG standard, times the applicable production for a given model year. NMOG credits have units of g/mi.

Debits means fleet average NMOG debits as calculated from the amount that the manufacturer's applicable fleet average NMOG value is above the applicable fleet average NMOG standard, times the applicable production for a given model year. NMOG debits have units of g/mi.

Dedicated ethanol vehicle means any ethanol-fueled motor vehicle that is engineered and designed to be operated solely on ethanol.

Dedicated methanol vehicle means any methanol-fueled motor vehicle that is engineered and designed to be operated solely on methanol.

Diesel engine means any engine powered with diesel fuel, gaseous fuel, or alcohol fuel for which diesel engine speed/torque characteristics and vehicle applications are retained.

Electric vehicle means any vehicle which operates solely by use of a battery or battery pack. This definition also includes vehicles which are powered mainly through the use of an electric battery or battery pack, but which use a flywheel that stores energy produced by the electric motor or through regenerative braking to assist in vehicle operation.

Element of design means any control system (i.e., computer software, electronic control system, emission control system, computer logic), and/or control system calibrations and/or the results of

systems interaction, and/or hardware items on a motor vehicle or motor vehicle engine.

Ethanol means any fuel for motor vehicles and motor vehicle engines that is composed of either commercially available or chemically pure ethanol (CH<sub>3</sub>CH<sub>2</sub>OH) and gasoline as specified in § 86.1771 (Fuel Specifications). The required fuel blend is based on the type of ethanol-fueled vehicle being certified and the particular aspect of the certification procedure being conducted.

Ethanol vehicle means any motor vehicle that is engineered and designed to be operated using ethanol as a fuel.

Executive Officer of the California Air Resources Board (ARB), as used in the referenced materials listed in § 86.1 and Appendix XIII of this part, means the Administrator of the Environmental Protection Agency (EPA).

Existing ZEV Mandate means any state regulation or other law that imposes (or purports to impose) obligations on auto manufacturers to produce, deliver for sale, or sell a certain number or percentage of ZEVs and that was adopted prior to [insert date of signature of rule ].

Fleet average NMOG value is the fleet average NMOG value calculated for a particular averaging set, based upon the applicable production for that averaging set.

49 states is the region comprised of the United States excluding California.

Fuel-fired heater means a fuel burning device which creates heat for the purpose of warming the passenger compartment of a vehicle but does not contribute to the propulsion of the vehicle.

Gaseous fuels means liquefied petroleum gas, compressed natural gas, or liquefied natural gas fuels for use in motor vehicles.

Hybrid electric vehicle (HEV) means any vehicle which is included in the definition of a "series hybrid electric vehicle," a "parallel hybrid electric vehicle," or a "battery assisted combustion engine vehicle."

Low emission vehicle (LEV) means any vehicle certified to the low emission vehicle standards specified in this subpart.

Low volume manufacturer, for a particular model year, means any vehicle manufacturer that: Is considered a "small volume manufacturer" by the State of California according to the State of California regulatory definition of "small volume manufacturer", contained in the California Regulatory Requirements Applicable to the National

Low Emission Vehicle Program (October, 1996), which is incorporated by reference (see § 86.1); and has nationwide sales of light-duty vehicles and light light-duty trucks less than or equal to 40,000 units per model year based on the average number of vehicles sold by the manufacturer for each of the three most recent model years. For manufacturers certifying for the first time, model-year sales shall be based on projected sales.

Methane reactivity adjustment factor means a factor applied to the mass of methane emissions from natural gas fueled vehicles for the purpose of determining the gasoline equivalent ozone-forming potential of the methane emissions.

Methanol means any fuel for motor vehicles and motor vehicle engines that is composed of either commercially available or chemically pure methanol (CH<sub>3</sub>OH) and gasoline as specified in § 86.1771 (Fuel Specifications). The required fuel blend is based on the type of methanol-fueled vehicle being certified and the particular aspect of the certification procedure being conducted.

Methanol vehicle means any motor vehicle that is engineered and designed to be operated using methanol as a fuel.

Natural gas means either compressed natural gas or liquefied natural gas.

Natural gas vehicle means any motor vehicle that is engineered and designed to be operated using either compressed natural gas or liquefied natural gas.

Non-Core Stable Standards means the standards and other requirements listed in § 86.1707(d)(9)(i)(G) through (L).

Non-methane organic gases (NMOG) means the sum of oxygenated and non-oxygenated hydrocarbons contained in a gas sample as measured in accordance with Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1).

Non-regeneration emission test means a complete emission test which does not include a regeneration.

Northeast Trading Region (NTR) means the region comprised of the states that meet the conditions specified under § 86.1705(d).

Organic material non-methane hydrocarbon equivalent (or OMNMFCE) for methanol-fueled vehicles means the sum of the carbon mass contribution of non-oxygenated hydrocarbons

(excluding methane), methanol, and formaldehyde as contained in a gas sample, expressed as gasoline-fueled hydrocarbons. For ethanol-fueled vehicles, organic material non-methane hydrocarbon equivalent (OMNMFCE) means the sum of carbon mass contribution of non-oxygenated hydrocarbons (excluding methane), methanol, ethanol, formaldehyde and acetaldehyde as contained in a gas sample, expressed as gasoline-fueled hydrocarbons.

Ozone deterioration factor means a factor applied to the mass of NMOG emissions from TLEVs, LEVs, or ULEVs which accounts for changes in the ozone-forming potential of the NMOG emissions from a vehicle as it accumulates mileage.

Ozone Transport Commission States or OTC States means the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and Virginia, and the District of Columbia.

Parallel hybrid electric vehicle means any vehicle which allows power to be delivered to the driven wheels by either a combustion engine and/or by a battery powered electric motor.

Periodically regenerating trap oxidizer system means a trap oxidizer system that utilizes, during normal driving conditions for cleaning the trap, an automated regeneration mode which can be easily detected.

Point of first sale is the location where the completed light-duty vehicle or light-duty truck is purchased, also known as the final product purchase location. The point of first sale may be a retail customer, dealer, distributor, fleet operator, broker, secondary manufacturer, or any other entity which comprises the point of first sale. In cases where the end user purchases the completed vehicle directly from the manufacturer, the end user is the point of first sale.

Production is the number of vehicles and/or trucks that a manufacturer produces in a given model year that are subject to the provisions of this subpart and are included in the same averaging set.

Reactivity adjustment factor means a fraction applied to the mass of NMOG emission from a vehicle powered by a fuel other than conventional gasoline for the purpose of determining a gasoline-equivalent NMOG emission value. The reactivity adjustment factor is defined as the ozone-forming potential of the exhaust from a vehicle powered by a fuel other than conventional gasoline divided by the

ozone-forming potential of conventional gasoline vehicle exhaust.

Regeneration means the process of oxidizing accumulated particulate matter. It may occur continually or periodically.

Regeneration emission test means a complete emission test which includes a regeneration.

Regeneration interval means the interval from the start of a regeneration to the start of the next regeneration.

Section 177 Program means state regulations or other laws, except ZEV Mandates, that apply to any of the following categories of motor vehicles: passenger cars, light-duty trucks up through 6,000 pounds GVWR, and medium-duty vehicles from 6,001 to 14,000 pounds GVWR if designed to operate on gasoline, as these categories of motor vehicles are defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900.

Series hybrid electric vehicle means any vehicle which allows power to be delivered to the driven wheels solely by a battery powered electric motor, but which also incorporates the use of a combustion engine to provide power to the battery and/or electric motor.

37 States is the trading region comprised of the United States excluding California and the Northeast Trading Region.

Transitional low emission vehicle (TLEV) means any vehicle certified to the transitional low emission vehicle standards specified in this subpart.

Trap oxidizer system means an emission control system which consists of a trap to collect particulate matter and a mechanism to oxidize the accumulated particulate.

Type A hybrid electric vehicle means an HEV which achieves a minimum range of 60 miles over the All-Electric Range Test as defined in § 86.1770.

Type B hybrid electric vehicle means an HEV which achieves a range of 40-59 miles over the All-Electric Range Test as defined in § 86.1770.

Type C hybrid electric vehicle means an HEV which achieves a range of 0-39 miles over the All-Electric Range test and all other HEVs excluding "Type A" and "Type B" HEVs as defined in § 86.1770.

Ultra-low emission vehicle (ULEV) means any vehicle certified to the ultra-low emission vehicle standards specified in this subpart.

Zero-emission vehicle (ZEV) means any

vehicle which is certified to produce zero emissions of any criteria pollutants under any and all possible operational modes and conditions. Incorporation of a fuel fired heater shall not preclude a vehicle from being certified as a ZEV provided the fuel fired heater cannot be operated at ambient temperatures above 40 degrees Fahrenheit and the heater is demonstrated to have zero evaporative emissions under any and all possible operational modes and conditions.

ZEV Mandate means any state regulation or other law that imposes (or purports to impose) obligations on auto manufacturers to produce, deliver for sale, or sell a certain number or percentage of ZEVs.

#### **§ 86.1703-99 Abbreviations.**

(a) The abbreviations in subpart A of this part apply to this subpart.

(b) In addition, the following abbreviations shall apply to this subpart:

ASTR – All States Trading Region

HEV--hybrid electric vehicle.

LEV--low emission vehicle.

NMOG--non-methane organic gases.

NTR--Northeast Trading Region.

OTC – Ozone Transport Commission

TLEV--transitional low emission vehicle.

ULEV--ultra low emission vehicle.

ZEV--zero emission vehicle.

#### **§ 86.1704-99 Section numbering; construction.**

(a) The model year of initial applicability is indicated by the last two digits of the six-digit group of the section number. A section remains in effect for subsequent model years until it is superseded.

(b) A section reference without a model year suffix shall be interpreted to be a reference to the section applicable to the appropriate model year.

#### **§ 86.1705-99 General provisions; opt-in.**

(a) Covered manufacturers. Covered manufacturers must comply with the provisions in this subpart, and in addition, must comply with the requirements of 40 CFR parts 85 and 86. A manufacturer shall be a covered manufacturer if:

(1) The manufacturer (or, in the case of joint ventures or similar cooperative arrangements

between two or more manufacturers, the participating manufacturers) has opted into the program pursuant to paragraph (c) of this section;

(2) Where a manufacturer has included a condition on opt-in provided for in paragraph (c)(2) of this section, that condition has been satisfied; and

(3) The manufacturer has not opted out, pursuant to § 86.1707, or the manufacturer has opted out but that opt-out has not become effective under § 86.1707.

(b) Covered manufacturers must comply with the standards and requirements specified in this subpart beginning in model year 1999. A manufacturer not listed in § 86.1706(c) that opts into the program after EPA issues a finding pursuant to § 86.1706(b) that the program is in effect must comply with the standards and requirements of this subpart beginning in the model year named for the calendar year after the calendar year in which EPA receives the manufacturer's opt-in. Light-duty vehicles and light light-duty trucks sold by covered manufacturers must comply with the provisions of this subpart.

(c) Manufacturer opt-ins. (1) To opt into the National LEV program, a motor vehicle manufacturer must submit a written opt-in notification to the Administrator signed by a person or entity within the corporation or business with authority to bind the corporation or business to its election and holding the position of vice president for environmental affairs or a position of comparable or greater authority. The manufacturer shall send a copy of this notification to : Director, Vehicles Programs and Compliance Division; U.S. Environmental Protection Agency; 2565 Plymouth Road; Ann Arbor, Michigan, 48105. The notification must unambiguously and unconditionally (apart from the permissible conditions specified in paragraph (c)(2) of this section) indicate the manufacturer's agreement to opt into the program and be subject to the provisions in this subpart, and include the following language:

XX COMPANY, its subsidiaries, successors and assigns hereby opts into the voluntary National LEV program, as set forth in 40 CFR part 86, subpart R, and agrees to be legally bound by all of the standards, requirements and other provisions of the National LEV program. XX COMPANY commits not to challenge EPA's authority to establish or enforce the National LEV program, and commits not to seek to certify any vehicle except in compliance with the regulations in subpart R.

(2) The opt-in notification may indicate that the manufacturer opts into the program subject to either or both of the following conditions:

(i) That the Administrator finds under § 86.1706 that the National LEV program is in effect, to be indicated with the following language:

This opt-in is subject to the condition that the Administrator make a finding pursuant to 40 CFR 86.1706 that the National LEV program is in effect.

(ii) That certain states (limited to the OTC States) and/or motor vehicle manufacturers opt into National LEV pursuant to § 86.1705, to be indicated with the following language (language in brackets indicates that either or both formulations are acceptable):

This opt-in is subject to the condition that [each of the states of [list state names]/[and] each of the following manufacturers [list manufacturer names]] opt into National LEV pursuant to 40 CFR 86.1705.

(3) A manufacturer shall be considered to have opted in upon the Administrator's receipt of the opt-in notification and satisfaction of the conditions set forth in paragraph (c)(2) of this section, if applicable.

(d) Covered states. An OTC State shall be a covered state if:

(1) The state has opted into National LEV pursuant to paragraph (e) of this section;

(2) Where a state has included a condition on opt-in provided for in paragraph (e)(3)(viii) of this section, that condition has been satisfied; and

(3) The state has not opted out, pursuant to § 86.1707, or the state has opted out but that opt-out has not become effective under § 86.1707.

(e) OTC State opt-ins. To opt into the National LEV program, a state must submit an opt-in notification to the Administrator, with a copy to Director, Vehicle Programs and Compliance Division; U.S. Environmental Protection Agency; 2565 Plymouth Road; Ann Arbor, Michigan, 48105. The notification must contain the following or substantively identical language:

(1)(i) An Executive Order signed by the governor of the state (or the mayor of the District of Columbia) that unambiguously and unconditionally (apart from the permissible conditions set forth in this section) indicates the state's agreement to opt into

the National LEV program and includes the following language (language in brackets indicates that either formulation is acceptable):

This Executive Order [commits STATE to / opts STATE into] the National Low Emission Vehicle (National LEV) program, in accordance with the EPA National LEV program regulations at 40 CFR part 86, subpart R.

I hereby direct HEAD OF APPROPRIATE STATE AGENCY to forward to EPA with my concurrence the [enclosed letter signed / enclosed letter and proposed regulations signed and proposed] by the HEAD OF APPROPRIATE STATE AGENCY, which [specifies / specify] the details of STATE's commitment to the National LEV program.

I hereby direct APPROPRIATE STATE AGENCY to follow the procedures prescribed by the general statutes of STATE to take the necessary steps to adopt regulations and submit a state implementation plan (SIP) revision committing STATE to National LEV in accordance with the EPA National LEV program regulations on SIP revisions at 40 CFR part 86, subpart R, and with section 110 of the Clean Air Act and its implementing regulations at 40 CFR parts 51 and 52.

(ii) States with Existing ZEV Mandates may add language to the Executive Order submitted pursuant to this paragraph (e)(1) confirming that this opt-in will not affect the state's requirements pertaining to ZEVs.

(2)(i) If a state does not submit an Executive Order pursuant to paragraph (e)(1) of this section, a letter signed by the governor of the state (or the mayor of the District of Columbia) that unambiguously and unconditionally (apart from the permissible conditions set forth in this section) indicates the state's agreement to opt into the National LEV program and includes the following language (language in brackets indicates that either formulation is acceptable):

This submittal is made in accordance with the EPA National Low Emission Vehicle (National LEV) regulations at 40 CFR part 86, subpart R to [commit STATE to / opt STATE into] the National LEV program.

[I am forwarding to EPA the [enclosed letter signed / enclosed letter and proposed regulations which were signed and proposed] by HEAD OF APPROPRIATE STATE AGENCY at my direction, and which [specifies / specify] the details of STATE's commitment to the National

LEV program. / I am forwarding to EPA and concur with the [enclosed letter signed / enclosed letter and proposed regulations signed and proposed] by HEAD OF APPROPRIATE STATE AGENCY, which [specifies / specify] the details of STATE's commitment to the National LEV program.]

I [hereby direct / have directed] APPROPRIATE STATE AGENCY to follow the procedures prescribed by the general statutes of STATE to take the necessary steps to adopt regulations and submit a state implementation plan (SIP) revision committing STATE to National LEV in accordance with the EPA National LEV regulations on SIP revisions at 40 CFR part 86, subpart R, and with section 110 of the Clean Air Act and its implementing regulations at 40 CFR parts 51 and 52.

(ii) States with Existing ZEV Mandates may add language to the letter submitted pursuant to this paragraph (e)(2) confirming that this opt-in will not affect the state's requirements pertaining to ZEVs.

(3) A letter signed by the head of the appropriate state agency that would unconditionally (except as set forth in this section) include the following:

(i) States without a Section 177 Program, or with a Section 177 Program but not an Existing ZEV Mandate, shall include the following language:

National LEV is designed as a compliance alternative for OTC State programs adopted pursuant to section 177 of the Clean Air Act that apply to passenger cars, light-duty trucks up through 6,000 pounds GVWR, and/or medium-duty vehicles from 6,001 to 14,000 pounds GVWR if designed to operate on gasoline, as these categories of motor vehicles are defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900. For the duration of STATE's participation in National LEV, [STATE will allow manufacturers to / manufacturers may] comply with National LEV or equally stringent mandatory federal standards in lieu of compliance with any program adopted by STATE pursuant to the authority provided in section 177 of the Clean Air Act applicable to the vehicle classes specified above, including any ZEV mandates. STATE's participation in National LEV extends until model year 2006, except as provided in 40 CFR 86.1707. If, no later than December 15, 2000, the US EPA does not adopt standards at least as stringent as the National LEV standards provided in 40 CFR part 86 subpart R that apply to new motor vehicles in

model year 2004, 2005 or 2006, STATE's participation in National LEV extends only until model year 2004, except as provided in 40 CFR 86.1707.

For the duration of STATE's participation in National LEV, STATE [intends to / will] forbear from adopting and implementing a ZEV mandate effective before model year 2006.

(ii) States with a Section 177 Program and an Existing ZEV Mandate, shall include the following language:

National LEV is designed as a compliance alternative for OTC State programs adopted pursuant to section 177 of the Clean Air Act that apply to passenger cars, light-duty trucks up through 6,000 pounds GVWR, and medium-duty vehicles from 6,001 to 14,000 pounds GVWR if designed to operate on gasoline, as these categories of motor vehicles are defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900. With the exception of any requirements pertaining to ZEVs, for the duration of STATE's participation in National LEV, [STATE will allow manufacturers to / manufacturers may] comply with National LEV or equally stringent mandatory federal standards in lieu of compliance with any program adopted by STATE pursuant to the authority provided in section 177 of the Clean Air Act applicable to the vehicle classes specified above. STATE's participation in National LEV extends until model year 2006, except as provided in 40 CFR 86.1707. If, no later than December 15, 2000, the US EPA does not adopt standards at least as stringent as the National LEV standards provided in 40 CFR part 86 subpart R that apply to new motor vehicles in model year 2004, 2005 or 2006, STATE's participation in National LEV extends only until model year 2004, except as provided in 40 CFR 86.1707. Any existing or future requirement pertaining to ZEVs is not affected by STATE's acceptance of National LEV as a compliance alternative for other state requirements.

(iii) All states shall include the following language:

Based on EPA's determination in the preamble to the final National LEV rule [CITE], STATE believes that National LEV will achieve reductions of VOC and NOx emissions that are equivalent to or greater than the reductions that would be achieved through OTC State adoption of California Low Emission Vehicle programs in

the Ozone Transport Region.

(iv) All states shall include the following language:

STATE intends National LEV to be STATE's new motor vehicle emissions control program.

(v) All states shall include the following language:

STATE recognizes that motor vehicle manufacturers are committing to National LEV with the expectation that, until model year 2006 (or, under the circumstances specified above, model year 2004), the OTC States that commit to the National LEV program will allow National LEV as a compliance alternative for state programs adopted pursuant to the authority provided in section 177 of the Clean Air Act, applying to the vehicle classes specified above (except any requirements pertaining to ZEVs in states with Existing ZEV Mandates). It is our intent to abide by this commitment. [However, the provisions of this letter will not have the force of law until STATE adopts them as state regulations. / Regulations providing for STATE's opt-in to National LEV have been approved for proposed rulemaking by APPROPRIATE STATE AGENCY on [INSERT DATE]. However, they will not have the force and effect of law until they are approved as final regulations.] Adoption of state regulations and the contents of a final state implementation plan revision will be determined through a state rulemaking process pursuant to the state requirements at [CITE to STATE law] and federal law. Also, STATE must comply with any subsequent STATE legislation that might affect this commitment.

(vi) All states shall include the following language:

If the manufacturers exit the National LEV program pursuant to the EPA National LEV regulations at 40 CFR 86.1707, STATE [acknowledges / provides in its proposed rule] that the transition from National LEV requirements to any STATE program adopted pursuant to the authority provided in section 177 of the Clean Air Act applying to the vehicle classes specified above, including any requirements pertaining to ZEVs (except any requirements pertaining to ZEVs in states with Existing ZEV Mandates), will proceed in



accordance with the EPA National LEV regulations at 40 CFR 86.1707.

(vii) All states shall include the following language:

STATE supports the legitimacy of the National LEV program and EPA's authority to promulgate the National LEV regulations.

(viii) Any state may include the following language:

[This [commitment/opt-in] / As provided in the proposed regulations, STATE's opt-in] is conditioned on all motor vehicle manufacturers (listed in EPA regulations at 40 CFR 86.1706(c)) opting into National LEV and on EPA finding that National LEV is in effect pursuant to 40 CFR 86.1706.

(4) In lieu of statements described in paragraphs (e)(3)(i), (e)(3)(ii) and (e)(3)(vi) of this section, states may submit proposed regulations containing the provisions required under paragraphs (g)(1), (g)(2), (g)(3), and (g)(5) of this section.

(f) A state shall be considered to have opted in upon the Administrator's receipt of the opt-in notification and satisfaction of the conditions set forth in paragraph (e)(3)(viii) of this section, if applicable.

(g) Each OTC State that opts into National LEV pursuant to paragraph (e) of this section shall submit a state implementation plan (SIP) revision within one year and seventy-five days of December 16, 1997, except for the District of Columbia, New Hampshire, Delaware, and Virginia, for which the deadline is 18 months and seventy-five days from December 16, 1997. The SIP revisions shall include the following using identical or substantively identical language:

(1) Covered states without any Section 177 Program, or with a Section 177 Program but not an Existing ZEV Mandate, shall submit regulations containing the following language:

For the duration of STATE's participation in National LEV, manufacturers may comply with National LEV or equally stringent mandatory federal standards in lieu of compliance with any program, including any mandates for sales of zero emission vehicles (ZEVs), adopted by STATE pursuant to the authority provided in section 177 of the Clean Air Act applicable to passenger cars, light-duty

trucks up through 6,000 pounds GVWR, and/or medium-duty vehicles from 6,001 to 14,000 pounds GVWR if designed to operate on gasoline, as these categories of motor vehicles are defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900.

STATE's participation in National LEV extends until model year 2006, except as provided in 40 CFR 86.1707. If, no later than December 15, 2000, the US EPA does not adopt standards at least as stringent as the National LEV standards provided in 40 CFR part 86 subpart R that apply to new motor vehicles in model year 2004, 2005 or 2006, STATE's participation in National LEV extends only until model year 2004, except as provided in 40 CFR 86.1707.

(2) Covered states with a Section 177 Program and an Existing ZEV Mandate shall submit regulations containing the following language:

With the exception of any STATE requirements pertaining to zero emission vehicles (ZEVs), for the duration of STATE's participation in National LEV, manufacturers may comply with National LEV or equally stringent mandatory federal standards in lieu of compliance with any program adopted by STATE pursuant to the authority provided in section 177 of the Clean Air Act applicable to passenger cars, light-duty trucks up through 6,000 pounds GVWR, and/or medium-duty vehicles from 6,001 to 14,000 pounds GVWR if designed to operate on gasoline, as these categories of motor vehicles are defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900.

STATE's participation in National LEV extends until model year 2006, except as provided in 40 CFR 86.1707. If, no later than December 15, 2000, the US EPA does not adopt standards at least as stringent as the National LEV standards provided in 40 CFR part 86 subpart R that apply to new motor vehicles in model year 2004, 2005 or 2006, STATE's participation in National LEV extends only until model year 2004, except as provided in 40 CFR 86.1707.

Any existing or future STATE requirement pertaining to ZEVs is not affected by STATE's acceptance of National LEV as a compliance alternative for other state requirements.

(3) All covered states shall submit regulations containing the following language:

If a covered manufacturer, as defined at 40 CFR 86.1702, opts out of the National LEV program pursuant to the EPA National LEV regulations at 40 CFR 86.1707, the transition from National LEV requirements to any STATE section 177 program applicable to passenger cars, light-duty trucks up through 6,000 pounds GVWR, and/ or medium-duty vehicles from 6,001 to 14,000 pounds GVWR if designed to operate on gasoline, as these categories of motor vehicles are defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900, will proceed in accordance with the EPA National LEV regulations at 40 CFR 86.1707.

(4) All covered states shall accompany the regulatory language with the following language:

STATE commits to support National LEV as an acceptable alternative to state Section 177 Programs for the duration of STATE's participation in National LEV.

STATE recognizes that its commitment to National LEV is necessary to ensure that National LEV remain in effect.

STATE is submitting this SIP revision in accordance with the applicable Clean Air Act requirements at section 110 and EPA regulations at 40 CFR Part 86 and 40 CFR Parts 51 and 52.

(5) States without Existing ZEV Mandates shall accompany the regulatory language with the following language:

For the duration of STATE's participation in National LEV, STATE [intends to / will] forbear from adopting and implementing a ZEV mandate effective prior to model year 2006. Notwithstanding the previous sentence, if, no later than December 15, 2000, the US EPA does not adopt standards at least as stringent as the National LEV standards provided in 40 CFR part 86 subpart R that apply to new motor vehicles in model year 2004, 2005 or 2006, STATE [intends to / will] forbear from adopting and implementing a ZEV mandate effective prior to model year 2004.

#### **§ 86.1706-99 National LEV program in effect.**

(a) No later than March 2, 1998 EPA shall issue a finding as to whether National LEV is in effect. EPA shall base this finding on opt-in notifications from OTC States submitted pursuant to § 86.1705(e) and received by EPA January 30, 1998, and on opt-in notifications from manufacturers

submitted pursuant to § 86.1705(c) and received by EPA by February 17, 1998.

(b) EPA shall find that the National LEV program is in effect and shall subsequently publish this determination if the following conditions have been met:

(1) All manufacturers listed in paragraph (c) of this section have lawfully opted in pursuant to § 86.1705(c) and any conditions placed on the opt-ins allowed under § 86.1705(c)(2) have been met (apart from a condition that EPA find the National LEV program in effect);

(2) Each OTC State that opts in has lawfully opted in pursuant to § 86.1705(e) and any conditions placed on opt-ins by OTC States that are allowed under § 86.1705(e)(3)(viii) have been met (apart from a condition that EPA find the National LEV program in effect); and

(3) No valid opt-out has become effective pursuant to § 86.1707.

(c) List of manufacturers of light-duty vehicles and light-duty trucks:

American Honda Motor Company, Inc.  
American Suzuki Motor Corporation  
BMW of North America, Inc.  
Chrysler Corporation  
Fiat Auto U.S.A., Inc.  
Ford Motor Company  
General Motors Corporation  
Hyundai Motor America  
Isuzu Motors America, Inc.  
Jaguar Motors Ltd.  
Kia Motors America, Inc.  
Land Rover North America, Inc.  
Mazda (North America) Inc.  
Mercedes-Benz of North America  
Mitsubishi Motor Sales of America, Inc.  
Nissan North America, Inc.  
Porsche Cars of North America, Inc.  
Rolls-Royce Motor Cars Inc.  
Saab Cars USA, Inc.  
Subaru of America, Inc.  
Toyota Motor Sales, U.S.A., Inc.  
Volkswagen of America, Inc.  
Volvo North America Corporation

#### **§ 86.1707-99 General provisions; opt-outs.**

A covered manufacturer or covered state may opt out of the National LEV program only according to the provisions of this section. Vehicles certified under the National LEV program must

continue to meet the standards to which they were certified, regardless of whether the manufacturer of those vehicles remains a covered manufacturer. A manufacturer that has opted out remains responsible for any debits outstanding on the effective date of opt-out, pursuant to § 86.1710(d)(3).

(a) Procedures for opt-outs--manufacturers. To opt out of the National LEV program, a covered manufacturer must notify the Administrator as provided in § 86.1705(c)(1), except that the notification shall specify the condition and final action allowing opt-out, indicate the manufacturer's intent to opt out of the program and no longer be subject to the provisions in this subpart, and specify an effective date for the opt-out. The effective date shall be specified in terms of the first model year for which the opt-out shall be effective, but shall be no earlier than the applicable date indicated in paragraphs (d) through (j) of this section. For an opt-out pursuant to paragraph (d) of this section, the manufacturer shall specify the revision triggering the opt-out and shall also provide evidence that the triggering revision does not harmonize the standard or requirement with a comparable California standard or requirement, if applicable, or that the triggering revision has increased the stringency of the revised standard or requirement, if applicable. The notification shall include the following language:

XX COMPANY, its subsidiaries, successors and assigns hereby opt out of the voluntary National LEV program, as set forth in 40 CFR part 86, subpart R.

(b) Procedures for opt-outs--OTC states. To opt out of the National LEV program, a covered state must notify the Administrator through a written statement from the head of the appropriate state agency. A copy of the notification shall be sent to the Director, Vehicle Programs and Compliance Division; U.S. Environmental Protection Agency; 2565 Plymouth Road; Ann Arbor, Michigan, 48105. The notification shall specify the final action allowing opt-out, indicate the state's intent to opt out of the program and no longer be subject to the provisions in this subpart, and specify an effective date for the opt-out. The effective date shall be specified in terms of the first model year for which the opt-out shall be effective, but shall be no earlier than the applicable date indicated in paragraphs (d) through (k) of this section. The notification shall include the following language:

STATE hereby opts out of the voluntary National LEV program, as set forth in 40 CFR part 86, subpart R.

(c) Procedures for opt-outs--EPA notification. Upon receipt of an opt-out notification under this section, EPA shall promptly notify the covered states and covered manufacturers of the opt-out. Publication in the Federal Register of notice of receipt of the opt-out notification is sufficient but not necessary to meet EPA's obligation to notify covered states and covered manufacturers.

(d) Conditions allowing manufacturer opt-outs--change to Stable Standards. A covered manufacturer may opt out if EPA promulgates a final rule or takes other final agency action making a revision not specified in paragraph (d)(9)(iii) of this section to a standard or requirement listed in paragraph (d)(9)(i) of this section and the covered manufacturer objects to the revision.

(1) A covered manufacturer may opt out within 180 calendar days of the EPA action allowing opt-out under this paragraph (d). A valid opt-out based on a revision to a Core Stable Standard shall be effective no earlier than the model year named for the calendar year following the calendar year in which EPA receives the manufacturer's opt-out notification. A valid opt-out based on a revision to a Non-Core Stable Standard may become effective no earlier than the first model year to which that revision applies.

(i) Only a covered manufacturer that objects to a revision may opt out if EPA adopts that revision, except that if such a manufacturer opts out, other manufacturers that did not object to the revision may also opt out pursuant to paragraph (j) of this section. An objection shall be sufficient for this purpose only if it was filed during the public comment period on the proposed revision and the objection states that the proposed revision is sufficiently significant to allow opt-out under this paragraph (d).

(ii) [Reserved]

(2) Within sixty days of receipt of an opt-out notification under this paragraph (d), EPA shall determine whether the opt-out is valid by determining whether the alleged condition allowing opt-out has occurred and whether the opt-out complies with the requirements under paragraphs (a) and (d) of this section. An EPA determination regarding the validity of an opt-out is not a rule, but is a nationally applicable final agency action subject to judicial review pursuant to section 307(b) of the Clean Air Act (42 U.S.C. 7607(b)).

(3) A manufacturer that has submitted an opt-out notification to EPA under this paragraph (d) remains a covered manufacturer until the opt-out has come into effect under paragraph (d)(1) of this section and EPA or a reviewing court determines that the opt-out is valid.

(4) In the event that a manufacturer petitions for judicial review of an EPA determination that an opt-out is invalid, the manufacturer remains a covered manufacturer until final judicial resolution of the petition. Pending resolution of the petition, and starting with the model year for which the opt-out would have come into effect under paragraph (d)(1) of this section if EPA had determined the opt-out was valid, the manufacturer may certify vehicles to any standards in this part applicable to vehicles certified in that model year and sell such vehicles without regard to the limitations contained in § 86.1711. However, if the opt-out is finally determined to be invalid, the manufacturer will be liable for any failure to comply with §§ 86.1710 through 86.1712.

(5) Upon the effective date of a manufacturer's opt-out under this paragraph (d), that manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.) and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(6) If a covered manufacturer opts out under this paragraph (d), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of

the date of either an EPA finding that the opt-out is valid, or a judicial ruling that a disputed opt-out is valid. The state's opt-out notification shall specify an effective date for the state's opt-out no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt out is not effective for model years (as defined in part 85, subpart X) that commence prior to this effective date.

(7) In a state that opts out pursuant to paragraph (d)(6) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(8) In a state that has not opted out, obligations under National LEV shall be unaffected for covered manufacturers.

(9)(i) The following are the emissions standards and requirements that, if revised, may provide covered manufacturers the opportunity to opt out pursuant to paragraph (d)(1) of this section:

(A) The tailpipe emissions standards for NMOG, NO<sub>x</sub>, CO, HCHO, and PM specified in § 86.1708(b) and (c) and § 86.1709(b) and (c);

(B) Fleet average NMOG standards and averaging, banking and trading provisions specified in § 86.1710;

(C) Provisions regarding limitations on sale of Tier 1 vehicles and TLEVs contained in § 86.1711;

(D) The compliance test procedure (Federal Test Procedure) as specified in subparts A and B of this part, as used for determining compliance with the exhaust emission standards specified in § 86.1708(b) and (c) and § 86.1709(b) and (c);

(E) The compliance test fuel, as specified in § 86.1771;

(F) The definition of low volume manufacturer specified in § 86.1702;

(G) The on-board diagnostic system requirements specified in § 86.1717;

(H) The light-duty vehicle refueling emissions standards and provisions specified in §

86.099-8(d), and the light-duty truck refueling emissions standards and provisions specified in § 86.001- 9(d);

(I) The cold temperature carbon monoxide standards and provisions for light-duty vehicles specified in § 86.099-8(k), and for light light-duty trucks specified in § 86.099-9(k);

(J) The evaporative emissions standards and provisions for light-duty vehicles specified in § 86.099-8(b), and the evaporative emissions standards and provisions for light light-duty trucks specified in § 86.099-9(b);

(K) The reactivity adjustment factors and procedures specified in § 86.1777(d);

(L) The Supplemental Federal Test Procedure, standards and phase-in schedules specified in §§ 86.1708(e), 86.1709(e), 86.127(f) and (g), 86.129(e) and (f), 86.130(e), 86.131(f), 86.132(n) and (o), 86.158, 86.159, 86.160, 86.161, 86.162, 86.163, 86.164, and Appendix I to this part, paragraphs (g) and (h).

(ii) The standards and requirements listed in paragraphs (d)(9)(i)(A) through (d)(9)(i)(F) of this section are the "Core Stable Standards"; the standards and requirements listed in paragraphs (d)(9)(i)(G) through (d)(9)(i)(L) of this section are the "Non-Core Stable Standards."

(iii) The following types of revisions to the Stable Standards listed in paragraph (d)(9)(i) of this section do not provide covered manufacturers the right to opt out of the National LEV program:

(A) Revisions to which covered manufacturers do not object;

(B) Revisions to a Non-Core Stable Standard that do not increase the overall stringency of the standard or requirement;

(C) Revisions to a Non-Core Stable Standard that harmonize the standard or requirement with the comparable California standard or requirement for the same model year (even if the harmonization increases the stringency of the standard or requirement), provided that, if the relevant California factor is raised to 1.0 or higher, EPA can only raise to 1.0 any of the reactivity adjustment factors specified in 86.1777 applicable to gasoline meeting the specifications of 86.1771(a)(1); and

(D) Revisions to cold temperature carbon monoxide standards and provisions for light-duty vehicles (as specified in § 86.099-8(k)) and for light light-duty trucks (as specified in § 86.099-9(k)) that are effective after model year 2000.

(10) Promulgation by EPA of mandatory tailpipe standards and other related requirements effective model year 2004 or later does not provide an opportunity to opt out of the National LEV program.

(e) Conditions allowing manufacturer opt-outs--state Section 177 Program that does not allow National LEV as a compliance alternative. A covered manufacturer may opt out of National LEV if a covered state takes final action such that it has in its regulations or state law a state Section 177 Program and/or a ZEV Mandate (except in a state with an Existing ZEV Mandate), that does not allow National LEV as a compliance alternative for the duration of the state's commitment to the National LEV program. The state's commitment to National LEV extends until model year 2006. If, no later than December 15, 2000, EPA has not adopted standards at least as stringent as the National LEV standards provided in 40 CFR part 86, subpart R that apply to new motor vehicles in model year 2004, 2005 or 2006, the state's commitment to National LEV only extends until model year 2004. A manufacturer could opt out based on this condition even if the state regulations or law are contrary to an approved SIP revision committing the state to National LEV pursuant to § 86.1705(g). For purposes of this paragraph (e), such a state shall be called the "violating state."

(1) A covered manufacturer may opt out any time after the violating state takes such final action, provided that the violating state has not withdrawn or otherwise nullified the relevant final action prior to EPA's receipt of the opt-out notification. An opt-out under this paragraph (e) shall be effective no earlier than the model year named for the calendar year following the calendar year in which EPA receives the manufacturer's opt-out notification.

(2) As of the model year named for the calendar year following the calendar year of the violating state's final action, the violating state shall no longer be included in the applicable trading region for purposes of calculating covered manufacturers' compliance with the fleet average NMOG standards under § 86.1710, and § 86.1711 shall no longer apply to vehicles sold in the violating state. Beginning in that model year and until the violating state's requirements become effective pursuant to sections 110(l) and 177 of the Clean Air Act or until the date specified in the following sentence, whichever is earlier, the National LEV program allows covered manufacturers to certify and produce for sale vehicles

meeting the exhaust emission standards of § 86.096-8(a)(1)(i) and subsequent model year provisions or § 86.097-9(a)(1)(i) and subsequent model year provisions in the violating state. If the violating state withdraws or otherwise nullifies the relevant violating final action, vehicles sold in that state shall count towards the covered manufacturers' fleet NMOG standards under § 86.1710 and be subject to § 86.1711 as of the model year named for the second calendar year following the calendar year in which the violating state took the final action nullifying or withdrawing the final violating action, or as of the model year named for the fourth calendar year following the calendar year in which the violating state took the violating final action, whichever is later. The two-year lead time required by section 177 of the Clean Air Act for the state Section 177 Program or ZEV Mandate shall run from the date of the violating final action. Notwithstanding an earlier effective date of a manufacturer's opt-out under this paragraph (e), the manufacturer's opt-out is not effective in the violating state until the two-year lead time for the violating state's program has passed (which shall run from the date of the violating final action). For model years for which vehicles sold in the violating state do not count towards the National LEV NMOG average, in calculating emissions reductions from new motor vehicles creditable for state implementation plan requirements, the violating state's emissions reductions shall be based on the emission standards of §§ 86.096 - 8(a)(1)(i), 86.097-9(a)(1)(i) and subsequent model year provisions, and shall not be based on the National LEV standards, provided that vehicles sold in the violating state are certified to Tier 1 levels when sold in that state.

(3) Upon the effective date of a manufacturer's opt-out under this paragraph (e) in any covered state that is not a violating state under this paragraph (e), that manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted by a non-violating state at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two

years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(4) If a covered manufacturer opts out under this paragraph (e), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of EPA's receipt of the manufacturer's opt-out notification. The state's opt-out notification shall specify an effective date for the state's opt-out no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt-out is not effective for model years (as defined in part 85, subpart X), that commence prior to this effective date.

(5) In a non-violating state that opts out pursuant to paragraph (e)(4) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the non-violating state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(6) In a non-violating state that has not opted out, obligations under National LEV shall be unaffected for covered manufacturers.

(f) Conditions allowing manufacturer opt-outs--failure to submit SIP revision. A covered manufacturer may opt out of National LEV if a covered state fails to submit a National LEV SIP revision on the date specified in § 86.1705(g). For purposes of this paragraph (f), such a state shall be called the "violating state."

(1) A covered manufacturer may opt out any time after the violating state misses the deadline for its National LEV SIP revision, provided that EPA has not received a National LEV SIP revision from the violating state prior to EPA's receipt of the

manufacturer's opt-out notification. If a manufacturer opts out within 180 calendar days from the deadline for the state to submit its National LEV SIP revision, the opt-out must be conditioned on the state not submitting a National LEV SIP revision within 180 calendar days from the deadline for such SIP revision. If the state submits such a SIP revision within the 180-day period, any manufacturer opt-outs under this paragraph (f) would be invalidated and would not come into effect. An opt-out under this paragraph (f) shall be effective no earlier than model year 2000 (or model year 2001 if the violating state is the District of Columbia, New Hampshire, Delaware, or Virginia) or the model year named for the calendar year following the calendar year in which EPA receives the opt-out notification, whichever is later.

(2) For a manufacturer that opts out under this paragraph (f), as of model year 2000 (or model year 2001 if the violating state is the District of Columbia, New Hampshire, Delaware, or Virginia) or the model year named for the calendar year following the calendar year in which EPA receives the opt-out notification, whichever is later, the violating state shall no longer be included in the applicable trading region for purposes of calculating that manufacturer's compliance with the fleet average NMOG standards under § 86.1710 and the manufacturer does not have to comply with § 86.1711 for vehicles sold in the violating state. Beginning in that model year and until the manufacturer's opt-out becomes effective, the National LEV program allows a manufacturer that has opted out under this paragraph (f) to certify and produce for sale vehicles meeting the exhaust emission standards of § 86.096-8(a)(1)(i) and subsequent model year provisions or § 86.097-9(a)(1)(i) and subsequent model year provisions in the violating state. For model years in which vehicles sold in the violating state do not count towards the National LEV NMOG average, in calculating emission reductions from new motor vehicles creditable for state implementation plan requirements, the violating state's emissions reductions shall be based on the emissions standards of §§ 86.096-8(a)(1)(i), 86.097-9(a)(1)(i), and subsequent model year provisions, and shall not be based on the National LEV standards, provided that vehicles sold in the violating state are certified to Tier 1 levels when sold in that state. National LEV obligations in the violating state remain unchanged for those manufacturers that do not opt out based on this condition.

(3) Upon the effective date of a manufacturer's opt-out under this paragraph (f), in any covered state that is not a violating state under this paragraph (f), that manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted by a non-violating state at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(4) If a covered manufacturer opts out under this paragraph (f), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of EPA's receipt of the manufacturer's opt-out notification. The state's opt-out notification shall specify an effective date for the state's opt-out no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt-out is not effective for model years (as defined in part 85, subpart X), that commence prior to this effective date.

(5) In a non-violating state that opts out pursuant to paragraph (f)(4) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the non-violating state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable

standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(6) In a non-violating state that has not opted out, obligations under National LEV shall be unaffected for covered manufacturers.

(g) Conditions allowing manufacturer opt-outs--inadequate National LEV SIP submission.

A covered manufacturer may opt out of National LEV if EPA disapproves a covered state's National LEV SIP submission or finds that it fails to meet the requirements for a National LEV SIP revision set forth in § 86.1705(g) or if EPA has not taken final action regarding such a SIP submission and more than one year has passed since such SIP submission was submitted to EPA. For purposes of this paragraph (g), such a state shall be called the "violating state."

(1) A covered manufacturer may opt out any time after EPA has disapproved a state's National LEV SIP submission or found that it does not meet the requirements of § 86.1705(g), provided that EPA has not subsequently approved a revised National LEV SIP revision from that state and found that the SIP revision meets the requirements of § 86.1705(g). A covered manufacturer may also opt out any time after one year EPA's receipt of a state's National LEV SIP submission, provided that EPA has not approved the revision or has not found that the SIP revision meets the requirements of § 86.1705(g). An opt-out under this condition shall be effective no earlier than the model year named for the calendar year following the calendar year in which the EPA receives the manufacturer's opt-out notification.

(2) For a manufacturer that opts out under this paragraph (g), as of the model year named for the calendar year following the calendar year in which EPA receives the opt-out notification, the violating state shall no longer be included in the applicable trading region for purposes of calculating that manufacturer's compliance with the fleet average NMOG standards under § 86.1710 and the manufacturer does not have to comply with § 86.1711 for vehicles sold in the violating state. Beginning in that model year and until the manufacturer's opt-out becomes effective, the National LEV program allows a manufacturer that has opted out under this paragraph (g) to certify and produce for sale vehicles meeting the exhaust emission standards of § 86.096-8(a)(1)(i) and subsequent model year provisions or § 86.097-9(a)(1)(i) and subsequent model year provisions in the violating state. For model years in

which vehicles sold in the violating state do not count towards the National LEV NMOG average, in calculating emission reductions from new motor vehicles creditable for state implementation plan requirements, the violating state's emissions reductions shall be based on the emissions standards of §§ 86.096-8(a)(1)(i), 86.097-9(a)(1)(i), and subsequent model year provisions, and shall not be based on the National LEV standards, provided that vehicles sold in the violating state are certified to Tier 1 levels when sold in that state. National LEV obligations in the violating state remain unchanged for those manufacturers that do not opt out based on this condition.

(3) Upon the effective date of a manufacturer's opt-out under this paragraph (g), in any covered state that is not a violating state under this paragraph (g), that manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted by a non-violating state at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(4) If a covered manufacturer opts out under this paragraph (g), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of EPA's receipt of the manufacturer's opt-out notification. The state's opt-out notification shall specify an effective date for the state's opt-out that is no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt-out is not effective for



model years (as defined in part 85, subpart X that commence prior to this effective date.

(5) In a non-violating state that opts out pursuant to paragraph (g)(4) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the non-violating state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(6) In a non-violating state that has not opted out, obligations under National LEV shall be unaffected for covered manufacturers.

(h) Conditions allowing manufacturer opt-outs--adoption of a ZEV Mandate. A covered manufacturer to which a ZEV Mandate might apply may opt out of National LEV if a covered state without an Existing ZEV Mandate takes final action such that it has in its regulations or state law a ZEV Mandate that allows National LEV as a compliance alternative that would be effective during the state's commitment to National LEV. For purposes of this paragraph (h), such a state shall be called the "violating state."

(1) A covered manufacturer may opt out any time after the violating state takes the final action, provided that the violating state has not withdrawn or otherwise nullified the relevant final action prior to EPA's receipt of the opt-out notification. An opt-out under this opt-out condition shall be effective no earlier than the model year named for the calendar year following the calendar year in which EPA receives the manufacturer's opt-out notification.

(2) For a manufacturer that opts out under this paragraph (h), as of the model year named for the calendar year following the calendar year in which EPA receives the opt-out notification, the violating state shall no longer be included in the applicable trading region for purposes of calculating that manufacturer's compliance with the fleet average NMOG standards under § 86.1710 and the manufacturer does not have to comply with § 86.1711 for vehicles sold in the violating state. Beginning in that model year and until the manufacturer's opt-out becomes effective, the National LEV program allows a manufacturer that

has opted out under this paragraph (h) to certify and produce for sale vehicles meeting the exhaust emission standards of § 86.096-8(a)(1)(i) and subsequent model year provisions or § 86.097-9(a)(1)(i) and subsequent model year provisions in the violating state. For model years in which vehicles sold in the violating state do not count towards the National LEV NMOG average, in calculating emission reductions from new motor vehicles creditable for state implementation plan requirements, the violating state's emissions reductions shall be based on the emissions standards of §§ 86.096-8(a)(1)(i), 86.097-9(a)(1)(i), and subsequent model year provisions, and shall not be based on the National LEV standards, provided that vehicles sold in the violating state are certified to Tier 1 levels when sold in that state. National LEV obligations in the violating state remain unchanged for those manufacturers that do not opt out based on this condition.

(3) Upon the effective date of a manufacturer's opt-out under this paragraph (h), in any covered state that is not a violating state under this paragraph (h), that manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted by a non-violating state at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(4) If a covered manufacturer opts out under this paragraph (h), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of

EPA's receipt of the manufacturer's opt-out notification. The state's opt-out notification shall specify an effective date for the state's opt-out that is no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt-out is not effective for model years (as defined in part 85, subpart X) that commence prior to this effective date.

(5) In a non-violating state that opts out pursuant to paragraph (h)(4) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the non-violating state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(6) In a non-violating state that has not opted out, obligations under National LEV shall be unaffected for covered manufacturers.

(i) Conditions allowing manufacturer opt-outs--EPA failure to consider in-use fuel issues. A covered manufacturer may opt out of National LEV if EPA does not meet its obligations related to fuel sulfur effects, as those obligations are set forth in paragraph (i)(7) of this section.

(1) A manufacturer may request in writing that EPA consider taking a specific action with regard to a fuel sulfur effect described in paragraph (i)(7) of this section. The request must identify the alleged fuel sulfur related problem, demonstrate that the problem exists and is caused by in-use fuel sulfur levels, ask EPA to consider taking a specific action, and demonstrate the emissions impact of the requested change. Within 60 calendar days of EPA's receipt of the manufacturer's request, EPA must consider the manufacturer's request and respond to it in writing, stating the Agency's decision and explaining the basis for the decision. The date of EPA's response is the date the response is signed.

(2) If EPA fails to respond to a manufacturer's request within the time provided, the covered manufacturer that submitted the request may opt out within 180 calendar days of the deadline for the EPA response. (If such a manufacturer opts out, other manufacturers that did not submit requests may also opt out pursuant to paragraph (j) of this section.)

An opt-out notification under this paragraph (i) is not valid if received by EPA after EPA responds to the request, even if EPA responds after the expiration of the 60-day EPA deadline. An opt-out under this paragraph (i) shall be effective no earlier than the model year named for the calendar year following the calendar year in which EPA receives the manufacturer's opt-out notification.

(3) Upon the effective date of a manufacturer's opt-out under this paragraph (i), the manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.) and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(4) If a covered manufacturer opts out under this paragraph (i), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of EPA's receipt of the manufacturer's opt-out notification. The state's opt-out notification shall specify an effective date for the state's opt-out that is no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt out is not effective for model years (as defined in part 85, subpart X), that commence prior to this effective date.

(5) In a state that opts out pursuant to paragraph (i)(4) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the state's opt-out. Upon the effective date of the state's opt-out,

in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(6) In a state that has not opted out, obligations under National LEV shall be unaffected for covered manufacturers.

(7) Following are the actions that a manufacturer may request EPA to consider under paragraph (i)(1) of this section:

(i) During the certification process and upon a manufacturer's written request, EPA will consider allowing the use of an on-board diagnostic system (as required by § 86.1717), that functions properly on low sulfur gasoline, but indicates sulfur-induced passes when exposed to high sulfur gasoline.

(ii) Upon a manufacturer's written request, if vehicles exhibit illuminations of the emission control diagnostic system malfunction indicator light (as defined in § 86.094-17(c)) due to high sulfur gasoline, EPA will consider allowing modifications to such vehicles on a case-by-case basis so as to eliminate the sulfur-induced illumination.

(iii) Upon a manufacturer's written request, prior to in-use testing, that presents information to EPA regarding pre-conditioning procedures designed solely to remove the effects of high sulfur from currently available gasoline, EPA will consider allowing such procedures on a case-by-case basis.

(j) Conditions allowing manufacturer opt-outs--OTC State or manufacturer opts out. A covered manufacturer may opt out of National LEV if a covered state or another covered manufacturer opts out of the National LEV program pursuant to this section.

(1) If a covered manufacturer's opt-out under this paragraph (j) is based on a covered state's or covered manufacturer's opt-out under paragraph (e), (f), (g), (h), (i), (j) or (k) of this section, the manufacturer may opt out within 90 calendar days of EPA's receipt of the underlying state's or manufacturer's opt-out notification. If a manufacturer's opt-out under this paragraph (j) is based on a manufacturer's opt-out under paragraph (d) of this section, the manufacturer may only opt out within 90 calendar days of the date of either an EPA finding or a judicial ruling that the opt-out under

paragraph (d) of this section is valid. An opt-out under this paragraph (j) shall be effective no earlier than the model year named for the calendar year following the calendar year in which the EPA receives the manufacturer's opt-out notification.

(2) Upon the effective date of a manufacturer's opt-out under this paragraph (j), in any covered state that manufacturer shall be subject to all requirements (except ZEV Mandates) that would apply to a manufacturer that had not opted into National LEV, including all applicable standards and other requirements promulgated under title II of the Clean Air Act and any state standards and other requirements (except ZEV Mandates) in effect pursuant to section 177 of the Clean Air Act (42 U.S.C. 7507). For any state Section 177 Program that allowed National LEV as a compliance alternative and was adopted at least two years before the effective date of a manufacturer's opt-out, a manufacturer waives its right under section 177 of the Clean Air Act to two years of lead time to the extent that the effective date of its opt-out provides for less than two years of lead time and to the extent such a waiver is necessary. With respect to ZEV Mandates, the manufacturer will not be deemed to have waived its two-year lead time under section 177 of the Clean Air Act. A manufacturer shall not be subject to any ZEV Mandates (except Existing ZEV Mandates) in OTC States until the model year (as defined in part 85, subpart X) that commences two years after the date of EPA's receipt of the manufacturer's opt-out notice.

(3) If a covered manufacturer opts out under this paragraph (j), any covered state that is not a violating state under paragraph (e), (f), (g) or (h) of this section may opt out within 90 calendar days of EPA's receipt of the manufacturer's opt-out notification. The state's opt-out notification shall specify an effective date for the state's opt-out no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt-out is not effective for model years (as defined in part 85, subpart X), that commence prior to this effective date.

(4) In a state that opts out pursuant to paragraph (j)(3) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of the state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if

such state standards are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

(5) In a state that has not opted out, obligations under National LEV remain unaffected for covered manufacturers.

(k) Conditions allowing OTC State opt-outs--EPA finding of inequivalency. Any covered state may opt out of National LEV if EPA determines that National LEV would not produce (or is not producing) emissions reductions at least equivalent to the OTC State Section 177 Programs.

(1) At any time during National LEV, a covered state may request in writing that EPA reevaluate its initial equivalency determination (of [insert date of signature of final rule]) that National LEV would produce emissions reductions at least equivalent to the OTC State Section 177 Programs that would be operative in the absence of National LEV. Within 180 calendar days of receipt of the state's request, EPA must take final agency action to determine whether the determination that National LEV will produce at least equivalent emission reductions to OTC State Section 177 Program is still valid. These EPA determinations are not rules, but are nationally applicable final agency actions subject to judicial review pursuant to section 307(b) of the Clean Air Act (42 U.S.C. 7607(b)). In reevaluating its equivalency determination, EPA shall use the same Mobile emission factor model and the same inputs and assumptions (including vehicle miles traveled, MOBILE5a model inputs, inspection and maintenance programs, reformulated gasoline, and permanent migration effects) as used in the initial determination, with the following exceptions:

(i) In modeling the emission reductions from National LEV, EPA shall use any revised federal new motor vehicle standard or other requirement in place of the standard or other requirement as it existed when EPA made its initial determination; and, to the extent that the modeling reflects EPA's implementation of federal new motor vehicle standards or other requirements, EPA shall take any changes in such implementation into account.

(ii) In modeling the emissions reductions that would be achieved through the OTC State Section 177 Programs that would apply in the absence of National LEV, EPA shall take into account all Section 177 Programs adopted by OTC

States (including programs that allow National LEV as a compliance alternative) that had been adopted subsequent to EPA's initial equivalency determination. In accounting for the emissions effect of OTC State Section 177 Programs, EPA shall continue to assume that all OTC State Section 177 Programs have the same substantive requirements used in EPA's initial equivalency determination and shall not model any effects of state regulation of medium-duty vehicles (as defined in the California Code of Regulations, Title 13, Division 3, Chapter 1, Article 1, Section 1900).

(2) A covered state may opt out of National LEV within 90 calendar days of a final EPA determination pursuant to paragraph (k)(1) of this section that National LEV would not produce (or is not producing) emissions reductions at least equivalent to OTC State Section 177 Programs. The state's opt-out notification shall specify an effective date for the state's opt-out that is no earlier than two calendar years after the date of EPA's receipt of the state's opt-out notification and shall provide that the opt-out is not effective for model years (as defined in part 85, subpart X), that commence prior to this effective date.

(3) If a covered state opts out based on this condition, a covered manufacturer may opt out of National LEV pursuant to paragraph (j) of this section.

(4) In a state that opts out pursuant to paragraph (k)(1) of this section, obligations under National LEV shall be unaffected for covered manufacturers until the effective date of that state's opt-out. Upon the effective date of the state's opt-out, in that state covered manufacturers shall comply with any state standards and other requirements in effect pursuant to section 177 of the Clean Air Act or, if such state standards and other requirements are not in effect, with all requirements that would apply to a manufacturer that had not opted into the National LEV program, including all applicable standards and other requirements promulgated under title II of the Clean Air Act (42 U.S.C. 7521 et seq.).

#### **§ 86.1708-99 Exhaust emission standards for 1999 and later light-duty vehicles.**

(a) Light-duty vehicles certified under the provisions of this subpart shall comply with the applicable exhaust emission standards in this section. In addition to the exhaust emission standards in this section, light-duty vehicles certified under the

provisions of this subpart shall comply with all applicable emission standards and requirements in § 86.096-8 and subsequent model year provisions.

(1) Light-duty vehicles that meet the exhaust emission standards in this section are deemed to be in compliance with all the exhaust emission standards in § 86.096-8(a)(1)(i) and subsequent model year provisions, except for the emission standards and test procedures for total hydrocarbon (THC), particulate matter (PM), and high altitude conditions. Diesel light-duty vehicles that meet the PM standard in this section are deemed to be in compliance with the PM standard in § 86.096-8 and subsequent model year provisions.

(b)(1) Standards. (i) Exhaust emissions from 1999 and later model year light-duty vehicles classified as TLEVs, LEVs, and ULEVs shall not exceed the standards in Tables R99-1 and R99-2 in rows designated with the applicable vehicle emission category. These standards shall apply equally to certification and in-use vehicles, except as provided in paragraph (c) of this section. The tables follow:

Table R99-1 -- Intermediate useful life (50,000 mile) standards (g/mi) for light-duty vehicles classified as TLEVs, LEVs, and ULEVs

Vehicle Emission Category	NMOG	CO	NOx	HCHO
TLEV	0.125	3.4	0.4	0.015
LEV	0.075	3.4	0.2	0.015
ULEV	0.040	1.7	0.2	0.008

Table R99-2 -- Full useful life (100,000 mile) standards (g/mi) for light-duty vehicles classified as TLEVs, LEVs, and ULEVs

Vehicle Emission Category	NMOG	CO	NOx	HCHO	PM (diesels only)
TLEV	0.156	4.2	0.6	0.018	0.08
LEV	0.090	4.2	0.3	0.018	0.08
ULEV	0.055	2.1	0.3	0.011	0.04

(ii) Diesel vehicles. The particulate matter (PM) standards in paragraph (b)(1)(i) of this section are applicable to diesel light-duty vehicles only. For

diesel vehicles certifying to the standards set forth in paragraph (b)(1)(i) of this section, "NMOG" shall mean non-methane hydrocarbons.

(iii) NMOG standards for flexible-fuel and dual-fuel light-duty vehicles. Flexible-fuel and dual-fuel light-duty vehicles shall be certified to exhaust emission standards for NMOG established both for the operation of the vehicle on an available fuel other than gasoline and for the operation of the vehicle on gasoline as specified in § 86.1771.

(A) The applicable NMOG emission standards for flexible-fuel and dual-fuel light-duty vehicles when certifying the vehicle for operation on fuels other than gasoline shall be the NMOG standards in paragraph (b)(1)(i) of this section.

(B) The applicable NMOG emission standards for flexible-fuel and dual-fuel light-duty vehicles when certifying the vehicle for operation on gasoline shall be the NMOG standards in Tables R99-3 and R99-4 in the rows designated with the applicable vehicle emission category, as follows:

Table R99-3 -- Intermediate Useful Life (50,000 mile) NMOG Standards (g/mi) for Flexible-Fuel and Dual-Fuel light-duty Vehicles Classified as TLEVs, LEVs, and ULEVs

Vehicle Emission Category	NMOG
TLEV	0.25
LEV	0.125
ULEV	0.075

Table R99-4 -- Full Useful Life (100,000 mile) NMOG Standards (g/mi) for Flexible-Fuel and Dual-Fuel light-duty Vehicles Classified as TLEVs, LEVs, and ULEVs

Vehicle Emission Category	NMOG
TLEV	0.31
LEV	0.156
ULEV	0.090

(iv) Highway NOx. The maximum projected

NOx emissions measured on the federal Highway Fuel Economy Test in 40 CFR part 600, subpart B, shall not be greater than 1.33 times the applicable light-duty vehicle standards shown in Tables R99-1 and R99- 2. Both the projected emissions and the Highway Fuel Economy Test standard shall be rounded to the nearest 0.1 g/mi in accordance with the Rounding-Off Method specified in ASTM E29-90, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications, before being compared. These procedures are incorporated by reference (see § 86.1).

(v) Hybrid electric vehicle requirements.

Deterioration factors for hybrid electric vehicles shall be based on the emissions and mileage accumulation of the auxiliary power unit. For certification purposes only, Type A hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors), and shall not be required to demonstrate compliance with 100,000 mile emission standards. For certification purposes only, Type B hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 100,000 mile emission standards (using 75,000 mile deterioration factors). For certification purposes only, Type C hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 100,000 mile emission standards (using 100,000 mile deterioration factors).

(vi) 50 degree F requirements. Light-duty vehicles shall comply with the emission standards for NMOG, CO, NOx, and HCHO in paragraph (b)(1)(i) of this section at 50 deg. F, according to the procedure specified in § 86.1773. Hybrid electric, natural gas, and diesel fueled vehicles are not required to comply with the provisions of this paragraph (b)(1)(vi).

(2) [Reserved]

(c) In-use emission standards. (1) 1999 model year light-duty vehicles certified as LEVs and 1999 through 2002 model year light-duty vehicles certified as ULEVs shall meet the applicable intermediate and full useful life in-use standards in paragraph (c)(2) of this section, according to the following provisions:

(i) [Reserved]

(ii) The applicable in-use emission standards for vehicle emission categories and model years not shown in Tables R99-5 and R99-6 shall be the

intermediate and full useful life standards in paragraph (b) of this section.

(2) Light-duty vehicles, including flexible-fuel and dual-fuel light-duty vehicles when operated on gasoline and on an available fuel other than gasoline, shall meet all intermediate and full useful life in-use standards for the applicable vehicle emission category and model year in Tables R99-5 and R99-6, as follows:

Table R99-5 -- Intermediate Useful Life (50,000 mile) In-Use Standards (g/mi) for light-duty Vehicles

Vehicle Emission Category	Model Year	NMOG	CO	NOx	HCHO
LEV	1999	0.100	3.4	0.3	0.015
ULEV	1999-2000	0.055	2.1	0.3	0.012
	2001-2002	0.055	2.1	0.3	0.008

Table R99-6 -- Full Useful Life (100,000 mile) In-Use Standards (g/mi) for light-duty Vehicles

Vehicle Emission Category	Model Year	NMOG	CO	NOx	HCHO
LEV	1999	0.125	4.2	0.4	0.018
ULEV	1999-2002	0.075	3.4	0.4	0.008

(d) NMOG measurement and reactivity adjustment. NMOG emissions shall be measured in accordance with Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1). NMOG emissions shall be compared to the applicable NMOG emissions certification or in-use standard according to the following calculation procedures:

(1) For TLEVs, LEVs, and ULEVs designed to operate on any fuel other than conventional

gasoline, and for flexible-fuel and dual-fuel TLEVs, LEVs, and ULEVs when operated on a fuel other than gasoline as specified in § 86.1771, manufacturers shall multiply NMOG exhaust mass emission levels by the applicable reactivity adjustment factor set forth in § 86.1777, or established by the Administrator pursuant to § 86.1777. The product of the NMOG exhaust emission levels and the reactivity adjustment factor shall be compared to the applicable certification or in-use exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance.

(2) In addition to multiplying the exhaust NMOG mass emission levels by the applicable reactivity adjustment factor, TLEV, LEV, or ULEV natural gas vehicles shall multiply the exhaust methane mass emission level by the applicable methane reactivity adjustment factor in § 86.1777 or established by the Administrator pursuant to § 86.1777. The reactivity-adjusted NMOG value shall be added to the reactivity-adjusted methane value and then the sum shall be compared to the applicable certification or in-use exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance.

(3) The exhaust NMOG mass emission levels for fuel-flexible and dual-fuel vehicles when operating on gasoline as specified in § 86.1771 shall not be multiplied by a reactivity adjustment factor.

(e) SFTP Standards. Exhaust emissions from 2001 and later model year light-duty vehicles shall meet the additional SFTP standards in this paragraph (e) according to the implementation schedules in this paragraph (e). The standards set forth in this paragraph (e) refer to exhaust emissions emitted over the Supplemental Federal Test Procedure (SFTP) as set forth in subpart B of this part and collected and calculated in accordance with those procedures.

(1) Tier 1 vehicles and TLEVs. The SFTP exhaust emission levels from new 2001 and subsequent model year light-duty vehicles certified to the exhaust emission standards in § 86.099-8(a)(1)(i) and subsequent model year provisions and light-duty vehicles certified as TLEVs shall not exceed the standards in Table R99-7.1, according to the implementation schedule in this paragraph (e)(1).

Table R99-7.1 -- SFTP Exhaust Emission Standards (g/mi) for Tier 1 Vehicles and TLEVs

Useful Life	Fuel Type	NMHC + NOX composite	CO		
			A/C test	US06 test	Composite option
Inter-mediate	Gasoline	0.65	3.0	9.0	3.4
	Diesel	1.48	NA	9.0	3.4
Full	Gasoline	0.91	3.7	11.1	4.2
	Diesel	2.07	NA	11.1	4.2

(i) Phase-in requirements--2001 to 2003 model years. For the purposes of this paragraph (e)(1)(i) only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of the following types of vehicles sold in California: light-duty vehicles certified to the exhaust emission standards in § 86.099-8(a)(1)(i) and subsequent model year provisions, and light light-duty trucks certified to the exhaust emission standards in § 86.099-9(a)(1)(i) and subsequent model year provisions, and light-duty vehicles and light light-duty trucks certified as TLEVs. As an option, a manufacturer may elect to have its total light-duty vehicle and light light-duty truck fleet defined, for the purposes of this paragraph (e)(1)(i) only, as the total projected number of the manufacturer's light-duty vehicles and light light-duty trucks, other than zero emission vehicles, certified and sold in California.

(A) Manufacturers of light-duty vehicles and light light-duty trucks, except low volume manufacturers, shall certify a minimum percentage of their light-duty vehicle and light light-duty truck fleet according to the following phase-in schedule:

Model Year	Percentage
2001	25
2002	50
2003	85

(B) [Reserved]

(ii) Phase-in requirements--2004 and later model years. For the purposes of this paragraph (e)(1)(ii) only, each manufacturer's light-duty vehicle

and light light-duty truck fleet shall be defined as the total projected number of the following types of vehicles sold in the United States: light-duty vehicles certified to the exhaust emission standards in § 86.099-8(a)(1)(i) and subsequent model year provisions, and light light-duty trucks certified to the exhaust emission standards in § 86.099-9(a)(1)(i) and subsequent model year provisions, and light-duty vehicles and light light-duty trucks certified as TLEVs. As an option, a manufacturer may elect to have its total light-duty vehicle and light light-duty truck fleet defined, for the purposes of this paragraph (e)(1)(ii) only, as the total projected number of the manufacturer's light-duty vehicles and light light-duty trucks, other than zero emission vehicles, certified and sold in the United States.

(A) In 2004 and subsequent model years, manufacturers of light-duty vehicles and light light-duty trucks, including low volume manufacturers, shall certify 100 percent of their light-duty vehicle and light light-duty truck fleet to the standards in this paragraph (e)(1).

(B) [Reserved]

(iii) Phase-in requirements--vehicles sold outside California. Light-duty vehicles and light light-duty trucks sold outside California shall be certified to the applicable emission standards in this paragraph (e) if a vehicle has been certified to the emission standards in this paragraph (e) for sale in California and is identical in the following respects:

- (A) Vehicle manufacturer;
- (B) Vehicle make and model;
- (C) Cylinder block configuration (L-6, V-8, and so forth);
- (D) Displacement;
- (E) Combustion cycle;
- (F) Transmission class; and
- (G) Axle ratio.

(2) LEVs and ULEVs. The SFTP standards in this paragraph (e)(2) represent the maximum SFTP exhaust emissions at 4,000 miles +/- 250 miles or at the mileage determined by the manufacturer for emission data vehicles in accordance with § 86.1726. The SFTP exhaust emission levels from new 2001 and subsequent model year light-duty vehicle LEVs and ULEVs shall not exceed the standards in the following table, according to the implementation schedule in this paragraph (e)(2)(i).

Table R99-7.2 -- SFTP Exhaust Emission Standards (g/mi) for LEVs and ULEVs

US06 Test		A/C Test	
NMHC + NOX	CO	NMHC + NOX	CO
0.14	8.0	0.20	2.7

(i) Phase-in requirements--2001 to 2003 model years. For the purposes of this paragraph (e)(2)(i) only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of light-duty vehicles and light light-duty trucks certified as LEVs and ULEVs sold in California.

(A) Manufacturers of light-duty vehicles and light light-duty trucks, except low volume manufacturers, shall certify to the standards in this paragraph (e)(2) a minimum percentage of their light-duty vehicle and light light-duty truck fleet according to the following phase-in schedule:

Model Year	Percentage
2001	25
2002	50
2003	85

(B) Manufacturers may use an "Alternative or Equivalent Phase-in Schedule" to comply with the phase-in requirements. An "Alternative Phase-in" is one that achieves at least equivalent emission reductions by the end of the last model year of the scheduled phase-in. Model-year emission reductions shall be calculated by multiplying the percent of vehicles (based on the manufacturer's projected California sales volume of the applicable vehicle fleet) meeting the new requirements per model year by the number of model years implemented prior to and including the last model year of the scheduled phase-in. The "cumulative total" is the summation of the model-year emission reductions (e.g., a four model-year 25/50/85/100 percent phase-in schedule would be calculated as: (25%\*4 years) + (50%\*3 years) + (85%\*2 years) + (100%\*1 year) = 520). Any alternative phase-in that results in an equal or larger cumulative total than the required cumulative total by the end of the last model year of the scheduled



phase-in shall be considered acceptable by the Administrator under the following conditions: All vehicles subject to the phase-in shall comply with the respective requirements in the last model year of the required phase-in schedule; and if a manufacturer uses the optional phase-in percentage determination in paragraph (e)(1)(i) of this section, the cumulative total of model-year emission reductions as determined only for light-duty vehicles and light light-duty trucks certified to this paragraph (e)(2) must also be equal to or larger than the required cumulative total by end of the 2004 model year. Manufacturers shall be allowed to include vehicles introduced before the first model year of the scheduled phase-in (e.g., in the previous example, 10 percent introduced one year before the scheduled phase-in begins would be calculated as: (10%\*5 years) and added to the cumulative total).

(ii) Phase-in requirements--2004 and later model years. For the purposes of this paragraph (e)(2)(ii) only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of light-duty vehicles and light light-duty trucks certified as LEVs and ULEVs sold in the United States.

(A) In 2004 and subsequent model years, manufacturers of light-duty vehicles and light light-duty trucks, including low volume manufacturers, shall certify 100 percent of their light-duty vehicle and light light-duty truck fleet to the standards in this paragraph (e)(2).

(iii) Phase-in requirements--vehicles sold outside California. Light-duty vehicles and light light-duty trucks sold outside California shall be certified to the applicable emission standards in this paragraph (e) if a vehicle has been certified to the emission standards in this paragraph (e) for sale in California and is identical in the following respects:

- (A) Vehicle manufacturer;
- (B) Vehicle make and model;
- (C) Cylinder block configuration (L-6, V-8, and so forth);
- (D) Displacement;
- (E) Combustion cycle;
- (F) Transmission class; and
- (G) Axle ratio.

(3) A/C-on specific calibrations. A/C-on specific calibrations (e.g. air to fuel ratio, spark timing, and exhaust gas recirculation), may be used which differ from A/C-off calibrations for given engine operating conditions (e.g., engine speed, manifold pressure, coolant temperature, air charge

temperature, and any other parameters). Such calibrations must not unnecessarily reduce the NMHC+NO<sub>x</sub> emission control effectiveness during A/C-on operation when the vehicle is operated under conditions which may reasonably be expected to be encountered during normal operation and use. If reductions in control system NMHC+NO<sub>x</sub> effectiveness do occur as a result of such calibrations, the manufacturer shall, in the Application for Certification, specify the circumstances under which such reductions do occur, and the reason for the use of such calibrations resulting in such reductions in control system effectiveness. A/C-on specific "open-loop" or "commanded enrichment" air-fuel enrichment strategies (as defined below), which differ from A/C-off "open-loop" or "commanded enrichment" air-fuel enrichment strategies, may not be used, with the following exceptions: Cold-start and warm-up conditions, or, subject to Administrator approval, conditions requiring the protection of the vehicle, occupants, engine, or emission control hardware. Other than these exceptions, such strategies which are invoked based on manifold pressure, engine speed, throttle position, or other engine parameters shall use the same engine parameter criteria for the invoking of this air-fuel enrichment strategy and the same degree of enrichment regardless of whether the A/C is on or off. "Open-loop" or "commanded" air-fuel enrichment strategy is defined as enrichment of the air to fuel ratio beyond stoichiometry for the purposes of increasing engine power output and the protection of engine or emissions control hardware. However, "closed-loop biasing," defined as small changes in the air-fuel ratio for the purposes of optimizing vehicle emissions or driveability, shall not be considered an "open-loop" or "commanded" air-fuel enrichment strategy. In addition, "transient" air-fuel enrichment strategy (or "tip-in" and "tip-out" enrichment), defined as the temporary use of an air-fuel ratio rich of stoichiometry at the beginning or duration of rapid throttle motion, shall not be considered an "open-loop" or "commanded" air-fuel enrichment strategy.

(4) "Lean-on-cruise" calibration strategies.

(i) In the Application for Certification, the manufacturer shall state whether any "lean-on-cruise" strategies are incorporated into the vehicle design. A "lean-on-cruise" air-fuel calibration strategy is defined as the use of an air-fuel ratio significantly greater than stoichiometry, during non-deceleration conditions at speeds above 40 mph. "Lean-on-cruise"

air-fuel calibration strategies shall not be employed during vehicle operation in normal driving conditions, including A/C usage, unless at least one of the following conditions is met:

(A) Such strategies are substantially employed during the FTP or SFTP;

(B) Such strategies are demonstrated not to significantly reduce vehicle NMHC+NOx emission control effectiveness over the operating conditions in which they are employed;

(C) Such strategies are demonstrated to be necessary to protect the vehicle occupants, engine, or emission control hardware.

(ii) If the manufacturer proposes to use a "lean-on-cruise" calibration strategy, the manufacturer shall specify the circumstances under which such a calibration would be used, and the reason or reasons for the proposed use of such a calibration.

(iii) The provisions of this paragraph (e)(4) shall not apply to vehicles powered by "lean-burn" engines or diesel-cycle engines. A "lean-burn" engine is defined as an Otto-cycle engine designed to run at an air-fuel ratio significantly greater than stoichiometry during the large majority of its operation.

(5) Applicability to alternative fuel vehicles. These SFTP standards do not apply to vehicles certified on fuels other than gasoline and diesel fuel, but the standards do apply to the gasoline and diesel fuel operation of flexible-fuel vehicles and dual-fuel vehicles.

(6) Single-roll electric dynamometer requirement. For all vehicles certified to the SFTP standards, a single-roll electric dynamometer or a dynamometer which produces equivalent results, as set forth in § 86.108, must be used for all types of emission testing to determine compliance with the associated emission standards.

**§ 86.1709-99 Exhaust emission standards for 1999 and later light light-duty trucks.**

(a) Light light-duty trucks certified under the provisions of this subpart shall comply with the applicable exhaust emission standards in this section. In addition to the exhaust emission standards in this section, light light-duty trucks certified under the provisions of this subpart shall comply with all applicable emission standards and requirements in § 86.097-9 and subsequent model year provisions.

(1) Light light-duty trucks that meet the

exhaust emission standards in this section are deemed to be in compliance with all the exhaust emission standards in § 86.097-9(a)(1)(i) and subsequent model year provisions, except for the emission standards and test procedures for total hydrocarbon (THC), particulate matter (PM), and high altitude conditions. Diesel light light-duty trucks that meet the PM standard in this section are deemed to be in compliance with the PM standards in § 86.097-9 and subsequent model year provisions.

(2) [Reserved]

(b)(1) Standards. (i) Exhaust emissions from 1999 and later model year light light-duty trucks classified as TLEVs, LEVs, and ULEVs shall not exceed the standards in Tables R99-8 and R99-9 in rows designated with the applicable vehicle emission category and loaded vehicle weight. These standards shall apply equally to certification and in-use vehicles, except as provided in paragraph (c) of this section. The tables follow:

Table R99-8 -- Intermediate Useful Life (50,000 mile) Standards (g/mi) for light light-duty Trucks Classified as TLEVs, LEVs, and ULEVs

Loaded Vehicle Weight	Vehicle Emission Category	NMOG	CO	NOx	HCHO
0-3750	TLEV	0.125	3.4	0.4	0.015
	LEV	0.075	3.4	0.2	0.015
	ULEV	0.040	1.7	0.2	0.008
3751-5750	TLEV	0.160	4.4	0.7	0.018
	LEV	0.100	4.4	0.4	0.018
	ULEV	0.050	2.2	0.4	0.009

Table R99-9 -- Full Useful Life (100,000 mile) Standards (g/mi) for light light-duty Trucks Classified as TLEVs, LEVs, and ULEVs

Loaded Vehicle Weight	Vehicle Emission Category	NMOG	CO	NOx	HCHO	PM (diesels only)
0-3750	TLEV	0.156	4.2	0.6	0.018	0.08
	LEV	0.090	4.2	0.3	0.018	0.08
	ULEV	0.055	2.1	0.3	0.011	0.04
3751-5750	TLEV	0.200	5.5	0.9	0.023	0.10
	LEV	0.130	5.5	0.5	0.023	0.10
	ULEV	0.070	2.8	0.5	0.013	0.05

(ii) Diesel vehicles. The particulate matter (PM) standards in paragraph (b)(1)(i) of this section are applicable to diesel vehicles only. For diesel vehicles certifying to the standards set forth in paragraph (b)(1)(i) of this section, “NMOG” shall mean non-methane hydrocarbons.

(iii) NMOG standards for flexible-fuel and dual-fuel light duty trucks. Flexible-fuel and dual-fuel light light-duty trucks shall be certified to exhaust emission standards for NMOG established both for the operation of the vehicle on an available fuel other than gasoline and for the operation of the vehicle on gasoline as specified in § 86.1771.

(A) The applicable NMOG emission standards for flexible-fuel and dual-fuel light light-duty trucks when certifying the vehicle for operation on fuels other than gasoline shall be the NMOG standards in paragraph (b)(1)(i) of this section.

(B) The applicable NMOG emission standards for flexible-fuel and dual-fuel light light-duty trucks when certifying the vehicle for operation on gasoline shall be the NMOG standards in Tables R99-10 and R99-11 in the rows designated with the applicable vehicle emission category and loaded vehicle weight, as follows:

Table R99-10 -- Intermediate Useful Life (50,000 mile) NMOG Standards (g/mi) for Flexible-Fuel and Dual-Fuel light light-duty Trucks Classified as TLEVs, LEVs, and ULEVs

Loaded Vehicle Weight	Vehicle Emission Category	NMOG
0-3750	TLEV	0.25
	LEV	0.125
	ULEV	0.075
3751-5750	TLEV	0.32
	LEV	0.160
	ULEV	0.100

Table R99-11 -- Full Useful Life (100,000 mile) NMOG Standards (g/mi) for Flexible-Fuel and Dual-Fuel light light-duty Trucks Classified as TLEVs, LEVs, and ULEVs

Loaded Vehicle Weight	Vehicle Emission Category	NMOG
0-3750	TLEV	0.31
	LEV	0.156
	ULEV	0.090
3751-5750	TLEV	0.40
	LEV	0.200
	ULEV	0.130

(iv) Highway NOx. The maximum projected NOx emissions measured on the federal Highway Fuel Economy Test in 40 CFR part 600, subpart B, shall be not greater than 1.33 times the applicable light light-duty truck standards shown in Tables R99-8 and R99-9. Both the projected emissions and the Highway Fuel Economy Test standard shall be rounded to the nearest 0.1 g/mi in accordance with the Rounding-Off Method specified in ASTM E29-90, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications, before being compared. These procedures are incorporated by reference (see § 86.1).

(v) Hybrid electric vehicle requirements.

Deterioration factors for hybrid electric vehicles shall be based on the emissions and mileage accumulation of the auxiliary power unit. For certification purposes only, Type A hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors), and shall not be required to demonstrate compliance with 100,000 mile emission standards. For certification purposes only, Type B hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 100,000 mile emission standards (using 75,000 mile deterioration factors). For certification purposes only, Type C hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 100,000 mile emission standards (using 100,000 mile deterioration factors).

(vi) 50 degree F requirements. Light light-duty trucks shall comply with the emission standards for NMOG, CO, NOx, and HCHO in paragraph (b)(1)(i) of this section at 50 degrees F, according to the procedure specified in § 86.1773. Hybrid electric vehicles, natural gas vehicles, and diesel fueled vehicles are not required to comply with the provisions of this paragraph (b)(1)(vi).

(2) [Reserved]

(c) In-use emission standards. (1) 1999 model year light light-duty trucks certified as LEVs and 1999 through 2001 model year light light-duty trucks certified as ULEVs shall meet the applicable intermediate and full useful life in-use standards in paragraph (c)(2) of this section, according to the following provisions:

(i) [Reserved]

(ii) The applicable in-use emission standards for vehicle emission categories and model years not shown in Tables R99-12 and R99-13 shall be the intermediate and full useful life standards in paragraph (b) of this section.

(2) Light light-duty trucks, including flexible-fuel and dual-fuel light light-duty trucks when operated on gasoline and on an available fuel other than gasoline, shall meet all intermediate and full useful life in-use standards for the applicable vehicle emission category, loaded vehicle weight, and model year in Tables R99-12 and R99-13, as follows:

Table R99-12 -- Intermediate Useful Life (50,000 mile) In-Use Standards (g/mi) for light light-duty Trucks

<u>Loaded Vehicle Weight</u>	<u>Vehicle Emission Category</u>	<u>Model Year</u>	<u>NMOG</u>	<u>CO</u>	<u>NOx</u>	<u>HCHO</u>
0-3750	LEV	1999	0.100	3.4	0.3	0.015
	ULEV	1999-2002	0.055	2.1	0.3	0.008
3751-5750	LEV	1999	0.130	4.4	0.5	0.018
	ULEV	1999-2002	0.070	2.8	0.5	0.009

Table R99-13 -- Full Useful Life (100,000 mile) In-Use Standards (g/mi) for light light-duty Trucks

<u>Loaded Vehicle Weight</u>	<u>Vehicle Emission Category</u>	<u>Model Year</u>	<u>NMOG</u>	<u>CO</u>	<u>NOx</u>	<u>HCHO</u>
0-3750	LEV	1999	0.125	4.2	0.4	0.018
	ULEV	1999-2002	0.075	3.4	0.4	0.011
3751-5750	LEV	1999	0.160	5.5	0.7	0.023
	ULEV	1999-2002	0.100	4.4	0.7	0.013

(d) NMOG measurement and reactivity adjustment. NMOG emissions shall be measured in accordance with Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These procedures are incorporated by reference (see § 86.1). NMOG emissions shall be compared to the applicable NMOG emissions certification or in-use standard according to the following calculation

procedures:

(1) For TLEVs, LEVs, and ULEVs designed to operate on any fuel other than conventional gasoline, and for flexible-fuel and dual-fuel TLEVs, LEVs, and ULEVs when operated on a fuel other than gasoline as specified in § 86.1771, manufacturers shall multiply NMOG mass exhaust emission levels by the applicable reactivity adjustment factor set forth in § 86.1777 or established by the Administrator pursuant to § 86.1777. The product of the NMOG exhaust emission levels and the reactivity adjustment factor shall be compared to the applicable certification or in-use exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance.

(2) In addition to multiplying the exhaust NMOG mass emission levels by the applicable reactivity adjustment factor, TLEV, LEV, or ULEV natural gas vehicles shall multiply the exhaust methane mass emission level by the applicable methane reactivity adjustment factor in § 86.1777 or established by the Administrator pursuant to § 86.1777. The reactivity-adjusted NMOG value shall be added to the reactivity-adjusted methane value and then the sum shall be compared to the applicable certification or in-use exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance.

(3) The exhaust NMOG mass emission levels for fuel-flexible and dual-fuel vehicles when operating on gasoline as specified in § 86.1771 shall not be multiplied by a reactivity adjustment factor.

(e) SFTP Standards. Exhaust emissions from 2001 and later model year light light-duty trucks shall meet the additional SFTP standards in this paragraph (e) according to the implementation schedules in this paragraph (e). The standards set forth in this paragraph (e) refer to exhaust emissions emitted over the Supplemental Federal Test Procedure (SFTP) as set forth in subpart B of this part and collected and calculated in accordance with those procedures.

(1) Tier 1 vehicles and TLEVs. The SFTP exhaust emission levels from new 2001 and subsequent model year light light-duty trucks certified to the exhaust emission standards in § 86.099-9(a)(1)(i) and subsequent model year provisions and light light-duty trucks certified as TLEVs shall not exceed the standards in Table R99-14.1, according to the implementation schedule in this paragraph (e)(1).

Table R99-14.1 -- SFTP Exhaust Emission Standards (g/mi) for Tier 1 Vehicles and TLEVs

Useful Life	Fuel Type	LVW (lbs)	NMHC + NOX composite	CO		
				A/C test	US06 test	Composite option
Intermediate	Gasoline	0-3750	0.65	3.0	9.0	3.4
		3751-5750	1.02	3.9	11.6	4.4
	Diesel	0-3750	1.48	NA	9.0	3.4
		3751-5750	NA	NA	NA	NA
Full	Gasoline	0-3750	0.91	3.7	11.1	4.2
		3751-5750	1.37	4.9	14.6	5.5
	Diesel	0-3750	2.07	NA	11.1	4.2
		3751-5750	NA	NA	NA	NA

(i) Phase-in requirements--2001 to 2003 model years. For the purposes of paragraph (e)(1)(i) of this section only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of the following types of vehicles sold in California: light-duty vehicles certified to the exhaust emission standards in § 86.099-8(a)(1)(i) and subsequent model year provisions, and light light-duty trucks certified to the exhaust emission standards in § 86.099-9(a)(1)(i) and subsequent model year provisions, and light-duty vehicles and light light-duty trucks certified as TLEVs. As an option, a manufacturer may elect to have its total light-duty vehicle and light light-duty truck fleet defined, for the purposes of this paragraph (e)(1)(i) only, as the total projected number of the manufacturer's light-duty vehicles and light light-duty trucks, other than zero emission vehicles, certified and sold in California.

(A) Manufacturers of light-duty vehicles

and light light-duty trucks, except low volume manufacturers, shall certify a minimum percentage of their light-duty vehicle and light light-duty truck fleet according to the following phase-in schedule:

Model Year	Percentage
2001	25
2002	50
2003	85

(B) [Reserved]

(ii) Phase-in requirements--2004 and later model years. For the purposes of paragraph (e)(1)(ii) of this section only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of the following types of vehicles sold in the United States: light-duty vehicles certified to the exhaust emission standards in § 86.099-8(a)(1)(i) and subsequent model year provisions, light light-duty trucks certified to the exhaust emission standards in § 86.099-9(a)(1)(i) and subsequent model year provisions, and light-duty vehicles and light light-duty trucks certified as TLEVs. As an option, a manufacturer may elect to have its total light-duty vehicle and light light-duty truck fleet defined, for the purposes of this paragraph (e)(1)(ii) only, as the total projected number of the manufacturer's light-duty vehicles and light light-duty trucks, other than zero emission vehicles, certified and sold in the United States.

(A) In 2004 and subsequent model years, manufacturers of light-duty vehicles and light light-duty trucks, including low volume manufacturers, shall certify 100 percent of their light-duty vehicle and light light-duty truck fleet to the standards in this paragraph (e)(1).

(B) [Reserved]

(iii) Phase-in requirements--vehicles sold outside California. Light-duty vehicles and light light-duty trucks sold outside California shall be certified to the applicable emission standards in this paragraph (e) if a vehicle has been certified to the emission standards in this paragraph (e) for sale in California and is identical in the following respects:

- (A) Vehicle manufacturer;
- (B) Vehicle make and model;
- (C) Cylinder block configuration (L-6, V-8, and so forth);

- (D) Displacement;
- (E) Combustion cycle;
- (F) Transmission class; and
- (G) Axle ratio.

(2) LEVs and ULEVs. The SFTP standards in this paragraph (e)(2) represent the maximum SFTP exhaust emissions at 4,000 miles +/- 250 miles or at the mileage determined by the manufacturer for emission data vehicles in accordance with § 86.1726. The SFTP exhaust emission levels from new 2001 and subsequent model year light light-duty truck LEVs and ULEVs shall not exceed the standards in the following table, according to the implementation schedule in this paragraph (e)(2).

Table R99-14.2 -- SFTP Exhaust Emission Standards (g/mi) for LEVs and ULEVs

US06 Test		A/C Test	
NMHC + NOX	CO	NMHC + NOX	CO
0.25	10.5	0.27	3.5

(i) Phase-in requirements--2001 to 2003 model years. For the purposes of this paragraph (e)(2)(i) only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of light-duty vehicles and light light-duty trucks certified as LEVs and ULEVs sold in California.

(A) Manufacturers of light-duty vehicles and light light-duty trucks, except low volume manufacturers, shall certify to the standards in this paragraph (e)(2) a minimum percentage of their light-duty vehicle and light light-duty truck fleet according to the following phase-in schedule:

Model Year	Percentage
2001	25
2002	50
2003	85

(B) Manufacturers may use an "Alternative or Equivalent Phase-in Schedule" to comply with the phase-in requirements. An "Alternative Phase-in" is one that achieves at least equivalent emission reductions by the end of the last model year of the

scheduled phase-in. Model-year emission reductions shall be calculated by multiplying the percent of vehicles (based on the manufacturer's projected California sales volume of the applicable vehicle fleet) meeting the new requirements per model year by the number of model years implemented prior to and including the last model year of the scheduled phase-in. The "cumulative total" is the summation of the model-year emission reductions (e.g., a four model-year 25/50/85/100 percent phase-in schedule would be calculated as:  $(25\% * 4 \text{ years}) + (50\% * 3 \text{ years}) + (85\% * 2 \text{ years}) + (100\% * 1 \text{ year}) = 520$ ). Any alternative phase-in that results in an equal or larger cumulative total than the required cumulative total by the end of the last model year of the scheduled phase-in shall be considered acceptable by the Administrator under the following conditions: All vehicles subject to the phase-in shall comply with the respective requirements in the last model year of the required phase-in schedule; and if a manufacturer uses the optional phase-in percentage determination in paragraph (e)(1)(i) of this section, the cumulative total of model-year emission reductions as determined only for light-duty vehicles and light light-duty trucks certified to this paragraph (e)(2) must also be equal to or larger than the required cumulative total by the end of the 2004 model year. Manufacturers shall be allowed to include vehicles introduced before the first model year of the scheduled phase-in (e.g., in the previous example, 10 percent introduced one year before the scheduled phase-in begins would be calculated as:  $(10\% * 5 \text{ years})$  and added to the cumulative total).

(ii) Phase-in requirements--2004 and later model years. For the purposes of this paragraph (e)(2)(ii) only, each manufacturer's light-duty vehicle and light light-duty truck fleet shall be defined as the total projected number of light-duty vehicles and light light-duty trucks certified as LEVs and ULEVs sold in the United States.

(A) In 2004 and subsequent model years, manufacturers of light-duty vehicles and light light-duty trucks, including low volume manufacturers, shall certify 100 percent of their light-duty vehicle and light light-duty truck fleet to the standards in this paragraph (e)(2).

(B) [Reserved]

(iii) Phase-in requirements--vehicles sold outside California. Light-duty vehicles and light light-duty trucks sold outside California shall be certified to the applicable emission standards in this paragraph (e) if a vehicle has been certified to the

emission standards in this paragraph (e) for sale in California and is identical in the following respects:

- (A) Vehicle manufacturer;
- (B) Vehicle make and model;
- (C) Cylinder block configuration (L-6, V-8,

and so forth);

- (D) Displacement;
- (E) Combustion cycle;
- (F) Transmission class; and
- (G) Axle ratio.

(3) A/C-on specific calibrations. A/C-on specific calibrations (e.g. air to fuel ratio, spark timing, and exhaust gas recirculation), may be used which differ from A/C-off calibrations for given engine operating conditions (e.g., engine speed, manifold pressure, coolant temperature, air charge temperature, and any other parameters). Such calibrations must not unnecessarily reduce the NMHC+NO<sub>x</sub> emission control effectiveness during A/C-on operation when the vehicle is operated under conditions which may reasonably be expected to be encountered during normal operation and use. If reductions in control system NMHC+NO<sub>x</sub> effectiveness do occur as a result of such calibrations, the manufacturer shall, in the Application for Certification, specify the circumstances under which such reductions do occur, and the reason for the use of such calibrations resulting in such reductions in control system effectiveness. A/C-on specific "open-loop" or "commanded enrichment" air-fuel enrichment strategies (as defined below), which differ from A/C-off "open-loop" or "commanded enrichment" air-fuel enrichment strategies, may not be used, with the following exceptions: Cold-start and warm-up conditions, or, subject to Administrator approval, conditions requiring the protection of the vehicle, occupants, engine, or emission control hardware. Other than these exceptions, such strategies which are invoked based on manifold pressure, engine speed, throttle position, or other engine parameters shall use the same engine parameter criteria for the invoking of this air-fuel enrichment strategy and the same degree of enrichment regardless of whether the A/C is on or off. "Open-loop" or "commanded" air-fuel enrichment strategy is defined as enrichment of the air to fuel ratio beyond stoichiometry for the purposes of increasing engine power output and the protection of engine or emissions control hardware. However, "closed-loop biasing," defined as small changes in the air-fuel ratio for the purposes of optimizing vehicle emissions or driveability, shall not

be considered an "open-loop" or "commanded" air-fuel enrichment strategy. In addition, "transient" air-fuel enrichment strategy (or "tip-in" and "tip-out" enrichment), defined as the temporary use of an air-fuel ratio rich of stoichiometry at the beginning or duration of rapid throttle motion, shall not be considered an "open-loop" or "commanded" air-fuel enrichment strategy.

(4) "Lean-on-cruise" calibration strategies.

(i) In the Application for Certification, the manufacturer shall state whether any "lean-on-cruise" strategies are incorporated into the vehicle design. A "lean-on-cruise" air-fuel calibration strategy is defined as the use of an air-fuel ratio significantly greater than stoichiometry, during non-deceleration conditions at speeds above 40 mph. "Lean-on-cruise" air-fuel calibration strategies shall not be employed during vehicle operation in normal driving conditions, including A/C usage, unless at least one of the following conditions is met:

(A) Such strategies are substantially employed during the FTP or SFTP;

(B) Such strategies are demonstrated not to significantly reduce vehicle NMHC+NOx emission control effectiveness over the operating conditions in which they are employed;

(C) Such strategies are demonstrated to be necessary to protect the vehicle occupants, engine, or emission control hardware.

(ii) If the manufacturer proposes to use a "lean-on-cruise" calibration strategy, the manufacturer shall specify the circumstances under which such a calibration would be used, and the reason or reasons for the proposed use of such a calibration.

(iii) The provisions of this paragraph (e)(4) shall not apply to vehicles powered by "lean-burn" engines or diesel-cycle engines. A "lean-burn" engine is defined as an Otto-cycle engine designed to run at an air-fuel ratio significantly greater than stoichiometry during the large majority of its operation.

(5) Applicability to alternative fuel vehicles.

These SFTP standards do not apply to vehicles certified on fuels other than gasoline and diesel fuel, but the standards do apply to the gasoline and diesel fuel operation of flexible-fuel vehicles and dual-fuel vehicles.

(6) Single-roll electric dynamometer requirement. For all vehicles certified to the SFTP standards, a single-roll electric dynamometer or a dynamometer which produces equivalent results, as

set forth in § 86.108, must be used for all types of emission testing to determine compliance with the associated emission standards.

**§ 86.1710-99 Fleet average non-methane organic gas exhaust emission standards for light-duty vehicles and light light-duty trucks.**

(a) Fleet average NMOG standards and compliance. (1) Each manufacturer shall certify light-duty vehicles or light light-duty trucks to meet the exhaust emission standards in this subpart for TLEVs, LEVs, ULEVs, or ZEVs, or the exhaust emission standards of § 86.096-8(a)(1)(i) and subsequent model year provisions or § 86.097-9(a)(1)(i) and subsequent model year provisions, such that, using the applicable intermediate useful life standards, the manufacturer's fleet average NMOG values for light-duty vehicles and light light-duty trucks sold in the applicable region according to the specifications of Tables R99-15 and R99-16 are less than or equal to the standards in Tables R99-15 and R99-16 in the rows designated with the applicable vehicle type, loaded vehicle weight, and model year, as follows:

Table R99-15 -- Fleet average non-methane organic gas standards (g/mi) for light-duty vehicles and light light-duty trucks sold in the Northeast Trading Region

Vehicle Type	Loaded Vehicle Weight	Model Year	Fleet Average NMOG
light-duty vehicles and light light-duty trucks	All  0-3750	1999 2000	0.148 0.095
light light-duty trucks	3751-5750	1999 2000	0.190 0.124



Table R99-16 -- Fleet average non-methane organic gas standards (g/mi) for light-duty vehicles and light light-duty trucks sold in the All States Trading Region

Vehicle Type	Loaded Vehicle Weight	Model Year	Fleet Average NMOG
light-duty vehicles and light light-duty trucks	All  0-3750	2001 and later	0.075
light light-duty trucks	3751-5750	2001 and later	0.100

(2)(i) For the purpose of calculating the HEV contribution factor for the fleet average NMOG value, a manufacturer may use adjusted values to estimate the contributions of hybrid electric vehicles (or "HEVs") based on the range of the HEV without the use of the engine. See § 86.1702 for definitions of HEV types for purposes of calculating adjusted NMOG emissions.

(ii) For the purpose of calculating fleet average NMOG values, vehicles that have no tailpipe emissions but use fuel-fired heaters and that are not certified as ZEVs shall be treated as Type A HEV ULEVs.

(3)(i) Each manufacturer's applicable fleet average NMOG value for all light light-duty trucks from 0-3750 lbs loaded vehicle weight and light-duty vehicles sold in the applicable region according to Tables R99-15 and R99-16 shall be calculated in units of g/mi NMOG according to the following equation, where the term "Sold" means sold in the applicable region according to Tables R99-15 and R99-16, and the term "Vehicles" means light light-duty trucks from 0-3750 lbs loaded vehicle weight and light-duty vehicles:  $((\text{No. of Vehicles Certified to the Federal Tier 1 Exhaust Emission Standards and Sold}) \times (0.25)) + ((\text{No. of TLEVs Sold excluding HEVs}) \times (0.125)) + ((\text{No. of LEVs Sold excluding HEVs}) \times (0.75)) + ((\text{No. of ULEVs Sold excluding HEVs}) \times (0.040)) + (\text{HEV contribution factor}) / (\text{Total$

No. of Vehicles Sold, including ZEVs and HEVs).

(A) For model years 1997 through 2000, "Vehicles" in the preceding equation shall include California-certified vehicles, including vehicles certified to California Tier 1 standards.

(B) For model years 2001 and later, "vehicles" in the preceding equation shall not include California-certified vehicles unless they are also certified under the National LEV program.

(ii)(A) "HEV contribution factor" shall mean the NMOG emission contribution of HEVs to the fleet average NMOG value. The HEV contribution factor shall be calculated in units of g/mi as follows, where the term "Sold" means sold in the applicable region according to Tables R99-15 and R99-16.

(B) HEV contribution factor =  $((\text{No. of Type A HEV TLEVs Sold}) \times (0.100)) + ((\text{No. of Type B HEV TLEVs Sold}) \times (0.113)) + ((\text{No. of Type C HEV TLEVs Sold}) \times (0.125)) + ((\text{No. of Type A HEV LEVs Sold}) \times (0.057)) + ((\text{No. of Type B HEV LEVs Sold}) \times (0.066)) + ((\text{No. of Type C HEV LEVs Sold}) \times (0.075)) + ((\text{No. of Type A HEV ULEVs Sold}) \times (0.020)) + ((\text{No. of Type B HEV ULEVs Sold}) \times (0.030)) + ((\text{No. of Type C HEV ULEVs Sold}) \times (0.040))$ .

(iii)(A) For any model year in which a manufacturer certifies its entire fleet of light-duty vehicles and light light-duty trucks from 0-3750 lbs LVW to intermediate useful life NMOG emission standards specified in §§ 86.1708 and 86.1709 that are less than or equal to the applicable fleet average NMOG standard specified in Tables R99-15 and R99-16, the manufacturer may elect not to calculate a fleet average NMOG value for such vehicles for that model year.

(B) The fleet average NMOG value for a manufacturer electing under paragraph (a)(3)(iii)(A) of this section not to calculate a fleet average NMOG value shall be deemed to be the applicable fleet average NMOG standard specified in Table R99-15 or R99-16 for the applicable model year.

(C) A manufacturer making the election under paragraph (a)(3)(iii)(A) of this section may not generate credits for that model year for light light-duty trucks from 0-3750 lbs LVW and light-duty vehicles.

(4)(i) Each manufacturer's applicable fleet average NMOG value for all light light-duty trucks from 3751-5750 lbs loaded vehicle weight sold in the applicable region according to Tables R99-15 and R99-16 shall be calculated in units of g/mi NMOG

according to the following equation, where the term "Sold" means sold in the applicable region according to Tables R99-15 and R99-16, and the term "Vehicles" means light light-duty trucks from 3751-5750 lbs loaded vehicle weight: 
$$\frac{((\text{No. of Vehicles Certified to the Federal Tier 1 Exhaust Emission Standards and Sold}) \times (0.32)) + ((\text{No. of TLEVs Sold excluding HEVs}) \times (0.160)) + ((\text{No. of LEVs Sold excluding HEVs}) \times (0.100)) + (\text{No. of ULEVs Sold excluding HEVs}) \times (0.050) + (\text{HEV Contribution factor})}{(\text{Total No. of Vehicles Sold, including ZEVs and HEVs})}$$

(A) For model years 1997 through 2000, "Vehicles" in the preceding equation shall include California-certified vehicles, including vehicles certified to California Tier 1 standards.

(B) For model years 2001 and later, "Vehicles" in the preceding equation shall not include California-certified vehicles unless they are also certified under the National LEV program.

(ii)(A) "HEV contribution factor" shall mean the NMOG emission contribution of HEVs to the fleet average NMOG. The HEV contribution factor shall be calculated in units of g/mi as follows, where the term "Sold" means sold in the applicable region according to Tables R99-15 and R99-16.

(B) HEV contribution factor = 
$$\frac{((\text{No. of Type A HEV TLEVs Sold}) \times (0.130)) + ((\text{No. of Type B HEV TLEVs Sold}) \times (0.145)) + ((\text{No. of Type C HEV TLEVs Sold}) \times (0.160)) + ((\text{No. of Type A HEV LEVs Sold}) \times (0.075)) + ((\text{No. of Type B HEV LEVs Sold}) \times (0.087)) + ((\text{No. of Type C HEV LEVs Sold}) \times (0.100)) + ((\text{No. of Type A HEV ULEVs Sold}) \times (0.025)) + ((\text{No. of Type B HEV ULEVs Sold}) \times (0.037)) + ((\text{No. of Type C HEV ULEVs Sold}) \times (0.050))}{1}$$

(iii)(A) For any model year in which a manufacturer certifies its entire fleet of light light-duty trucks from 3751-5750 lbs LVW to intermediate useful life NMOG emission standards specified in § 86.1709 that are less than or equal to the applicable fleet average NMOG requirements specified in Tables R99-15 and R99-16, the manufacturer may elect not to calculate a fleet average NMOG value for such vehicles for that model year.

(B) The fleet average NMOG value for a manufacturer electing under paragraph (a)(4)(iii)(A) of this section not to calculate a fleet average NMOG value shall be deemed to be the applicable fleet average NMOG standard specified in Table R99-15 or R99-16 for the applicable model year.

(C) A manufacturer making the election

under paragraph (a)(4)(iii)(A) of this section may not generate credits for that model year for light light-duty trucks from 3751-3750 lbs LVW.

(5)(i) The calculation of the fleet average NMOG value pursuant to paragraphs (a)(3) and (a)(4) of this section shall exclude ATVs, as defined in § 86.1702, purchased in the NTR by state governments. In determining the quantity of vehicles to be excluded from the NMOG calculations, a manufacturer shall only be required to exclude vehicles that are reported by the purchasing government in a timely letter, containing adequate information, directed to the representative of the manufacturer listed in the manufacturer's application for certification. Such letter shall be considered timely only if it is received no later than February 1 of the calendar year following the model year of the purchased vehicles.

(ii) Adequate information includes the number of vehicles purchased, vehicle makes and models, and the associated engine families. A copy of the letter should be sent to: Director, Vehicle Programs and Compliance Division, U.S. Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, Michigan, 48105.

(6) For any model year prior to model year 2001 for which a manufacturer meets the definition of "low volume manufacturer" in § 86.1702, it shall be exempt from the requirements in paragraph (a)(1) of this section. The requirements in paragraph (a)(1) of this section applicable to the 2001 and later model years shall apply to low volume manufacturers.

(b) Fleet average NMOG credit and debit calculations. (1) For each averaging set, as defined in § 86.1702, manufacturers that achieve fleet average NMOG values lower than the fleet average NMOG standard for the corresponding model year may generate credits.

(2) For each averaging set, manufacturers that obtain applicable fleet average NMOG values exceeding the fleet average NMOG standard for the corresponding model year shall generate debits.

(3) For each averaging set, credits and debits are to be calculated according to the following equation and rounded, in accordance with the Rounding-Off Method specified in ASTM E29-90, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications, which is incorporated by reference (see § 86.1), to the nearest whole number (intermediate calculations will not be rounded):

Number of Credits/Debits= $((\text{Applicable Fleet Average NMOG Standard}) - (\text{Manufacturer's Applicable Fleet Average NMOG Value})) \times (\text{Applicable Production})$ .

(4) For each applicable region and model year, a manufacturer's available credits or level of debits shall be the sum of credits or debits derived from the respective class A and class B averaging sets for that region and model year. Paragraph (d)(2)(ii)(C) of this section contains a special provision for manufacturers that end model year 2000 with a debit balance in the NTR.

(c) Fleet average NMOG credits. (1) Only credits generated in the NTR may be used to offset NMOG debits incurred in the NTR. Manufacturers may use in the ASTR credits generated in the NTR.

(2) Only after credits are earned may they be used, traded, or carried over to another model year. Before trading or carrying over credits to the next model year, a manufacturer must apply available credits to offset any of its debits from the same region, where the deadline to offset such debits has not yet passed.

(3) Credits earned in any given model year shall retain full value through the subsequent model year.

(4) Unused credits that are available at the end of the second, third, and fourth model years after the model year in which the credits were generated shall be discounted to 50%, 25%, and 0% of the original value of the credits, respectively. The discounting of credits also applies to credits transferred to other parties.

(5) Credits may not be used to remedy any nonconformities determined by a Selective Enforcement Audit, recall testing, or testing performed with respect to Title 13, Chapter 2, Articles 1 and 2 of the California Code of Regulations.

(6) Prior to model year 2001, low volume manufacturers may earn credits in the NTR to transfer to other motor vehicle manufacturers for use in the NTR or the ASTR, or to bank for their own use in the ASTR. Such credits will be calculated as set forth in paragraphs (a) and (b) of this section, except that the applicable fleet average NMOG standard shall be 0.25 g/mi NMOG for the averaging set for light light-duty trucks from 0-3750 lbs LVW and light-duty vehicles or 0.32 g/mi NMOG for the averaging set for light light-duty trucks from 3751-5750 lbs LVW. Credits shall be discounted in

accordance with the provisions in paragraph (c)(4) of this section.

(7) Prior to model year 2001, manufacturers may earn credits in the ASTR states that are not in the NTR and may bank those credits for use in the ASTR. Such credits will be calculated as set forth in paragraphs (a) and (b) of this section, except that the applicable fleet average NMOG standard shall be 0.25 g/mi NMOG for the averaging set for light light-duty trucks from 0-3750 lbs LVW and light-duty vehicles or 0.32 g/mi NMOG for the averaging set for light light-duty trucks from 3751-5750 lbs LVW, and "sold" shall mean sold in the ASTR states that are not in the NTR.

(i) Emission credits earned in the ASTR states outside the NTR prior to model year 2001 shall be treated as generated in model year 2001.

(ii) In the 2001 model year, a one-time discount rate of 10 percent shall be applied to all credits earned under the provisions of this paragraph (c)(7).

(iii) These credits shall be discounted in accordance with the provisions in paragraph (c)(4) of this section.

(8) Manufacturers may earn and bank credits in the NTR for model years 1997 and 1998. In states without a Section 177 Program effective in model year 1997 or 1998, such credits will be calculated as set forth in paragraphs (a) and (b) of this section, except that the applicable fleet average NMOG standard shall be 0.200 g/mi NMOG for the averaging set for light light-duty trucks from 0-3750 lbs LVW and light-duty vehicles or 0.256 g/mi NMOG for the averaging set for light light-duty trucks from 3751-5750 lbs LVW. In states that opt into National LEV and have a Section 177 Program effective in model year 1997 or 1998, such credits will equal the unused credits earned in those states.

(i) Emissions credits earned in the NTR prior to the 1999 model year shall be treated as generated in the 1999 model year.

(ii) In the 1999 model year, a one-time discount rate of 10 percent shall be applied to all credits earned under the provisions of this paragraph (c)(8).

(iii) These credits shall be discounted in accordance with the provisions in paragraph (c)(4) of this section.

(9) There are no property rights associated with credits generated under the provisions of this section. Credits are a limited authorization to emit the designated amount of emissions. Nothing in the

regulations or any other provision of law should be construed to limit EPA's authority to terminate or limit this authorization through a rulemaking. If EPA were to terminate or limit the authorization to emit associated with emissions credits generated under the provisions of this section, this paragraph (c)(9) would have no effect on manufacturers' ability to opt out of the National LEV program pursuant to § 86.1707.

(d) Fleet average NMOG debits. (1)

Manufacturers shall offset any debits for a given model year by the fleet average NMOG reporting deadline for the model year following the model year in which the debits were generated. Manufacturers may offset debits by generating credits or acquiring credits generated by another manufacturer. Only credits generated in the NTR may be used to offset NMOG debits generated in the NTR.

(2) The provisions of this paragraph (d)(2) apply only when a manufacturer has a debit balance in the NTR at the end of model year 2000.

Manufacturers shall offset any debits incurred in the NTR for model year 2000 by the fleet average NMOG reporting deadline for model year 2001.

(i) A manufacturer may offset debits generated in the NTR in model year 2000 either by generating credits in the NTR in model year 2001 or by applying NTR credits acquired under the provisions of this section.

(ii) If a manufacturer has a debit balance in the NTR at the end of model year 2000, then such manufacturer shall be required to calculate fleet average NMOG values for both the NTR and the ASTR for model year 2001.

(A) The NTR values shall be calculated according to paragraphs (a) and (b) of this section, with the fleet average NMOG standards equal to the standards for model year 2001 in the ASTR.

(B) If such a manufacturer has a credit balance in the NTR for model year 2001, before trading or carrying over credits to the next model year, the manufacturer must apply available NTR credits to offset its debits in the NTR.

(C) Notwithstanding paragraph (b)(4) of this section, for the ASTR and model year 2001, such a manufacturer's available credits or level of debits shall be the sum of credits or debits derived from the respective class A and class B averaging sets for the ASTR and model year 2001, minus any credits used pursuant to paragraph (d)(2)(ii)(B).

(iii) To transfer a credit as an NTR credit earned in model year 2001, a manufacturer must have

credits generated in the NTR based on separate fleet average NMOG values calculated for the NTR in model year 2001. In addition, the number of model year 2001 NTR credits available for a manufacturer to transfer cannot exceed the manufacturer's available number of model year 2001 ASTR credits. Any transferred model year 2001 NTR credits shall be deducted from the manufacturer's available model year 2001 ASTR credits.

(3)(i) Failure to meet the requirements of paragraphs (a) through (d) of this section within the required timeframe for offsetting debits will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the individual noncomplying vehicles not covered by the certificate shall be determined according to this section.

(ii) If debits are not offset within the specified time period, the number of vehicles not meeting the fleet average NMOG standards and not covered by the certificate shall be calculated by dividing the total amount of debits for the model year by the fleet average NMOG standard applicable for the model year and averaging set in which the debits were first incurred. If both averaging sets are in debit, any applicable credits will first be allocated between the averaging sets according to the manufacturer's expressed preferences. Then, the number of vehicles not covered by the certificate shall be calculated using the revised debit values.

(iii) EPA will determine the vehicles for which the condition on the certificate was not satisfied by designating vehicles in those engine families with the highest certification NMOG emission values first and continuing until a number of vehicles equal to the calculated number of noncomplying vehicles as determined above is reached. If this calculation determines that only a portion of vehicles in an engine family contribute to the debit situation, then EPA will designate actual vehicles in that engine family as not covered by the certificate, starting with the last vehicle produced and counting backwards.

(4) If a manufacturer opts out of the National LEV program pursuant to § 86.1707, the manufacturer continues to be responsible for offsetting any debits outstanding on the effective date of the opt-out within the required time period. Any failure to offset the debits will be considered to be a violation of paragraph (d)(1) of this section and may subject the manufacturer to an enforcement action for sale of vehicles not covered by a certificate, pursuant

to paragraph (d)(2) of this section.

(5) For purposes of calculating tolling of the statute of limitations, a violation of the requirements of paragraph (d)(1) of this section, a failure to satisfy the conditions upon which a certificate(s) was issued and hence a sale of vehicles not covered by the certificate, all occur upon the expiration of the deadline for offsetting debits specified in paragraph (d)(1) of this section.

(e) NMOG credit transfers. (1) EPA may reject NMOG credit transfers if the involved manufacturers fail to submit the credit transfer notification in the annual report.

(2) A manufacturer may not sell credits that are not available for sale pursuant to the provisions in paragraphs (c)(2) or (d)(2) of this section.

(3) Except in instances of fraud on the part of the credit recipient, where a manufacturer sells credits that were not available for sale, the credits shall be treated as valid, and the manufacturer that sold the credits shall be liable for any resulting shortfall.

(4)(i) If a manufacturer transfers a credit that it has not generated pursuant to paragraph (b) of this section or acquired from another party, the manufacturer will be considered to have generated a debit in the model year that the manufacturer transferred the credit. The manufacturer must offset such debits by the deadline for the annual report for that same model year.

(ii) Failure to offset the debits within the required time period will be considered a failure to satisfy the conditions upon which the certificate(s) was issued and will be addressed pursuant to paragraph (d)(3) of this section.

#### **§ 86.1711-99 Limitations on sale of Tier 1 vehicles and TLEVs.**

(a) In the 2001 and subsequent model years, manufacturers may sell Tier 1 vehicles and TLEVs in the NTR only if vehicles with the same engine families are certified and offered for sale in California in the same model year, except as provided under § 86.1705(e)(4).

(b) [Reserved]

#### **§ 86.1712-99 Maintenance of records; submittal of information.**

(a) Maintenance of records. (1) The manufacturer producing any light-duty vehicles

and/or light light-duty trucks subject to the provisions in this subpart shall establish, maintain, and retain the following information in adequately organized and indexed records for each averaging set of each model year:

- (i) Model year;
- (ii) Averaging set;
- (iii) Fleet average NMOG value achieved;

and

(iv) All values used in calculating the fleet average NMOG value achieved.

(2) The manufacturer producing any light-duty vehicles and/or light light-duty trucks subject to the provisions in this subpart shall establish, maintain, and retain the following information in adequately organized and indexed records for each vehicle or truck subject to this subpart:

- (i) Model year;
- (ii) Averaging set;
- (iii) EPA engine family, or if applicable for model year 1999 or 2000, the California engine family;

(iv) Assembly plant;

(v) Vehicle identification number;

(vi) NMOG standard to which the vehicle or truck is certified; and

(vii) Information on the point of first sale, including the purchaser, city, and state.

(3) The manufacturer shall retain all records required to be maintained under this section for a period of eight years from the due date for the annual report. Records may be retained as hard copy or reduced to microfilm, ADP diskettes, and so forth, depending on the manufacturer's record retention procedure; provided, that in every case all information contained in the hard copy is retained.

(4) Nothing in this section limits the Administrator's discretion to require the manufacturer to retain additional records or submit information not specifically required by this section.

(5) Pursuant to a request made by the Administrator, the manufacturer shall submit to the Administrator the information that the manufacturer is required to retain.

(6) EPA may void ab initio a certificate of conformity for a vehicle certified to National LEV certification standards as set forth or otherwise referenced in § 86.1708 or § 86.1709 for which the manufacturer fails to retain the records required in this section or to provide such information to the Administrator upon request.

(b) Reporting. (1) Each covered manufacturer shall submit an annual report. Except as provided in paragraph (b)(2) of this section, the annual report shall contain, for each averaging set, the fleet average NMOG value achieved, all values required to calculate the NMOG value, the number of credits generated or debits incurred, and all the values required to calculate the credits or debits. For each applicable region (NTR and ASTR), the annual report shall contain the resulting balance of credits or debits.

(2) When a manufacturer calculates compliance with the fleet average NMOG standards using the provisions in § 86.1710(a)(3)(iii) or § 86.1710(a)(4)(iii), then the annual report shall state that the manufacturer has elected to use such provision and shall contain, for each averaging set, the fleet average NMOG values as specified in § 86.1710(a)(3)(iii) or § 86.1710(a)(4)(iii).

(3) The annual report shall also include documentation on all credit transactions the manufacturer has engaged in since those included in the last report. Information for each transaction shall include:

- (i) Name of credit provider;
- (ii) Name of credit recipient;
- (iii) Date the transfer occurred;
- (iv) Quantity of credits transferred;
- (v) Model year in which the credits were earned; and
- (vi) Region (NTR or ASTR) to which the credits belong.

(4) Unless a manufacturer reports the data required by this section in the annual production report required under § 86.085-37(b) and subsequent model year provisions, a manufacturer shall submit an annual report for each model year after production ends for all affected vehicles and trucks produced by the manufacturer subject to the provisions of this subpart and no later than May 1 of the calendar year following the given model year. Annual reports shall be submitted to: Director, Vehicle Programs and Compliance Division, U.S. Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, Michigan, 48105.

(5) Failure by a manufacturer to submit the annual report in the specified time period for all vehicles and trucks subject to the provisions in this section is a violation of section 203(a)(1) of the Clean Air Act for each subject vehicle and truck produced by that manufacturer.

(6) If EPA or the manufacturer determines

that a reporting error occurred on an annual report previously submitted to EPA, the manufacturer's credit or debit calculations will be recalculated. EPA may void erroneous credits, unless transferred, and shall adjust erroneous debits. In the case of transferred erroneous credits, EPA shall adjust the manufacturer's credit or debit balance to reflect the sale of such credits and any resulting generation of debits.

(c) Notice of opportunity for hearing. Any voiding of the certificate under paragraph (a)(6) of this section will be made only after EPA has offered the manufacturer concerned an opportunity for a hearing conducted in accordance with § 86.614 for light-duty vehicles or § 86.1014 for light-duty trucks and, if a manufacturer requests such a hearing, will be made only after an initial decision by the Presiding Officer.

#### **§ 86.1713-99 Light-duty exhaust durability programs.**

The provisions of § 86.094-13 and subsequent model year provisions apply to this subpart, except that: Section 86.094-13(f) and subsequent model year provisions does not apply to this subpart.

#### **§ 86.1714-99 Small volume manufacturers certification procedures.**

The provisions of § 86.096-14 and subsequent model year provisions apply to this subpart, except that: Section 86.096-14(c)(7)(i)(A) and subsequent model year provisions does not apply to this subpart.

#### **§ 86.1715-97 [Reserved]**

#### **§ 86.1716-99 Prohibition of defeat devices.**

(a) The provisions of § 86.094-16 and subsequent model year provisions apply to this subpart.

(b) [Reserved]

#### **§ 86.1717-99 Emission control diagnostic system for 1999 and later light-duty vehicles and light-duty trucks.**

(a) The provisions of § 86.094-17 and subsequent model year provisions do not apply to this

subpart.

(b) The requirements in Chapter 6 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996) (these requirements are incorporated by reference; see § 86.1) apply to this subpart.

(c) No vehicle shall be certified under the provisions of this subpart unless such vehicle complies with the requirements of section 202(m)(1), (2), (4), and (5) of the Clean Air Act (42 U.S.C. 7521(m)(1), (2), (4) and (5)).

#### **§ 86.1718-97 through § 86.1720-97 [Reserved]**

#### **§ 86.1721-99 Application for certification.**

The provisions of § 86.096-21 and subsequent model year provisions apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.096-21(b)(2) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) For TLEVs, LEVs, and ULEVs not certified exclusively on gasoline, projected U.S. sales data and fuel economy data 19 months prior to January 1 of the calendar year with the same numerical designation as the model year for which the vehicles are certified, and projected U.S. sales data for all vehicles, regardless of operating fuel or vehicle emission category, sufficient to enable the Administrator to select a test fleet representative of the vehicles (or engines) for which certification is requested at the time of certification.

(2) [Reserved]

(b) For ZEVs and hybrid electric vehicles, the certification application shall include the following:

(1) Identification and description of the vehicle(s) covered by the application.

(2) Identification of the vehicle weight category to which the vehicle is certifying: LDV, LDT 0-3750 lbs LVW, LDT 3751-5750 lbs LVW (state test weight range), and the curb weight and gross vehicle weight rating of the vehicle.

(3) Identification and description of the propulsion system for the vehicle.

(4) Identification and description of the climate control system used on the vehicle.

(5) Projected number of vehicles sold in the U.S., and projected U.S. sales.

(6) For electric and hybrid electric vehicles,

identification of the energy usage in kilowatt-hours per mile from the point when electricity is introduced from the electrical outlet and the operating range in miles of the vehicle when tested in accordance with the All- Electric Range Test provisions in § 86.1770.

(7) If the vehicle is equipped with a fuel fired heater, a description of the control system logic of the fuel fired heater, including an evaluation of the conditions under which the fuel fired heater can be operated and an evaluation of the possible operational modes and conditions under which evaporative emissions can exist. Vehicles which utilize fuel fired heaters which can be operated at ambient temperatures above 40 deg. F or which cannot be demonstrated to have zero evaporative emissions under any and all possible operation modes and conditions shall not be certified as ZEVs.

(8) For ZEVs and HEVs which use fuel fired heaters, the manufacturer shall provide the exhaust emissions value per mile produced by the auxiliary fuel fired heater. This shall be accomplished by determining heater emissions in grams per minute when operating at a maximum heating capacity for a period of 20 minutes, and multiplying that number by 3.6 minutes per mile. At the time of certification, manufacturers shall submit their test plan which describes the procedure used to determine the mass emissions of the fuel fired heater.

(9) All information necessary for proper and safe operation of the vehicle, including information on the safe handling of the battery system, emergency procedures to follow in the event of battery leakage or other malfunctions that may affect the safety of the vehicle operator or laboratory personnel, method for determining battery state- of-charge, battery charging capacity and recharging procedures, and any other relevant information as determined by the Administrator.

(c) For all vehicles subject to the provisions of § 86.1717, with its application for certification a description of the malfunction and diagnostic system to be installed on the vehicles. (The vehicles shall not be certified unless the Administrator finds that the malfunction and diagnostic system complies with the requirements of § 86.1717.).

#### **§ 86.1722-97 [Reserved]**

#### **§ 86.1723-99 Required data.**

The provisions of § 86.096-23 and subsequent model year provisions apply to this

subpart, with the following exceptions and additions:

(a) The provisions of § 86.096-23(c)(1) and subsequent model year provisions apply to this subpart, with the following addition:

(1) For all TLEVs, LEVs, and ULEVs certifying on a fuel other than conventional gasoline, manufacturers shall multiply the NMOG exhaust certification level for each emission-data vehicle by the appropriate reactivity adjustment factor listed in § 86.1777(d)(2)(i) or established by the Administrator pursuant to Appendix XVII of this part to demonstrate compliance with the applicable NMOG emission standard. For all TLEVs, LEVs, and ULEVs certifying on natural gas, manufacturers shall multiply the NMOG exhaust certification level for each emission-data vehicle by the appropriate reactivity adjustment factor listed in § 86.1777(d)(2)(i) or established by the Administrator pursuant to Appendix XVII of this part and add that value to the product of the methane exhaust certification level for each emission-data vehicle and the appropriate methane reactivity adjustment factor listed in § 86.1777(d)(2)(ii) or established by the Administrator pursuant to Appendix XVII of this part to demonstrate compliance with the applicable NMOG emission standard. Manufacturers requesting to certify to existing standards utilizing an adjustment factor unique to its vehicle/fuel system must follow the data requirements described in Appendix XVII of this part. A separate formaldehyde exhaust certification level shall also be provided for demonstrating compliance with emission standards for formaldehyde.

(2) [Reserved]

(b) The provisions of § 86.096-23(l) introductory text and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) Additionally, manufacturers certifying vehicles shall submit for each model year 2001 through 2004 light-duty vehicle and light light-duty truck engine family, the information listed in § 86.096-23(l)(1) and (2). If applicable, manufacturers shall also submit "Alternative or Equivalent Phase-in Schedules" before or during calendar year 2001 for light-duty vehicles and light light-duty trucks.

(2) [Reserved]

(c) In addition to the provisions of § 86.096-23 and subsequent model year provisions, the following requirements shall apply to this subpart:

(1) For each engine family certified to TLEV, LEV, or ULEV standards, manufacturers

shall submit with the certification application, an engineering evaluation demonstrating that a discontinuity in emissions of non-methane organic gases, carbon monoxide, oxides of nitrogen and formaldehyde measured on the Federal Test Procedure (subpart B of this part) does not occur in the temperature range of 20 to 86 deg F. For diesel vehicles, the engineering evaluation shall also include particulate emissions.

(2) [Reserved]

#### **§ 86.1724-99 Test vehicles and engines.**

(a) The provisions of § 86.096-24(a)(1) and subsequent model year provisions apply to this subpart, with the following addition:

(1) All engines classified in the same engine family shall be certified to identical exhaust emission standards.

(2) [Reserved]

(b) The provisions of § 86.096-24(b) and subsequent model year provisions apply to this subpart with the following additions:

(1) For TLEVs, LEVs, ULEVs, and ZEVs certifying according to the provisions of this subpart, a manufacturer may substitute emission data vehicles selected by the California Air Resources Board criteria instead of using the criteria specified in § 86.096-24(b)(1) (i), (ii), and (iv) and subsequent model year provisions.

(2) For vehicles certified to the SFTP exhaust emission standards, if air conditioning is projected to be available on any vehicles within the engine family, the selection of engine codes will be limited selections which have air conditioning available and would require that any vehicle selected under this section has air conditioning installed and operational.

#### **§ 86.1725-99 Maintenance.**

The provisions of § 86.094-25 and subsequent model year provisions apply to this subpart, with the following additions:

(a) Hybrid electric vehicles that use Otto-cycle or diesel engines are subject to the applicable Otto-cycle or diesel engine maintenance requirements of § 86.094-25 (b) through (e) and subsequent model year provisions.

(b) Manufacturers of series hybrid electric vehicles and parallel hybrid electric vehicles shall be required to incorporate into the vehicles a separate



odometer or other device subject to the approval of the Administrator that can accurately gauge the mileage accumulation on the engines that are used in these vehicles.

(c)(1) The manufacturer shall equip the vehicle with a maintenance indicator consisting of a light that shall activate automatically by illuminating the first time the minimum performance level is observed for all battery system components. Possible battery system components requiring monitoring are:

- (i) Battery water level;
- (ii) Temperature control;
- (iii) Pressure control;
- (iv) Other parameters critical for

determining battery condition.

(2) The manufacturer of a hybrid electric vehicle shall equip the vehicle with a useful life indicator for the battery system consisting of a light that shall illuminate the first time the battery system is unable to achieve an all-electric operating range (starting from a full state-of-charge) that is at least 75% of the range determined for the vehicle in the All-Electric Range Test (see § 86.1770) and submitted in the certification application.

(3) Hybrid electric vehicle battery system. Manufacturers shall maintain the battery system according to the requirements in paragraph (c)(1) of this section.

(d) When air conditioning SFTP exhaust emission tests are required, the manufacturer must document that the vehicle's air conditioning system is operating properly and that system parameters are within operating design specifications prior to testing. Required air conditioning system maintenance is performed as unscheduled maintenance that does not require the Administrator's approval.

### **§ 86.1726-99 Mileage and service accumulation; emission measurements.**

The provisions of § 86.096-26 and subsequent model year provisions apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.096-26(a)(1) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) Section 86.096-26(a) and subsequent model year provisions applies to light-duty vehicles and light-duty trucks, except ZEVs which shall be exempt from all mileage and service accumulation,

durability- data vehicle, and emission-data vehicle testing requirements.

(2) [Reserved]

(b) The provisions of § 86.096-26(a)(2) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) The procedure for mileage accumulation shall be the Durability Driving Schedule as specified in Appendix IV of this part. A modified procedure (Alternative Service Accumulation Durability Program, § 86.094-13(e) and subsequent model year provisions) may also be used if approved in advance by the Administrator. All light-duty vehicles and light-duty trucks shall accumulate mileage at a measured curb weight that is within 100 pounds of the estimated curb weight. If the vehicle weight is within 100 pounds of being included in the next higher inertia weight class as specified in § 86.129, the manufacturer may elect to conduct the respective emission tests at the higher weight. All mileage accumulation of hybrid electric vehicles shall be conducted with the battery pack at the manufacturer's indicated lowest state-of-charge at the beginning of the test cycle. At no time throughout mileage accumulation shall the battery pack be charged using any off-board charging source.

(2) [Reserved]

(c) The provisions of § 86.096-26(a)(3)(i) and (ii) and subsequent model year provisions apply to this subpart, with the following addition:

(1) For vehicles certified to the SFTP exhaust emission standards, complete exhaust emission tests will include both the FTP and the SFTP tests. The Administrator will accept the manufacturer's determination of the mileage at which the engine-system combination is stabilized for emission data testing if (prior to testing) a manufacturer determines that the interval chosen yields emissions performance that is stable and representative of design intent. Sufficient mileage should be accumulated to reduce the possible effects of any emissions variability that is the result of insufficient vehicle operation. Of primary importance in making this determination is the behavior of the catalyst, EGR valve, trap oxidizer or any other part of the ECS which may have non-linear aging characteristics. In the alternative, the manufacturer may elect to accumulate 4,000 mile +/- 250 mile on each test vehicle within an engine family without making a determination.

(2) [Reserved]

(d) The provisions of § 86.096-26(a)(4)(i) and (ii) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) For Otto-cycle and diesel vehicles and battery assisted combustion engine vehicles that use Otto-cycle or diesel engines:

(i) Prior to initiation of mileage accumulation in a durability- data vehicle, manufacturers must establish the mileage test interval for durability-data vehicle testing of the engine family. Once testing has begun on a durability-data vehicle, the durability test interval for that family may not be changed. At a minimum, multiple tests must be performed at 5,000 miles, 50,000 miles, and the final mileage point as long as they meet the requirements of Appendix XV of this part. The Administrator will accept durability test interval schedules determined by the manufacturer. The testing must provide a DF confidence level equal to or better than the confidence level using the former fixed mileage test and scheduled maintenance intervals. The procedure for making this determination is specified in Appendix XV of this part. The mileage intervals between test points must be approximately of equal length. The  $\pm 250$  mile test point tolerance and the requirement that tests be conducted before and after scheduled maintenance is still mandatory. Emission control systems for Otto-cycle engines that have step function changes designed into the control system must use the 5,000 mile test interval schedule.

(ii) Testing before and after scheduled (or unscheduled) maintenance points must be conducted, and these data are to be included in the deterioration factor calculation. Testing before unscheduled maintenance may be omitted with the prior consent of the Administrator when testing would be dangerous to a vehicle or an operator. The number of tests before and after scheduled maintenance and the mileage intervals between test points should be approximately equal. Durability test interval schedules with multiple testing at test points within 10,000 miles of or at the 50,000 mile and the final mileage test point must be submitted for approval. Multiple testing at maintenance mileage tests points within 10,000 miles of the 50,000 mile and the final mileage test points may be approved if it can be demonstrated by previously generated data that the emission effects of the maintenance are insignificant.

(iii) For engine families that are to be certified to the full useful life emission standards,

each exhaust emission durability-data vehicle shall be driven with all emission control systems installed and operating, for the full useful life or such lesser distance as the Administrator may agree to as meeting the objective of this procedure. Durability tests shall be at every 5,000 miles, from 5,000 miles to the full useful life, however, the above procedures may be used to determine alternate test intervals subject to the following:

(A) For engine families that are to be certified to the full useful life emission standards, durability vehicles may accumulate less than the full useful life if the manufacturer submits other data or information sufficient to demonstrate that the vehicle is capable of meeting the applicable emission standards for the full useful life. At a minimum, 75% of the full useful life shall be accumulated.

(B) For the purpose of conducting mileage accumulation on light- duty hybrid electric vehicles, the full useful life of the auxiliary power unit shall be defined as 50,000 miles for a Type A hybrid electric vehicle, 75,000 miles for a Type B hybrid electric vehicle, and 100,000 miles for a Type C hybrid electric vehicle.

(iv) Alternative durability plans may also be used if the manufacturer provides a demonstration that the alternative plan provides equal or greater confidence that the vehicles will comply in- use with the emission standards. All alternative durability plans are subject to approval in advance by the Administrator.

(2) For diesel vehicles equipped with periodically regenerating trap oxidizer systems, at least four regeneration emission tests (see §§ 86.106 through 86.145) shall be made. The pollutant mass emission calculation procedures for vehicles equipped with periodically regenerating trap oxidizer systems are included in Appendix XVI of this part. With the advance approval of the Administrator, the manufacturer may install: A manual override switch capable of preventing (i.e., delaying until the switch is turned off) the start of the regeneration process; and a light which indicates when the system would initiate regeneration if it had no override switch. Upon activation of the override switch the vehicle will be operated on a dynamometer to precondition it for the regeneration emission test in accordance with §§ 86.132 and 86.1772. The Urban Dynamometer Driving Schedule (UDDS) that is in progress at the time when the light comes on shall be completed and the vehicle shall proceed to the prescribed soak period followed by testing. With the advance

approval of the Administrator, the manual override switch will be turned off at some predetermined point in the testing sequence, permitting the regeneration process to proceed without further manual interaction. The mileage intervals between test points shall be approximately equal. The first regeneration emission test shall be made at the 5,000 mile point. The regeneration emission tests must provide a deterioration factor confidence level equal to or better than the confidence level achieved by performing regeneration emission tests at the following mileage points: 5,000; 25,000; 50,000; 75,000; and 100,000. The procedure for making this determination is shown in Appendix XV of this part.

(3) For gasoline-, gaseous-, and alcohol-fueled vehicles that are certified by a whole-vehicle durability protocol, the specified evaporative durability test points are at 5,000, 40,000, 75,000, and 100,000 miles. These requirements are also applicable to hybrid electric vehicles. With the exception of flexible-fuel vehicles, a manufacturer may conduct evaporative testing at test points used for exhaust emission durability testing, provided that the same deterioration confidence level for the evaporative emission DF determination is retained (see Appendix XIV of this part).

(4) For flexible-fuel vehicles certifying to TLEV, LEV, or ULEV standards, the test schedule shall include exhaust emission tests at 5,000 miles, 10,000 miles, and every 10,000 miles thereafter to the final mileage point using M85 or E85 and certification gasoline. For all flexible-fuel vehicles, if evaporative emission testing is conducted, exhaust and evaporative emission tests shall also be conducted using M35 or E10, or another approved fuel, at the mileage points where M85 or E85 testing is conducted. The results of these exhaust and evaporative emission tests will be used by the Administrator to evaluate the vehicle's emission control deterioration with various fuels (M85, M35, and unleaded gasoline; See fuel specifications in § 86.1771). Only the M85 or E85 and certification gasoline exhaust emission results and the M35 or E10 evaporative emission results will be used to determine applicable exhaust and evaporative emission deterioration factors, respectively, as required in § 86.1728 (Compliance with Emission Standards).

(e) The provisions of § 86.096-26(a)(5)(i) and subsequent model year provisions apply to this subpart, with the following addition:

(1) In addition, the emission tests performed on emission-data vehicles and durability-data vehicles shall be non-regeneration emission tests for diesel light-duty vehicles and light-duty trucks equipped with periodically regenerating trap oxidizer systems. For any of these vehicles equipped with continually regenerating trap oxidizer systems, manufacturers may use the provisions applicable to periodically regenerating trap oxidizer systems as an option. If such an option is elected, all references in these procedures to vehicles equipped with periodically regenerating trap oxidizer systems shall be applicable to the vehicles equipped with continually regenerating trap oxidizer systems.

(2) [Reserved]

(f) The provisions of § 86.096-26(a)(8) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) Once a manufacturer submits the information required in § 86.096-26(a)(7) and subsequent model year provisions for a durability-data vehicle, the manufacturer shall continue to run the vehicle to 50,000 miles if the family is certified to 50,000 mile emission standards or to the full useful life if it is certified to emission standards beyond 50,000 miles (or to a lesser distance that the Administrator may have previously agreed to), and the data from the vehicle will be used in the calculations under § 86.094-28 and subsequent model year provisions. Discontinuation of a durability-data vehicle shall be allowed only with the consent of the Administrator.

(2) [Reserved]

(g) The provisions of § 86.096-26(b) and subsequent model year provisions do not apply to this subpart.

(h)(1) The exhaust emissions shall be measured from all exhaust emission data vehicles tested in accordance with the federal Highway Fuel Economy Test (HWFET; 40 CFR part 600, subpart B). The oxides of nitrogen emissions measured during such tests shall be multiplied by the oxides of nitrogen deterioration factor computed in accordance with § 86.094-28 and subsequent model year provisions, and then rounded and compared with the applicable emission standard in §§ 86.1708 and 86.1709. All data obtained pursuant to this paragraph (h)(1) shall be reported in accordance with procedures applicable to other exhaust emissions data required pursuant to these procedures. Hybrid electric vehicles shall be tested with the battery

state-of-charge set such that one of the following two conditions is satisfied:

- (i) The state-of-charge is at the lowest level allowed by the control unit of the auxiliary power unit; or
- (ii) The state-of-charge is set such that auxiliary power unit operation will be at its maximum level at the beginning and throughout the emission test.

(2) In the event that one or more of the manufacturer's emission data vehicles fail the applicable HWFET standard in §§ 86.1708 and 86.1709, the manufacturer may submit to the Administrator engineering data or other evidence showing that the system is capable of complying with the standard. If the Administrator finds, on the basis of an engineering evaluation, that the system can comply with the HWFET standard, he or she may accept the information supplied by the manufacturer in lieu of vehicle test data.

**§ 86.1727-97 [Reserved]**

**§ 86.1728-99 Compliance with emission standards.**

The provisions of § 86.094-28 and subsequent model year provisions apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.094-28(a)(1) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) The provisions of § 86.094-28(a) and subsequent model year provisions apply to light-duty vehicles and light light-duty trucks, except ZEVs.

(2) [Reserved]

(b) The provisions of § 86.094-28(a)(4)(i) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) Separate emission deterioration factors shall be determined from the exhaust emission results of the durability-data vehicle(s) for each engine-system combination. A separate factor shall be established for exhaust HC (non-alcohol vehicles, non-TLEVs, non-LEVs, and non-ULEVs), exhaust OMHCE or OMNMHCE (alcohol vehicles that are not TLEVs, LEVs, or ULEVs), exhaust NMOG (all TLEVs, LEVs, ULEVs), exhaust formaldehyde (alcohol vehicles, TLEVs, LEVs, ULEVs), exhaust CO, exhaust NO<sub>x</sub>, and exhaust particulate (diesel

vehicles only) for each engine-system combination. A separate evaporative emission deterioration factor shall be determined for each evaporative emission family-evaporative emission control system combination from the testing conducted by the manufacturer (gasoline- and alcohol-fueled vehicles only). Separate emission correction factors (diesel light-duty vehicles and light-duty trucks equipped with periodically regenerating trap oxidizer systems only) shall be determined from the exhaust emission results of the durability-data vehicle(s) for each engine-system combination. A separate factor shall be established for exhaust HC (non-alcohol vehicles, non-TLEVs, non-LEVs, and non-ULEVs), exhaust OMHCE or OMNMHCE (alcohol vehicles that are not TLEVs, LEVs, or ULEVs), exhaust NMOG (TLEVs, LEVs, ULEVs), exhaust CO, exhaust NO<sub>x</sub>, and exhaust particulate for each engine-system combination.

(2) [Reserved]

(c) The provisions of § 86.094-28(a)(4)(i)(A)(4) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) The manufacturer must use the outlier identification procedure set forth in Appendix VIII of this part to test for irregular data from a durability-data set. If any data point is identified as a statistical outlier, the Administrator shall determine, on the basis of an engineering analysis of the causes of the outlier submitted by the manufacturer, whether the outlier is to be rejected. The outlier shall be rejected only if the Administrator determines that the outlier does not reflect representative characteristics of the emission control system, i.e., the outlier is a result of an emission control system anomaly, test procedure error, or an extraordinary circumstance not expected to recur. Only the identified outlier shall be eliminated; other data at that test point (i.e., data for other pollutants) shall not be eliminated unless the Administrator determines, based on the engineering analysis, that they also do not reflect representative characteristics of the emission control system. Where the manufacturer chooses to apply both the outlier procedure and averaging to the same data set, the outlier procedure shall be completed prior to applying the averaging procedure. All durability test data, including any outliers and the manufacturer's engineering analysis, shall be submitted with the final application.

(2) [Reserved]

(d) The provisions of §

86.094-28(a)(4)(i)(B) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) All applicable exhaust emission results shall be plotted as a function of the mileage on the system, rounded to the nearest mile, and the best fit straight lines, fitted by the method of least squares, shall be drawn through all these data points. The emission data will be acceptable for use in the calculation of the deterioration factor only if the interpolated 4,000-mile, 50,000-mile, and full useful life points on this line are within the applicable emission standards in §§ 86.1708 and 86.1709. For hybrid electric vehicles, the emission data will be acceptable for use in the calculation of the deterioration factor only if the engine mileage points corresponding to the interpolated 4,000 mile, 50,000 mile, and full useful life points of the vehicle on this line are within the applicable emission standards in §§ 86.1708 and 86.1709. The engine mileage points shall be determined based on the test schedule submitted to the Administrator as required in § 86.096-26. As an exception, the Administrator will review the data on a case-by- case basis and may approve its use in those instances where the best fit straight line crosses an applicable standard but no data point exceeds the standard or when the best fit straight line crosses the applicable standard at the 4,000-mile point but the 5,000-mile actual test point and the 50,000 mile and full useful life interpolated points are both below the standards. A multiplicative exhaust emission deterioration factor shall be calculated for each engine system combination as follows:

(i) For engine families certified to 50,000 mile emissions standards:

Factor=Exhaust emissions interpolated to 50,000 miles divided by exhaust emissions interpolated to 4,000 miles.

(ii) For engine families certified to full useful life emissions standards beyond 50,000 miles:

Factor = Exhaust emissions interpolated to the full useful life divided by exhaust emissions interpolated to 4,000 miles.

(2) [Reserved]

(e) The following requirements shall be in addition to the provisions of § 86.094-28(a)(4) and subsequent model year provisions:

(1)(i) The regeneration exhaust emission data (diesel light-duty vehicles and light-duty trucks equipped with periodically regenerating trap oxidizer systems only) from the tests required under § 86.096-26(a)(4) and subsequent model year provisions shall be used to determine the regeneration exhaust emissions interpolated to the 50,000-mile point. The regeneration exhaust emission results shall be plotted as a function of the mileage on the system, rounded to the nearest mile, and the best fit straight lines, fitted by the method of least squares, shall be drawn through all these data points. The interpolated 50,000-mile point of this line shall be used to calculate the multiplicative exhaust emission correction factor for each engine- system combination as follows:

$$\text{Factor} = 1 + \frac{R-1}{4505} n$$

where:

R = the ratio of the regeneration exhaust emissions interpolated to 50,000 miles to the non-regeneration exhaust emissions interpolated to 50,000 miles. n = the number of complete regenerations which occur during the durability test.

(ii) The interpolated values determined in paragraph (e)(1)(i) of this section shall be carried out to a minimum of four places to the right of the decimal point before dividing one by the other to determine the correction factor. The results shall be rounded to three places to the right of the decimal point in accordance with the Rounding-Off Method specified in ASTM E 29-90, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (incorporated by reference; see § 86.1). For applicability to gaseous emission standards under the 100,000 mile option, R will be determined based upon projected 100,000 mile emissions.

(2) [Reserved]

(f) The provisions of § 86.094-28(a)(4)(ii)(A) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) The official exhaust emission test results for each emission- data vehicle at the 4,000 mile test point shall be multiplied by the appropriate deterioration factor, and correction factor (diesel light- duty vehicles and light-duty trucks equipped

with periodically regenerating trap oxidizer systems only): Provided: that if a deterioration factor as computed in § 86.094-28(a)(4)(i)(B) and subsequent model year provisions or a correction factor as computed in paragraph (e) of this section is less than one, that deterioration factor or correction factor shall be one for the purposes of this paragraph (f).

(2) [Reserved]

(g) The provisions of § 86.094-28(a)(4)(iii) and subsequent model year provisions do not apply to this subpart. The following shall instead apply to this subpart:

(1) The emissions to compare with the standard (or the family particulate emission limit, as appropriate) shall be the adjusted emissions of § 86.094-28(a)(4)(ii)(A) and (B) and subsequent model year provisions for each emission-data vehicle. Before any emission value is compared with the standard (or the family particulate limit, as appropriate), it shall be rounded to one significant figure beyond the number of significant figures contained in the standard (or the family particulate emission limit, as appropriate) in accordance with the Rounding-Off Method specified in ASTM E 29-90, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (incorporated by reference; see § 86.1). The rounded emission values may not exceed the standard (or the family particulate emission limit, as appropriate). Fleet average NMOG value calculations shall be rounded to four significant figures in accordance with the Rounding-Off Method specified in ASTM E 29-90, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (incorporated by reference; see § 86.1) before comparing with fleet average NMOG requirements.

(2) [Reserved]

(h) The provisions of § 86.094-28(b) and subsequent model year provisions do not apply to this subpart.

**§ 86.1729-97 through § 86.1733-97 [Reserved]**

**§ 86.1734-99 Alternative procedure for notification of additions and changes.**

The provisions of § 86.082-34 and subsequent model year provisions apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.082-34(a) and subsequent model year provisions apply to this

subpart, with the following addition:

(1) A manufacturer must notify the Administrator within 10 working days of making an addition of a vehicle to a certified engine family or a change in a vehicle previously covered by certification. The manufacturer shall also submit, upon request of the Administrator, the following items:

- (i) service bulletin;
- (ii) driveability statement;
- (iii) test log;
- (iv) maintenance log.

(2) All running changes and field fixes that do not adversely affect the system durability are deemed approved unless disapproved by the Administrator within 30 days of the receipt of the running change or field fix request. A change not specifically identified in the manufacturer's application must also be reported to the Administrator if the change may adversely affect engine or emission control system durability. Examples of such changes include any change that could affect durability, thermal characteristics, deposit formation, or exhaust product composition, i.e., combustion chamber design, cylinder head material, camshaft profile, computer modifications, turbocharger, intercooler wastegate characteristics, and transmission or torque converter specifications. The manufacturer is required to update and submit to the Administrator the "supplemental data sheet" for all running changes and field fixes implemented with the change notification. The manufacturer shall submit, on a monthly basis, by engine family, a list of running changes/field fixes giving the document number date submitted and a brief description of the change.

(b) [Reserved]

**§ 86.1735-99 Labeling.**

The following requirements shall apply to TLEVs, LEVs, ULEVs, and ZEVs certified under the provisions of this subpart:

(a) The requirements in § 86.096-35 and subsequent model year provisions do not apply to this section.

(b) The requirements in Chapter 7 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996) shall apply. These requirements are incorporated by reference (see § 86.1).

§ 86.1736-97 through § 86.1769-97 [Reserved]

§ 86.1770-99 All-Electric Range Test requirements.

(a) ZEVs and Type A and Type B hybrid electric vehicles shall be subject to the All-Electric Range Test specified below for the purpose of determining the energy efficiency and operating range of a ZEV or of a hybrid electric vehicle operating without the use of its auxiliary power unit. For hybrid electric vehicles, the manufacturer may elect to conduct the All-Electric Range Test prior to vehicle preconditioning in the exhaust and evaporative emission test sequence specified in subpart B of this part.

(1) Cold soak. The vehicle shall be stored at an ambient temperature not less than 68 deg. F (20 deg. C) and not more than 86 deg. F (30 deg. C) for 12 to 36 hours. During this time, the vehicle's battery shall be charged to a full state-of-charge.

(2) Driving schedule.

(i) Determination of All-Electric Range-- Highway. At the end of the cold soak period, the vehicle shall be placed, either driven or pushed, onto a dynamometer and operated through an Urban Dynamometer Driving Schedule, found in 40 CFR part 86, Appendix I, until the vehicle is no longer able to maintain within 5 miles per hour of the speed requirements or within 2 seconds of the time requirements of the driving schedule. For hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

(ii) Determination of All-Electric Range-- Urban. At the end of the cold soak period, the vehicle shall be placed, either driven or pushed, onto a dynamometer and operated through a Highway Fuel Economy Driving Schedule, found in 40 CFR part 600, Appendix I, until the vehicle is no longer able to maintain within 5 miles per hour of the speed requirements or within 2 seconds of the time requirements of the driving schedule. For hybrid electric vehicles, this determination shall be performed without the use of the auxiliary power unit.

(3) Recording requirements. Once the vehicle is no longer able to maintain the speed and time requirements specified in paragraph (a)(2) of this section, or once the auxiliary power unit turns on, in the case of a hybrid electric vehicle, the accumulated mileage and energy usage of the vehicle

from the point where electricity is introduced from the electrical outlet shall be recorded, and the vehicle shall be brought to an immediate stop, thereby concluding the All-Electric Range Test.

(4) Regenerative braking. Regenerative braking systems may be utilized during the range test. The braking level, if adjustable, shall be set according to the manufacturer's specifications prior to the commencement of the test. The driving schedule speed and time tolerances specified in paragraph (a)(2) of this section shall not be exceeded due to the operation of the regenerative braking system.

(b) [Reserved]

§ 86.1771-99 Fuel specifications.

(a) The provisions of § 86.113 apply to this subpart, with the following exceptions and additions.

(1) For light-duty vehicles and light light-duty trucks, gasoline having the specifications listed below may be used in exhaust emission testing as an option to the specifications in § 86.113(a)(1). If a manufacturer elects to utilize this option, exhaust emission testing shall be conducted by the manufacturer with gasoline having the specifications listed in the table in this paragraph (a)(1), and the Administrator shall conduct exhaust emission testing with gasoline having the specifications listed in the table in this paragraph (a)(1). Specifications for non-gasoline fuels and all fuel property test methods are contained in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1). The table follows:

<u>Fuel Property</u>	<u>Limit</u>
Octane, (R+M)/2 (min)	91
Sensitivity (min)	7.5
Lead, g/gal (max) (No lead added)	0-0.01
Distillation Range, °F	
10 pct. point,	130-150
50 pct. point,	200-210
90 pct. point,	290-300
EP, maximum	390
Residue, vol% (max)	2.0
Sulfur, ppm by wt.	30-40

Phosphorous, g/gal (max)	0.005
RVP, psi	6.7-7.0
Olefins, vol %	4.0-6.0
Total Aromatic Hydrocarbons (vol%)	22-25
Benzene, vol %	0.8-1.0
Multi-Substituted Alkyl Aromatic Hydrocarbons, vol %	12-14
MTBE, vol %	10.8-11.2
Additives :	See Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These procedures are incorporated by reference (see § 86.1).
Copper Corrosion	No. 1
Gum, Washed, mg/100 ml (max)	3.0
Oxidation Stability, minutes (min)	1000
Specific Gravity	No limit; report to purchaser required
Heat of Combustion	No limit; report to purchaser required
Carbon, wt%	No limit; report to purchaser required
Hydrogen, wt%	No limit; report to purchaser required

(2) [Reserved]

(b) [Reserved]

**§ 86.1772-99 Road load power, test weight, and inertia weight class determination.**

(a) The provisions of § 86.129 apply to this subpart.

(b) The following requirements shall also apply to this subpart:

(1) For electric and hybrid electric vehicle lines where it is expected that more than 33 percent of a vehicle line will be equipped with air conditioning, per § 86.096-24(g)(2), that derives power from the battery pack, the road load shall be increased by the incremental horsepower required to operate the air conditioning unit. The incremental

increase shall be determined by recording the difference in energy required for a hybrid electric vehicle under all-electric power to complete the running loss test fuel tank temperature profile test sequence without air conditioning and the same vehicle tested over the running loss test fuel tank temperature profile test sequence with the air conditioning set to the “NORMAL” air conditioning mode and adjusted to the minimum discharge air temperature and high fan speed over the time period needed to perform the test sequence, and converting this value into units of horsepower. Vehicles equipped with automatic temperature controlled air conditioning systems shall be operated in “AUTOMATIC” temperature and fan modes with the system set at 72 deg. F. The running loss test fuel tank temperature profile test sequence is found in § 86.129(d).

(2) [Reserved]

**§ 86.1773-99 Test sequence; general requirements.**

(a) The provisions of § 86.130 apply to this subpart.

(b) The following additional requirements shall also apply to this subpart:

(1) For purposes of determining conformity with 50 deg. F test requirements, the procedures set forth in paragraph (c) of this section shall apply. For all hybrid electric vehicles and all 1995 and subsequent model-year vehicles certifying to running loss and useful life evaporative emission standards, the test sequence specified in subpart B of this part shall apply.

(2) [Reserved]

(c)(1) Following a 12 to 36 hour cold soak at a nominal temperature of 50 deg. F, emissions of CO and NOx measured on the Federal Test Procedure (subpart B of this part), conducted at a nominal test temperature of 50 deg. F, shall not exceed the standards for vehicles of the same emission category and vehicle type subject to a cold soak and emission test at 68 to 86 deg. F. For all TLEVs, emissions of NMOG and formaldehyde at 50 deg. F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. For all LEVs, emissions of NMOG and formaldehyde at 50 deg. F shall not exceed the 50,000 mile certification standard multiplied by a factor of 2.0. For all ULEVs, emissions of NMOG and formaldehyde at 50 deg. F shall not exceed the 50,000 mile



certification standard multiplied by a factor of 2.0. Emissions of NMOG shall be multiplied by a reactivity adjustment factor, if any, prior to comparing with the 50,000 certification standard multiplied by the specified factor. The test vehicles shall not be subject to a diurnal heat build prior to the cold start exhaust test or evaporative emission testing.

(i) For the 50 deg. F emission test, the nominal preconditioning, soak, and test temperatures shall be maintained within 3 deg. F of the nominal temperature on an average basis and within 5 deg. F of the nominal temperature on a continuous basis. The temperature shall be sampled at least once every 15 seconds during the preconditioning and test periods and at least once each 5 minutes during the soak period. A continuous strip chart recording of the temperature with these minimum time resolutions is an acceptable alternative to employing a data acquisition system.

(ii) The test site temperature shall be measured at the inlet of the vehicle cooling fan used for testing.

(iii) The test vehicle may be fueled before the preconditioning procedure in a fueling area maintained within a temperature range of 68 to 86 deg. F. The preconditioning shall be conducted at a nominal temperature of 50 deg. F. The requirement to saturate the evaporative control canister(s) shall not apply.

(iv) If a soak area remote from the test site is used, the vehicle may pass through an area maintained within a temperature range of 68 to 86 deg. F during a time interval not to exceed 10 minutes. In such cases, the vehicle shall be restabilized to 50 deg. F by soaking the vehicle in the nominal 50 deg. F test area for six times as long as the exposure time to the higher temperature area, prior to starting the emission test.

(v) The vehicle shall be approximately level during all phases of the test sequence to prevent abnormal fuel distribution.

(2) Manufacturers shall demonstrate compliance with this requirement each year by testing at least three LDV or LDT emission data and/or engineering development vehicles (with at least 4000 miles) which are representative of the array of technologies available in that model year. Only TLEVs, LEVs, and ULEVs are to be considered for testing at 50 deg.F. It is not necessary to apply deterioration factors (DFs) to the 50 deg.F test results to comply with this requirement. Testing at 50

deg.F shall not be required for fuel- flexible and dual-fuel vehicles when operating on gasoline. Natural gas, hybrid electric and diesel-fueled vehicles shall also be exempt from 50 deg.F testing.

(3) The following schedule outlines the parameters to be considered for vehicle selection:

(i) Fuel control system (e.g., multiport fuel injection, throttle body electronic fuel injection, sequential multiport electronic fuel injection, etc.);

(ii) Catalyst system (e.g., electrically heated catalyst, close- coupled catalyst, underfloor catalyst, etc.);

(iii) Control system type (e.g., mass-air flow, speed density, etc.);

(iv) Vehicle category (e.g., TLEV, LEV, ULEV);

(v) Fuel type (e.g., gasoline, methanol, etc.).

(4) The same engine family shall not be selected in the succeeding two years unless the manufacturer produces fewer than three engine families. If the manufacturer produces more than three TLEV, LEV, or ULEV engine families per model year, the Administrator may request 50 deg.F testing of specific engine families. If the manufacturer provides a list of the TLEV, LEV, and ULEV engine families that it will certify for a model year and provides a description of the technologies used on each engine family (including the vehicle selection parameters information in paragraphs (c)(3) (i) through (v) of this section), the Administrator shall select the engine families subject to 50 deg.F testing within a 30 day period after receiving such a list and description. The Administrator may revise the engine families selected after the 30 day period if the information provided by the manufacturer does not accurately reflect the engine families actually certified by the manufacturer.

(5) For the purposes of this section, the Administrator will accept vehicles selected and tested in accordance with the 50 deg.F testing procedures specified by the California Air Resources Board.

(d) A manufacturer has the option of simulating air conditioning operation during testing at other ambient test conditions provided it can demonstrate that the vehicle tailpipe exhaust emissions are representative of the emissions that would result from the SC03 cycle test procedure and the ambient conditions of paragraph 86.161-00. The Administrator has approved two optional air conditioning test simulation procedures, AC1 and AC2, for the 2001 to 2003 model years only. If a manufacturer desires to conduct an alternative SC03

test simulation other than AC1 and AC2, or the AC1 and AC2 simulations for the 2004 and subsequent model years, the simulation test procedure must be approved in advance by the Administrator.

**§ 86.1774-99 Vehicle preconditioning.**

The provisions of § 86.132 apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.132 (a) through (e) apply to this subpart, with the following additional requirements:

(1) The UDDS performed prior to a non-regeneration emission test shall not contain a regeneration (diesel light-duty vehicles and light-duty trucks equipped with periodically regenerating trap oxidizer systems only). A gasoline fueled test vehicle may not be used to set dynamometer horsepower.

(2) [Reserved]

(b) [Reserved]

**§ 86.1775-99 Exhaust sample analysis.**

The following requirements shall apply to TLEVs, LEVs, ULEVs, and ZEVs certified under the provisions of this subpart:

(a) The requirements in § 86.140;

(b) The requirements in Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1).

**§ 86.1776-99 Records required.**

(a) The provisions of § 86.142 apply to this subpart.

(b) In addition to the provisions of § 86.142, the following provisions apply to this subpart:

(1) The manufacturer shall record in the durability-data vehicle logbook, the number of regenerations that occur during the 50,000 mile durability test of each diesel light-duty vehicle and light-duty truck equipped with a periodically regenerating trap oxidizer system. The manufacturer shall include, for each regeneration: the date and time of the start of regeneration, the duration of the regeneration, and the accumulated mileage at the start and the end of regeneration. The number of regenerations will be used in the calculation of the correction factor in § 86.096-28 and subsequent

model year provisions.

(2) The requirements in Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996). These requirements are incorporated by reference (see § 86.1).

(3) For additional record requirements see §§ 86.1770, 86.1771, 86.1772, 86.1773, 86.1774, and 86.1777.

**§ 86.1777-99 Calculations; exhaust emissions.**

The provisions of § 86.144 apply to this subpart, with the following exceptions and additions:

(a) The provisions of § 86.144(b) apply to this subpart, with the following additional requirement:

(1) Organic material non-methane hydrocarbon equivalent mass for ethanol vehicles:

$$\text{OMNMHCE}_{\text{mass}} = \text{NMHC}_{\text{mass}} + (13.8756 / 32.042) \times (\text{CH}_3\text{OH})_{\text{mass}} + (13.8756 / 46.064) \times (\text{CH}_3\text{CH}_2\text{OH})_{\text{mass}} + (13.8756 / 30.0262) \times (\text{HCHO})_{\text{mass}} + (13.8756 / 44.048) \times (\text{CH}_3\text{CHO})_{\text{mass}}$$

(2) [Reserved]

(b) The requirements in Chapter 5 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996) apply to this subpart. These requirements are incorporated by reference (see § 86.1).

(c) The provisions in Appendix XV of this part and Appendix XVI of this part apply to this subpart.

(d) Reactivity adjustment factors. (1) For the purpose of complying with the NMOG exhaust emission standards in §§ 86.1708 and 86.1709, the mass of NMOG emissions from a vehicle certified to operate on a fuel other than conventional gasoline, including fuel-flexible and dual-fuel vehicles when operated on a fuel other than conventional gasoline, shall be multiplied by the reactivity adjustment factor applicable to the vehicle emission control technology category and fuel. The product of the NMOG mass emission value and the reactivity adjustment factor shall be compared to the NMOG exhaust emission standards to determine compliance with the standards. In addition to the above requirements, vehicles operating on natural gas shall add to the product of the NMOG mass emission value and the reactivity adjustment factor, the product of the methane mass emission value and the methane reactivity adjustment factor. This result shall be

compared to the NMOG exhaust emission standards to determine compliance with the standards for natural gas-fueled vehicles.

(2) The following reactivity adjustment factors have been established pursuant to the criteria in Appendix XVII of this part:

(i) Light-duty vehicles and light-duty trucks:

Vehicle Emission Control Technology Category	Fuel	Reactivity Adjustment Factor
TLEVs	85% methanol, 15% gasoline blends	0.41
LEVs and ULEVs through model year 2000	85% methanol, 15% gasoline blends	0.41
TLEVs through model year 2000	gasoline meeting the specifications of § 86.1771-99(a)(1)	0.98
LEVs and ULEVs through model year 2000	gasoline meeting the specifications of § 86.1771-99(a)(1)	0.94
TLEVs through model year 2000	fuel meeting the specifications for liquefied petroleum gas specified in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996)	1.00
LEVs and ULEVs through model year 2000	fuel meeting the specifications for liquefied petroleum gas specified in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996)	0.50

TLEVs through model year 2000	fuel meeting the specifications for natural gas specified in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996)	1.00
LEVs and ULEVs through model year 2000	fuel meeting the specifications for natural gas specified in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program (October, 1996)	0.43

(ii) Natural gas light-duty vehicles and light-duty trucks:

Vehicle Emission Control Technology Category	Methane Reactivity Adjustment Factor
TLEVs	0.0043
LEVs and ULEVs	0.0047

(3) The Administrator may establish new reactivity adjustment factors pursuant to Appendix XVII of this part in addition to those listed in paragraph (d)(2) of this section. The Administrator shall notify manufacturers in writing of the new reactivity adjustment factors within 30 days of their establishment.

(4) The Administrator may revise any reactivity adjustment factor listed in paragraph (d)(2) of this section or established by the Administrator pursuant to Appendix XVII of this part if he or she determines that the revised reactivity adjustment factor is more representative of the ozone-forming potential of vehicle NMOG emissions based on the best available scientific knowledge and sound engineering judgment. The Administrator shall notify manufacturers in writing of any such reactivity adjustment factor at least 3 years prior to January 1 of the calendar year which has the same numerical designation as the model year for which the revised reactivity adjustment factor first becomes effective. However, manufacturers may use the revised reactivity adjustment factor in certifying any new

engine family whose certification application is submitted following such notification, if they so choose. Manufacturers may also continue to use the original reactivity adjustment factor for any existing engine family previously certified with that reactivity adjustment factor until a new durability-data vehicle is tested for that engine family.

(5) Manufacturers may request the use of a unique reactivity adjustment factor for a specific vehicle emission control technology category and fuel. The Administrator shall approve such requests in accordance with the conditions and procedures of Appendix XVII of this part. For the purpose of calculating the reactivity adjustment factor as specified in Appendix XVII of this part, the “g ozone potential per g NMOG” value for the vehicle emission control technology category and fuel system for which the manufacturer is requesting the use of a unique reactivity adjustment factor shall be divided by the “g ozone potential per g NMOG” value for a conventional gasoline-fueled vehicle established for the vehicle emission control technology category. The following “g ozone potential per g NMOG” values for conventional gasoline-fueled vehicle emission control technology categories have been established:

(i) Light-duty vehicles and light-duty trucks:

Vehicle Emission Control Technology Category	"g ozone potential per g NMOG" for conventional gasoline
All TLEVs	3.42
All 1993 and subsequent model-year LEVs and ULEVs	3.13

(ii) [Reserved]

**§ 86.1778-99 Calculations; particulate emissions.**

The provisions of § 86.145 and Appendix XVI of this part apply to this subpart.

**§ 86.1779-99 General enforcement provisions.**

(a) The provisions of sections 203-208 of the Clean Air Act, as amended, (42 U.S.C. 7522-7525, 7541-7542) apply to all motor vehicles manufactured by a covered manufacturer under this

program, and to all covered manufacturers and all persons with respect to such vehicles.

(b) Violation of the requirements of this subpart shall subject a person to the jurisdiction and penalty provisions of sections 204-205 of the Clean Air Act (42 U.S.C. 7522-7523).

(c) EPA may not issue a certificate of conformity to a covered manufacturer, as defined in § 86.1702, except based on compliance with the standards and requirements in this part 86 and 40 CFR part 85.

**§ 86.1780-99 Prohibited acts.**

(a) The following acts and the causing thereof are prohibited:

(1) In the case of a covered manufacturer, as defined by § 86.1702, of new motor vehicles or new motor vehicle engines for distribution in commerce, the sale, or the offering for sale, or the introduction, or delivery for introduction, into commerce, or (in the case of any person, except as provided by regulation of the Administrator), the importation into the United States of any new motor vehicle or new motor vehicle engine subject to this subpart, unless such vehicle or engine is covered by a certificate of conformity issued (and in effect) under regulations found in this subpart (except as provided in § 203(b) of the Clean Air Act (42 U.S.C. 7522(b)) or regulations promulgated thereunder).

(2)(i) For any person to fail or refuse to permit access to or copying of records or to fail to make reports or provide information required under § 208 of the Clean Air Act (42 U.S.C. 7542) with regard to covered vehicles.

(ii) For a person to fail or refuse to permit entry, testing, or inspection authorized under § 206(c) (42 U.S.C. 7525(c)) or § 208 of the Clean Air Act (42 U.S.C. 7542) with regard to covered vehicles.

(iii) For a person to fail or refuse to perform tests, or to have tests performed as required under § 208 of the Clean Air Act (42 U.S.C. 7542) with regard to covered vehicles.

(iv) For a person to fail to establish or maintain records as required under §§ 86.1723 and 86.1776 with regard to covered vehicles.

(v) For any manufacturer to fail to make information available as provided by regulation under § 202(m)(5) of the Clean Air Act (42 U.S.C. 7521(m)(5)) with regard to covered vehicles.

(3)(i) For any person to remove or render inoperative any device or element of design installed

on or in a covered vehicle or engine in compliance with regulations under this subpart prior to its sale and delivery to the ultimate purchaser, or for any person knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser.

(ii) For any person to manufacture, sell or offer to sell, or install, any part or component intended for use with, or as part of, any covered vehicle or engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a covered vehicle or engine in compliance with regulations issued under this subpart, and where the person knows or should know that the part or component is being offered for sale or installed for this use or put to such use.

(4) For any manufacturer of a covered vehicle or engine subject to standards prescribed under this subpart:

(i) To sell, offer for sale, introduce or deliver into commerce, or lease any such vehicle or engine unless the manufacturer has complied with the requirements of § 207 (a) and (b) of the Clean Air Act (42 U.S.C. 7541 (a), (b)) with respect to such vehicle or engine, and unless a label or tag is affixed to such vehicle or engine in accordance with § 207(c)(3) of the Clean Air Act (42 U.S.C. 7541(c)(3)).

(ii) To fail or refuse to comply with the requirements of § 207 (c) or (e) of the Clean Air Act (42 U.S.C. 7541 (c) or (e)).

(iii) Except as provided in § 207(c)(3) of the Clean Air Act (42 U.S.C. 7541(c)(3)), to provide directly or indirectly in any communication to the ultimate purchaser or any subsequent purchaser that the coverage of a warranty under the Clean Air Act is conditioned upon use of any part, component, or system manufactured by the manufacturer or a person acting for the manufacturer or under its control, or conditioned upon service performed by such persons.

(iv) To fail or refuse to comply with the terms and conditions of the warranty under § 207 (a) or (b) of the Clean Air Act (42 U.S.C. 7541 (a) or (b)).

(b) For the purposes of enforcement of this subpart, the following apply:

(1) No action with respect to any element of design referred to in paragraph (a)(3) of this section (including any adjustment or alteration of such element) shall be treated as a prohibited act under paragraph (a)(3) of this section if such action is in

accordance with § 215 of the Clean Air Act (42 U.S.C. 7549);

(2) Nothing in paragraph (a)(3) of this section is to be construed to require the use of manufacturer parts in maintaining or repairing a covered vehicle or engine. For the purposes of the preceding sentence, the term “manufacturer parts” means, with respect to a motor vehicle engine, parts produced or sold by the manufacturer of the motor vehicle or motor vehicle engine;

(3) Actions for the purpose of repair or replacement of a device or element of design or any other item are not considered prohibited acts under paragraph (a)(3) of this section if the action is a necessary and temporary procedure, the device or element is replaced upon completion of the procedure, and the action results in the proper functioning of the device or element of design;

(4) Actions for the purpose of a conversion of a motor vehicle or motor vehicle engine for use of a clean alternative fuel (as defined in title II of the Clean Air Act) are not considered prohibited acts under paragraph (a) of this section if:

(i) The vehicle complies with the applicable standard when operating on the alternative fuel; and

(ii) In the case of engines converted to dual fuel or flexible use, the device or element is replaced upon completion of the conversion procedure, and the action results in proper functioning of the device or element when the motor vehicle operates on conventional fuel.