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April 7, 2023

MEMORANDUM

SUBJECT: Redline Version of EPA's Proposed Regulations to Adopt New Standards for Light-Duty and Medium-Duty Vehicle Standards

FROM: Alan Stout, Staff Engineer
Assessment and Standards Division

TO: Docket EPA-HQ-OAR-2022-0829

EPA is proposing to update emission standards and related requirements for light-duty and medium-duty motor vehicles. The attached file is a redline version of the proposed amendments showing changes to existing text in the *Code of Federal Regulations*.

Where we are proposing whole new sections for model year 2027 and later vehicles in 40 CFR part 86, subpart S, the redline markings show how the proposed new regulation for Tier 4 vehicles are different than the analogous provisions for Tier 3 vehicles. This applies for OBD requirements in § 86.1806-27 (compared to § 86.1806-17) and for criteria standards in § 86.1811-27 (compared to § 86.1811-17).

Note also that § 86.1848-10 includes new text for provisions that were formerly codified in § 86.1848-01. The redline markings accordingly show how the proposed content in § 1848-10(a), (b), and (d) through (i) is changing relative to the text as currently included in the CFR.

The regulatory text in the attached file is intended to be the same as what will be published in the *Federal Register*. However, there may be some minor differences. The document published in the *Federal Register* is the official copy for purposes of proposal and comment.

Attachment

For the reasons set out in the preamble, we are amending title 40, chapter I of the Code of Federal Regulations as set forth below.

PART 85— CONTROL OF AIR POLLUTION FROM MOBILE SOURCES

1. The authority citation for part 85 continues to read as follows:

Authority: 42 U.S.C. 7401 - 7671q.

2. Amend § 85.505 by revising paragraph (f) to read as follows:

§ 85.505 Overview.

* * * * *

(f) If you have previously used small volume conversion manufacturer or qualified small volume test group/engine family procedures and you may exceed the volume thresholds using the sum described in § 85.535(f) to determine small volume status in 40 CFR 86.1838-01 or 1036.150(d), 40 CFR 86.098-14, and 40 CFR 86.096-24(e)(2) as appropriate, you must satisfy the requirements for conversion manufacturers who do not qualify for small volume exemptions or your exemption from tampering is no longer valid.

* * * * *

3. Amend § 85.510 by revising paragraphs (b)(2)(i)(A) and (B), (b)(2)(ii), and (b)6 through (11) to read as follows:

§ 85.510 Exemption provisions for new and relatively new vehicles/engines.

* * * * *

(b) * * *

(2) * * *

(i) * * *

(A) If criteria for small volume manufacturer or qualified small volume engine families are met as defined in 40 CFR 1036.150(d), 86.098-14 and 40 CFR 86.096-24(e)(2) you may combine heavy-duty engines using good engineering judgment into conversion engine families if the following criteria are satisfied instead of those specified in 40 CFR 1036.230 part 86, subpart A.

(1) Same OEM.

(2) Same OBD group after MY 2013.

(3) Same service class (*e.g.*, light heavy-duty diesel engines, medium heavy-duty diesel engines, heavy heavy-duty diesel engines).

(4) Engine displacement is within 15% of largest displacement or 50 CID, whichever is larger.

(5) Same number of cylinders.

(6) Same arrangement of cylinders.

(7) Same combustion cycle.

(8) Same method of air aspiration.

(9) Same fuel type (*e.g.*, diesel/gasoline).

(10) Same fuel metering system (*e.g.*, mechanical direct or electronic direct injection).

(11) Same catalyst/filter construction (e.g., metal vs. ceramic substrate).

(12) All converted engines are subject to the most stringent emission standards.

For example, 2005 and 2007 heavy-duty diesel engines may be in the same family if they meet the most stringent (2007) standards.

(13) Same emission control technology (e.g., internal or external EGR).

(B) EPA-established scaled assigned deterioration factors for both exhaust and evaporative emissions may be used for engines with over 10,000 miles if the criteria for small volume manufacturer or qualified small volume engine families are met as defined in 40 CFR ~~1036.150(d)~~~~86.098-14~~ and ~~40 CFR 86.096-24(e)(2)~~. This deterioration factor will be adjusted according to vehicle or engine miles of operation. The deterioration factor is intended to predict the engine's emission levels at the end of the useful life. EPA may adjust these scaled assigned deterioration factors if we find the rate of deterioration non-constant or if the rate differs by fuel type.

* * * * *

(ii) Conversion evaporative/refueling families are identical to the OEM evaporative/refueling families unless the OEM evaporative emission system is no longer functionally necessary. You must create any new evaporative families according to 40 CFR ~~86.1821~~~~86.096-24(a)~~.

* * * * *

(6) Durability testing is required unless the criteria for small volume manufacturer or qualified small volume test groups/engine families are met as defined in 40 CFR 86.1838-01 or ~~1036.150(d)~~, ~~40 CFR 86.098-14~~, and ~~40 CFR 86.096-24(e)(2)~~, as applicable.

(7) Conversion test groups/engine families for conversions to dual-fuel or mixed-fuel vehicles/engines cannot include vehicles/engines subject to different emission standards unless applicable exhaust and OBD demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the test group. However, for small volume conversion manufacturers and qualified small volume test groups/engine families the data generated from exhaust emission testing on the new fuel for dual-fuel or mixed-fuel test vehicles/engines may be carried over to vehicles/engines which otherwise meet the test group/engine family criteria and for which the test vehicle/engine data demonstrate compliance with the application vehicle/engine standard. Clean alternative fuel conversion evaporative families for dual-fuel or mixed-fuel vehicles may not include vehicles/engines which were originally certified to different evaporative emissions standards unless evaporative/refueling demonstrations are also conducted for the original fuel(s) demonstrating compliance with the most stringent standard represented in the evaporative/refueling family.

(8) The vehicle/engine selected for testing must qualify as a worst-case vehicle/engine under 40 CFR 86.1828-~~0110~~ or ~~1036.235(a)(2)~~~~40 CFR 86.096-24(b)(2) through (b)(3)~~, as applicable.

(9) *OBD requirements.* (i) The OBD system must properly detect and identify malfunctions in all monitored emission-related powertrain systems or components including any new monitoring capability necessary to identify potential emission problems associated with the new fuel.

(ii) Conduct OBD testing as needed to demonstrate that the vehicle/engine continues to comply with emission thresholds and other requirements that apply based on the original

~~certification~~ Conduct all OBD testing necessary to demonstrate compliance with 40 CFR 86.010-18 or 86.1806-05.

(iii) Submit the applicable OBD reporting ~~requirements~~ information for vehicles as set forth in 40 CFR 86.1806-17 ~~part 86, subparts A and S.~~ Submit the applicable OBD reporting information for engines as set forth in 40 CFR 86.010-18 or 1036.110, as appropriate. ~~, and s~~ Submit the following statement of compliance if the OEM vehicles/engines were required to be OBD-equipped:

The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements specified in [40 CFR part 86 or part 1036, as applicable] when operating on the alternative fuel.

(10) In lieu of specific certification test data, you may submit the following attestations for the appropriate statements of compliance, if you have sufficient basis to prove the statement is valid.

(i) The test group/engine family converted to an alternative fuel has properly exercised the optional and applicable statements of compliance or waivers in the certification regulations. ~~such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065.~~ Attest to each statement or waiver in your application for certification.

(ii) The test group/engine family converted to dual-fuel or mixed-fuel operation retains all the OEM fuel system, engine calibration, and emission control system functionality when operating on the fuel with which the vehicle/engine was originally certified.

(iii) The test group/engine family converted to dual fuel or mixed-fuel operation retains all the functionality of the OEM OBD system (if so equipped) when operating on the fuel with which the vehicle/engine was originally certified.

(iv) The test group/engine family converted to dual-fuel or mixed-fuel operation properly purges hydrocarbon vapor from the evaporative emission canister when the vehicle/engine is operating on the alternative fuel.

(11) Certification fees apply ~~per as described in~~ 40 CFR part 1027.

* * * * *

4. Amend § 85.515 by revising paragraphs (b)(4), (6), (8), (9)(iii), (10)(i), and (10)(iii)(A) to read as follows:

§ 85.515 Exemption provisions for intermediate age vehicles/engines.

* * * * *

(b) * * *

(4) EPA-established scaled assigned deterioration factors for both exhaust and evaporative emissions may be used for vehicles/engines with over 10,000 miles if the criteria for small volume manufacturer or qualified small volume test groups/engine families are met as defined in 40 CFR 86.1838-01 or 40 CFR 1036.150(d), ~~40 CFR 86.098-14, or 40 CFR 86.096-24(e)(2)~~, as appropriate. This deterioration factor will be adjusted according to vehicle/engine miles or hours of operation. The deterioration factor is intended to predict the vehicle/engine's emission level at the end of the useful life. EPA may adjust these scaled assigned deterioration factors if we find the rate of deterioration non-constant or if the rate differs by fuel type.

* * * * *

(6) Durability testing is required unless the criteria for small volume manufacturer or qualified small volume test groups/engine families are met as defined in 40 CFR 86.1838-01 ~~or 40 CFR 1036.150(d), 40 CFR 86.098-14, or 40 CFR 86.096-24(e)(2)~~, as applicable. Durability procedures for large volume conversion manufacturers of intermediate age light-duty and heavy-duty chassis certified vehicles that follow provisions in 40 CFR 86.1820-01 may eliminate precious metal composition and catalyst grouping statistic when creating clean alternative fuel conversion durability groupings.

* * * * *

(8) You must conduct all exhaust and all evaporative and refueling emissions testing with a worst-case vehicle/engine to show that the conversion test group/engine family complies with exhaust and evaporative/refueling emission standards, based on the certification procedures ~~such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065.~~

(9) * * *

(iii) In addition to conducting OBD testing described in this paragraph (b)(9), you must submit to EPA the following statement of compliance if the OEM vehicles/engines were required to be OBD-equipped:

The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements specified in [40 CFR part 86 ~~or part 1036, as applicable~~] when operating on the alternative fuel.

(10) * * *

(i) You must describe how your conversion system qualifies as a clean alternative fuel conversion. You must include emission test results from the required exhaust, evaporative emissions, and OBD testing, applicable exhaust and evaporative emissions standards and deterioration factors. You must also include a description of how the test vehicle/engine selected qualifies as a worst-case vehicle/engine under 40 CFR 86.1828-~~0110~~ or ~~1036.235(a)(2), 40 CFR 86.096-24(b)(2) through (b)(3)~~ as applicable.

* * * * *

(iii) * * *

(A) The test group/engine family converted to an alternative fuel has properly exercised the optional and applicable statements of compliance or waivers in the certification regulations ~~such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065.~~ Attest to each statement or waiver in your notification.

* * * * *

5. Amend § 85.520 by revising paragraphs (b)(4), (6)(i), and (6)(iii)(A) to read as follows:

§ 85.520 Exemption provisions for outside useful life vehicles/engines.

* * * * *

(b) * * *

(4) *OBD requirements.* (i) The OBD system must properly detect and identify malfunctions in all monitored emission-related powertrain systems or components, including any new monitoring capability necessary to identify potential emission problems associated with the new fuel. These include but are not limited to: Fuel trim lean and rich monitors, catalyst deterioration monitors, engine misfire monitors, oxygen sensor deterioration monitors, EGR system monitors, if applicable, and ~~vapor~~ evaporative system leak

monitors, if applicable. No original OBD system monitor that is still applicable to the vehicle/engine may be aliased, removed, bypassed, or turned-off. No MILs shall be illuminated after the conversion. Readiness flags must be properly set for all monitors that identify any malfunction for all monitored components.

(ii) Subsequent to the vehicle/engine fuel conversion, you must clear all OBD codes and reset all OBD monitors to not-ready status using an OBD scan tool appropriate for the OBD system in the vehicle/engine in question. You must operate the vehicle/engine with the new fuel on representative road operation or chassis dynamometer/engine dynamometer testing cycles to satisfy the monitors' enabling criteria. When all monitors have reset to a ready status, you must submit an OBD scan tool report showing that with the vehicle/engine operating in the key-on/engine-on mode, all supported monitors have reset to a ready status and no emission related "pending" (or potential) or "confirmed" (or MIL-on) diagnostic trouble codes (DTCs) have been stored. The MIL must not be commanded "On" or be illuminated. A MIL check must also be conducted in a key-on/engine-off mode to verify that the MIL is functioning properly. You must include the VIN/EIN ~~number~~ of the test vehicle/engine. If necessary, the OEM evaporative emission readiness monitor may remain unset for dedicated gaseous fuel conversion systems.

(iii) In addition to conducting OBD testing described in this paragraph (b)(4), you must submit to EPA the following statement of compliance if the OEM vehicles/engines were required to be OBD-equipped:

The test group/engine family converted to an alternative fuel has fully functional OBD systems and therefore meets the OBD requirements specified in ~~[40 CFR part 86~~ or 40 CFR part 1036, as applicable] when operating on the alternative fuel.

* * * * *

(6) * * *

(i) You must describe how your conversion system complies with the good engineering judgment criteria in ~~§ 85.520~~ paragraph (b)(3) of this section and/or other requirements under this subpart or other applicable subparts such that the conversion system qualifies as a clean alternative fuel conversion. The submission must provide a level of technical detail sufficient for EPA to confirm the conversion system's ability to maintain or improve on emission levels in a worst-case vehicle/engine. The submission of technical information must include a complete characterization of exhaust and evaporative emissions control strategies, the fuel delivery system, durability, and specifications related to OBD system functionality. You must present detailed information to confirm the durability of all relevant new and existing components and to explain why the conversion system will not harm the emission control system or degrade the emissions. EPA may ask you to supply additional information, including test data, to support the claim that the conversion system does not increase emissions and involves good engineering judgment that is being applied for purposes of conversion to a clean alternative fuel.

* * * * *

(iii) * * *

(A) The test group/engine family converted to an alternative fuel has properly exercised the optional and applicable statements of compliance or waivers in the certification regulations ~~such as those specified in 40 CFR part 86, subparts A, B, and S and 40 CFR part 1065~~. Attest to each statement or waiver in your notification.

* * * * *

§ 85.524—[Removed]

6. Remove § 85.524.

7. Amend § 85.535 by revising paragraph (f) to read as follows:

§ 85.535 Liability, recordkeeping, and end of year reporting.

* * * * *

(f) Clean alternative fuel conversion manufacturers must submit an end of the year sales report to EPA describing the number of clean alternative fuel conversions by fuel type(s) and vehicle test group/engine family by January 31 of the following year. The number of conversions is the sum of the calendar year intermediate age conversions, outside useful life conversions, and the same conversion model year certified clean alternative fuel conversions. The number of conversions will be added to any other vehicle and engine sales accounted for using 40 CFR 86.1838-01 or 1036.150(d), ~~40 CFR 86.098-14~~ as appropriate to determine small volume manufacturer or qualified small volume test group/engine family status.

* * * * *

8. Amend § 85.1503 by revising paragraphs (a) and (c) to read as follows:

§ 85.1503 General requirements for importation of nonconforming vehicles and engines.

(a) A nonconforming vehicle or engine offered for importation into the United States must be imported by an ICI who is a current holder of a valid certificate of conformity unless an exemption or exclusion is granted by the Administrator under § 85.1511 ~~of this subpart~~ or the vehicle is eligible for entry under § 85.1512.

* * * * *

(c) In any one certificate year (e.g., the current model year), an ICI may finally admit no more than the following numbers of nonconforming vehicles ~~or engines~~ into the United States under the provisions of ~~§~~ 85.1505 and ~~§~~ 85.1509, except as allowed by paragraph (e) of this section:

- (1) ~~[Reserved] 5 heavy-duty engines.~~
- (2) A total of ~~2550~~ light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles. This limit does not apply for electric vehicles.
- (3) 50 highway motorcycles.

* * * * *

9. Amend § 85.1509 by:

- a. Revising paragraph (a) introductory text.
- b. Removing and reserving paragraphs (b) through (f).
- c. Removing the paragraph heading from paragraphs (j), (k) introductory text, and (l).

The revision reads as follows:

§ 85.1509 Final admission of modification and test vehicles.

(a) ~~Except as provided in paragraphs (b), (c), (d), (e), and (f) of this section, a~~ motor vehicle or motor vehicle engine may be imported under this section by a certificate holder possessing a currently valid certificate of conformity only if ~~—~~:

* * * * *

~~(b) through (f) [Reserved]~~ ~~(b) In calendar year 1988, a motor vehicle or motor vehicle engine originally produced in calendar years 1983 through 1987 may be imported under this section by a certificate holder if:~~

~~(1) The certificate holder possesses a currently valid certificate of conformity for a vehicle or engine model originally produced in calendar years 1987 or 1988 and the make (i.e., the OEM) and fuel type of such certified model is the same as the make and fuel type of the vehicle or engine being imported under this section; and~~

~~(2) The certificate holder's name has not been placed on a currently effective EPA list of certificate holder's ineligible to import such modification/test vehicles, as described in paragraph (j) of this section.~~

~~(c) In calendar year 1989, a motor vehicle or motor vehicle engine originally produced in calendar years 1984 through 1987 may be imported under this section by a certificate holder if:~~

~~(1) The certificate holder possesses a currently valid certificate of conformity for a vehicle or engine model originally produced in calendar years 1988 or 1989 and the make and fuel type of such certified model is the same as the make and fuel type of the vehicle or engine being imported under this section; and~~

~~(2) The certificate holder's name has not been placed on a currently effective EPA list of certificate holders ineligible to import such modification/test vehicles, as described in paragraph (j) of this section.~~

~~(d) In calendar year 1990, a motor vehicle or motor vehicle engine originally produced in calendar years 1985 through 1987 may be imported under this section by a certificate holder if:~~

~~(1) The certificate holder possesses a currently valid certificate of conformity for a vehicle or engine model originally produced in calendar years 1989 or 1990 and the make and fuel type of such certified model is the same as the make and fuel type of the vehicle or engine being imported under this section; and~~

~~(2) The certificate holder's name has not been placed on a currently effective EPA list of certificate holders ineligible to import such modification/test vehicles, as described in paragraph (j) of this section.~~

~~(e) In calendar year 1991, a motor vehicle or motor vehicle engine originally produced in calendar years 1986 and 1987 may be imported under this section by a certificate holder if:~~

~~(1) The certificate holder possesses a currently valid certificate of conformity for a vehicle or engine model originally produced in calendar years 1990 or 1991 and the make and fuel type of such certified model is the same as the make and fuel type of the vehicle or engine being imported under this section; and~~

~~(2) The certificate holder's name has not been placed on a currently effective EPA list of certificate holders ineligible to import such modification/test vehicles, as described in paragraph (j) of this section.~~

~~(f) In calendar year 1992, a motor vehicle or motor vehicle engine originally produced in calendar year 1987 may be imported under this section by a certificate holder if:~~

~~(1) The certificate holder possesses a currently valid certificate of conformity for a vehicle or engine model originally produced in calendar year 1991 or 1992 and the make and fuel type of such certified model is the same as the make and fuel type of the vehicle or engine being imported under this section; and~~

~~(2) The certificate holder's name has not been placed on a currently effective EPA list of certificate holders ineligible to import such modification/test vehicles, as described in paragraph (j) of this section.~~

10. Amend § 85.1510 by revising paragraphs (d)(1) and (f) to read as follows:

§ 85.1510 Maintenance instructions, warranties, emission labeling and fuel economy requirements.

* * * * *

(d) * * *

(1) The certificate holder shall affix a fuel economy label that complies with the requirements of 40 CFR part 600, subpart D. The requirement for fuel economy labels does not apply for electric vehicles.

* * * * *

(f) *Corporate Average Fuel Economy (CAFÉ)*. ~~(+)~~ Certificate holders shall comply with any applicable CAFÉ requirements of the Energy Policy and Conservation Act, 15 U.S.C. 2001 et seq., and 40 CFR part 600, for all vehicles imported under §§ 85.1505 and 85.1509.

11. Amend § 85.1515 by revising paragraphs (a)(2)(i)(A) and (B), (c)(2)(ix) and (x), (c)(3), (5), (6), and (8) to read as follows:

§ 85.1515 Emission standards and test procedures applicable to imported nonconforming motor vehicles and motor vehicle engines.

(a) * * *

(2) * * *

(i) * * *

(A) Cold temperature CO₂, ~~and~~ NMHC, NMOG+NOx, and PM emission standards specified in 40 CFR 86.1811.

(B) SFTP emission standards specified in 40 CFR 86.1811 and 86.1816 for all pollutants, and separate emission standards that apply for US06 and SC03 duty cycles.

* * * * *

(c) * * *

(2) * * *

(ix) Nonconforming vehicles subject to the provisions of 40 CFR part 86, subpart S, LDVs, LDTs, MDPVs, and complete heavy-duty vehicles at or below 14,000 pounds

~~GVWR~~ originally manufactured in OP years 2022 through 2029 and later must meet the Tier 3 exhaust ~~and evaporative~~ emission standards in 40 CFR 86.1811-17, ~~86.1813-17,~~ and 86.1816-18, the Tier 3 evaporative emission standards in 40 CFR 86.1813-17, and the refueling emission standards in 40 CFR 86.1813-17(b).

(x) Nonconforming vehicles subject to the provisions of 40 CFR part 86, subpart S, originally manufactured in OP years 2030 and later must meet the Tier 4 exhaust emission standards in 40 CFR 86.1811-27, the Tier 3 evaporative emission standards in 86.1813-17, and the refueling emission standards in 40 CFR 86.1813-17(b).

(3) The following provisions apply for Tier 2 vehicles certified to standards under 40 CFR 86.1811-04:

(i) As an option to the requirements of paragraph (c)(2) of this section, independent commercial importers may elect to meet lower bins in Tables S04-1 and S04-2 of 40 CFR 86.1811-04 than specified in paragraph (c)(2) of this section and bank or sell NOx credits as permitted in 40 CFR 86.1860-04 and 40 CFR 86.1861-04. An ICI may not meet higher bins in Tables S04-1 and S04-2 of 40 CFR 86.1811-04 than specified in paragraph (c)(2) of this section unless it demonstrates to the Administrator at the time of certification that it has obtained appropriate and sufficient NOx credits from another manufacturer, or has generated them in a previous model year or in the current model year and not transferred them to another manufacturer or used them to address other vehicles as permitted in 40 CFR 86.1860-04 and 40 CFR 86.1861-04.

(ii) Where an ICI desires to obtain a certificate of conformity using a bin higher than specified in paragraph (c)(2) of this section, but does not have sufficient credits to cover vehicles produced under such certificate, the Administrator may issue such certificate if the ICI has also obtained a certificate of conformity for vehicles certified using a bin lower than that required under paragraph (c)(2) of this section. The ICI may then produce vehicles to the higher bin only to the extent that it has generated sufficient credits from vehicles certified to the lower bin during the same model year.

* * * * *

(5) Except for the situation where an ICI desires to bank, sell or use NOx credits as described in paragraph (c)(3) of this section, the requirements of 40 CFR 86.1811-04 related to fleet average ~~NOx~~ standards and requirements to comply with such standards do not apply to vehicles modified under this subpart.

(6) ICIs using Tier 2 bins higher than those specified in paragraph (c)(2) of this section must monitor their production so that they do not produce more vehicles certified to the standards of such bins than their available credits can cover. ICIs must not have a credit deficit at the end of a model year and are not permitted to use the deficit carryforward provisions provided in 40 CFR 86.1860-04(e).

* * * * *

(8) The following provisions apply for cold temperature emission standards:

(i) Nonconforming LDV/LLDTs originally manufactured in OP years 2010 and later must meet the cold temperature ~~NHMC~~ emission standards in ~~Table S10-1 in~~ 40 CFR 86.1811-10(g). ICIs may comply with the cold temperature PM standard based on an engineering evaluation.

(ii) Nonconforming HLDTs and MDPVs originally manufactured in OP years 2012 and later must meet the cold temperature ~~NHMC~~ emission standards in ~~Table S10-1 in~~ 40

CFR 86.1811-10(g). ICIs may comply with the cold temperature PM standard based on an engineering evaluation.

(iii) ICIs, which qualify as small-volume manufacturers, are exempt from the cold temperature NMHC phase-in intermediate percentage requirements described in 40 CFR 86.1811-10(g)(3). See 40 CFR 86.1811-04(k)(5)(vi) and (vii).

(iv) The provisions of this paragraph (c)(8)(iv) apply for Tier 2 vehicles. As an alternative to the requirements of paragraphs (c)(8)(i) and (ii) of this section, ICIs may elect to meet a cold temperature NMHC family emission level below the cold temperature NMHC fleet average standards specified in Table S10-1 of 40 CFR 86.1811-10 and bank or sell credits as permitted in 40 CFR 86.1864-10. An ICI may not meet a higher cold temperature NMHC family emission level than the fleet average standards in Table S10-1 of 40 CFR 86.1811-10 as specified in paragraphs (c)(8)(i) and (ii) of this section, unless it demonstrates to the Administrator at the time of certification that it has obtained appropriate and sufficient NMHC credits from another manufacturer, or has generated them in a previous model year or in the current model year and not traded them to another manufacturer or used them to address other vehicles as permitted in 40 CFR 86.1864-10.

* * * * *

12. Amend § 85.1702 by:

- a. Revising paragraph (a)(3).
- b. Adding paragraph (a)(6).
- c. Adding and reserving paragraph (b).

The revision and addition read as follows:

§ 85.1702 Definitions.

(a) * * *

(3) *Pre-certification vehicle* means an uncertified vehicle ~~which a manufacturer that a~~ certificate holder employs in fleets from year to year in the ordinary course of business for product development, production method assessment, and market promotion ~~purposes, but in~~ a manner not involving lease or sale.

* * * * *

(6) Certificate holder has the meaning given in 40 CFR 1068.30.

13. Revise § 85.2101 to read as follows:

§ 85.2101 General applicability.

(a) Sections 85.2101 through 85.2111 are applicable to all 1981 and later model year ~~light-duty vehicles and light-duty trucks~~ subject to standards under 40 CFR part 86, subpart S.

(b) References in this subpart to engine families and emission control systems shall be deemed to apply to durability groups and test groups as applicable ~~for manufacturers certifying new light-duty vehicles and light-duty trucks under the provisions of 40 CFR part 86, subpart S.~~

14. Amend § 85.2102 by revising the introductory text and paragraphs (a)(10) and (11) to read as follows:

§ 85.2102 Definitions.

(a) As used in §§ 85.2101 through 85.2111 all terms not defined herein shall have the meaning given them in the Act. All terms additionally not defined in the Act shall have the meaning given in 40 CFR 86.1803, 1065.1001, or 1068.30:

* * * * *

(10) *Useful life* means that period established ~~pursuant to 42 U.S.C. 7521(d)~~ under 40 CFR 86.1805 and regulations promulgated thereunder.

(11) *Vehicle* means any vehicle subject to standards under 40 CFR part 86, subpart S light duty vehicle or a light duty truck.

* * * * *

15. Revise § 85.2103 to read as follows:

§ 85.2103 Emission performance warranty.

(a) The manufacturer of each vehicle to which this subpart applies must provide a written commitment to meet warranty requirements as described in this section. ~~shall warrant in writing that if:~~

(b) The manufacturer must remedy a nonconformity identified in paragraph (c) of this section throughout the warranty period specified in § 85.2108 at no cost to the owner if such nonconformity results or will result in the vehicle owner having to bear any penalty or other sanction (including the denial of the right to use the vehicle) under local, State, or Federal law.

(c) The following failures qualify as a nonconformity for purposes of the warranty requirements of this subpart:

~~(1) The vehicle is maintained and operated in accordance with the written instructions for proper maintenance and use and~~

~~(12) The A~~ vehicle fails to conform at any time during its useful life to the applicable emission standards or family emission limits as determined by an EPA-approved emission test, ~~and~~

(2) An electric vehicle or a plug-in hybrid electric vehicle fails to meet the Minimum Performance Requirement for useable battery energy under 40 CFR 86.1815 for the specified period as determined by the vehicle's State of Health Monitor, if applicable.

~~(3) Such nonconformity results or will result in the vehicle owner having to bear any penalty or other sanction (including the denial of the right to use the vehicle) under local, State or Federal law, then the manufacturer shall remedy the nonconformity at no cost to the owner; except that, if the vehicle has been in operation for more than 24 months or 24,000 miles, the manufacturer shall be required to remedy only those nonconformities resulting from the failure of any of the specified major emission control components listed in 42 U.S.C. 7541(i)(2) or components which have been designated by the Administrator under 42 U.S.C. 7541(i)(2) to be specified major emission control components until the vehicle has been in operation for 8 years or 80,000 miles.~~

(d) The warranty periods under this section apply based on the vehicle's age in years and on the vehicle's odometer reading. The warranty period expires based on the specified age or mileage, whichever comes first. The warranty period for a particular vehicle begins ~~shall begin~~ on the date

the vehicle is delivered to its ultimate purchaser; or, if the vehicle is first placed in service as a “demonstrator” or “company” car prior to delivery, on the date it is first placed in service.

(e) The following warranty periods apply for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles:

(1) The following specified major emission control components have a warranty period of eight years or 80,000 miles:

(i) Catalytic converters and SCR catalysts, and related components.

(ii) Particulate filters and particulate traps, used with both spark-ignition and compression-ignition engines.

(iii) Components related to exhaust gas recirculation with compression-ignition engines.

(iv) Emission control module.

(v) Batteries serving as a Renewable Energy Storage System for electric vehicles and plug-in hybrid electric vehicles, along with related powertrain components.

(2) Nonconformities other than those identified in paragraph (e)(1) of this section have a warranty period of two years or 24,000 miles.

(f) The following warranty periods apply for medium-duty vehicles:

(1) The specific major emission control components identified in paragraph (e)(1) of this section have a warranty period of eight years or 80,000 miles.

(2) Nonconformities other than those identified in paragraph (f)(1) of this section have a warranty period of five years or 50,000 miles.

16. Amend § 85.2104 by revising paragraphs (d), (e), (f), (g) introductory text, and (g)(1) and (2) introductory text to read as follows:

§ 85.2104 Owners’ compliance with instructions for proper maintenance and use.

* * * * *

(d) ~~Except as provided in paragraph (e) of this section, the~~ the time/mileage interval for scheduled maintenance services shall be the service interval specified for the part in the written instructions for proper maintenance and use. However, in the case of (e) For certified parts having a maintenance or replacement interval different from that specified in the written instructions for proper maintenance and use, the time/mileage interval shall be the service interval for which the part was certified.

~~(e)~~ (f) The owner may perform maintenance or have maintenance performed more frequently ~~then~~ than required in the maintenance instructions.

(f) Written instruction for proper use of electric vehicles and plug-in hybrid electric vehicles may identify certain behaviors or vehicle operating modes expected to unreasonably or artificially shorten battery durability. For example, exceeding a vehicle’s towing capacity might be considered improper use. However, the manufacturer should not consider actions to be improper use if the vehicle can be designed to prevent the targeted behaviors or operating modes. Evidence of compliance with the requirement to properly use vehicles under this paragraph (f) is generally limited to onboard data logging, though manufacturers may also request vehicle owners to make a statement regarding specific behaviors or vehicle operating modes.

(g) Except as provided in paragraph (h) of this section, a manufacturer may deny an emission performance warranty claim on the basis of noncompliance with the written instructions for proper maintenance and use if and only if:

(1) An owner is not able to comply with a request by a manufacturer for evidence pursuant to paragraph (c) ~~or (f)~~ of this section; or

(2) Notwithstanding the evidence presented pursuant to paragraph (c) of this section, the manufacturer is able to prove that the vehicle failed ~~an emission short test~~ because:

* * * * *

17. Amend § 85.2105 by revising paragraph (b)(3) to read as follows:

§ 85.2105 Aftermarket parts.

* * * * *

(b) * * *

(3) List all objective evidence as defined in § 85.2102 that was used in the determination to deny warranty. This evidence must be made available to the vehicle owner or EPA upon request, ~~and~~

* * * * *

18. Amend § 85.2109 by revising paragraph (a)(2) to read as follows:

§ 85.2109 Inclusion of warranty provisions in owners' manuals and warranty booklets.

(a) * * *

(2) A list of all items which are covered by the emission performance warranty for the full useful life of the vehicle. This list shall contain all specified major emission control components ~~which have been installed in or on a vehicle solely or primarily for the purpose of reducing vehicle emissions, except those components which were in general use prior to model year 1968~~. All items listed pursuant to this subsection shall be described in the same manner as they are likely to be described on a service facility work receipt for that vehicle; and

* * * * *

19. Revise § 85.2110 to read as follows:

§ 85.2110 Submission of owners' manuals and warranty statements to EPA.

(a) The manufacturer of each vehicle to which this subpart applies ~~shall submit a copy to EPA of both the~~ must send to EPA an owner's manual and warranty booklet (if applicable) in electronic format for each model vehicle that completely and accurately represent the warranty terms for that vehicle, ~~except that, if the same warranty information is to be provided for more than one model vehicle, the manufacturer may submit copies for a single model vehicle with a statement that such copies are complete and accurate representation of the warranty information provided with all other specified models.~~

(1) The owner's manuals and warranty booklets should be received by EPA 60 days prior to the introduction of the vehicle for sale.

(2) If the manuals and warranty booklets are not in their final ~~printed~~ format 60 days prior to the introduction of the vehicle for sale, a manufacturer may submit the most recent draft at

that time, provided that the manufacturer promptly submits final versions when they are complete~~are submitted within 15 days of the final printing.~~

(b) All materials described in paragraph (a) of this section shall be sent to the Designated Compliance Officer as specified at 40 CFR 1068.30 (Attention: Warranty Booklet).

PART 86—CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES

20. The authority citation for part 86 continues to read as follows:

Authority: 42 U.S.C. 7401 - 7671q.

21. Amend § 86.1 by:

- a. Adding introductory text.
- b. Revising paragraphs (a) and (d)(2).
- c. Removing and reserving paragraphs (d)(3) and (4).
- d. Revising paragraph (e)(2).
- e. Removing and reserving paragraph (g)(4).
- f. Revising paragraph (g)(8).
- g. Removing and reserving paragraphs (g)(10), (11), (13), and (14).
- h. Revising paragraphs (g)(15) through (19), (21), (22), and (25).

The addition and revisions read as follows:

§ 86.1 Incorporation by reference.

~~(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, a document must be published in the Federal Register and the material must be available to the public. All approved material is available for inspection at U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460, (202) 202-1744, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fedreg.legal@nara.gov, or go to www.archives.gov/federal-register/cfr/ibr-locations.html.~~

Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, EPA must publish a document in the Federal Register and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at EPA and at the National Archives and Records Administration (NARA). Contact EPA at: U.S. EPA, Air and Radiation Docket Center, WJC West Building, Room 3334, 1301 Constitution Ave. NW, Washington, DC 20004; www.epa.gov/dockets; (202) 202-1744. For information on inspecting this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations.html or email fr.inspection@nara.gov. The material may be obtained from the following sources:

(a) UN Economic Commission for Europe, Information Service, Palais des Nations, CH-1211 Geneva 10, Switzerland; unece_info@un.org; www.unece.org:

(1) Addendum 22: United Nations Global Technical Regulation, No. 22, United Nations Global Technical Regulation on In-vehicle Battery Durability for Electrified Vehicles, Adopted April 14, 2022, (“GTR No. 22”); IBR approved for § 86.1815.

(2) [Reserved]

* * * * *

(d) **California Air Resources Board.** The following documents are available from the California Air Resources Board, 1001 I Street, Sacramento, CA 95812, (916) 322-2884, or <http://www.arb.ca.gov>:

(1) California Requirements Applicable to the LEV III Program, including the following documents:

(i) LEV III exhaust emission standards are in Title 13 Motor Vehicles, Division 3 Air Resources Board, Chapter 1 Motor Vehicle Pollution Control Devices, Article 2 Approval of Motor Vehicle Pollution Control Devices (New Vehicles), § 1961.2 Exhaust Emission Standards and Test Procedures - 2015 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles, effective as of December 31, 2012, IBR approved for § 86.1803-01.

(ii) LEV III evaporative emission standards for model year 2015 and later vehicles are in Title 13 Motor Vehicles, Division 3 Air Resources Board, Chapter 1 Motor Vehicle Pollution Control Devices, Article 2 Approval of Motor Vehicle Pollution Control Devices (New Vehicles) § 1976 Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions, effective as of December 31, 2012, IBR approved for § 86.1803-01.

(2) [California Regulatory Requirements known as Onboard Diagnostics II \(OBD-II\), Title 13, Motor Vehicles, Division 3, Air Resources Board, Chapter 1, Motor Vehicle Pollution Control Devices, Article 2, Approval of Motor Vehicle Pollution Control Devices \(New Vehicles\), § 1968.2 Malfunction and Diagnostic System Requirements - 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines; operative November 30, 2022; IBR approved for § 86.1806-27\(a\).](#) ~~California Regulatory Requirements Applicable to the National Low Emission Vehicle Program, October 1996, IBR approved for § 86.113-04(a).~~

(3) ~~[Reserved] California Regulatory Requirements known as Onboard Diagnostics II (OBD-II), Approved on April 21, 2003, Title 13, California Code of Regulations, Section 1968.2, Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model Year Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles and Engines (OBD-II), IBR approved for § 86.1806-05(j).~~

(4) ~~[Reserved] California Regulatory Requirements known as Onboard Diagnostics II (OBD-II), Approved on November 9, 2007, Title 13, California Code of Regulations, Section 1968.2, Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light Duty Trucks, and Medium Duty Vehicles and Engines (OBD-II), IBR approved for § 86.1806-05(j).~~

(5) California Regulatory Requirements known as Onboard Diagnostics II (OBD-II), Title 13, Motor Vehicles, Division 3, Air Resources Board, Chapter 1, Motor Vehicle Pollution Control Devices, Article 2, Approval of Motor Vehicle Pollution Control Devices (New Vehicles), § 1968.2 Malfunction and Diagnostic System Requirements - 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines, effective as of July 31, 2013, IBR approved for § 86.1806-17(a).

(e) * * *

(2) ISO 15765-4:2005(E), Road Vehicles - Diagnostics on Controller Area Networks (CAN) - Part 4: Requirements for emissions-related systems, January 15, 2005, IBR approved for §§ 86.010-18(k) and [86.1806-05\(h\)](#).

* * * * *

(g) * * *

(4) ~~[Reserved] SAE J1850, Class B Data Communication Network Interface, Revised May 2001, IBR approved for § 86.1806-05(h).~~

* * * * *

(8) SAE J1930, Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms - Equivalent to ISO/TR 15031-2: April 30, 2002, Revised April 2002, IBR approved for §§ 86.010-18(k) ~~and 86.1806-05(h).~~

* * * * *

(10) ~~[Reserved] SAE J1939-11, Physical Layer—250K bits/s, Shielded Twisted Pair, Revised October 1999, IBR approved for § 86.1806-05(h).~~

(11) ~~[Reserved] SAE J1939-13, Off-Board Diagnostic Connector, July 1999, IBR approved for § 86.1806-05(h).~~

* * * * *

(13) ~~[Reserved] SAE J1939-21, Data Link Layer, Revised April 2001, IBR approved for § 86.1806-05(h).~~

(14) ~~[Reserved] SAE J1939-31, Network Layer, Revised December 1997, IBR approved for § 86.1806-05(h).~~

(15) SAE J1939-71, Vehicle Application Layer (Through February 2007), Revised January 2008, IBR approved for §§ 86.010-38(j) ~~and 86.1806-05(h).~~

(16) SAE J1939-73, Application Layer – Diagnostics, Revised September 2006, IBR approved for §§ 86.010-18(k); 86.010-38(j), ~~and 86.1806-05(h).~~

(17) SAE J1939-81, Network Management, Revised May 2003, IBR approved for §§ 86.010-38(j) ~~and 86.1806-05(h).~~

(18) SAE J1962, Diagnostic Connector Equivalent to ISO/DIS 15031-3; December 14, 2001, Revised April 2002, IBR approved for §§ 86.010-18(k) ~~and 86.1806-05(h).~~

(19) SAE J1978, OBD II Scan Tool – Equivalent to ISO/DIS 15031-4; December 14, 2001, Revised April 2002, IBR approved for §§ 86.010-18(k) ~~and 86.1806-05(h).~~

* * * * *

(21) SAE J1979, (R) E/E Diagnostic Test Modes, Revised May 2007, IBR approved for §§ 86.010-18(k) ~~and 86.1806-05(h).~~

(22) SAE J2012, (R) Diagnostic Trouble Code Definitions Equivalent to ISO/DIS 15031-6: April 30, 2002, Revised April 2002, IBR approved for §§ 86.010-18(k) ~~and 86.1806-05(h).~~

* * * * *

(25) SAE J2403, Medium/Heavy-Duty E/E Systems Diagnosis Nomenclature - Truck and Bus, Revised August 2007, IBR approved for §§ 86.010-18(k); 86.010-38(j), ~~and 86.1806-05(h).~~

* * * * *

§ 86.113-04—[Amended]

22. Amend § 86.113-04 by removing and reserving paragraph (a)(2)(i).

§ 86.113-04 Fuel specifications.

* * * * *

(a) * * *

(2) * * *

(i) ~~[Reserved] For model year 2014 and earlier vehicles certified for 50-state sale, manufacturers may perform exhaust emission tests using California Phase 2 gasoline as specified in Chapter 4 of the California Regulatory Requirements Applicable to the National Low Emission Vehicle Program, October 1996 (incorporated by reference in § 86.1). However, the Administrator may use or require the use of test fuel meeting the specifications in paragraph (a)(1) of this section for confirmatory testing, selective enforcement auditing and in-use testing.~~

~~* * * * *~~

23. Add § 86.113-27 to read as follows:

§ 86.113-27 Fuel specifications.

Use the fuels specified in 40 CFR part 1065 to perform valid tests, as follows:

(a) For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use vehicles will use.

(b) For diesel-fueled engines, use the ultra low-sulfur diesel fuel specified in 40 CFR part 1065.703 for emission testing.

(c) The following fuel requirements apply for gasoline-fueled engines:

(1) Use the appropriate E10 fuel specified in 40 CFR part 1065.710(b) to demonstrate compliance with all exhaust, evaporative, and refueling emission standards under subpart S of this part.

(2) For vehicles certified for 50-state sale, you may instead use California Phase 3 gasoline (E10) as adopted in California's LEV III program as follows:

(i) You may use California Phase 3 gasoline (E10) as adopted in California's LEV III program for exhaust emission testing.

(ii) If you certify vehicles to LEV III evaporative emission standards with California Phase 3 gasoline (E10), you may use that collection of data to certify to evaporative emission standards. For evaporative emission testing with California test fuels, perform tests based on the test temperatures specified by the California Air Resources Board. Note that this paragraph (c)(2)(ii) does not apply for refueling, 19pitback, high-altitude, or leak testing.

(iii) If you certify using fuel meeting California's specifications, we may perform testing with E10 test fuel meeting either California or EPA specifications.

(d) Interim test fuel specifications apply for model years 2027 through 2029 as described in 40 CFR 600.117.

(e) Additional test fuel specifications apply as specified in subpart S of this part.

24. Amend § 86.132-96 by revising paragraphs (a), (b), (f), (g), (h) introductory text, and (j) introductory text to read as follows:

§ 86.132-96 Vehicle preconditioning.

(a) Prepare the vehicle for testing as described in this section. Store the vehicle before testing in a way that prevents fuel contamination and preserves the integrity of the fuel system. Fuel tank cap(s) of gasoline and methanol-fueled vehicles shall be removed during any period that the vehicle is parked outdoors awaiting testing, to prevent unusual loading of the canisters. During this time care must be taken to prevent entry of water or other contaminants into the fuel tank.

~~During storage in the test area while awaiting testing, the fuel tank cap(s) may be in place. The vehicle shall be moved into the test area and the following operations performed.~~

(b)(1) ~~Gasoline- and Methanol-Fueled Vehicles.~~ Drain the fuel tank(s) and fill with test fuel, as specified in § 86.113, to the “tank fuel volume” defined in § 86.082-2. ~~Install the fuel cap(s) shall be installed~~ within one minute after refueling.

(2) ~~Gaseous-Fueled Vehicles.~~ ~~Fill Vehicle~~ fuel tanks ~~to be filled~~ with fuel that meets the specifications in § 86.113. ~~Fill the F~~ fuel tanks ~~shall be filled~~ to a minimum of 85 percent ~~75%~~ of service pressure for natural gas-fueled vehicles or a minimum of 85 percent ~~75%~~ of available fill volume for liquefied petroleum gas-fueled vehicles. Prior draining of the fuel tanks is not required ~~called for~~ if the fuel in the tanks already meets the specifications in § 86.113.

* * * * *

(f) Drain and then fill the vehicle’s fuel tank(s) with test fuel, as specified in § 86.113, to the “tank fuel volume” defined in § 86.082-2. Refuel the vehicle within 1 hour after completing the preconditioning drive. Install fuel cap(s) within 1 minute after refueling. Park the vehicle within five minutes after refueling. However, for the following vehicles omit this refueling event and instead drive the vehicle off the dynamometer and park it within five minutes after the preconditioning drive:

(1) Diesel-fueled vehicles.

(2) Gaseous-fueled vehicles.

(3) Fuel economy data vehicles.

(4) In-use vehicles subject to testing under § 86.1845.

~~(1) Gasoline- and methanol-fueled vehicles.~~ After completion of the preconditioning drive, the vehicle shall be driven off the dynamometer. The vehicle's fuel tank(s) shall be drained and then filled with test fuel, as specified in § 86.113, to the “tank fuel volume” defined in § 86.082-2. The vehicle shall be refueled within 1 hour after completion of the preconditioning drive. The fuel cap(s) shall be installed within 1 minute after refueling. The vehicle shall be parked within five minutes after refueling.

~~(2) Petroleum-fueled diesel vehicles.~~ Within five minutes after completion after the preconditioning drive, the vehicle shall be driven off the dynamometer and parked.

~~(3) Gaseous-fueled vehicles.~~ After completion of the preconditioning drive, the vehicle shall be driven off the dynamometer. Vehicle fuel tanks shall be refilled with fuel that meets the specifications in § 86.113. Fuel tanks shall be filled to a minimum of 75% of service pressure for natural gas-fueled vehicles or a minimum of 75% of available fill volume for liquefied petroleum gas-fueled vehicles. Prior draining of the fuel tanks is not called for if the fuel in the tanks already meets the specifications in § 86.113. The vehicle shall be parked within five minutes after refueling, or, in the absence of refueling, within five minutes after completion of the preconditioning drive.

(g) The vehicle shall be soaked for not less than 12 hours nor more than 36 hours ~~between the end of the refueling event and the beginning of~~ before the cold start exhaust emission test. The soak period starts at the end of the refueling event, or at the end of the previous drive if there is no refueling.

(h) During the soak period for the three-diurnal test sequence described in § 86.130-96, precondition any evaporative canisters as described in this paragraph (h); however, canister preconditioning is not required for fuel economy data vehicles. ~~evaporative canisters, if the vehicle is so equipped, shall be preconditioned according to the following procedure.~~ For

vehicles with multiple canisters in a series configuration, the set of canisters must be preconditioned as a unit. For vehicles with multiple canisters in a parallel configuration, each canister must be preconditioned separately. If production evaporative canisters are equipped with a functional service port designed for vapor load or purge steps, the service port shall be used during testing to precondition the canister. In addition, for model year 1998 and later vehicles equipped with refueling canisters, these canisters shall be preconditioned for the three-diurnal test sequence according to the procedure in paragraph (j)(1) of this section. If a vehicle is designed to actively control evaporative or refueling emissions without a canister, the manufacturer shall devise an appropriate preconditioning procedure, subject to the approval of the Administrator.

* * * * *

(j) During the soak period For the supplemental two-diurnal test sequence described in § 86.130-96, precondition any evaporative canisters using one of the methods described in this paragraph (j); however, canister preconditioning is not required for fuel economy data vehicles. one of the following methods shall be used to precondition evaporative canisters during the soak period specified in paragraph (g) of this section. For vehicles with multiple canisters in a series configuration, the set of canisters must be preconditioned as a unit. For vehicles with multiple canisters in a parallel configuration, each canister must be preconditioned separately. In addition, for model year 1998 and later vehicles equipped with refueling canisters, these canisters shall be preconditioned for the supplemental two-diurnal test sequence according to the procedure in paragraph (j)(1) of this section. Canister emissions are measured to determine breakthrough. Breakthrough is here defined as the point at which the cumulative quantity of hydrocarbons emitted is equal to 2 grams.

* * * * *

§§ 86.165-12 and 86.1801-01—[Removed]

25. Remove §§ 86.165-12 and 86.1801-01.

26. Amend § 86.1801-12 by revising paragraphs (a)(2)(ii), (h), (i), (j)(1) introductory text, and (k) and adding paragraph (l) to read as follows:

§ 86.1801-12 Applicability.

(a) * * *

(2) * * *

(ii) Starting in model year 2030, the provisions of this subpart do not apply for vehicles above 22,000 pounds GCWR. The provisions of this subpart are optional for those vehicles in model years 2027 through 2029 as described in paragraph (l) of this section. [Reserved]

* * * * *

(3) * * *

(i) Heavy duty vehicles above 14,000 pounds GVWR may be optionally certified to the exhaust emission standards in this subpart, including the greenhouse gas emission standards, if they are properly included in a test group with similar vehicles at or below 14,000 pounds GVWR. Emission standards apply to these vehicles as if they were Class 3 heavy-duty vehicles. The work factor for these vehicles may not be greater than the

largest work factor that applies for vehicles in the test group that are at or below 14,000 pounds GVWR (see § 86.1819-14). Starting in model year 2030, this option no longer applies for vehicles above 22,000 pounds GCWR.

(ii) Incomplete heavy-duty vehicles at or below 14,000 pounds GVWR may be optionally certified to the exhaust emission standards in this subpart that apply for heavy-duty vehicles. Starting in model year 2030, this option no longer applies for vehicles above 22,000 pounds GCWR.

* * * * *

(h) *Applicability of provisions of this subpart to light-duty vehicles, light-duty trucks, medium-duty passenger vehicles, and heavy-duty vehicles.* Numerous sections in this subpart provide requirements or procedures applicable to a “vehicle” or “vehicles.” Unless otherwise specified or otherwise determined by the Administrator, the term “vehicle” or “vehicles” in those provisions apply equally to light-duty vehicles (LDVs), light-duty trucks (LDTs), medium-duty passenger vehicles (MDPVs), and heavy-duty vehicles (HDVs), as those terms are defined in § 86.1803-01. Note that this subpart also identifies heavy-duty vehicles at or below 14,000 pounds GVWR that are not medium-duty passenger vehicles as medium-duty vehicles.

(i) *Types of pollutants.* Emission standards and related requirements apply for different types of pollutants as follows:

(1) *Criteria pollutants.* Criteria pollutant standards apply for NO_x, HC, PM, and CO, including exhaust, evaporative, and refueling emission standards. These pollutants are sometimes described collectively as “criteria pollutants” because they are either criteria pollutants under the Clean Air Act or precursors to the criteria pollutants ozone and PM.

(2) *Greenhouse gas emissions.* This subpart contains standards and other regulations applicable to the emission of the air pollutant defined as the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

(3) *Nomenclature.* ~~Applicability of provisions of this subpart to exhaust greenhouse gas emissions.~~ Numerous sections in this subpart refer to requirements relating to “exhaust emissions.” Unless otherwise specified or otherwise determined by the Administrator, the term “exhaust emissions” refers at a minimum to emissions of all pollutants described by emission standards in this subpart, including carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄).

(j) * * *

(1) Manufacturers that qualify as a small business under the Small Business Administration regulations in 13 CFR part 121 are exempt from certain standards and associated provisions the greenhouse gas emission standards as specified in §§ 86.1815, 86.1818-12, and 86.1819 and in associated provisions in this part and in 40 CFR part 600 of this chapter. This exemption applies to both U.S.-based and non-U.S.-based businesses. The following categories of businesses (with their associated NAICS codes) may be eligible for exemption based on the Small Business Administration size standards in 13 CFR 121.201:;

* * * * *

(k) *Conditional exemption from greenhouse gas emission standards.* Manufacturers meeting the eligibility requirements described in paragraphs (k)(1) and (2) of this section may request a conditional exemption from compliance with the emission standards described in § 86.1818-12(c) through (e) and associated provisions in this part and in part 600 of this chapter for model years. ~~A conditional exemption under this paragraph (k) may be requested for the~~ 2012 through

2016 model years. The terms “sales” and “sold” as used in this paragraph (k) shall mean vehicles produced for U.S. sale, where “U.S.” means the states and territories of the United States. For the purpose of determining eligibility the sales of related companies shall be aggregated according to the provisions of § 86.1838-01(b)(3) or, if a manufacturer has been granted operational independence status under § 86.1838-01(d), eligibility shall be based on that manufacturer’s vehicle production ~~of that manufacturer.~~

(1) ~~[Reserved] Eligibility requirements. Eligibility as determined in this paragraph (k) shall be based on the total sales of combined passenger automobiles and light trucks. Manufacturers must meet one of the requirements in paragraph (k)(1)(i) or (ii) of this section to initially qualify for this exemption.~~

~~(i) A manufacturer with 2008 or 2009 model year sales of more than zero and fewer than 5,000 is eligible for a conditional exemption from the greenhouse gas emission standards described in § 86.1818-12 paragraphs (e) through (e).~~

~~(ii) A manufacturer with 2008 or 2009 model year sales of more than zero and fewer than 5,000 while under the control of another manufacturer, where those 2008 or 2009 model year vehicles bore the brand of the producing manufacturer but were sold by or otherwise under the control of another manufacturer, and where the manufacturer producing the vehicles became independent no later than December 31, 2010, is eligible for a conditional exemption from the greenhouse gas emission standards described in § 86.1818-12 paragraphs (e) through (e).~~

(2) *Maintaining eligibility for exemption from greenhouse gas emission standards.* To remain eligible for exemption under this paragraph (k) the manufacturer's average sales for the three most recent consecutive model years must remain below 5,000. If a manufacturer's average sales for the three most recent consecutive model years exceeds 4999, the manufacturer will no longer be eligible for exemption and must meet applicable emission standards according to the provisions in this paragraph (k)(2).

(i) If a manufacturer's average sales for three consecutive model years exceeds 4999, and if the increase in sales is the result of corporate acquisitions, mergers, or purchase by another manufacturer, the manufacturer shall comply with the emission standards described in § 86.1818-12 ~~paragraphs~~ (c) through (e), as applicable, beginning with the first model year after the last year of the three consecutive model years.

(ii) If a manufacturer's average sales for three consecutive model years exceeds 4999 and is less than 50,000, and if the increase in sales is solely the result of the manufacturer's expansion in vehicle production, the manufacturer shall comply with the emission standards described in § 86.1818-12 ~~paragraphs~~ (c) through (e), as applicable, beginning with the second model year after the last year of the three consecutive model years.

(iii) If a manufacturer's average sales for three consecutive model years exceeds 49,999, the manufacturer shall comply with the emission standards described in § 86.1818-12 ~~paragraphs~~ (c) through (e), as applicable, beginning with the first model year after the last year of the three consecutive model years.

(3) ~~[Reserved] Requesting the conditional exemption from standards. To be exempted from the standards described in § 86.1818-12(e) through (e), the manufacturer must submit a declaration to EPA containing a detailed written description of how the manufacturer qualifies under the provisions of this paragraph (k). The declaration must describe eligibility information that includes the following: model year 2008 and 2009 sales, sales volumes for each of the most recent three model years, detailed information regarding ownership~~

~~relationships with other manufacturers, details regarding the application of the provisions of § 86.1838-01(b)(3) regarding the aggregation of sales of related companies, and documentation of good faith efforts made by the manufacturer to purchase credits from other manufacturers. This declaration must be signed by a chief officer of the company, and must be made prior to each model year for which the exemption is requested. The declaration must be submitted to EPA at least 30 days prior to the introduction into commerce of any vehicles for each model year for which the exemption is requested, but not later than December of the calendar year prior to the model year for which exemption is requested. A conditional exemption will be granted when EPA approves the exemption declaration. The declaration must be sent to the Environmental Protection Agency at the following address: Director, Compliance and Innovative Strategies Division, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, Michigan 48105.~~

(1) Transition to GHG standards for high-GCWR vehicles. If manufacturers certify all their engines installed in model year 2027 vehicles with GCWR above 22,000 pounds under 40 CFR part 1036, instead of waiting until model year 2030, the vehicles in which those engines are installed may demonstrate compliance with the appropriate CO₂ target values specified for model year 2026 in § 86.1819-14(k)(4)(i). See 40 CFR 1036.635.

27. Amend § 86.1803-01 by:

- a. Revising the definition of “Banking”.
- b. Removing the definitions of “Durability useful life”, “Fleet average cold temperature NMHC standard”, and “Fleet average NO_x standard”.
- c. Adding definitions of “Incomplete vehicle” and “Light-duty program vehicle” in alphabetical order.
- d. Revising the definitions of “Light-duty truck” and “Medium-duty passenger vehicle (MDPV)”.
- e. Adding definitions of “Normal operation” and “Rechargeable Energy Storage System (RESS)”, and “Revoke” in alphabetical order.
- f. Revising the definition of “Supplemental FTP (SFTP)”.
- g. Adding definitions of “Suspend”, “Tier 4”, and “United States” in alphabetical order.
- h. Removing the definition of “Useful life”.
- i. Adding a definition of “void” in alphabetical order.

The revisions and additions read as follows:

§ 86.1803-01 Definitions.

* * * * *

~~Banking means one of the following: (1) The retention of NO_x-emission credits for complete heavy-duty vehicles by the manufacturer generating the emission credits, for use in future model year certification programs as permitted by regulation.~~

~~(2) The retention of cold temperature non-methane hydrocarbon (NMHC) emission credits for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles by the manufacturer generating the emission credits, for use in future model year certification programs as permitted by regulation.~~

~~(3) The retention of NO_x-emission credits for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles for use in future model year certification programs as permitted by regulation.~~

~~(4) The retention of CO₂ emission credits for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles for use in future model year certification programs as permitted by regulation.~~

~~*Durability useful life* means the highest useful life mileage out of the set of all useful life mileages that apply to a given vehicle. The durability useful life determines the duration of service accumulation on a durability data vehicle. The determination of durability useful life shall reflect any light-duty truck or complete heavy-duty vehicle alternative useful life periods approved by the Administrator under § 86.1805-01(e). The determination of durability useful life shall exclude any standard and related useful life mileage for which the manufacturer has obtained a waiver of emission data submission requirements under § 86.1829-01.~~

~~*Fleet average cold temperature NMHC standard* means, for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles, an NMHC cold temperature standard imposed over an individual manufacturer's total 50-State U.S. sales (or a fraction of total U.S. sales during phase-in years), as "U.S. sales" is defined to include all national sales, including points of first sale in California, of a given model year. Manufacturers determine their compliance with such a standard by averaging, on a sales-weighted basis, the individual NMHC "Family Emission Limits" (FEL—as defined in this subpart) to which light-duty vehicles, light-duty trucks and medium-duty passenger vehicles were certified and sold for that model year.~~

~~*Fleet average NO_x standard* means, for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles, a NO_x standard imposed over an individual manufacturer's total U.S. sales (or a fraction of total U.S. sales during phase-in years), as "U.S. sales" is defined in this subpart, of a given model year. Manufacturers determine their compliance with such a standard by averaging, on a sales-weighted basis, the individual NO_x standards they choose for the fleet of light-duty vehicles, light-duty trucks and medium-duty passenger vehicles they sell of that model year.~~

~~* * * * *~~

Incomplete vehicle has the meaning given in 40 CFR 1037.801.

~~* * * * *~~

Light-duty program vehicle means any medium-duty passenger vehicle and any vehicle subject to standards under this subpart that is not a heavy-duty vehicle. This definition generally applies only for model year 2027 and later vehicles.

Light-duty truck has one of the following meanings:

(1) Except as specified in paragraph (2) of this definition, *Light-duty truck* means any motor vehicle that is not a heavy-duty vehicle, but is:

(i) Designed primarily for purposes of transportation of property or is a derivation of such a vehicle; or

(ii) Designed primarily for transportation of persons and has a capacity of more than 12 persons; or

(iii) Available with special features enabling off-street or off-highway operation and use.

(2) For vehicles subject to Tier 4 standards, *Light-duty truck* has the meaning given for "Light truck" in 40 CFR 600.002.

~~* * * * *~~

Medium-duty passenger vehicle (MDPV) has one of the following meanings:

(1) Except as specified in paragraph (2) of this definition, *Medium-duty passenger vehicle* means any heavy-duty vehicle (as defined in this subpart) with a gross vehicle weight rating (GVWR)

of less than 10,000 pounds that is designed primarily for the transportation of persons. The MDPV definition does not include any vehicle which:

- (i) Is an “incomplete truck” as defined in this subpart; or
- (ii) Has a seating capacity of more than 12 persons; or
- (iii) Is designed for more than 9 persons in seating rearward of the driver's seat; or
- (iv) Is equipped with an open cargo area (for example, a pick-up truck box or bed) of 72.0 inches in interior length or more. A covered box not readily accessible from the passenger compartment will be considered an open cargo area for purposes of this definition.

(2) Starting with model year 2027, or earlier at the manufacturer’s discretion, Medium-duty passenger vehicle means any heavy-duty vehicle subject to standards under this subpart (as defined in this subpart) with a gross vehicle weight rating (GVWR) of less than 10,000 pounds that is designed primarily for the transportation of persons, with seating rearward of the driver, except that the The MDPV definition does not include any vehicle ~~that which:~~

- (i) Is an “incomplete truck” as defined in this subpart; or
- (ii) Has a seating capacity of more than 12 persons; or
- (iii) Is designed for more than 9 persons in seating rearward of the driver's seat; or
- (iv) Is equipped with an open cargo area (for example, a pick-up truck box or bed) with an interior length of 72.0 inches ~~in interior length~~ or more for vehicles above 9,899 pounds GVWR with a work factor above 5,000 pounds. A covered box not readily accessible from the passenger compartment will be considered an open cargo area for purposes of this definition.

(v) Is equipped with an open cargo area of 94.0 inches in interior length or more for vehicles at or below 9,899 pounds GVWR and for vehicles with a work factor at or below 5,000 pounds.

Medium-duty vehicle means any heavy-duty vehicle subject to standards under this subpart, excluding medium-duty passenger vehicles. This definition generally applies only for model year 2027 and later vehicles.

* * * * *

Normal operation means any vehicle operating modes meeting all the following conditions:

- (1) Any engine and vehicle settings that are within the physically adjustable range for any adjustable parameters.
- (2) Any operator demand that is allowable for engine and vehicle calibrations that are available to the operator for vehicle operation within the manufacturer’s specifications fuel and load (GVWR and GCWR).
- (3) Any ambient conditions during any season for operation on public roads in the United States.

* * * * *

Rechargeable Energy Storage System (RESS) has the meaning given in 40 CFR 1065.1001. For electric vehicles and hybrid electric vehicles, this may also be referred to as a Rechargeable Electrical Energy Storage System.

* * * * *

Revoke has the meaning given in 40 CFR 1068.30.

* * * * *

Supplemental FTP (SFTP) means the ~~additional~~ test procedures designed to measure emissions during aggressive and microtransient driving, ~~as described in § 86.159-00~~ over the US06 cycle, and ~~during also the test procedure designed to measure urban driving emissions~~ while the

vehicle's air conditioning system is operating, ~~as described in § 86.160-00~~ over the SC03 cycle ~~as described in § 86.1811-17.~~

Suspend has the meaning given in 40 CFR 1068.30.

* * * * *

Tier 4 means relating to the Tier 4 emission standards described in §§ 86.1811-27. Note that a Tier 4 vehicle continues to be subject to Tier 3 evaporative emission standards.

* * * * *

United States has the meaning given in 40 CFR 1068.30.

~~Useful life means the period of use or time during which an emission standard applies to light-duty vehicles and light-duty trucks, as described in § 86.1805-01.~~

* * * * *

Void has the meaning given in 40 CFR 1068.30.

* * * * *

§§ 86.1805-04 and 86.1805-12—[Removed]

28. Remove §§ 86.1805-04 and 86.1805-12.

29. Amend § 86.1805-17 by revising paragraphs (c) and (d) and removing paragraph (f) to read as follows:

§ 86.1805-17 Useful life.

* * * * *

(c) *Cold temperature emission standards.* The cold temperature NMHC emission standards in § 86.1811-17 apply for a useful life of 10 years or 120,000 miles for LDV and LLDT, and 11 years or 120,000 miles for HLDT and HDV. The cold temperature CO emission standards in § 86.1811 apply for a useful life of 5 years or 50,000 miles.

(d) *Criteria pollutants.* The useful life provisions of this paragraph (d) apply for all emission standards not covered by paragraph (b) or (c) of this section. This paragraph (d) applies for the cold temperature emission standards in § 86.1811-27(c). Except as specified in paragraph (f) of this section and in §§ 86.1811, 86.1813, and 86.1816, the useful life for LDT2, HLDT, MDPV, and HDV is 15 years or 150,000 miles. The useful life for LDV and LDT1 is 10 years or 120,000 miles. Manufacturers may optionally certify LDV and LDT1 to a useful life of 15 years or 150,000 miles, in which case the longer useful life would apply for all the standards and requirements covered by this paragraph (d).

* * * * *

~~(f) *Interim provisions.* The useful life provisions of § 86.1805-12 apply for vehicles not yet subject to Tier 3 requirements. For example, vehicles above 6,000 pounds GVWR are not subject to the useful life provisions in this section until model year 2019 unless manufacturers voluntarily certify to the Tier 3 requirements earlier than the regulations require. Also, where the transition to Tier 3 standards involves a phase-in percentage for a given standard, vehicles not included as part of the phase-in portion of the fleet continue to be subject to the useful life provisions of § 86.1805-12 with respect to that standard. The useful life values for a set of vehicles may be different for exhaust and evaporative emission standards in 2021 and earlier model years; if vehicles have different useful life values for evaporative and exhaust emission~~

~~standards, the evaporative useful life applies for the OBD requirements related to the leak standard and the exhaust useful life applies for all other OBD requirements.~~

§ 86.1806-05 [Removed]

30. Remove § 86.1806-05.

31. Amend § 86.1806-17 by revising paragraphs (b)(4)(ii) and (e) to read as follows:

§ 86.1806-17 Onboard diagnostics.

* * * * *

(b) * * *

(4) * * *

(ii) Design your vehicles to display information ~~1036~~ related to engine derating and other inducements in the cab as specified in 40 CFR 1036.110(c)(1).

* * * * *

(e) Onboard diagnostic requirements apply for alternative-fuel conversions as described in 40 CFR part 85, subpart F. For alternative-fuel conversions, manufacturers may meet the requirements of § 86.1806-05 instead of the requirements of this section.

* * * * *

32. Add § 86.1806-27 to read as follows:

§ 86.1806-17 Onboard diagnostics. § 86.1806-27 Onboard diagnostics.

Model year ~~2027~~ ~~2017~~ and later vehicles must have onboard diagnostic (OBD) systems as described in this section. OBD systems must generally detect malfunctions in the emission control system, store trouble codes corresponding to detected malfunctions, and alert operators appropriately. Vehicles may optionally comply with the requirements of this section instead of the requirements of § 86.1806-17 before model year 2027.

(a) Vehicles must comply with the ~~2022~~ ~~2013~~ OBD requirements adopted for California as described in this paragraph (a). California's ~~2022~~ ~~2013~~ OBD-II requirements are part of Title 13, § 1968.2 of the California Code of Regulations, approved on ~~November 22, 2022~~ ~~July 31, 2013~~ (incorporated by reference in § 86.1). We may approve your request to certify an OBD system meeting a later version of California's OBD requirements if you demonstrate that it complies with the intent of this section. The following clarifications and exceptions apply for vehicles certified under this subpart:

(1) For vehicles not certified in California, references to vehicles meeting certain California Air Resources Board emission standards are understood to refer to the corresponding EPA emission standards for a given family, where applicable. Use good engineering judgment to correlate the specified standards with the bin standards that apply under this subpart.

(2) Vehicles must comply with OBD requirements throughout the useful life as specified in § 86.1805. If the specified useful life is different for evaporative and exhaust emissions, the useful life specified for evaporative emissions applies for monitoring related to fuel-system leaks and the useful life specified for exhaust emissions applies for all other parameters.

(3) The purpose and applicability statements in 13 CCR 1968.2(a) and (b) do not apply.

- (4) The anti-tampering provisions in 13 CCR 1968.2(d)(1.4) do not apply.
- (5) The requirement to verify proper alignment between the camshaft and crankshaft described in 13 CCR 1968.2(e)(15.2.1)(C) applies only for vehicles equipped with variable valve timing.
- (6) The deficiency provisions described in paragraph (c) of this section apply instead of 13 CCR 1968.2(k).
- (7) ~~[Reserved] For emergency vehicles only, the provisions of 13 CCR 1968.2(e)(6.2.1) related to monitoring and identification of air-fuel ratio cylinder imbalance, as part of the fuel system monitoring, do not apply until model year 2020, unless the vehicle met the requirements in 2016 or earlier model years.~~
- (8) Apply thresholds for exhaust emission malfunctions from Tier ~~4~~³ vehicles based on the thresholds calculated for the corresponding bin standards in the California LEV III program as prescribed for the latest model year in 13 CCR 1968.2(~~d~~)(~~e~~) and (~~f~~). For example, for ~~Tier 4 Bin 10~~ ~~Tier 3 Bin 160~~ standards, apply the threshold that applies for the LEV standards. For cases involving ~~Tier 3~~ ~~Tier 4~~ standards that have no corresponding bin standards from the California LEV III program, use the next highest LEV III bin ~~20~~. For example, for ~~Tier 3~~ ~~Tier 4~~ Bin 50 standards, apply the threshold that applies for the ULEV standards. You may apply thresholds that are more stringent than we require under this paragraph (a)(8).
- (9) Apply thresholds as specified in 40 CFR 1036.110(b)(5) for engines certified to emission standards under 40 CFR part 1036.

~~(b) The following additional provisions apply:~~

- ~~(1) Model year 2017 and later vehicles must meet the OBD system requirements described in this paragraph (b)(1). When monitoring conditions are satisfied, test vehicles must detect the presence of a leak with an effective leak diameter at or above 0.020 inches, illuminate the MIL, and store the appropriate confirmed diagnostic trouble codes (DTCs) (13 CCR 1968.2 refers to these as fault codes). For a 0.020 inch leak, the DTC(s) shall be a generic SAE J2012 DTC that is specific to an EVAP system very small leak (e.g., P0456, P04EE, or P04EF) or an equivalent manufacturer specific DTC that we approve. Conduct testing using an O'Keefe Controls Co. metal "Type B" orifice with a diameter of 0.020 inches or an alternate orifice diameter approved under 13 CCR 1968.2(e)(4.2.3) or (e)(4.2.4).~~
- ~~(i) Use the methodology specified in 13 CCR 1968.2(h)(2.2) to select test vehicles to demonstrate that the OBD system is capable of detecting a 0.020 inch leak installed in the evaporative system, except that the manufacturer may use production representative vehicles instead of the vehicle options specified in 13 CCR 1968.2(h)(2.3).~~
- ~~(ii) Perform tests in the laboratory, with or without a dynamometer, or on an outdoor road surface, as necessary to exercise the vehicle's ability to detect leaks in the evaporative system.~~
- ~~(iii) Perform at least two tests to evaluate the OBD system for leaks that are installed near the fuel fill pipe and near the canister. The implanted leak near the fuel fill pipe must be at the fuel cap or between the fuel cap and the fuel tank. The implanted leak near the canister must be in the vapor line between the canister and the fuel tank, or between the canister and the purge valve). If a vehicle has multiple canisters or fuel fill pipes, repeat the testing to evaluate the system for implanted leaks corresponding to each canister and fuel fill pipe. You may propose to implant leaks in different locations (e.g., near the purge valve); we will approve your alternate leak location if it more effectively demonstrates leak detection for your particular fuel system design.~~
- ~~(iv) If vehicle operation is needed to fulfill preconditioning (i.e., when engine-off tests require driving before vehicle shutdown to enable the engine-off monitor) or monitoring conditions for~~

leak detection under this paragraph (b)(1) utilize an FTP cycle, Unified cycle, or some other specified operating cycle that will satisfy the approved monitoring or preconditioning conditions without the interference of approved deficiencies. Continue vehicle operation as needed to illuminate the MIL and store the appropriate DTCs.

(v) Emission measurements are not required during this OBD evaporative system leak monitoring demonstration testing.

(vi) For test groups not selected for testing in a given model year, you may instead provide a statement in the application for certification, consistent with good engineering judgment, that vehicles meet leak detection requirements based on previous OBD tests, development tests, or other appropriate information. For any untested test groups, the statement specified in § 86.1844-01(d)(8) applies with regard to the leak monitoring requirement. We may ask you to provide the data and other information that formed the basis for your statement. Select test groups in later model years such that testing will rotate to cover your whole product line over time.

(vii) Submit the following information in the application for certification:

(A) Describe the test sequence.

(B) Identify the driving cycle used and the time expired and distance driven before the MIL illuminated.

(C) Identify the ranges of in-use environmental and vehicle operating conditions for which the vehicle will not meet the leak detection specifications described in this paragraph (b)(1). To meet this requirement, you may give us the same information you gave the California Air Resources Board regarding enable conditions for the evaporative system leak monitor.

(D) Identify the confirmed and permanent DTCs set by the OBD system during testing.

(E) Include the freeze frame information stored at the point the fault is detected.

(F) Include the SAE J1979 test results (e.g., Mode/Service \$06) corresponding to the DTCs that were stored during the test.

(viii) If you have one or more vehicle models in model year 2016 that do not comply with the leak requirements in 13 CCR 1968.2(e)(4), you may comply with the requirements of this paragraph (b)(1) in model year 2017 by substituting model year 2016 vehicles on an equal percentage basis. Demonstrate this by calculating the percentage of vehicles subject to OBD requirements under this subpart that meet the requirements of this paragraph (b)(1) in model years 2016 and 2017; the sum of these two percentage values must be at or above 100 percent. Any model year 2017 vehicles not meeting the requirements of this paragraph (b)(1), as allowed by this paragraph (b)(1)(viii), may not be counted as compliant Tier 3 vehicles under the alternative phase in specified in § 86.1813-17(g)(2)(ii).

(2) For vehicles subject to the leak standard in § 86.1813, OBD systems must record in computer memory the result of the most recent successfully completed diagnostic check for a 0.020 inch leak. Someone must be able to use the data to determine the miles driven since the last check occurred, the pass/fail result, and whether there has been a check since the computer memory was last cleared (e.g., from a scan tool command or battery disconnect). The system may be designed to keep data only from the previous 750 miles of driving. (Note: This 750 mile requirement is related to the use of the OBD evaporative leak monitor in the leak test and should not be confused with either the minimum or maximum distance values specified in Table G-19 of SAE J1979.) The data must be reported in a standardized format consistent with other data required for the OBD system. The results must be scan readable.

(3) For vehicles with fuel tanks exceeding 25 gallons nominal fuel tank capacity, you may request our approval for a leak threshold greater than 0.020 inches, up to a maximum value of

~~0.040 inches. We will generally approve a leak threshold equal to the standard that applies under § 86.1813.~~

~~(b)(4)~~ For vehicles with installed compression-ignition engines that are subject to standards and related requirements under 40 CFR 1036.104 and 1036.111, you must comply with the following additional requirements:

~~(1)~~ Make parameters related to engine derating and other inducements available for reading with a generic scan tool as specified in 40 CFR 110(b)(9)(vi).

~~(2)~~ Design your vehicles to display information related to engine derating and other inducements in the cab as specified in 40 CFR 1036.110(c)(1).

(c) You may ask us to accept as compliant a vehicle that does not fully meet specific requirements under this section. Such deficiencies are intended to allow for minor deviations from OBD standards under limited conditions. We expect vehicles to have functioning OBD systems that meet the objectives stated in this section. The following provisions apply regarding OBD system deficiencies:

(1) Except as specified in paragraph (d) of this section, we will not approve a deficiency that involves the complete lack of a major diagnostic monitor, such as monitors related to exhaust aftertreatment devices, oxygen sensors, air-fuel ratio sensors, NO_x sensors, engine misfire, evaporative leaks, and diesel EGR (if applicable).

(2) We will approve a deficiency only if you show us that full compliance is infeasible or unreasonable considering any relevant factors, such as the technical feasibility of a given monitor, or the lead time and production cycles of vehicle designs and programmed computing upgrades.

(3) Our approval for a given deficiency applies only for a single model year, though you may continue to ask us to extend a deficiency approval in renewable one-year increments. We may approve an extension if you demonstrate an acceptable level of effort toward compliance and show that the necessary hardware or software modifications would pose an unreasonable burden.

(d) For alternative-fuel vehicles, manufacturers may request a waiver from specific requirements for which monitoring may not be reliable for operation with the alternative fuel. However, we will not waive requirements that we judge to be feasible for a particular manufacturer or vehicle model.

~~(e) For OBD-related requirements for alternative-fuel conversions apply as described in 40 CFR part 85, subpart F., manufacturers may meet the requirements of § 86.1806-05 instead of the requirements of this section.~~

(f) You may ask us to waive certain requirements in this section for emergency vehicles. We will approve your request for an appropriate duration if we determine that the OBD requirement in question could harm system performance in a way that would impair a vehicle's ability to perform its emergency functions.

(g) The following interim provisions describe an alternate implementation schedule for the requirements of this section in certain circumstances:

(1) Manufacturers may delay complying with all the requirements of this section, and instead meet all the requirements that apply under § 86.1806-~~1705~~, for any ~~heavy-duty~~ vehicles ~~above 6,000 pounds GVWR~~ that are not yet subject to ~~all~~ the ~~Tier 3~~ ~~Tier 4~~ standards in § ~~86.1811~~~~86.1816~~.

(2) Except as specified in this paragraph (g)(2), small-volume manufacturers may delay complying with all the requirements of this section until model year ~~2030~~~~2022~~, and instead

meet all the requirements that apply under § 86.1806-~~1705~~ during those years. ~~This provision does not apply for a vehicle model if it is identical to a 2016 vehicle model that was certified to meet California's OBD requirements under § 86.1806-05(j)(3). A vehicle model is considered identical to one from model year 2016 if it is certified in the current year based on the same test data for exhaust or evaporative emissions under the carryover data provisions of this subpart.~~

(3) Manufacturers may disregard the requirements of this section that apply above 8,500 pounds GVWR before model year 2019 and instead meet all the requirements that apply under § 86.1806-05. This also applies for model year 2019 vehicles from a test group with vehicles that have a Job 1 date on or before March 3, 2018 (see 40 CFR 85.2304).

(h) Manufacturers must meet the following requirements to monitor PM filters installed on vehicles with spark-ignition engines:

(1) For vehicles that have hardware dedicated to active regeneration strategies, such as secondary air or fuel injection or burners in the exhaust stream, monitor those systems for proper performance. Meet requirements for comprehensive monitoring in 13 CCR 1968.2(e)(15) for injectors, valves, sensors, pumps, and other individual components associated with such active regeneration systems.

(2) Systems must detect malfunctions as follows:

(i) The system must detect a malfunction before filtering decreases to the point that PM emissions exceed 10 mg/mile over the FTP. If there is no failure or deterioration of the PM filter that could cause a vehicle to exceed the specified PM emission level, the system must detect a malfunction if the PM filter allows free flow of exhaust through the PM filter assembly where 30 percent or less of the normal filtration is occurring; this may occur if someone tampers with the PM filter assembly by damaging it or replacing it with a straight pipe or if the PM filter substrate degrades to allow exhaust gases to bypass the filter.

(ii) The system must detect a malfunction before PM filter regeneration frequency increases to the point that HC, CO, or NOx emissions exceed 1.5 times the applicable FTP standard. If there is no failure or deterioration that could cause a vehicle to exceed the specified emission level, the system must detect a malfunction when PM filter regeneration frequency exceeds the manufacturer's specified design limits for allowable regeneration frequency.

(iii) The system must detect a malfunction if regeneration does not properly restore the PM filter when regeneration is designed to occur based on the manufacturer's specified conditions.

(3) Manufacturers must define monitoring conditions for malfunctions under paragraph (h)(2) of this section in accordance with 13 CCR 1968.2(d)(3.1) and (d)(3.2), except that monitoring of malfunctions under paragraph (h)(2)(i) and (ii) of this section must occur every time the monitoring conditions are met during the driving cycle. The required minimum ratio for gasoline particulate filters is 0.150. Manufacturers must track and report the in-use performance of PM filter monitors in accordance with 13 CCR 1968.2(d)(3.2.2). Separately track all monitors detecting malfunctions and report malfunctions as a single set of values as specified in 13 CCR 1968.2(d)(5.2.1)(B), except that manufacturers may need to report malfunctions separately for vehicles using SAE J1979-2 as specified in 13 CCR 1968.2(d)(5.1.3) and (5.2.2).

(4) Manufacturers must meet general requirements for MIL illumination and fault code storage for all the malfunctions in paragraph (h)(2) of this section in accordance with 13 CCR 1968.2(d)(2).

§ 86.1807-01—[Amended]

33. Amend § 86.1807-01 by removing and reserving paragraph (d).

* * * * *

~~(d) [Reserved](1) Incomplete light-duty trucks shall have the following prominent statement printed on the label required by paragraph (a)(3)(v) of this section: “This vehicle conforms to U.S. EPA regulations applicable to 20xx Model year Light-Duty Trucks under the special provisions of 40 CFR 86.1801-01(e)(1) when it does not exceed XXX pounds in curb weight, XXX pounds in gross vehicle weight rating, and XXX square feet in frontal area.”~~

~~(2) Incomplete heavy-duty vehicles optionally certified in accordance with the provisions for complete heavy-duty vehicles under the special provisions of § 86.1801-01(e)(2) shall have the following prominent statement printed on the label required by paragraph (a)(3)(v) of this section: “This vehicle conforms to U.S. EPA regulations applicable to 20xx Model year Complete Heavy-Duty Vehicles under the special provisions of 40 CFR 86.1801-01(e)(2) when it does not exceed XXX pounds in curb weight, XXX pounds in gross vehicle weight rating, and XXX square feet in frontal area.”~~

* * * * *

§ 86.1808-01—[Amended]

34. Amend § 86.1808-01 by removing and reserving paragraph (e).

~~(e) If the vehicle has been granted an alternative useful life period under the provisions of § 86.1805-01(c), the manufacturer may choose to include in such instructions an explanation of the distinction between the alternative useful life specified on the label, and the emissions defect and emissions performance warranty period. The explanation must clearly state that the useful life period specified on the label represents the average period of use up to retirement or rebuild for the test group represented by the engine used in the vehicle. An explanation of how the actual useful lives of engines used in various applications are expected to differ from the average useful life may be included. The explanation(s) shall be in clear, non-technical language that is understandable to the ultimate purchaser.~~

§§ 86.1809-01 and 86.1809-10—[Removed]

35. Remove §§ 86.1809-01 and 86.1809-10.

36. Revise § 86.1809-12 to read as follows:

§ 86.1809-12 Prohibition of defeat devices.

(a) No new ~~light-duty vehicle, light-duty truck, medium-duty passenger vehicle, or complete heavy-duty~~ vehicle shall be equipped with a defeat device.

(b) ~~The Administrator~~ EPA may test or require testing on any vehicle at a designated location, using driving cycles and conditions that may reasonably be expected to be encountered in normal operation and use, for the purposes of investigating a potential defeat device.

(c) For cold temperature CO₂ ~~and cold temperature~~ NMHC, ~~and NMOG+NOx~~ emission control, ~~the Administrator~~ EPA will use a guideline to determine the appropriateness of the CO emission control and the NMHC or NMOG+NOx emission control at ambient temperatures between 25 °F (the upper bound of the ~~FTP test temperature~~ range for cold temperature testing) and 68 °F (the lower bound of the FTP test temperature range). The guideline for CO and NMOG+NOx emission congruity across the intermediate temperature range is the linear interpolation between the CO or NMOG+NOx standard applicable at 25 °F and the corresponding CO standard applicable at 68 °F. The guideline for NMHC emission congruity across the intermediate temperature range is the linear interpolation between the NMHC FEL pass limit (e.g., 0.3499 g/mi for a 0.3 g/mi FEL) applicable at 20 °F and the Tier 2 NMOG standard or the Tier 3 or Tier 4 NMOG+-NO_x bin standard to which the vehicle was certified at 68 °F, where the intermediate temperature NMHC level is rounded to the nearest 0.01 g/mile hundredth for comparison to the interpolated line. The following provisions apply ~~For~~ vehicles that exceed the specified this CO emissions guideline during or this NMHC emissions guideline upon intermediate temperature testing:

(1) If the CO emission level is greater than the 20 °F emission standard, the vehicle will automatically be considered to be equipped with a defeat device without further investigation. If the intermediate temperature NMHC or NMOG+NOx emission level, rounded to the nearest ~~hundredth~~ 0.01 g/mile or the nearest 10 mg/mile, is greater than the 20 °F FEL pass limit, the vehicle will be presumed to have a defeat device unless the manufacturer provides evidence to EPA's satisfaction that the cause of the test result in question is not due to a defeat device.

(2) ~~If the CO emission level does not exceed the 20 °F emission standard, the Administrator may investigate the vehicle design for the presence of a defeat device under paragraph (d) of this section. If the intermediate temperature NMHC emission level, rounded to the nearest hundredth, does not exceed the 20 °F FEL pass limit the Administrator~~ If the conditions in paragraph (c)(1) of this section do not apply, EPA may investigate the vehicle design for the presence of a defeat device under paragraph (d) of this section.

(d) The following provisions apply for vehicle designs EPA designates for investigation as designated by the Administrator to be investigated for possible defeat devices:

(1) The manufacturer must show to EPA's ~~the~~ satisfaction ~~of the Administrator~~ that the vehicle design does not incorporate strategies that unnecessarily reduce emission control effectiveness exhibited during the certification test procedures specified in this subpart, the fuel economy test procedures in 40 CFR part 600, or the air conditioning efficiency test in 40 CFR 1066.845 ~~Federal Test Procedure or Supplemental Federal Test Procedure (FTP or SFTP) or the Highway Fuel Economy Test Procedure (described in subpart B of 40 CFR part 600), or the Air Conditioning Idle Test (described in § 86.165-12)~~, when the vehicle is operated under conditions that may reasonably be expected to be encountered in normal operation and use.

(2) EPA has determined that it is not necessary for spark-ignition engines that control air-fuel ratios at or near stoichiometry to use commanded enrichment to maintain power or to protect the engine or its aftertreatment components from damage. This determination is effective for

all vehicles certified to Tier 4 standards. This paragraph (d)(2) does not apply for the following examples of commanded enrichment:

- (i) Engine starting.
- (ii) Catalyst rewetting after deceleration fuel cutoff.
- (iii) Limp-home operation when the check engine light is on.
- (iv) Intrusive OBD monitoring.

~~(32)~~ The following information requirements apply:

- (i) Upon request by ~~the Administrator~~EPA, the manufacturer must provide an explanation containing detailed information regarding test programs, engineering evaluations, design specifications, calibrations, on-board computer algorithms, and design strategies incorporated for operation both during and outside of the Federal emission test procedures.
- (ii) For purposes of investigations of possible cold temperature CO₂ ~~or cold temperature NMHC, or NMOG+NOx~~ defeat devices under this paragraph (d), the manufacturer must provide an explanation to show, to EPA's ~~the satisfaction of the Administrator,~~ that CO emissions and NMHC or NMOG+NOx emissions are reasonably controlled in reference to the linear guideline across the intermediate temperature range.

(e) For each test group the manufacturer must submit an engineering evaluation; with the Part II certification application, ~~an engineering evaluation~~ demonstrating to EPA's ~~the satisfaction of the Administrator~~ that a discontinuity in emissions of non-methane organic gases, particulate matter, carbon monoxide, carbon dioxide, oxides of nitrogen, nitrous oxide, methane, and formaldehyde measured on the Federal Test Procedure (40 CFR 1066.801(c)(1)~~subpart B of this part~~) and on the Highway Fuel Economy Test Procedure (~~subpart B of 40 CFR 1066.801(c)(5)~~40 CFR part 600) does not occur in the temperature range of 20 to 86 °F. ~~For diesel vehicles, the engineering evaluation must also include particulate emissions.~~

37. Amend § 86.1810-17 by revising paragraphs (g) and (h)(1) to read as follows:

§ 86.1810-17 General requirements.

* * * * *

(g) The cold temperature ~~CO and NMHC~~ standards in this subpart refer to test procedures set forth in subpart C of this part and 40 CFR part 1066, subpart H. All other emission standards in this subpart rely on test procedures set forth in subpart B of this part and 40 CFR part 1066, subpart H. These procedures rely on the test specifications in 40 CFR parts 1065 and 1066 as described in subparts B and C of this part.

(h) * * *

(1) For criteria exhaust emissions, we may identify the worst-case fuel blend for testing in addition to what is required for gasoline-fueled vehicles. The worst-case fuel blend may be the fuel specified in 40 CFR 1065.725, or it may consist of a combination of the fuels specified in 40 CFR 1065.710(b) and 1065.725. We may waive testing with the worst-case blended fuel for US06 and/or SC03 duty cycles; if we waive only SC03 testing for Tier 3 vehicles, substitute the SC03 emission result using the standard test fuel for gasoline-fueled vehicles to calculate composite SFTP emissions.

* * * * *

38. Amend § 86.1811-17 by revising paragraphs (b)(8)(iii)(B), (d) introductory text, and (g)(2)(ii) to read as follows:

§ 86.1811-17 Exhaust emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.

* * * * *

(b) * * *

(8) * * *

(iii) * * *

(B) You may **continue to** use the E0 test fuel specified in § 86.113 **as described in 40 CFR 600.117.** ~~through model year 2019 for gasoline-fueled vehicles certified to bins higher than Bin 70. You may not certify these vehicles using carryover data after model year 2019.~~

* * * * *

(d) *Special provisions for Otto-cycle engines.* The **following** special provisions ~~described in this paragraph (d)~~ apply for vehicles with Otto-cycle engines; ~~For vehicles not certified to any Tier 3 emission standards, the provisions of § 86.1810-01(i)(6), (i)(13), and (i)(14) apply instead of this paragraph (d).~~

* * * * *

(g) * * *

(2) * * *

(ii) The manufacturer must calculate its fleet average cold temperature NMHC emission level(s) as described in § 86.1864-10(**bm**).

* * * * *

39. Add § 86.1811-27 to read as follows:

~~§ 86.1811-17 Exhaust emission standards for light-duty vehicles, light-duty trucks and medium-duty passenger vehicles.~~ **§ 86.1811-27 Criteria exhaust emission standards.**

(a) *Applicability and general provisions.* This section describes **criteria** exhaust emission standards that apply for model year ~~2027~~2017 and later ~~light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles.~~ MDPVs are subject to all the same emission standards and certification provisions that apply to LDT4. Some of the provisions of this section also apply to heavy-duty vehicles as specified in § 86.1816.

(1) A vehicle meeting all the requirements of this section is considered a Tier 4 vehicle meeting the Tier 4 standards.

(2) See § 86.1813 for evaporative and refueling emission standards.

(3) See § 86.1818 for greenhouse gas emission standards. ~~See § 86.1813 for evaporative and refueling emission standards. This section may apply to vehicles from model years earlier than 2017 as specified in paragraph (b)(11) of this section.~~

(b) ~~Tier 3-e~~**Exhaust emission standards over bin driving cycles.** Exhaust emissions may not exceed ~~the Tier 3 exhaust emission~~ standards **over bin driving cycles**, as follows:

(1) Measure emissions using the chassis dynamometer procedures of 40 CFR part 1066, as follows:

- (i) Establish appropriate load settings based on loaded vehicle weight for light-duty program vehicles and adjusted loaded vehicle weight for medium-duty vehicles (see § 86.1803).
- (ii) Emission standards under this paragraph (b) apply for all the following driving cycles unless otherwise specified:

| <u>The driving cycle...</u> | <u>is identified in...</u> |
|---|--------------------------------|
| <u>(A) FTP</u> | <u>40 CFR 1066.801(c)(1).</u> |
| <u>(B) US06</u> | <u>40 CFR 1066.801(c)(2).</u> |
| <u>(C) SC03</u> | <u>40 CFR 1066.801(c)(3).</u> |
| <u>(D) HFET</u> | <u>40 CFR 1066.801(c)(5).</u> |
| <u>(E) ACC II—Mid-temperature intermediate soak</u> | <u>40 CFR 1066.801(c)(8).</u> |
| <u>(F) ACC II—Early driveaway</u> | <u>40 CFR 1066.801(c)(9).</u> |
| <u>(G) ACC II High-load PHEV engine starts</u> | <u>40 CFR 1066.801(c)(10).</u> |

~~Use appropriate driving schedules. Measurements involve testing over multiple driving schedules. The Federal Test Procedure (FTP) is based on testing with the Urban Dynamometer Driving Schedule (UDDS). The Supplemental Federal Test Procedure (SFTP) involves testing with the UDDS, the US06 driving schedule, and the SC03 driving schedule. See 40 CFR 1066.801 for further information on these test cycles.~~

~~(iii) Calculate SFTP emissions as a composite of test results over the driving schedules identified in paragraph (b)(1)(ii) of this section based on the following calculation:
 $SFTP (g/mi) = 0.35 \times FTP + 0.28 \times US06 + 0.37 \times SC03$~~

~~(A) For test vehicles that do not have air conditioning, you may omit SC03 testing. To calculate composite SFTP emissions for such vehicles, use FTP emission results to substitute for the SC03 value in the equation.~~

~~(B) You may also use FTP emission results to substitute for the SC03 value in the equation for the types of vehicles identified in 40 CFR 600.115 that automatically qualify for the derived 5 cycle method for determining fuel economy label values. Such vehicles remain subject to the SFTP standard when tested over the SC03 driving schedule. Other vehicles remain subject to the litmus test provisions in 40 CFR 600.115.~~

~~(iv) Use E10 test fuel as required in § 86.113, except as specified in this section.~~

~~(iii) Hydrocarbon emission standards are expressed as NMOG; however, for certain vehicles you may measure exhaust emissions based on nonmethane hydrocarbon instead of NMOG as described in 40 CFR 1066.635.~~

~~(iv) Measure emissions from hybrid electric vehicles (including plug-in hybrid electric vehicles) as described in 40 CFR part 1066, subpart F, except that these procedures do not apply for plug-in hybrid electric vehicles during charge-depleting operation.~~

(2) ~~Table 1 of this section describes f~~Fully phased-in ~~Tier 3~~ standards ~~that~~ apply as specified in the following table: ~~this paragraph (b) for the identified driving schedules. The FTP standards for NMOG + NOx apply on a fleet-average basis using discrete bin standards as described in paragraph (b)(4) of this section. The bin standards include additional emission standards for high-altitude testing and for CO emissions when testing over the FTP driving schedule. The SFTP standards for NMOG + NOX apply on a fleet-average basis as described in paragraph (b)(5) of this section. Table 1 follows:~~

Table 1 of § 86.1811-~~27(b)(2)~~¹⁷—Fully Phased-in ~~Tier 4~~ ~~Tier 3~~ Criteria Exhaust Emission Standards (g/mile)

| | <u>NMOG+NO_x</u> <u>(mg/mile)^a</u> | <u>PM</u> <u>(mg/mile)^b</u> | <u>CO</u> <u>(g/mile)^c</u> | <u>Formaldehyde</u> <u>(mg/mile)^d</u> |
|------------------------------------|--|---|--|---|
| <u>Light-duty program vehicles</u> | <u>12</u> | <u>0.5</u> | <u>1.7</u> | <u>4</u> |
| <u>Medium-duty vehicles</u> | <u>60</u> | <u>0.5</u> | <u>3.2</u> | <u>6</u> |

^a The NMOG+NO_x standards apply on a fleet-average basis using discrete bin standards as described in paragraphs (b)(4) and (6) of this section. The specified fleet-average standards apply for model year 2032 and later vehicles; see paragraph (b)(6) of this section for fleet-average NMOG+NO_x standards that apply for model years 2027 through 2031.

^b PM standards apply only for the FTP and US06 driving cycles.

^c CO standards do not apply for the ACC II driving cycles specified in paragraph (b)(1)(ii)(E) through (G) of this section.

^d Formaldehyde standards apply only for the FTP driving cycle.

| <u>NMOG + NO_x</u> | | <u>PM</u> | | <u>CO</u> | <u>Formaldehyde</u> |
|------------------------------|--------------|--------------|--------------|-------------|---------------------|
| <u>FTP[†]</u> | <u>SFTP</u> | <u>FTP</u> | <u>US06</u> | <u>SFTP</u> | <u>FTP</u> |
| <u>0.030</u> | <u>0.050</u> | <u>0.003</u> | <u>0.006</u> | <u>4.2</u> | <u>0.004</u> |

[†] The fleet-average FTP emission standard for NMOG + NO_x is 0.026 g/mile for LDV and LDT1 test groups certified to standards based on a useful life of 120,000 miles or 10 years in a given model year.

(3) The FTP standards specified in this ~~paragraph (b) section~~ apply equally for testing at low-altitude conditions and high-altitude conditions ~~as specified in paragraph (b)(4) of this section~~. The US06, SC03, and HFET SFTP standards ~~specified in paragraph (b)(2) of this section~~ apply only for testing at low-altitude conditions.

(4) The ~~FTP emission standard for~~ NMOG + NO_x emission standard is based on a fleet average for a given model year.

(i) You must specify a family emission limit (FEL) for each test group based on the FTP emission standard corresponding to each named bin. The FEL serves as the emission standard for the test group with respect to all specified driving cycles required FTP testing. Calculate your fleet-average emission level as described in § 86.1860 based on the FEL that applies for low-altitude testing to show that you meet the specified fleet-average standard. For multi-fueled vehicles, calculate fleet-average emission levels based only on emission levels for testing with gasoline or diesel fuel. You may generate emission credits for banking and trading, and you may use banked or traded credits as described in § 86.1861 for demonstrating compliance with the FTP emission standard for NMOG + NO_x fleet-average emission standard. You comply with the fleet-average emission standard for a given model year if you have enough credits to show that your fleet-average emission level is at or below the applicable standard. You may exchange FTP credits between or among any test groups subject to standards under this section. You may not exchange FTP and SFTP credits.

(ii) Specify Select one of the identified values from Table 2 of this section as the FEL for demonstrating that your fleet-average emission level complies with the FTP emission

~~standard for NMOG+NO_x fleet-average emission standard under low-altitude conditions.~~
 These FEL values define emission bins that also determine corresponding emission standards for NMOG+NO_x ~~emission standards for ACC II driving cycles emissions under high-altitude conditions, and for CO emissions,~~ as follows:

Table 2 of § 86.1811-~~27(b)(4)(ii)17~~ ~~Tier 3 FTP~~ Tier 4 NMOG+NO_x Bin Standards (mg/mile)

| <u>FEL Name</u> | <u>FTP, US06, SC03, HFET</u> | <u>ACC II— Mid-temperature intermediate soak (3-12 hours)</u> | <u>ACC II— Mid-temperature intermediate soak (40 minutes)^a</u> | <u>ACC II— Mid-temperature intermediate soak (10 minutes)</u> | <u>ACC II— Early driveaway^b</u> | <u>ACC II— High-power PHEV engine starts^{b,c}</u> |
|----------------------------|------------------------------|---|---|---|--|--|
| <u>Bin 160^d</u> | <u>160</u> | <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> |
| <u>Bin 125^d</u> | <u>125</u> | <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> | <u>—</u> |
| <u>Bin 70</u> | <u>70</u> | <u>70</u> | <u>54</u> | <u>35</u> | <u>82</u> | <u>200</u> |
| <u>Bin 60</u> | <u>60</u> | <u>60</u> | <u>46</u> | <u>30</u> | <u>72</u> | <u>175</u> |
| <u>Bin 50</u> | <u>50</u> | <u>50</u> | <u>38</u> | <u>25</u> | <u>62</u> | <u>150</u> |
| <u>Bin 40</u> | <u>40</u> | <u>40</u> | <u>31</u> | <u>20</u> | <u>52</u> | <u>125</u> |
| <u>Bin 30</u> | <u>30</u> | <u>30</u> | <u>23</u> | <u>15</u> | <u>42</u> | <u>100</u> |
| <u>Bin 20</u> | <u>20</u> | <u>20</u> | <u>15</u> | <u>10</u> | <u>32</u> | <u>67</u> |
| <u>Bin 10</u> | <u>10</u> | <u>10</u> | <u>8</u> | <u>5</u> | <u>22</u> | <u>34</u> |
| <u>Bin 0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>0</u> | <u>—</u> |

^a Calculate the bin standard for a soak time between 10 and 40 minutes based on a linear interpolation between the corresponding bin values for a 10-minute soak and a 40-minute soak. Similarly, calculate the bin standard for a soak time between 40 minutes and 3 hours based on a linear interpolation between the corresponding bin values for a 40-minute soak and a 3-hour soak

^b Qualifying vehicles are exempt from standards for early driveaway and high-power PHEV engine starts as described in paragraph (b)(5) of this section.

^c Alternative standards apply for high-power PHEV engine starts for model years 2027 and 2028 as described in paragraph (b)(6)(v) of this section.

^d Bin 160 and Bin 125 apply only for medium-duty vehicles.

(5) Qualifying vehicles are exempt from certain ACC II bin standards as follows:

(i) Vehicles are exempt from the ACC II bin standards for early driveaway if the vehicle prevents engine starting during the first 20 seconds of a cold-start FTP test interval and the vehicle does not use an electrically heated catalyst or other technology to precondition the engine or emission controls such that NMOG+NO_x emissions would be higher during the first 505 seconds of the early driveaway driving cycle compared to the first 505 seconds of the conventional FTP driving cycle.

(ii) Vehicles are exempt from the ACC II bin standards for high-power PHEV engine starts if their all-electric range on the cold-start US06 driving cycles is at or above 10 miles for model years 2027 and 2028, and at or above 40 miles for model year 2029 and later.

(6) The Tier 4 standards phase in over several years, as follows:

(i) NMOG+NO_x fleet average standards for light-duty program vehicles. Include all light-duty program vehicles at or below 6,000 pounds GVWR in the calculation to comply with the Tier 4 fleet average NMOG+NO_x standard. You must meet all the other Tier 4 requirements with 40 and 80 percent of your projected nationwide sales in model

years 2027 and 2028, respectively. A vehicle counts toward meeting the phase-in percentage only if it meets all the requirements of this section. NMOG+NOx fleet average standards apply as follows for model year 2027 through 2031 light-duty program vehicles:

Table 3 of § 86.1811-27(b)(6)(i)—Declining Fleet Average NMOG+NOx Standards for Light-Duty Program Vehicles

| <u>Model year</u> | <u>Fleet average NMOG+NOx standard (mg/mile)</u> |
|-------------------|--|
| <u>2027</u> | <u>22</u> |
| <u>2028</u> | <u>20</u> |
| <u>2029</u> | <u>18</u> |
| <u>2030</u> | <u>16</u> |
| <u>2031</u> | <u>14</u> |

(ii) Default phase-in for vehicles above 6,000 pounds GVWR. The default approach for phasing in the Tier 4 standards for vehicle above 6,000 pounds GVWR is for all those vehicles to meet the Tier 4 standards of this section starting in model year 2030. Manufacturers using this default phase-in for medium-duty vehicles may not use credits generated from Tier 3 medium-duty vehicles for demonstrating compliance with the Tier 4 NMOG+NOx standards under this paragraph (b).

(iii) Alternative early phase-in for vehicles above 6,000 pounds GVWR. Manufacturers may use the following alternative early phase-in provisions to transition to the Tier 4 exhaust emission standards on an earlier schedule for vehicles above 6,000 pounds GVWR.

(A) If you select the alternative early phase-in for light-duty program vehicles above 6,000 pounds GVWR, you must demonstrate that you meet the phase-in requirements in paragraph (b)(6)(i) of this section based on all your light-duty program vehicles.

(B) If you select the alternative early phase-in for medium-duty vehicles, include all medium-duty vehicles at or below 22,000 pounds GCWR in the calculation to comply with the Tier 4 fleet average NMOG+NOx standard. You must meet all the other Tier 4 requirements with 40 and 80 percent of a manufacturer’s projected nationwide sales in model years 2027 and 2028, respectively. A vehicle counts toward meeting the phase-in percentage only if it meets all the requirements of this section. Medium-duty vehicles complying with the alternative early phase-in are subject to the following NMOG+NOx fleet-average standards for model years 2027 through 2031:

Table 4 of § 86.1811-27(b)(6)(iii)(B)—Declining Fleet Average NMOG+NOx Standards for Medium-Duty Vehicles

| <u>Model year</u> | <u>Fleet average NMOG+NOx standard (mg/mile)</u> |
|-------------------|--|
| <u>2027</u> | <u>160</u> |
| <u>2028</u> | <u>140</u> |
| <u>2029</u> | <u>120</u> |
| <u>2030</u> | <u>100</u> |
| <u>2031</u> | <u>80</u> |

(iv) Interim Tier 4 vehicles. Vehicles not meeting all the requirements of this section during the phase-in are considered “interim Tier 4 vehicles”. Interim Tier 4 vehicles are

subject to all the requirements of this subpart that apply for Tier 3 vehicles except for the fleet average NMOG+NO_x standards in §§ 86.1811-17 and 86.1816-18. Interim Tier 4 vehicles may certify using all available NMOG+NO_x bins under §§ 86.1811-17 and 86.1816-18. Note that manufacturers complying with the default phase-in specified in paragraph (b)(6)(ii) of this section for vehicles above 6,000 pounds GVWR will need to meet a Tier 3 fleet average NMOG+NO_x standard in model years 2027 through 2029, in addition to the Tier 4 fleet average for vehicles at or below 6,000 pounds GVWR in those same years.

(v) *Phase-in for high-power PHEV engine starts.* The following bin standards apply for high-power PHEV engine starts in model years 2027 and 2028 instead of the analogous standards specified in paragraph (b)(4)(ii) of this section:

Table 5 of § 86.1811-27(b)(6)(v)—Model Year 2027 and 2028 Bin Standards for High-Power PHEV Engine Starts

| FEL Name | ACC II—High-power PHEV engine starts (mg/mile) |
|-----------------|---|
| <u>Bin 70</u> | <u>320</u> |
| <u>Bin 60</u> | <u>280</u> |
| <u>Bin 50</u> | <u>240</u> |
| <u>Bin 40</u> | <u>200</u> |
| <u>Bin 30</u> | <u>150</u> |
| <u>Bin 20</u> | <u>100</u> |
| <u>Bin 10</u> | <u>50</u> |

(vi) *MDPV.* Any vehicle that becomes an MDPV as a result of the revised definition in § 86.1803 starting in model 2027 remains subject to the heavy-duty Tier 3 standards in § 86.1816-18 under the default phase-in specified in paragraph (b)(6)(ii) of this section for model years 2027 through 2029.

(vii) Keep records as needed to show that you meet the requirements specified in this paragraph (b) for phasing in standards and for complying with declining fleet-average average standards.

| FEL Name | NMOG + NO_x FELs for low altitude | NMOG + NO_x for high altitude | CO for low and high altitude |
|-----------------|--|--|-------------------------------------|
| Bin-160 | 0.160 | 0.160 | 4.2 |
| Bin-125 | 0.125 | 0.160 | 2.1 |
| Bin-70 | 0.070 | 0.105 | 1.7 |
| Bin-50 | 0.050 | 0.070 | 1.7 |
| Bin-30 | 0.030 | 0.050 | 1.0 |
| Bin-20 | 0.020 | 0.030 | 1.0 |
| Bin-0 | 0.000 | 0.000 | 0.0 |

(ii) ~~Manufacturers earn a compliance credit of 0.005 g/mile NMOG + NO_x for vehicles that are certified for a useful life of 150,000 miles or 15 years and that are covered by an extended warranty over the same period for all components whose failure triggers MIL illumination. Manufacturers may apply the compliance credit as follows:~~

- (A) You may reduce your official FTP emission result for certification by the amount of the compliance credit if that allows you to certify to a more stringent bin. In that case, you may use the more stringent bin standard for calculating the fleet-average NMOG + NO_x emission level. For any compliance testing with these vehicles, the applicable FTP bin standard for NMOG + NO_x is higher than the specified bin standard by the amount of the compliance credit. For example, if the official FTP emission result for NMOG + NO_x is 0.052 g/mile, this qualifies for an FEL of 0.050 g/mile for calculating the fleet average and the vehicle is subject to an FTP bin standard of 0.055 g/mile.
- (B) If the amount of the compliance credit does not allow you to certify to a more stringent bin, calculate the fleet-average NMOG + NO_x emission level using an FEL for these vehicles that is smaller than the bin standard by the amount of the compliance credit. For any compliance testing with these vehicles, the specified bin standard applies. For example, if the official FTP emission result for NMOG + NO_x is 0.038 g/mile, calculate the fleet-average NMOG + NO_x emission level by specifying an FEL of 0.045 g/mile; these vehicles are subject to the specified FTP bin standard of 0.050 g/mile.
- (iii) If you qualify for a compliance credit for direct ozone reduction under the LEV III program, you may apply the compliance credit approved for California vehicles as described in paragraphs (b)(4)(ii)(A) and (B) of this section.
- (iv) You may combine the adjustments in paragraphs (b)(4)(ii) and (iii) of this section if you qualify for them separately.
- (5) The SFTP emission standard for NMOG + NO_x is also based on a fleet average in a given model year. You must specify FELs as described in paragraph (b)(4) of this section and calculate a fleet average emission level to show that you meet the SFTP emission standard for NMOG + NO_x, except that you may specify FELs in any even increment of 0.010 g/mile up to a maximum value of 0.180 g/mile. You may generate emission credits for banking and trading and you may use banked or traded credits as described in § 86.1861 for demonstrating compliance with the SFTP emission standard for NMOG + NO_x. You comply with the emission standard for a given model year if you have enough credits to show that your fleet average emission level is at or below the applicable standard. You may exchange SFTP credits between or among any test groups subject to standards under this section. You may not exchange FTP and SFTP credits. The SFTP standards described in this section apply only for testing at low altitude conditions.
- (6) The full Tier 3 program includes new emission standards for NMOG + NO_x, PM, CO, and formaldehyde; it also includes measurement with a new test fuel and a longer useful life (for some vehicles). Vehicles meeting all these requirements are considered Final Tier 3 vehicles. Vehicles that do not meet all the Tier 3 requirements are considered Interim Tier 3 vehicles. Paragraphs (b)(7) through (13) of this section describe how to comply with standards during a phase-in period.
- (7) The Tier 3 PM standards phase in over several years. The following provisions describe the primary approach for phasing in the Tier 3 PM standards:
- (i) You must meet the FTP and the US06 PM standards with 20, 20, 40, 70, and 100 percent of your projected nationwide sales of all vehicles subject to this section in model years 2017 through 2021, respectively. In model years 2017 and 2018, an interim US06 PM standard of 0.010 g/mile applies. Each vehicle meeting the Tier 3 FTP standard for

PM must also meet the Tier 3 US06 standard for PM. In model year 2017, the phase-in requirement applies only for vehicles at or below 6,000 pounds GVWR; however, you may meet an alternative phase-in requirement of 10 percent in model year 2017 based on your full production of vehicles subject to standards under this section.

(ii) You may disregard the phase-in percentages specified in paragraph (b)(7)(i) of this section if you instead comply with an indexed PM phase-in schedule as described in this paragraph (b)(7)(ii). To do this, you must notify us of your intent before January 1, 2017, and include a detailed plan for complying with the indexed phase-in schedule. You comply with the indexed phase-in schedule by calculating a PM phase-in index at or above 540 using the following equation for model years 2017 through 2021:

$$\text{PM phase-in index} = 5 \cdot \text{APP}_{2017} + 4 \cdot \text{APP}_{2018} + 3 \cdot \text{APP}_{2019} + 2 \cdot \text{APP}_{2020} + \text{APP}_{2021}$$

Where:

APP = The phase-in percentage of vehicles meeting the Tier 3 PM standards for the indicated model year, based on actual sales, as described in paragraph (b)(7)(i) of this section.

(iii) Vehicles meeting the Tier 3 PM standards must meet those standards over the useful life as specified in § 86.1805. Note that Interim Tier 3 vehicles may have different useful life values for PM emission standards than for other emission standards.

(iv) Any vehicles not included for demonstrating compliance with the Tier 3 PM phase-in requirement must instead comply with an FTP emission standard for PM of 0.010 g/mile, and a composite SFTP emission standard for PM of 0.070 g/mile.

(v) Measure PM emissions from all vehicles using the same test fuel specified in paragraph (b)(8) of this section for measuring NMOG + NOX emissions.

(vi) You may certify Interim Tier 3 vehicles based on carryover data.

(vii) You may use the alternative phase-in provisions described in paragraph (b)(9) of this section to transition to the Tier 3 exhaust emission standards on a different schedule.

~~(c) Exhaust emission standards for cold temperature testing exhaust emission standards.~~

Exhaust emissions may not exceed standards for cold temperature testing, as follows:

(1) Measure emissions as described in paragraph (b)(1) of this section, but use the driving cycle identified in 40 CFR 1066.801(c)(5). The standards in this paragraph (g) apply for certification and in-use vehicles tested over the test procedures specified in subpart C of this part.

(2) These standards apply only to gasoline-fueled and diesel-fueled vehicles, except as specified. Multi-fuel, bi-fuel or dual-fuel vehicles must comply with requirements using only gasoline and diesel fuel, as applicable only. Testing with other fuels such as a high-level ethanol-gasoline blend, or testing on diesel vehicles, is not required.

(3) Vehicles must meet the following standards:

(i) The NMOG+NOx fleet-average standard is a 300 mg/mile. Calculate fleet-average emission levels as described in § 86.1864.

(ii) The PM standard is 0.5 mg/mile.

(iii) The CO standard is 10.0 g/mile.

(4) The CO standard applies at both low-altitude and high-altitude conditions. The NMOG+NOx and PM standards apply only at low-altitude conditions. However, manufacturers must submit an engineering evaluation indicating that common calibration approaches are utilized at high altitudes. Any deviation from low altitude emission control practices must be included in the auxiliary emission control device (AEC) descriptions

submitted at certification. Any AECD specific to high altitude must require engineering emission data for EPA evaluation to quantify any emission impact and validity of the AECD.

~~(1) **Cold temperature CO standards.** Cold temperature CO exhaust emission standards apply for testing at both low altitude conditions and high altitude conditions as follows:~~

~~(i) For LDV and LDT1, the standard is 10.0 g/mile CO.~~

~~(ii) For LDT2, LDT3 and LDT4, the standard is 12.5 grams per mile CO.~~

~~(2) **Cold temperature NMHC standards.** The following fleet average cold temperature NMHC standards apply as follows:~~

~~(i) The standards are shown in the following table:~~

~~Table 5 of § 86.1811-17—Fleet Average Cold Temperature NMHC Exhaust Emission Standards~~

| Vehicle weight category | Cold temperature NMHC sales-weighted fleet average standard (g/mile) |
|------------------------------------|---|
| LDV and LLDT | 0.3 |
| HLDT | 0.5 |

~~(ii) The manufacturer must calculate its fleet average cold temperature NMHC emission level(s) as described in § 86.1864-10(m).~~

~~(iii) The standards specified in this paragraph (g)(2) apply only for testing at low altitude conditions. However, manufacturers must submit an engineering evaluation indicating that common calibration approaches are utilized at high altitudes. Any deviation from low altitude emission control practices must be included in the auxiliary emission control device (AECD) descriptions submitted at certification. Any AECD specific to high altitude must require engineering emission data for EPA evaluation to quantify any emission impact and validity of the AECD.~~

~~(d) **Special provisions for spark-ignition Otto-cycle engines.** The following A/C-on specific calibration provisions apply for vehicles with spark-ignition engines: The special provisions described in this paragraph (d) apply for vehicles with Otto-cycle engines. For vehicles not certified to any Tier 3 emission standards, the provisions of § 86.1810-01(i)(6), (i)(13), and (i)(14) apply instead of this paragraph (d).~~

~~(1) **Enrichment limits.** The nominal air-fuel ratio throughout the US06 cycle may not be richer than the leanest air-fuel mixture required for lean best torque, except as allowed under paragraph (d)(2) of this section. Unless we approve otherwise in advance, lean best torque is the leanest air-fuel ratio required at any speed and load point with a fixed spark advance to make peak torque. The allowable tolerance around the nominal value for any given speed and load point over the US06 cycle for a particular vehicle is 4 percent, which is calculated as the nominal mass-based air-fuel ratio for lean best torque divided by 1.04.~~

~~(2) **Engine protection.** AECs that use commanded enrichment to protect the engine or emission control hardware must not use enrichment more frequently or to a greater degree than is needed for this purpose. For purposes of this section, commanded enrichment includes intended engine operation at air-fuel ratios rich of stoichiometry, except the following:~~

~~(i) Cycling back and forth in a narrow window between rich and lean operation as a result of feedback controls targeted to maintain overall engine operation at stoichiometry.~~

~~(ii) Small changes in the target air-fuel ratio to optimize vehicle emissions or drivability. This may be called “closed-loop biasing.”~~

~~(iii) Temporary enrichment in response to rapid throttle motion.~~

~~(iv) Enrichment during cold-start and warm-up conditions.~~

~~(v) Temporary enrichment for running OBD checks to comply with § 86.1806.~~

~~(13) A/C-on specific calibrations. (i) A/C-on specific calibrations (e.g., air-fuel ratio, spark timing, and exhaust gas recirculation) that differ from A/C-off calibrations may be used for a given set of engine operating conditions (e.g., engine speed, manifold pressure, coolant temperature, air charge temperature, and any other parameters). Such calibrations must not unnecessarily reduce emission control effectiveness during A/C-on operation when the vehicle is operated under conditions that may reasonably be expected during normal operation and use. If emission control effectiveness decreases as a result of such calibrations, the manufacturer must describe in the Application for Certification the circumstances under which this occurs and the reason for using these calibrations.~~

~~(2ii) For AECDs involving commanded enrichment, these AECDs must not operate differently for A/C-on operation than for A/C-off operation, except as provided under paragraph (d)(2) of this section. This includes both the sensor inputs for triggering enrichment and the degree of enrichment employed.~~

~~(4) “Lean-on-cruise” calibration strategies. Manufacturers may use “lean-on-cruise” strategies subject to the following specifications:~~

~~(i) A “lean-on-cruise” strategy is defined as the use of an air-fuel ratio significantly leaner than stoichiometry during non-deceleration conditions at speeds above 40 mph.~~

~~(ii) You must not employ “lean-on-cruise” strategies 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, US06, or SC03 duty cycle.~~

~~(B) Such strategies are demonstrated not to significantly reduce vehicle 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.~~

~~(iii) If you propose to use a “lean-on-cruise” strategy, you must describe in the application for certification the circumstances under which such a calibration would be used and the reasons for using it.~~

~~(8) The following provisions describe the primary approach for phasing in the Tier 3 standards other than PM in 2025 and earlier model years:~~

~~(i) **FTP phase-in.** The fleet-average FTP emission standard for NMOG + NO_x phases in over several years as described in this paragraph (b)(8)(i). You must identify FELs as described in paragraph (b)(4) of this section and calculate a fleet-average emission level to show that you meet the FTP emission standard for NMOG + NO_x that applies for each model year. For model year 2017, do not include vehicles above 6,000 pounds GVWR. Through model year 2019, you may also certify to transitional Bin 85 or Bin 110 standards, which consist of all-altitude FTP emission standards for NMOG + NO_x of 0.085 or 0.110 g/mile, respectively; additional FTP standards for PM, CO, and formaldehyde apply as specified in this section for vehicles certified to Bin 125 standards. Fleet-average FTP emission standards decrease through the phase-in period as shown in the following table:~~

~~Table 3 of § 86.1811-17—Declining Fleet Average Tier 3 FTP Emission Standards for NMOG + NO_x (g/mile)~~

| Model year | LDV, LDT1—150,000 mile useful life[†] | LDV, LDT1—120,000 mile useful life[†] | LDT2, HLDT |
|-------------------|---|---|-------------------|
| 2017 ² | 0.086 | 0.073 | 0.101 |
| 2018 | 0.079 | 0.067 | 0.092 |
| 2019 | 0.072 | 0.061 | 0.083 |
| 2020 | 0.065 | 0.055 | 0.074 |
| 2021 | 0.058 | 0.049 | 0.065 |
| 2022 | 0.051 | 0.043 | 0.056 |
| 2023 | 0.044 | 0.037 | 0.047 |
| 2024 | 0.037 | 0.031 | 0.038 |
| 2025 | 0.030 | 0.026 | 0.030 |

[†] Vehicles certified to standards based on a useful life of 120,000 miles may comply based on the fleet average standard specified for 150,000-mile useful life in certain circumstances as specified in paragraph (b)(8)(iii)(A) of this section.

² HLDT and MDPV must meet the Tier 3 standards starting with model year 2018.

(ii) ***SFTP phase-in.*** The fleet average SFTP emission standard for NMOG + NO_x phases in over several years as described in this paragraph (b)(8)(ii). You must identify FELs as described in paragraph (b)(5) of this section and calculate a fleet average emission level to show that you meet the SFTP emission standard for NMOG + NO_x that applies for each model year.

(A) Calculate the fleet average emission level together for all your light-duty vehicles and light-duty trucks, except for those certified using the provisions of paragraph (b)(8)(ii)(C) of this section. For model year 2017, do not include vehicles above 6,000 pounds GVWR (in the numerator or denominator).

(B) Fleet average SFTP emission standards decrease through the phase-in period as shown in the following table:

Table 4 of § 86.1811-17—Declining Fleet Average Tier 3 SFTP Emission Standards

| Model year | NMOG + NO_x (g/mile) |
|-------------------|---|
| 2017 [†] | 0.103 |
| 2018 | 0.097 |
| 2019 | 0.090 |
| 2020 | 0.083 |
| 2021 | 0.077 |
| 2022 | 0.070 |
| 2023 | 0.063 |
| 2024 | 0.057 |
| 2025 | 0.050 |

[†] HLDT and MDPV must meet the Tier 3 standards starting with model year 2018.

- (C) You may use the SFTP stand-alone option specified in 13 CCR 1961.2 (a)(7)(A)1 of the LEV III program to demonstrate compliance with EPA's SFTP standards. Do not include any such test groups when demonstrating compliance with the phased-in fleet average SFTP standards specified in this paragraph (b)(8)(ii). Note that this option is not available for vehicles certified to the transitional bins described in paragraph (b)(8)(i) of this section.
- (iii) **Interim provisions.** (A) For vehicles certified to bins higher than Bin 70 under this section through model year 2019, the Tier 2 useful life period applies as specified in § 86.1805-12 for all criteria pollutants other than PM. However, LDV and LDT1 test groups certified to bin standards above Bin 70 through model year 2019 may be included in the same averaging set with vehicles meeting standards over a 150,000 mile useful life, notwithstanding the provisions of § 86.1861-17(b)(1)(iii). Any such vehicles you include in the averaging set for 150,000 mile useful life are also subject to the fleet average NMOG + NO_x standard specified for 150,000 mile useful life; similarly, any such vehicles you include in the averaging set for 120,000 mile useful life are also subject to the fleet average NMOG + NO_x standard specified for 120,000 mile useful life.
- (B) You may use the E0 test fuel specified in § 86.113 through model year 2019 for gasoline fueled vehicles certified to bins higher than Bin 70. You may not certify these vehicles using carryover data after model year 2019.
- (C) Vehicles must comply with the Tier 2 SFTP emission standards for NMHC + NO_x and CO for 4,000-mile testing that are specified in § 86.1811-04(f)(1) if they are certified to transitional Bin 85 or Bin 110 standards, or if they are certified based on a fuel without ethanol, or if they are not certified to the Tier 3 p.m. standard. Note that the standards in this paragraph (b)(8)(iii)(C) apply under this section for alternative fueled vehicles, for flexible fueled vehicles when operated on a fuel other than gasoline or diesel fuel, and for MDPVs, even though these vehicles were not subject to the SFTP standards in the Tier 2 program.
- (iv) You may use the alternative phase-in provisions described in paragraph (b)(9) of this section to transition to the Tier 3 exhaust emission standards on a different schedule.
- (9) This paragraph (b)(9) describes an alternative approach to phasing in the Tier 3 emission standards for vehicles above 6,000 pounds GVWR. If you choose this approach, you must phase in the Tier 3 standards for all your vehicles above 6,000 pounds GVWR that are subject to this section according to this schedule. Under this alternative phase-in, you must meet the fully phased-in standards specified in this paragraph (b) with 40, 70, and 100 percent of your projected nationwide sales of all vehicles above 6,000 pounds GVWR that are subject to this section in model years 2019 through 2021, respectively. Any vehicles not subject to Tier 3 standards during the phase-in period must continue to comply with the Tier 2 standards in § 86.1811-04(c) and (f), including the Tier 2 SFTP emission standards for NMHC + NO_x and CO for 4,000-mile testing as specified in § 86.1811-04(f)(1). Vehicles subject to Tier 2 standards under this paragraph (b)(9) are subject to the useful life provisions in § 86.1805-12 relative to exhaust emission standards. Each vehicle counting toward the phase-in percentage under this paragraph (b)(9) must meet all the standards that apply throughout the useful life as specified in § 86.1805-17, and must use the Tier 3 test fuel specified in § 86.113-15. The following exceptions and special provisions apply under this paragraph (b)(9):

- (i) For model year 2019, you may exclude from the phase-in calculation any test groups with vehicles above 6,000 pounds GVWR that have a Job 1 date on or before March 3, 2018 (see 40 CFR 85.2304).
- (ii) The FTP and SFTP emission standards for NMOG + NOX are fleet average standards. Calculate your fleet average values based on all the vehicles that are subject to the standard in a given year. You may not generate credits for banking or trading in model years 2019 or 2020, and you may not use banked or traded credits to demonstrate compliance with the standards in those years.
- (iii) The US06 emission standard for PM is 0.010 g/mile in model years 2019 through 2021, and 0.006 g/mile starting in model year 2022. The other standards described in this paragraph (b)(9) apply to all your vehicles above 6,000 pounds GVWR in model years 2022 through 2024.
- (10) You may not use credits generated from Tier 2 vehicles for demonstrating compliance with the Tier 3 standards except as specified in this paragraph (b)(10). You may generate early credits with U.S. sales of Tier 2 vehicles in the two model years before the Tier 3 standards start to apply for a given vehicle model. Vehicles certified to the Tier 2 standards must meet all the Tier 2 requirements in § 86.1811-10, including the fleet average Tier 2 standards. Calculate early Tier 3 emission credits as described in § 86.1861 by subtracting the appropriate Tier 2 fleet average value for FTP emissions of NMOG + NOX from 0.160 g/mile. Calculate your fleet average value for the model year based on vehicles at or below 6,000 pounds GVWR in 2015, on all sizes of vehicles in 2016, and on vehicles above 6,000 pounds GVWR in 2017. You may use these early credits as described in § 86.1861 for demonstrating compliance with the FTP emission standard for NMOG + NOX starting in model year 2017. You may use these early credits interchangeably for vehicles certified based on a useful life of either 120,000 or 150,000 miles. For model years 2018 and later, you may use any remaining early credits for banking or trading subject to a limitation based on credits generated in California, as follows:
- (i) For the applicable model years in which you generate emission credits relative to California's LEV III fleet average NMOG + NO_x standard, determine the actual California sales of light-duty vehicles and light-duty trucks and the actual nationwide sales of those same vehicles. (Note: If you have a credit deficit in a given model year for your LEV III vehicles, apply the provisions of this paragraph (b)(10)(i) based on the appropriate negative credit quantity.) In 2015, count sales only from vehicle models at or below 6,000 pounds GVWR. For each model year, multiply the credits generated under the California program by the ratio of nationwide vehicle sales to LEV III vehicle sales to calculate an effective nationwide quantity. Sum these results for model years 2015 through 2017. Note that this calculation results in a maximum credit quantity based on vehicle sales in all states, even though the initial credit calculation does not include vehicle sales in California or the section 177 states. If you comply with the LEV III standards based on pooled emission credits for California and the section 177 states, use those pooled emission credits and corresponding sales for calculating the maximum credit quantity under this paragraph (b)(10)(i).
- (ii) You may not use more early credits generated under this paragraph (b)(10) for banking or trading to demonstrate compliance with Tier 3 emission standards than the calculated value of the effective nationwide credit quantity summed in paragraph

~~(b)(10)(i) of this section. If your generated credits are greater than this threshold, determine the ratio by which your generated early credits exceed the threshold. Calculate an adjusted quantity of early credits generated under this paragraph (b)(10) by dividing the generated credit quantity from each model year by this ratio of generated credits relative to the applicable threshold. This adjusted quantity of credits may be used for banking or trading relative to the Tier 3 standards, subject to the five-year credit life described in § 86.1861.~~

~~(11) You may certify vehicles to the Tier 3 standards starting in model year 2015. To do this, you may either sell all your LEV III vehicle models nationwide, or you may certify a subset of your fleet to alternate fleet average emission standards as follows:~~

~~(i) The alternate fleet average FTP emission standards for NMOG + NO_x are 0.100 g/mile in 2015 and 0.093 g/mile in 2016 for LDV and LDT1.~~

~~(ii) The alternate fleet average FTP emission standards for NMOG + NO_x are 0.119 g/mile in 2015, 0.110 g/mile in 2016, and 0.101 g/mile in 2017 for LDT2 and HLDT.~~

~~(iii) The alternate fleet average SFTP emission standards for NMOG + NO_x are 0.140 in 2015 for all vehicles, 0.110 in 2016 for all vehicles, and 0.103 in 2017 for LDT2 and HLDT.~~

~~(iv) The vehicles must meet FTP and SFTP standards for PM as specified in § 86.1811-04. The PM testing provisions of § 86.1829-01(b)(1)(iii)(B) apply for these vehicles.~~

~~(v) Vehicles not certified to the Tier 3 standards in a given model year must meet all the requirements that apply for Tier 2 vehicles in that model year.~~

~~(vi) For cold temperature testing and for high-altitude testing, you may use the E0 fuel specified in § 86.113-04(a) or § 86.213 instead of the E10 test fuel specified in § 86.113-15.~~

~~(vii) Vehicles certified under this paragraph (b)(11) to a bin standard at or below Bin 70 must be certified to a useful life of 150,000 miles.~~

~~(viii) The interim provisions described in paragraph (b)(8)(iii) of this section apply for vehicles certified under this paragraph (b)(11), except that credits generated under this paragraph (b)(11) may be used interchangeably for vehicles certified based on a useful life of either 120,000 or 150,000 miles.~~

~~(ix) For vehicles certified under this paragraph (b)(11), you may generate emission credits and use those credits for demonstrating compliance with Tier 3 standards as described in paragraph (b)(10) of this section or as described in § 86.1861.~~

~~(12) The following alternate standards apply for in-use testing:~~

~~(i) Alternate in-use FTP standards for NMOG + NO_x apply for 2021 and earlier model year vehicles certified to Bin 70 and lower. Calculate these alternate standards by multiplying the applicable FEL by 1.4. These alternate standards apply only for testing at low-altitude conditions.~~

~~(ii) The alternate in-use FTP standard for PM is 0.006 g/mile for 2021 and earlier model year vehicles.~~

~~(iii) The in-use US06 standard for PM is 0.010 g/mile for 2023 and earlier model year vehicles.~~

~~(13) Keep records as needed to show that you meet the requirements specified in this paragraph (b) for phasing-in standards and for complying with declining fleet average average standards.~~

(14) This subpart describes several ways that the transition to Final Tier 3 standards applies differently for vehicles above and below 6,000 pounds GVWR. All these distinctions apply only for LDT. LDV as a category is defined independent of GVWR, so any LDV above 6,000 pounds GVWR are subject to the same provisions that apply for LDV at or below 6,000 pounds GVWR. Where this section refers to “vehicles above 6,000 pounds GVWR,” this should be understood to include LDT above 6,000 pounds GVWR and MDPV (or HLDT and MDPV), and to exclude all LDV.

~~(e) **Highway NMOG + NO_x exhaust emission standard.** NMOG + NO_x emissions measured on the federal Highway Fuel Economy Test in 40 CFR 1066.840 may not exceed the applicable FTP bin standard for NMOG + NOX. Demonstrate compliance with this standard for low mileage vehicles by applying the appropriate deterioration factor. For vehicles not certified to any Tier 3 emission standards specified in paragraph (b) of this section, the provisions of § 86.1811-04(j) apply instead of this paragraph (e).~~

~~(e) through (f) [Reserved]~~

~~(h) **Small volume manufacturers.** Small volume manufacturers may use the following Tier 3 phase in provisions:~~

~~(1) Instead of the fleet average FTP standards for NMOG + NO_x specified in this section, small volume manufacturers may meet alternate fleet average standards of 0.125 g/mile through model year 2021, and 0.051 g/mile for model years 2022 through 2027. The following additional provisions apply for vehicles certified under this paragraph (h)(1):~~

~~(i) Vehicles are subject to exhaust emission standards over the useful life as specified in § 86.1805-12 through model year 2021, and as specified in this section starting in model year 2022.~~

~~(ii) Gasoline fueled vehicles may use the E0 test fuel specified in § 86.113-04 for vehicles certified to bins higher than Bin 70 through model year 2021.~~

~~(iii) Vehicles certified under this paragraph (h)(1) may generate emission credits and they may use banked or traded emission credits relative to the alternate fleet average FTP standard for NMOG + NOX only in model years 2022 through 2027.~~

~~(iv) Vehicles are subject to all the other requirements specified in this section.~~

~~(2) Small volume manufacturers may delay complying with all the requirements of this section until model year 2022, and instead meet all the requirements that apply to Tier 2 vehicles under § 86.1811-10 for 2021 and earlier model years.~~

~~(3) If meeting the Tier 3 standards would cause severe economic hardship, small volume manufacturers may ask us to approve an extended compliance deadline under the provisions of 40 CFR 1068.250, except that the solvency criterion does not apply and there is no maximum duration of the hardship relief.~~

40. Amend § 86.1813-17 by revising paragraphs (a)(2)(i) introductory text, (b)(1)(i), and (g)(2)(ii)(B) to read as follows:

§ 86.1813-17 Evaporative and refueling emission standards.

* * * * *

(a) * * *

(2) * * *

(i) The emission standard for the sum of diurnal and hot soak measurements from the two-diurnal test sequence and the three-diurnal test sequence is based on a fleet average

in a given model year. You must specify a family emission limit (FEL) for each evaporative family. The FEL serves as the emission standard for the evaporative family with respect to all required diurnal and hot soak testing. Calculate your fleet-average emission level as described in § 86.1860 based on the FEL that applies for low-altitude testing to show that you meet the specified standard. For multi-fueled vehicles, calculate fleet-average emission levels based only on emission levels for testing with gasoline. You may generate emission credits for banking and trading, and you may use banked or traded credits for demonstrating compliance with the diurnal plus hot soak emission standard for vehicles required to meet the Tier 3 standards, other than gaseous-fueled or electric vehicles, as described in § 86.1861 starting in model year 2017. You comply with the emission standard for a given model year if you have enough credits to show that your fleet-average emission level is at or below the applicable standard. You may exchange credits between or among evaporative families within an averaging set as described in § 86.1861. Separate diurnal plus hot soak emission standards apply for each evaporative/refueling emission family as shown for high-altitude conditions. The sum of diurnal and hot soak measurements may not exceed the following Tier 3 standards:

* * * * *

(b) * * *

(1) * * *

(i) Refueling standards apply starting with model year 2027 for incomplete vehicles certified under 40 CFR part 1037 and in model year 2030 for incomplete vehicles certified under this subpart, unless the manufacturer complies with the alternate phase-in specified in paragraph (b)(1)(iii) of this section. If you do not meet the alternative phase-in requirement for model year 2026, you must certify all your incomplete heavy-duty vehicles above 14,000 pounds GVWR to the refueling standard in model year 2027.

(ii) Refueling standards are optional for incomplete heavy-duty vehicles at or below 14,000 pounds GVWR through model year 2029, unless the manufacturer uses the alternate phase-in specified in paragraph (b)(1)(iii) of this section to meet standards together for heavy-duty vehicles above and below 14,000 pounds GVWR.

* * * * *

(g) * * *

(2) * * *

(ii) * * *

(B) All the vehicles meeting the leak standard must also meet the Tier 3 evaporative emission standards and Through model year 2026, all vehicles meeting the leak standard must also meet the OBD requirements in § 86.1806-17(b)(1).

* * * * *

41. Add § 86.1815 to read as follows:

§ 86.1815 Battery-related requirements for electric vehicles and plug-in hybrid electric vehicles.

Electric vehicles and plug-in hybrid electric vehicles must meet requirements related to batteries serving as a Rechargeable Energy Storage System from GTR No. 22 (incorporated by reference in § 86.1). The requirements of this section apply starting in model year 2027 for vehicles at or below 6,000 pounds GVWR. These requirements apply vehicles above 6,000 pounds GVWR if

they are certified to Tier 4 NMOG+NO_x standards under § 86.1811-27, not later than model year 2030. The following clarifications and adjustments to GTR No. 22 apply for vehicles subject to this section:

(a) Manufacturers must install a customer-accessible display that monitors, estimates, and communicates the vehicle's State of Certified Energy (SOCE) and include information in the application for certification as described in § 86.1844. Manufacturers that qualify as small businesses under § 86.1801-12(j)(1) must meet the requirements of this paragraph (a) but are not subject to the requirements in paragraphs (c) through (g) of this section; however, small businesses may trade credits they generate from electric vehicles and plug-in hybrid electric vehicles for a given model year only if they meet requirements in paragraphs (c) through (g) of this section.

(b) Requirements in GTR No. 22 related to State of Certified Range do not apply.

(c) Evaluate SOCE for electric vehicles based on measured Useable Battery Energy (UBE) values over the Multi-Cycle Range and Energy Consumption Test described in 40 CFR 600.116-12(a). For medium-duty vehicles, perform testing with test weight set to Adjusted Loaded Vehicle Weight. Use good engineering judgment to evaluate SOCE for plug-in hybrid electric vehicles using the procedures specified in 40 CFR 600.116-12.

(d) In-use vehicles must display SOCE values that are accurate within 5 percent of measured values as calculated in GTR No. 22.

(e) Batteries installed in light-duty program vehicles must meet a Minimum Performance Requirement such that measured usable battery energy is at least 80 percent of the vehicle's certified usable battery energy after 5 years or 62,000 miles, and at least 70 percent of certified usable battery energy at 8 years or 100,000 miles.

(f) Manufacturers must perform testing and submit reports as follows:

(1) Perform Part A testing to verify that SOCE monitors meet accuracy requirements as described in § 86.1845. Test the number of vehicles and determine a pass or fail result as specified in Section 6.3 of GTR No. 22.

(2) Perform Part B verification for each battery durability family included in a monitor family subject to Part A testing to verify that batteries have SOCE meeting the Minimum Performance Requirement. Determine performance by reading SOCE monitors with a physical inspection, remote inspection using wireless technology, or any other appropriate means.

(i) Randomly select test vehicles from at least 10 different U.S. states or territories, with no more than 20 percent of selected vehicles coming from any one state or territory. Select vehicles to represent a wide range of climate conditions and operating characteristics.

(ii) Select at least 500 test vehicles per year from each from each battery durability family, except that we may approve your request to select fewer vehicles for a given battery durability family based on limited production volumes. If you test fewer than 500 vehicles, you may exclude up to 5 percent of the tested vehicles to account for the limited sample size. Test vehicles may be included from year to year, or test vehicles may change over the course of testing for the battery durability family.

(iii) A battery durability family passes if 90 percent or more of sampled vehicles have reported values above the Minimum Performance Requirement.

(iv) Continue testing for eight years after the end of production for vehicles included in the battery durability family. Note that testing will typically require separate testing from multiple model years in a given calendar year.

(3) You may request our approval to group monitors and batteries differently, or to adjust testing specifications. Submit your request with your proposed alternative specifications, along with technical justification. In the case of broadening the scope of a monitor family, include data demonstrating that differences within the proposed monitor family do not cause error in estimating SOCE.

(4) Submit electronic reports to document the results of testing as described in § 86.1847.

(g) If vehicles do not comply with monitor accuracy requirements under this section, the recall provisions in 40 CFR part 85, subpart S, apply for each affected monitor family. If vehicles do not comply with battery durability requirements under this section, the manufacturer must adjust all credit balances to account for the nonconformity (see § 86.1850-01).

42. Amend § 86.1818-18 by revising paragraph (a) introductory text to read as follows:

§ 86.1816-18 Emission standards for heavy-duty vehicles.

(a) *Applicability and general provisions.* This section describes **Tier 3** exhaust emission standards ~~that apply~~ for ~~model year 2018 and later~~ complete heavy-duty vehicles. These standards are optional for incomplete heavy-duty vehicles and for heavy-duty vehicles above 14,000 pounds GVWR as described in § 86.1801. Greenhouse gas emission standards are specified in § 86.1818 for MDPV and in § 86.1819 for other HDV. See § 86.1813 for evaporative and refueling emission standards. This section starts to apply in model year 2018, except that the provisions may apply to vehicles before model year 2018 as specified in paragraph (b)(11) of this section. This section applies for model year 2027 and later vehicles only as specified in § 86.1811-27. Separate requirements apply for MDPV as specified in § 86.1811. See subpart A of this part for requirements that apply for incomplete heavy-duty vehicles and for heavy-duty engines certified independent of the chassis. The following general provisions apply:

* * * * *

§§ 86.1817-05 and 86.1817-08—[Removed]

43. Remove §§ 86.1817-05 and 86.1817-08.

44. Amend § 86.1818-12 by:

- a. Revising paragraphs (a)(1), (b) introductory text, and (c).
- b. Removing and reserving paragraph (e).
- c. Revising paragraphs (f) introductory text, (g) introductory text, (g)(1) introductory text, (g)(2) introductory text, (g)(4)(i)(B), (g)(4)(iv)(B), (g)(5) and (6), and (h).

The revisions read as follows:

§ 86.1818-12 Greenhouse gas emission standards for light-duty vehicles, light-duty trucks, and medium-duty passenger vehicles.

(a) * * *

~~(1) This section contains standards and other regulations applicable to the emission of the air pollutant defined as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This section applies The greenhouse gas standards and related requirements in this section apply to 2012 and later model year LDV, LDT, and MDPV, including multi-fuel vehicles, vehicles fueled with alternative fuels, hybrid electric vehicles, plug-in hybrid electric vehicles, electric vehicles, and fuel cell vehicles. Unless otherwise specified, multi-fuel vehicles must comply with all requirements established for each consumed fuel. The provisions of this section, except paragraph (c), also apply to clean alternative fuel conversions as defined in 40 CFR 85.502, of all model year light duty vehicles, light duty trucks, and medium duty passenger vehicles. Manufacturers that qualify as a small business according to the requirements of § 86.1801-12(j) are exempt from the emission standards in this section. Manufacturers that have submitted a declaration for a model year according to the requirements of § 86.1801-12(k) for which approval has been granted by the Administrator are conditionally exempt from the emission standards in paragraphs (c) through (e) of this section for the approved model year.~~

~~* * * * *~~

~~(b) *Definitions.* For the purposes of this section, The following definitions shall apply for this section:~~

~~* * * * *~~

~~(c) *Fleet average CO₂ standards for passenger automobiles and light trucks.* Fleet average CO₂ standards apply as follows for passenger automobiles and light trucks:~~

~~(1) For a given individual model years production of passenger automobiles and light trucks, manufacturers must comply with a full useful life fleet average CO₂ standard calculated according to the provisions of this paragraph (c). Manufacturers must calculate separate full useful life fleet average CO₂ standards for their passenger automobile and light truck fleets, as those terms are defined in this section. Each manufacturers fleet average CO₂ standards determined in this paragraph (c) shall be expressed in whole grams per mile, in the model year specified as applicable. Manufacturers eligible for and choosing to participate in the Temporary Leadtime Allowance Alternative Standards for qualifying manufacturers specified in paragraph (e) of this section shall not include vehicles subject to the Temporary Leadtime Allowance Alternative Standards in the calculations of their primary passenger automobile or light truck standards determined in this paragraph (c). Manufacturers shall demonstrate compliance with the applicable standards according to the provisions of § 86.1865.~~

~~(1) Each manufacturer must comply with separate fleet average CO₂ standards for passenger automobiles and light trucks. To calculate the fleet average CO₂ standards for passenger automobiles for a given model year, multiply each CO₂ target value by the production volume of passenger automobiles for the corresponding model type-footprint combination, then sum those products and divide the sum by the total production volume of passenger automobiles in that model year. Repeat this calculation using production volumes of light trucks to determine the separate fleet average CO₂ standards for light trucks. Round the resulting fleet average CO₂ emission standards to the nearest whole gram per mile. Averaging calculations and other compliance provisions apply as described in § 86.1865.~~

~~(2) A CO₂ target value applies for each unique combination of model type and footprint. The CO₂ target serves as the emission standard that applies throughout the useful life for each~~

vehicle. Determine the CO₂ target values from the following table, or from paragraph (h) of this section for model year 2031 and earlier vehicles:

Table 1 of § 86.1818-12(c)(2) —Footprint-Based CO₂ Target Values

| <u>Vehicle type</u> | <u>Footprint cutpoints (ft²)</u> | | <u>CO₂ target value (g/mile)</u> | | |
|-----------------------------|---|-------------|---|--|----------------------------|
| | <u>Low</u> | <u>High</u> | <u>Below low cutpoint</u> | <u>Between cutpoints^a</u> | <u>Above high cutpoint</u> |
| <u>Passenger automobile</u> | <u>45</u> | <u>56</u> | <u>71.8</u> | <u>$0.35 \times f + 56.2$</u> | <u>75.6</u> |
| <u>Light truck</u> | <u>45</u> | <u>70.0</u> | <u>75.7</u> | <u>$1.38 \times f + 13.8$</u> | <u>110.1</u> |

^a Calculate the CO₂ target value for vehicles between the footprint cutpoints as shown, using vehicle footprint, *f*, and rounding the result to the nearest 0.1 g/mile.

~~(2) Passenger automobiles—~~

~~(i) Calculation of CO₂ target values for passenger automobiles. A CO₂ target value shall be determined for each passenger automobile as follows:~~

~~(A) For passenger automobiles with a footprint of less than or equal to 41 square feet, the gram/mile CO₂ target value shall be selected for the appropriate model year from the following table:~~

~~Table 1 to § 86.1818-12(c)(2)(i)(A)~~

| Model year | CO₂ target value (grams/mile) |
|---------------------------|---|
| 2012 | 244.0 |
| 2013 | 237.0 |
| 2014 | 228.0 |
| 2015 | 217.0 |
| 2016 | 206.0 |
| 2017 | 195.0 |
| 2018 | 185.0 |
| 2019 | 175.0 |
| 2020 | 166.0 |
| 2021 | 161.8 |
| 2022 | 159.0 |
| 2023 | 145.6 |
| 2024 | 138.6 |
| 2025 | 130.5 |
| 2026 and later | 114.3 |

~~(B) For passenger automobiles with a footprint of greater than 56 square feet, the gram/mile CO₂ target value shall be selected for the appropriate model year from the following table:~~

~~Table 2 to § 86.1818-12(c)(2)(i)(B)~~

| Model year | CO₂ target value (grams/mile) |
|-----------------------|---|
| 2012 | 315.0 |
| 2013 | 307.0 |

| | |
|----------------|-------|
| 2014 | 299.0 |
| 2015 | 288.0 |
| 2016 | 277.0 |
| 2017 | 263.0 |
| 2018 | 250.0 |
| 2019 | 238.0 |
| 2020 | 226.0 |
| 2021 | 220.9 |
| 2022 | 217.3 |
| 2023 | 199.1 |
| 2024 | 189.5 |
| 2025 | 179.4 |
| 2026 and later | 160.9 |

(C) For passenger automobiles with a footprint that is greater than 41 square feet and less than or equal to 56 square feet, the gram/mile CO₂ target value shall be calculated using the following equation and rounded to the nearest 0.1 gram/mile:

$$\text{Target CO}_2 = [a \times f] + b$$

Where: f is the vehicle footprint, as defined in §86.1803; and a and b are selected from the following table for the appropriate model year:

Table 3 to § 86.1818-12(c)(2)(i)(C)

| Model year | A | B |
|----------------|------|-------|
| 2012 | 4.72 | 50.5 |
| 2013 | 4.72 | 43.3 |
| 2014 | 4.72 | 34.8 |
| 2015 | 4.72 | 23.4 |
| 2016 | 4.72 | 12.7 |
| 2017 | 4.53 | 8.9 |
| 2018 | 4.35 | 6.5 |
| 2019 | 4.17 | 4.2 |
| 2020 | 4.01 | 1.9 |
| 2021 | 3.94 | 0.2 |
| 2022 | 3.88 | -0.1 |
| 2023 | 3.56 | -0.4 |
| 2024 | 3.39 | -0.4 |
| 2025 | 3.26 | -3.2 |
| 2026 and later | 3.11 | -13.1 |

(ii) Calculation of the fleet average CO₂ standard for passenger automobiles. In each model year manufacturers must comply with the CO₂ exhaust emission standard for their passenger automobile fleet, calculated for that model year as follows:

(A) A CO₂ target value shall be determined according to paragraph (c)(2)(i) of this section for each unique combination of model type and footprint value.

(B) Each CO₂ target value, determined for each unique combination of model type and footprint value, shall be multiplied by the total production of that model type/footprint combination for the appropriate model year.

(C) The resulting products shall be summed, and that sum shall be divided by the total production of passenger automobiles in that model year. The result shall be rounded to the nearest whole gram per mile. This result shall be the applicable fleet average CO₂ standard for the manufacturer's passenger automobile fleet.

(3) Light trucks—

(i) Calculation of CO₂ target values for light trucks. A CO₂ target value shall be determined for each light truck as follows:

(A) For light trucks with a footprint of less than or equal to 41 square feet, the gram/mile CO₂ target value shall be selected for the appropriate model year from the following table:

Table 4 to § 86.1818-12(c)(3)(i)(A)

| Model year | CO ₂ target value (grams/mile) |
|----------------|---|
| 2012 | 294.0 |
| 2013 | 284.0 |
| 2014 | 275.0 |
| 2015 | 261.0 |
| 2016 | 247.0 |
| 2017 | 238.0 |
| 2018 | 227.0 |
| 2019 | 220.0 |
| 2020 | 212.0 |
| 2021 | 206.5 |
| 2022 | 203.0 |
| 2023 | 181.1 |
| 2024 | 172.1 |
| 2025 | 159.3 |
| 2026 and later | 141.8 |

(B) For light trucks with a footprint that is greater than 41 square feet and less than or equal to the maximum footprint value specified in the table below for each model year, the gram/mile CO₂ target value shall be calculated using the following equation and rounded to the nearest 0.1 gram/mile, except as specified in paragraph (c)(3)(i)(D) of this section:

$$\text{Target CO}_2 = (a \times f) + b$$

Where:

f is the footprint, as defined in §86.1803; and a and b are selected from the following table for the appropriate model year:

Table 5 to § 86.1818-12(c)(3)(i)(B)

| Model year | Maximum footprint | A | B |
|------------|-------------------|------|-------|
| 2012 | 66.0 | 4.04 | 128.6 |
| 2013 | 66.0 | 4.04 | 118.7 |

| | | | |
|----------------|------|------|-------|
| 2014 | 66.0 | 4.04 | 109.4 |
| 2015 | 66.0 | 4.04 | 95.1 |
| 2016 | 66.0 | 4.04 | 81.1 |
| 2017 | 50.7 | 4.87 | 38.3 |
| 2018 | 60.2 | 4.76 | 31.6 |
| 2019 | 66.4 | 4.68 | 27.7 |
| 2020 | 68.3 | 4.57 | 24.6 |
| 2021 | 68.3 | 4.51 | 21.5 |
| 2022 | 68.3 | 4.44 | 20.6 |
| 2023 | 74.0 | 3.97 | 18.4 |
| 2024 | 74.0 | 3.77 | 17.4 |
| 2025 | 74.0 | 3.58 | 12.5 |
| 2026 and later | 74.0 | 3.41 | 1.9 |

(C) For light trucks with a footprint that is greater than the minimum footprint value specified in the table below and less than or equal to the maximum footprint value specified in the table below for each model year, the gram/mile CO₂ target value shall be calculated using the following equation and rounded to the nearest 0.1 gram/mile, except as specified in paragraph (e)(3)(i)(D) of this section:

$$\text{Target CO}_2 = (a \times f) + b$$

Where:

f is the footprint, as defined in §86.1803; and a and b are selected from the following table for the appropriate model year:

Table 6 to § 86.1818-12(c)(3)(i)(C)

| Model year | Minimum footprint | Maximum footprint | A | b |
|------------|-------------------|-------------------|------|------|
| 2017 | 50.7 | 66.0 | 4.04 | 80.5 |
| 2018 | 60.2 | 66.0 | 4.04 | 75.0 |

(D) For light trucks with a footprint greater than the minimum value specified in the table below for each model year, the gram/mile CO₂ target value shall be selected for the appropriate model year from the following table:

Table 7 to § 86.1818-12(c)(3)(i)(D)

| Model year | Minimum footprint | CO ₂ target value (grams/mile) |
|------------|-------------------|---|
| 2012 | 66.0 | 395.0 |
| 2013 | 66.0 | 385.0 |
| 2014 | 66.0 | 376.0 |
| 2015 | 66.0 | 362.0 |
| 2016 | 66.0 | 348.0 |
| 2017 | 66.0 | 347.0 |
| 2018 | 66.0 | 342.0 |
| 2019 | 66.4 | 339.0 |
| 2020 | 68.3 | 337.0 |

| | | |
|----------------|------|-------|
| 2021 | 68.3 | 329.4 |
| 2022 | 68.3 | 324.1 |
| 2023 | 74.0 | 312.1 |
| 2024 | 74.0 | 296.5 |
| 2025 | 74.0 | 277.4 |
| 2026 and later | 74.0 | 254.4 |

~~(ii) Calculation of fleet average CO₂ standards for light trucks. In each model year manufacturers must comply with the CO₂ exhaust emission standard for their light truck fleet, calculated for that model year as follows:~~

~~(A) A CO₂ target value shall be determined according to paragraph (c)(3)(i) of this section for each unique combination of model type and footprint value.~~

~~(B) Each CO₂ target value, which represents a unique combination of model type and footprint value, shall be multiplied by the total production of that model type/footprint combination for the appropriate model year.~~

~~(C) The resulting products shall be summed, and that sum shall be divided by the total production of light trucks in that model year. The result shall be rounded to the nearest whole gram per mile. This result shall be the applicable fleet average CO₂ standard for the manufacturer's light truck fleet.~~

~~(4) Emergency vehicles. Emergency vehicles may be excluded from the emission standards described in this section. The manufacturer must notify the Administrator that they are making such an election in the model year reports required under § 600.512 of this chapter. Such vehicles should be excluded from both the calculation of the fleet average standard for a manufacturer under this paragraph (c) and from the calculation of the fleet average carbon-related exhaust emissions in § 600.510-12.~~

~~* * * * *~~

~~(e) **[Reserved]** *Temporary Lead Time Allowance Alternative Standards.* (1) The interim fleet average CO₂ standards in this paragraph (e) are optionally applicable to each qualifying manufacturer, where the terms "sales" or "sold" as used in this paragraph (e) means vehicles produced for U.S. sale, where "U.S." means the states and territories of the United States.~~

~~(i) A qualifying manufacturer is a manufacturer with sales of 2009 model year combined passenger automobiles and light trucks of greater than zero and less than 400,000 vehicles that elects to participate in the Temporary Leadtime Allowance Alternative Standards described in this paragraph (e).~~

~~(A) If a manufacturer sold less than 400,000 but more than zero 2009 model year combined passenger automobiles and light trucks while under the control of another manufacturer, where those 2009 model year passenger automobiles and light trucks bore the brand of the producing manufacturer, and where the producing manufacturer became independent no later than December 31, 2010, the producing manufacturer is a qualifying manufacturer.~~

~~(B) In the case where two or more qualifying manufacturers combine as the result of merger or the purchase of 50 percent or more of one or more companies by another company, and if the combined 2009 model year sales of the merged or combined companies is less than 400,000 but more than zero (combined passenger automobiles and light trucks), the corporate entity formed by the combination of two or more qualifying manufacturers shall continue to be a qualifying manufacturer, except the provisions of paragraph (e)(1)(i)(D) shall apply in the case where one of the merging companies elects to voluntarily opt out of the Temporary Leadtime Allowance~~

~~Alternative Standards as allowed under paragraph (e)(1)(iv) of this section. The total number of vehicles that the corporate entity is allowed to include under the Temporary Leadtime Allowance Alternative Standards shall be determined by paragraph (e)(2) or (e)(3) of this section, where sales is the total combined 2009 model year sales of all of the merged or combined companies. Vehicles sold by the companies that combined by merger/acquisition to form the corporate entity that were subject to the Temporary Leadtime Allowance Alternative Standards in paragraph (e)(4) of this section prior to the merger/acquisition shall be combined to determine the remaining number of vehicles that the corporate entity may include under the Temporary Leadtime Allowance Alternative Standards in this paragraph (e).~~

~~(C) In the case where two or more manufacturers combine as the result of merger or the purchase of 50 percent or more of one or more companies by another company, and if the combined 2009 model year sales of the merged or combined companies is equal to or greater than 400,000 (combined passenger automobiles and light trucks), the new corporate entity formed by the combination of two or more manufacturers is not a qualifying manufacturer. Such a manufacturer shall meet the emission standards in paragraph (e) of this section beginning with the model year that is numerically two years greater than the calendar year in which the merger/acquisition(s) took place.~~

~~(D) In the case where two or more manufacturers combine as the result of merger or the purchase of 50 percent or more of one or more companies by another company, where one of the manufacturers chooses to voluntarily opt out of the Temporary Leadtime Allowance Alternative Standards under the provisions of paragraph (e)(1)(iv) of this section, the new corporate entity formed by the combination of two or more manufacturers is not a qualifying manufacturer. Such a manufacturer shall meet the emission standards in paragraph (e) of this section beginning with the model year that is numerically two years greater than the calendar year in which the Merger/acquisition(s) took place. If one or more of the merged or combined manufacturers was complying with the Temporary Leadtime Allowance Alternative Standards prior to the merger/combination, that manufacturer is no longer eligible for the Temporary Leadtime Allowance Alternative Standards beginning with the model year that is numerically two years greater than the calendar year in which the merger/acquisition(s) took place. The cumulative number of vehicles that such a manufacturer may include in the Temporary Leadtime Allowance Alternative Standards, including those that were included by all merged manufacturers prior to the merger/acquisition, is limited to 100,000.~~

~~(ii) For the purposes of making the determination in paragraph (e)(1)(i) of this section, "manufacturer" shall mean that term as defined at 49 CFR 531.4 and as that definition was applied to the 2009 model year for the purpose of determining compliance with the 2009 corporate average fuel economy standards at 49 CFR parts 531 and 533.~~

~~(iii) A qualifying manufacturer may not use these Temporary Leadtime Allowance Alternative Standards until they have used all available banked credits and/or credits available for transfer accrued under § 86.1865-12(k). A qualifying manufacturer with a net positive credit balance calculated under § 86.1865-12(k) in any model year after considering all available credits either generated, carried forward from a prior model year, transferred from other averaging sets, or obtained from other manufacturers, may not use these Temporary Leadtime Allowance Alternative Standards in such model year.~~

~~(iv) In the event of a merger, acquisition, or combination with another manufacturer, a qualifying manufacturer that has not certified any vehicles to the Temporary Leadtime Allowance Alternative Standards in any model year may voluntarily opt out of the Temporary Leadtime~~

~~Allowance Alternative Standards. A manufacturer making this election must notify EPA in writing of their intent prior to the end of the model year in which a merger or combination with another manufacturer becomes effective. The notification must indicate that the manufacturer is electing to not use the Temporary Leadtime Allowance Alternative Standards in any model year, and that any manufacturers that are either purchased by or merged with the manufacturer making this election must also meet the emission standards in paragraph (e) of this section beginning with the model year that is numerically two years greater than the calendar year in which the merger/acquisition(s) took place.~~

~~(2) Qualifying manufacturers may select any combination of 2012 through 2015 model year passenger automobiles and/or light trucks to include under the Temporary Leadtime Allowance Alternative Standards determined in this paragraph (e) up to a cumulative total of 100,000 vehicles. Vehicles selected to comply with these standards shall not be included in the calculations of the manufacturer's fleet average standards under paragraph (e) of this section.~~

~~(3)(i) Qualifying manufacturers with sales of 2009 model year combined passenger automobiles and light trucks in the United States of greater than zero and less than 50,000 vehicles may select any combination of 2012 through 2015 model year passenger automobiles and/or light trucks to include under the Temporary Leadtime Allowance Alternative Standards determined in this paragraph (e) up to a cumulative total of 200,000 vehicles, and additionally may select up to 50,000 2016 model year vehicles to include under the Temporary Leadtime Allowance Alternative Standards determined in this paragraph (e). To be eligible for the provisions of this paragraph (e)(3) qualifying manufacturers must provide annual documentation of good faith efforts made by the manufacturer to purchase credits from other manufacturers. Without such documentation, the manufacturer may use the Temporary Leadtime Allowance Alternative Standards according to the provisions of paragraph (e)(2) of this section, and the provisions of this paragraph (e)(3) shall not apply. Vehicles selected to comply with these standards shall not be included in the calculations of the manufacturer's fleet average standards under paragraph (e) of this section.~~

~~(ii) Manufacturers that qualify in the 2016 model year for the expanded Temporary Leadtime Allowance Alternative Standards described in paragraph (e)(3)(i) of this section, may, subject to certain restrictions, use an alternative compliance schedule that provides additional lead time to meet the standards in paragraph (e) of this section for the 2017 through 2020 model years.~~

~~(A) The alternative compliance schedule is as described in this paragraph (e)(3)(ii)(A). In lieu of the standards in paragraph (e) of this section that would otherwise be applicable to the model year shown in the first column of table 8 to § 86.1818-12(e)(3)(ii)(A), a qualifying manufacturer may comply with the standards in paragraph (e) of this section determined for the model year shown in the second column of the table. In the 2021 and later model years the manufacturer must meet the standards designated for each model year in paragraph (e) of this section. Table 8 to § 86.1818-12(e)(3)(ii)(A) follows:~~

~~Table 8 to § 86.1818-12(e)(3)(ii)(A)~~

| Model year | Applicable standards |
|-----------------------|---------------------------------|
| 2017 | 2016 |
| 2018 | 2016 |
| 2019 | 2018 |
| 2020 | 2019 |

~~(B) A manufacturer using the alternative compliance schedule in paragraph (e)(3)(ii) of this section may not sell or otherwise transfer credits generated in years when the alternative phase-in is used to other manufacturers. Other provisions in § 86.1865 regarding credit banking, deficit carry forward, and within manufacturer transfers across fleets apply.~~

~~(4) To calculate the applicable Temporary Leadtime Allowance Alternative Standards, qualifying manufacturers shall determine the fleet average standard separately for the passenger automobiles and light trucks selected by the manufacturer to be subject to the Temporary Leadtime Allowance Alternative Standards, subject to the limitations expressed in paragraphs (e)(1) through (3) of this section.~~

~~(i) The Temporary Leadtime Allowance Alternative Standard applicable to qualified passenger automobiles as defined in § 600.002-08 of this chapter shall be the standard calculated using the provisions of paragraph (e)(2)(ii) of this section for the appropriate model year multiplied by 1.25 and rounded to the nearest whole gram per mile. For the purposes of applying paragraph (e)(2)(ii) of this section to determine the standard, the passenger automobile fleet shall be limited to those passenger automobiles subject to the Temporary Leadtime Allowance Alternative Standard.~~

~~(ii) The Temporary Leadtime Allowance Alternative Standard applicable to qualified light trucks (i.e. non-passenger automobiles as defined in § 600.002-08 of this chapter) shall be the standard calculated using the provisions of paragraph (e)(3)(ii) of this section for the appropriate model year multiplied by 1.25 and rounded to the nearest whole gram per mile. For the purposes of applying paragraph (e)(3)(ii) of this section to determine the standard, the light truck fleet shall be limited to those light trucks subject to the Temporary Leadtime Allowance Alternative Standard.~~

~~(5) Manufacturers choosing to optionally apply these standards are subject to the restrictions on credit banking and trading specified in § 86.1865-12.~~

~~(f) Nitrous oxide (N₂O) and methane (CH₄) exhaust emission standards for passenger automobiles and light trucks. Each manufacturer's fleet of combined passenger automobiles and light trucks must comply with N₂O and CH₄ standards using either the provisions of paragraph (f)(1), (2), or (3) of this section. Except with prior EPA approval, a manufacturer may not use the provisions of both paragraphs (f)(1) and (2) of this section in a model year. For example, a manufacturer may not use the provisions of paragraph (f)(1) of this section for their passenger automobile fleet and the provisions of paragraph (f)(2) for their light truck fleet in the same model year. The manufacturer may use the provisions of both paragraphs (f)(1) and (3) of this section in a model year. For example, a manufacturer may meet the N₂O standard in paragraph (f)(1)(i) of this section and an alternative CH₄ standard determined under paragraph (f)(3) of this section. Vehicles certified using the N₂O data submittal waiver provisions of § 86.1829(b)(1)(iii)(G) are not required to be tested for N₂O under the in-use testing programs required by § 86.1845 and § 86.1846.~~

~~* * * * *~~

~~(g) Alternative fleet average standards for manufacturers with limited U.S. sales. Manufacturers meeting the criteria in this paragraph (g) may request that the Administrator establish alternative fleet average CO₂ standards that would apply instead of the standards in paragraph (e) of this section for model year 2031 and earlier vehicles. The provisions of this paragraph (g) are applicable only to the 2017 and later model years. A manufacturer that has sought and received EPA approval for alternative standards for the 2017 model year may, at their option, choose to~~

~~comply with those standards in the 2015 and 2016 model years in lieu of requesting a conditional exemption under § 86.1801(k).~~

(1) *Eligibility for alternative standards.* Eligibility as determined in this paragraph (g) shall be based on the total nationwide sales of combined passenger automobiles and light trucks. The terms “sales” and “sold” as used in this paragraph (g) shall mean vehicles produced for ~~U.S. sale, where “U.S.” means the~~ in the states and territories of the United States. For the purpose of determining eligibility the sales of related companies shall be aggregated according to the provisions of § 86.1838-01(b)(3), or, if a manufacturer has been granted operational independence status under § 86.1838-01(d), eligibility shall be based on ~~vehicle production of~~ that manufacturer’s vehicle sales. To be eligible for alternative standards established under this paragraph (g), the manufacturer’s average sales for the three most recent consecutive model years must remain below 5,000. If a manufacturer’s average sales for the three most recent consecutive model years exceeds 4999, the manufacturer will no longer be eligible for exemption and must meet applicable emission standards starting with the model year according to the provisions in this paragraph (g)(1).

* * * * *

(2) *Requirements for new entrants into the U.S. market.* New entrants are those manufacturers without a prior record of automobile sales in the United States and without prior certification to ~~(or exemption from, under § 86.1801-12(k))~~ greenhouse gas emission standards in § 86.1818-12. In addition to the eligibility requirements stated in paragraph (g)(1) of this section, new entrants must meet the following requirements:

* * * * *

(4) * * *

(i) * * *

(B) Vehicle models and projections of production sales volumes for each model year.

* * * * *

(iv) * * *

(B) Information regarding ownership relationships with other manufacturers, including details regarding the application of the provisions of § 86.1838-01(b)(3) regarding the aggregation of sales of related companies.

(5) *Alternative standards.* Alternative standards apply as follows: ~~Upon receiving a complete application, the Administrator will review the application and determine whether an alternative standard is warranted. If the Administrator judges that an alternative standard is warranted, the Administrator will publish a proposed determination in the *Federal Register* to establish alternative standards for the manufacturer that the Administrator judges are appropriate. Following a 30-day public comment period, the Administrator will issue a final determination establishing alternative standards for the manufacturer. If the Administrator does not establish alternative standards for an eligible manufacturer prior to 12 months before the first model year to which the alternative standards would apply, the manufacturer may request an extension of the exemption under § 86.1801-12(k) or an extension of previously approved alternative standards, whichever may apply.~~

(i) Where EPA has exercised its regulatory authority to administratively specify alternative standards, those alternative standards approved for model year 2021 continue to apply through model year 2024. Starting in model year 2025, manufacturers must certify to the standards in paragraph (h) of this section on a delayed schedule, as follows:

| <u>In model year...</u> | <u>Manufacturers must certify to the standards that would otherwise apply in...</u> |
|-------------------------|---|
| <u>(A) 2025</u> | <u>2023</u> |
| <u>(B) 2026</u> | <u>2023</u> |
| <u>(C) 2027</u> | <u>2025</u> |
| <u>(D) 2028</u> | <u>2025</u> |
| <u>(E) 2029</u> | <u>2027</u> |
| <u>(F) 2030</u> | <u>2028</u> |
| <u>(G) 2031</u> | <u>2030</u> |

(ii) EPA may approve a request from other manufacturers for alternative fleet average CO₂ standards under this paragraph (g). The alternative standards for those manufacturers will apply by model year as specified in paragraph (g)(5)(i) of this section.

(6) *Restrictions on credit trading.* Manufacturers subject to alternative standards approved by the Administrator under this paragraph (g) may not trade credits to another manufacturer. Transfers between car and truck fleets within the manufacturer are allowed, and the carry-forward provisions for credits and deficits apply. Manufacturers may generate credits in a given model year for trading to another manufacturer by certifying to the standards in paragraph (h) of this section for the current model year across the manufacturer's full product line. A manufacturer certifying to the standards in paragraph (h) of this section will no longer be eligible to certify to the alternative standards under this paragraph (g) in later model years.

(7) Starting in model year 2032, all manufacturers must certify to the standards in paragraph (c) of this section.

(h) Historical and interim standards. The following CO₂ target values apply for model year 2031 and earlier vehicles:

(1) CO₂ target values apply as follows for passenger automobiles:

Table 2 of § 86.1818-12(h)(1)—Historical and Interim CO₂ Target Values for Passenger Automobiles

| <u>Model year</u> | <u>Footprint cutpoints (ft²)</u> | | <u>CO₂ target value (g/mile)</u> | | |
|-------------------------|---|-------------|---|---|----------------------------|
| | <u>Low</u> | <u>High</u> | <u>Below low cutpoint</u> | <u>Between cutpoints^a</u> | <u>Above high cutpoint</u> |
| <u>2012</u> | <u>41</u> | <u>56</u> | <u>244.0</u> | <u>$4.72 \times f + 50.5$</u> | <u>315.0</u> |
| <u>2013</u> | <u>41</u> | <u>56</u> | <u>237.0</u> | <u>$4.72 \times f + 43.3$</u> | <u>307.0</u> |
| <u>2014</u> | <u>41</u> | <u>56</u> | <u>228.0</u> | <u>$4.72 \times f + 34.8$</u> | <u>299.0</u> |
| <u>2015</u> | <u>41</u> | <u>56</u> | <u>217.0</u> | <u>$4.72 \times f + 23.4$</u> | <u>288.0</u> |
| <u>2016</u> | <u>41</u> | <u>56</u> | <u>206.0</u> | <u>$4.72 \times f + 12.7$</u> | <u>277.0</u> |
| <u>2017</u> | <u>41</u> | <u>56</u> | <u>195.0</u> | <u>$4.53 \times f + 8.9$</u> | <u>263.0</u> |
| <u>2018</u> | <u>41</u> | <u>56</u> | <u>185.0</u> | <u>$4.35 \times f + 6.5$</u> | <u>250.0</u> |
| <u>2019</u> | <u>41</u> | <u>56</u> | <u>175.0</u> | <u>$4.17 \times f + 4.2$</u> | <u>238.0</u> |
| <u>2020</u> | <u>41</u> | <u>56</u> | <u>166.0</u> | <u>$4.01 \times f + 1.9$</u> | <u>226.0</u> |
| <u>2021</u> | <u>41</u> | <u>56</u> | <u>161.8</u> | <u>$3.94 \times f + 0.2$</u> | <u>220.9</u> |
| <u>2022</u> | <u>41</u> | <u>56</u> | <u>159.0</u> | <u>$3.88 \times f - 0.1$</u> | <u>217.3</u> |
| <u>2023</u> | <u>41</u> | <u>56</u> | <u>145.6</u> | <u>$3.56 \times f - 0.4$</u> | <u>199.1</u> |
| <u>2024</u> | <u>41</u> | <u>56</u> | <u>138.6</u> | <u>$3.39 \times f - 0.4$</u> | <u>189.5</u> |
| <u>2025</u> | <u>41</u> | <u>56</u> | <u>130.5</u> | <u>$3.26 \times f - 3.2$</u> | <u>179.4</u> |
| <u>2026^f</u> | <u>41</u> | <u>56</u> | <u>114.3</u> | <u>$3.11 \times f - 13.1$</u> | <u>160.9</u> |
| <u>2027</u> | <u>42</u> | <u>56</u> | <u>130.9</u> | <u>$0.64 \times f + 104.0$</u> | <u>139.8</u> |
| <u>2028</u> | <u>43</u> | <u>56</u> | <u>114.1</u> | <u>$0.56 \times f + 90.2$</u> | <u>121.3</u> |
| <u>2029</u> | <u>44</u> | <u>56</u> | <u>96.9</u> | <u>$0.47 \times f + 76.3$</u> | <u>102.5</u> |
| <u>2030</u> | <u>45</u> | <u>56</u> | <u>89.5</u> | <u>$0.43 \times f + 70.1$</u> | <u>94.2</u> |
| <u>2031</u> | <u>45</u> | <u>56</u> | <u>81.2</u> | <u>$0.39 \times f + 63.6$</u> | <u>85.5</u> |

^a Calculate the CO₂ target value for vehicles between the footprint cutpoints as shown, using vehicle footprint, *f*, and rounding the result to the nearest 0.1 g/mile.

(2) CO₂ target values apply as follows for light trucks:

Table 3 of § 86.1818-12(h)(2)—Historical and Interim CO₂ Target Values for Light Trucks

| <u>Model year</u> | <u>Footprint cutpoints (ft²)</u> | | <u>CO₂ target value (g/mile)</u> | | |
|-------------------|---|-------------|---|---|----------------------------|
| | <u>Low</u> | <u>High</u> | <u>Below low cutpoint</u> | <u>Between cutpoints^a</u> | <u>Above high cutpoint</u> |
| <u>2012</u> | <u>41</u> | <u>66.0</u> | <u>294.0</u> | <u>$4.04 \times f + 128.6$</u> | <u>395.0</u> |
| <u>2013</u> | <u>41</u> | <u>66.0</u> | <u>284.0</u> | <u>$4.04 \times f + 118.7$</u> | <u>385.0</u> |
| <u>2014</u> | <u>41</u> | <u>66.0</u> | <u>275.0</u> | <u>$4.04 \times f + 109.4$</u> | <u>376.0</u> |
| <u>2015</u> | <u>41</u> | <u>66.0</u> | <u>261.0</u> | <u>$4.04 \times f + 95.1$</u> | <u>362.0</u> |
| <u>2016</u> | <u>41</u> | <u>66.0</u> | <u>247.0</u> | <u>$4.04 \times f + 81.1$</u> | <u>348.0</u> |
| <u>2017</u> | <u>41</u> | <u>50.7</u> | <u>238.0</u> | <u>$4.87 \times f + 38.3$</u> | <u>—</u> |
| <u>2017</u> | <u>50.8</u> | <u>66.0</u> | <u>—</u> | <u>$4.04 \times f + 80.5$</u> | <u>347.0</u> |
| <u>2018</u> | <u>41</u> | <u>60.2</u> | <u>227.0</u> | <u>$4.76 \times f + 31.6$</u> | <u>—</u> |
| <u>2018</u> | <u>60.3</u> | <u>66.0</u> | <u>—</u> | <u>$4.04 \times f + 75.0$</u> | <u>342.0</u> |
| <u>2019</u> | <u>41</u> | <u>66.4</u> | <u>220.0</u> | <u>$4.68 \times f + 27.7$</u> | <u>339.0</u> |
| <u>2020</u> | <u>41</u> | <u>68.3</u> | <u>212.0</u> | <u>$4.57 \times f + 24.6$</u> | <u>337.0</u> |
| <u>2021</u> | <u>41</u> | <u>68.3</u> | <u>206.5</u> | <u>$4.51 \times f + 21.5$</u> | <u>329.4</u> |
| <u>2022</u> | <u>41</u> | <u>68.3</u> | <u>203.0</u> | <u>$4.44 \times f + 20.6$</u> | <u>324.1</u> |
| <u>2023</u> | <u>41</u> | <u>74.0</u> | <u>181.1</u> | <u>$3.97 \times f + 18.4$</u> | <u>312.1</u> |
| <u>2024</u> | <u>41</u> | <u>74.0</u> | <u>172.1</u> | <u>$3.77 \times f + 17.4$</u> | <u>296.5</u> |
| <u>2025</u> | <u>41</u> | <u>74.0</u> | <u>159.3</u> | <u>$3.58 \times f + 12.5$</u> | <u>277.4</u> |
| <u>2026</u> | <u>41</u> | <u>74.0</u> | <u>141.8</u> | <u>$3.41 \times f + 1.9$</u> | <u>254.4</u> |
| <u>2027</u> | <u>42</u> | <u>73.0</u> | <u>133.0</u> | <u>$2.56 \times f + 25.6$</u> | <u>212.3</u> |
| <u>2028</u> | <u>43</u> | <u>72.0</u> | <u>117.5</u> | <u>$2.22 \times f + 22.2$</u> | <u>181.7</u> |
| <u>2029</u> | <u>44</u> | <u>71.0</u> | <u>101.0</u> | <u>$1.87 \times f + 18.7$</u> | <u>151.5</u> |
| <u>2030</u> | <u>45</u> | <u>70.0</u> | <u>94.4</u> | <u>$1.72 \times f + 17.2$</u> | <u>137.3</u> |
| <u>2031</u> | <u>45</u> | <u>70.0</u> | <u>85.6</u> | <u>$1.56 \times f + 15.6$</u> | <u>124.5</u> |

^a Calculate the CO₂ target value for vehicles between the footprint cutpoints as shown, using vehicle footprint, *f*, and rounding the result to the nearest 0.1 g/mile.

(h) *Mid-term evaluation of standards.* No later than April 1, 2018, the Administrator shall determine whether the standards established in paragraph (c) of this section for the 2022 through 2025 model years are appropriate under section 202(a) of the Clean Air Act, in light of the record then before the Administrator. An opportunity for public comment shall be provided before making such determination. If the Administrator determines they are not appropriate, the Administrator shall initiate a rulemaking to revise the standards, to be either more or less stringent as appropriate.

(1) In making the determination required by this paragraph (h), the Administrator shall consider the information available on the factors relevant to setting greenhouse gas emission standards under section 202(a) of the Clean Air Act for model years 2022 through 2025, including but not limited to:

- (i) The availability and effectiveness of technology, and the appropriate lead time for introduction of technology;
- (ii) The cost on the producers or purchasers of new motor vehicles or new motor vehicle engines;
- (iii) The feasibility and practicability of the standards;
- (iv) The impact of the standards on reduction of emissions, oil conservation, energy security, and fuel savings by consumers;

- ~~(v) The impact of the standards on the automobile industry;~~
- ~~(vi) The impacts of the standards on automobile safety;~~
- ~~(vii) The impact of the greenhouse gas emission standards on the Corporate Average Fuel Economy standards and a national harmonized program; and~~
- ~~(viii) The impact of the standards on other relevant factors.~~
- ~~(2) The Administrator shall make the determination required by this paragraph (h) based upon a record that includes the following:~~
 - ~~(i) A draft Technical Assessment Report addressing issues relevant to the standard for the 2022 through 2025 model years;~~
 - ~~(ii) Public comment on the draft Technical Assessment Report;~~
 - ~~(iii) Public comment on whether the standards established for the 2022 through 2025 model years are appropriate under section 202(a) of the Clean Air Act; and~~
 - ~~(iv) Such other materials the Administrator deems appropriate.~~
- ~~(3) No later than November 15, 2017, the Administrator shall issue a draft Technical Assessment Report addressing issues relevant to the standards for the 2022 through 2025 model years.~~
- ~~(4) The Administrator will set forth in detail the bases for the determination required by this paragraph (h), including the Administrator's assessment of each of the factors listed in paragraph (h)(1) of this section.~~

45. Amend § 86.1819-14 by:

- a. Revising the introductory text and paragraphs (a)(1) and (2), (d)(10)(i), (d)(13), (15)(viii), (17) introductory text, (17)(i), (h), (j) introductory text, and (j)(1).
- b. Adding paragraph (j)(4).
- c. Removing and reserving paragraphs (k)(1) through (3).
- d. Revising paragraphs (k)(4), (5), and (7).
- e. Removing paragraph (k)(10).

The revisions and addition read as follows:

§ 86.1819-14 Greenhouse gas emission standards for heavy-duty vehicles.

This section describes exhaust emission standards for CO₂, CH₄, and N₂O for ~~heavy~~medium-duty vehicles. The standards of this section apply for model year 2014 and later vehicles that are chassis-certified with respect to criteria pollutants under this subpart S. Additional heavy-duty vehicles may be ~~optionally~~ subject to the standards of this section as ~~allowed under specified in~~ paragraph (j) of this section. Any heavy-duty vehicles not subject to standards under this section are instead subject to greenhouse gas standards under 40 CFR part 1037, and engines installed in these vehicles are subject to standards under 40 CFR part 1036. If you are not the engine manufacturer, you must notify the engine manufacturer that its engines are subject to 40 CFR part 1036 if you intend to use their engines in vehicles that are not subject to standards under this section. Vehicles produced by small businesses may be ~~exempted~~excluded from the standards of this section as described in paragraph (k)(5) of this section.

(a) * * *

(1) Calculate a work factor, *WF*, for each vehicle subconfiguration (or group of subconfigurations as allowed under paragraph (a)(4) of this section), rounded to the nearest pound, using the following equation:

$$WF = 0.75 \times (GVWR - \text{Curb Weight} + xwd) + 0.25 \times (GCWR - GVWR)$$

Where:

$xwd = 500$ pounds if the vehicle has four-wheel drive or all-wheel drive; $xwd = 0$ pounds for all other vehicles.

GCWR = the gross combination weight rating as declared by the manufacturer. Starting in model year 2030, set GCWR to 22,000 for any vehicle with GCWR above 22,000 pounds.

(2) Using the appropriate work factor, calculate a target value for each vehicle subconfiguration (or group of subconfigurations as allowed under paragraph (a)(4) of this section) you produce using ~~one of~~ the following equations, or the phase-in provisions in paragraph (k)(4) of this section for model year 2031 and earlier vehicles, rounding to the nearest whole g/mile:

$0.0221 \times WF + 170$

~~(i) For model year 2027 and later vehicles with spark ignition engines: $CO_2\text{-Target (g/mile)} = 0.0369 \times WF + 284$~~

~~(ii) For model year 2027 and later vehicles with compression ignition engines or with no engines (such as electric vehicles and fuel cell vehicles): $CO_2\text{-Target (g/mile)} = 0.0348 \times WF + 268$~~

* * * * *

(d) * * *

(10) * * *

~~(i) For your fleet average calculations in model year 2016 and later, use either the conventional-fueled CO₂ emission rate or a weighted average of your emission results as specified in 40 CFR 600.510-12(k) for light-duty trucks. For your fleet average calculations before model year 2016, apply an equal weighting of CO₂ emission results from alternative and conventional fuels.~~

* * * * *

(13) This paragraph (d)(13) applies for CO₂ reductions resulting from technologies that were not in common use before 2010 that are not reflected in the specified test procedures. While you are not required to prove that such technologies were not in common use with heavy-duty vehicles before model year 2010, we will not approve your request if we determine they do not qualify. These may be described as off-cycle or innovative technologies. Through model year 2026 ~~we~~ we may allow you to generate emission credits consistent with the provisions of § 86.1869-12(c) and (d). The 5-cycle methodology is not presumed to be preferred over alternative methodologies described in § 86.1869-12(d).

* * * * *

(15) * * *

(viii) Total and percent leakage rates under paragraph (h) of this section (through model year 2026 only).

* * * * *

(17) You may calculate emission rates for weight increments less than the 500-pound increment specified for test weight. This does not change the applicable test weights.

(i) Use the ADC equation in paragraph (g) of this section to adjust your emission rates for vehicles in increments of 50, 100, or 250 pounds instead of the 500 pound test-weight increments. Adjust emissions to the midpoint of each increment. This is the equivalent emission weight. For example, vehicles with a test weight basis of 11,751 to 12,250

pounds (which have an equivalent test weight of 12,000 pounds) could be regrouped into 100-pound increments as follows:

Table 1 of § 86.1819-14(k)(17)(i)—Example of Test-Weight Groupings

| Test weight basis | Equivalent emission weight | Equivalent test weight |
|-------------------|----------------------------|------------------------|
| 11,751-11,850 | 11,800 | 12,000 |
| 11,851-11,950 | 11,900 | 12,000 |
| 11,951-12,050 | 12,000 | 12,000 |
| 12,051-12,150 | 12,100 | 12,000 |
| 12,151-12,250 | 12,200 | 12,000 |

* * * * *

(h) *Air conditioning leakage.* Loss of refrigerant from your air conditioning systems may not exceed a total leakage rate of 11.0 grams per year or a percent leakage rate of 1.50 percent per year, whichever is greater. This applies for all refrigerants. Calculate the total leakage rate in g/year as specified in § 86.1867-12(a). Calculate the percent leakage rate as: [total leakage rate (g/yr)] ÷ [total refrigerant capacity (g)] × 100. Round your percent leakage rate to the nearest one-hundredth of a percent. For purpose of this requirement, “refrigerant capacity” is the total mass of refrigerant recommended by the vehicle manufacturer as representing a full charge. Where full charge is specified as a pressure, use good engineering judgment to convert the pressure and system volume to a mass. The leakage standard in this paragraph (h) no longer applies starting with model year 2027.

* * * * *

(j) *Optional GHG certification of additional vehicles under this subpart.* You may certify certain complete or cab-complete vehicles to the GHG standards of this section. Starting in model year 2027, certain high-GCWR vehicles may also be subject to the GHG standards of this section. All vehicles optionally certified under this paragraph (j) are deemed to be subject to the GHG standards of this section. Note that for vehicles above 14,000 pounds GVWR and at or below 26,000 pounds GVWR, GHG certification under this paragraph (j) does not affect how you may or may not certify with respect to criteria pollutants.

(1) For GHG compliance, you may certify any complete or cab-complete spark-ignition vehicles above 14,000 pounds GVWR and at or below 26,000 pounds GVWR to the GHG standards of this section even though this section otherwise specifies that you may certify vehicles to the GHG standards of this section only if they are chassis-certified for criteria pollutants. Starting in model year 2027, this paragraph (j)(1) also applies for vehicles at or below 14,000 pounds GVWR with GCWR above 22,000 pounds with installed engines that have been certified under 40 CFR part 1036 as described in 40 CFR 1036.635.

* * * * *

(4) Vehicles above 22,000 pounds GCWR may be subject to the GHG standards of this section as described in 40 CFR 1036.635.

(k) *Interim provisions.* The following provisions apply instead of other provisions in this subpart:

(1) through (3) [Reserved]

~~(1) Incentives for early introduction. Manufacturers may voluntarily certify in model year 2013 (or earlier model years for electric vehicles) to the greenhouse gas standards that apply starting in model year 2014 as specified in 40 CFR 1037.150(a).~~

~~(2) *Early credits.* To generate early credits under this paragraph (k)(2) for any vehicles other than electric vehicles, you must certify your entire U.S. directed fleet to these standards. If you calculate a separate fleet average for advanced technology vehicles under paragraph (k)(7) of this section, you must certify your entire U.S. directed production volume of both advanced and conventional vehicles within the fleet. If some test groups are certified after the start of the model year, you may generate credits only for production that occurs after all test groups are certified. For example, if you produce three test groups in an averaging set and you receive your certificates for those test groups on January 4, 2013, March 15, 2013, and April 24, 2013, you may not generate credits for model year 2013 for vehicles from any of the test groups produced before April 24, 2013. Calculate credits relative to the standard that would apply in model year 2014 using the applicable equations in this subpart and your model year 2013 U.S. directed production volumes. These credits may be used to show compliance with the standards of this subpart for 2014 and later model years. We recommend that you notify us of your intent to use this provision before submitting your applications.~~

~~(3) *Compliance date.* Compliance with the standards of this section was optional before January 1, 2014 as specified in 40 CFR 1037.150(g).~~

(4) *Historical and interim standards.* The following CO₂ target values apply for model year 2031 and earlier vehicles:

(i) CO₂ target values apply as follows for model years 2014 through 2026, except as specified in paragraph (k)(4)(ii) of this section:

Table 2 of § 86.1819-14(k)(4)(i)—CO₂ Target Values for Model years 2014 Through 2026

| <u>Model year</u> | <u>CO₂ target (g/mile)</u> | |
|-------------------|--|--|
| | <u>Spark-ignition</u> | <u>Compression-ignition</u> |
| <u>2014</u> | <u>$0.0482 \times WF + 371$</u> | <u>$0.0478 \times WF + 368$</u> |
| <u>2015</u> | <u>$0.0479 \times WF + 369$</u> | <u>$0.0474 \times WF + 366$</u> |
| <u>2016</u> | <u>$0.0469 \times WF + 362$</u> | <u>$0.0460 \times WF + 354$</u> |
| <u>2017</u> | <u>$0.0460 \times WF + 354$</u> | <u>$0.0445 \times WF + 343$</u> |
| <u>2018-2020</u> | <u>$0.0440 \times WF + 339$</u> | <u>$0.0416 \times WF + 320$</u> |
| <u>2021</u> | <u>$0.0429 \times WF + 331$</u> | <u>$0.0406 \times WF + 312$</u> |
| <u>2022</u> | <u>$0.0418 \times WF + 322$</u> | <u>$0.0395 \times WF + 304$</u> |
| <u>2023</u> | <u>$0.0408 \times WF + 314$</u> | <u>$0.0386 \times WF + 297$</u> |
| <u>2024</u> | <u>$0.0398 \times WF + 306$</u> | <u>$0.0376 \times WF + 289$</u> |
| <u>2025</u> | <u>$0.0388 \times WF + 299$</u> | <u>$0.0367 \times WF + 282$</u> |
| <u>2026</u> | <u>$0.0378 \times WF + 291$</u> | <u>$0.0357 \times WF + 275$</u> |

(ii) The following optional alternative CO₂ target values apply for model years 2014 through 2020:

Table 3 of § 86.1819-14(k)(4)(ii)—Alternative CO₂ Target Values for Model Years 2014 Through 2020

| <u>Model year</u> | <u>CO₂ target (g/mile)</u> | |
|-------------------|--|--|
| | <u>Spark-ignition</u> | <u>Compression-ignition</u> |
| <u>2014</u> | <u>$0.0482 \times WF + 371$</u> | <u>$0.0478 \times WF + 368$</u> |
| <u>2015</u> | <u>$0.0479 \times WF + 369$</u> | <u>$0.0474 \times WF + 366$</u> |
| <u>2016-2018</u> | <u>$0.0456 \times WF + 352$</u> | <u>$0.0440 \times WF + 339$</u> |
| <u>2019-2020</u> | <u>$0.0440 \times WF + 339$</u> | <u>$0.0416 \times WF + 320$</u> |

(iii) CO₂ target values apply as follows for all engine types for model years 2027 through 2031:

Table 4 of § 86.1819-14(k)(4)(iii)—CO₂ target values for Model Years 2027 Through 2031

| <u>Model year</u> | <u>CO₂ target (g/mile)</u> |
|-------------------|--|
| <u>2027</u> | <u>$0.0348 \times WF + 268$</u> |
| <u>2028</u> | <u>$0.0339 \times WF + 261$</u> |
| <u>2029</u> | <u>$0.0310 \times WF + 239$</u> |
| <u>2030</u> | <u>$0.0280 \times WF + 216$</u> |
| <u>2031</u> | <u>$0.0251 \times WF + 193$</u> |

(4) Phase-in provisions. Each manufacturer must choose one of the options specified in paragraphs (k)(4)(i) and (ii) of this section for phasing in the Phase 1 standards. Manufacturers must follow the schedule described in paragraph (k)(4)(iii) of this section for phasing in the Phase 2 standards:

(i) Phase 1—Option 1. You may implement the Phase 1 standards by applying CO₂ target values as specified in the following table for model year 2014 through 2020 vehicles:

Table 1 of § 86.1819-14

| <u>Model year and engine cycle</u> | <u>Alternate CO₂ target (g/mile)</u> |
|---------------------------------------|---|
| <u>2014 Spark Ignition</u> | <u>$0.0482 \times (WF) + 371$</u> |
| <u>2015 Spark Ignition</u> | <u>$0.0479 \times (WF) + 369$</u> |
| <u>2016 Spark Ignition</u> | <u>$0.0469 \times (WF) + 362$</u> |
| <u>2017 Spark Ignition</u> | <u>$0.0460 \times (WF) + 354$</u> |
| <u>2018-2020 Spark Ignition</u> | <u>$0.0440 \times (WF) + 339$</u> |
| <u>2014 Compression Ignition</u> | <u>$0.0478 \times (WF) + 368$</u> |
| <u>2015 Compression Ignition</u> | <u>$0.0474 \times (WF) + 366$</u> |
| <u>2016 Compression Ignition</u> | <u>$0.0460 \times (WF) + 354$</u> |
| <u>2017 Compression Ignition</u> | <u>$0.0445 \times (WF) + 343$</u> |
| <u>2018-2020 Compression Ignition</u> | <u>$0.0416 \times (WF) + 320$</u> |

(ii) Phase 1—Option 2. You may implement the Phase 1 standards by applying CO₂ target values specified in the following table for model year 2014 through 2020 vehicles:

Table 2 of § 86.1819-14

| Model year and engine cycle | Alternate CO₂ target (g/mile) |
|---|---|
| 2014 Spark Ignition | $0.0482 \times (WF) + 371$ |
| 2015 Spark Ignition | $0.0479 \times (WF) + 369$ |
| 2016-2018 Spark Ignition | $0.0456 \times (WF) + 352$ |
| 2019-2020 Spark Ignition | $0.0440 \times (WF) + 339$ |
| 2014 Compression Ignition | $0.0478 \times (WF) + 368$ |
| 2015 Compression Ignition | $0.0474 \times (WF) + 366$ |
| 2016-2018 Compression Ignition | $0.0440 \times (WF) + 339$ |
| 2019-2020 Compression Ignition | $0.0416 \times (WF) + 320$ |

(iii) ~~Phase 2.~~ Apply Phase 2 CO₂ target values as specified in the following table for model year 2021 through 2026 vehicles:

Table 3 of § 86.1819-14

| Model year and engine cycle | Alternate CO₂ target (g/mile) |
|--|---|
| 2021 Spark Ignition | $0.0429 \times (WF) + 331$ |
| 2022 Spark Ignition | $0.0418 \times (WF) + 322$ |
| 2023 Spark Ignition | $0.0408 \times (WF) + 314$ |
| 2024 Spark Ignition | $0.0398 \times (WF) + 306$ |
| 2025 Spark Ignition | $0.0388 \times (WF) + 299$ |
| 2026 Spark Ignition | $0.0378 \times (WF) + 291$ |
| 2021 Compression Ignition | $0.0406 \times (WF) + 312$ |
| 2022 Compression Ignition | $0.0395 \times (WF) + 304$ |
| 2023 Compression Ignition | $0.0386 \times (WF) + 297$ |
| 2024 Compression Ignition | $0.0376 \times (WF) + 289$ |
| 2025 Compression Ignition | $0.0367 \times (WF) + 282$ |
| 2026 Compression Ignition | $0.0357 \times (WF) + 275$ |

(5) *Provisions for small manufacturers.* Standards apply on a delayed schedule for manufacturers meeting the small business criteria specified in 13 CFR 121.201 (NAICS code 336111); the employee and revenue limits apply to the total number employees and total revenue together for affiliated companies. Qualifying small manufacturers are not subject to the greenhouse gas standards of this section for vehicles with a date of manufacture before January 1, 2022, as specified in 40 CFR 1037.150(c). In addition, small manufacturers producing vehicles that run on any fuel other than gasoline, E85, or diesel fuel may delay complying with every later standard under this part by one model year through model year 2026. For model year 2027 and later, qualifying small manufacturers remain subject to the model year 2026 greenhouse gas standards; however, small manufacturers may trade emission credits generated in a given model year only by certifying to standards that apply for that model year.

* * * * *

(7) *Advanced-technology credits.* Provisions for advanced-technology credits apply as described in 40 CFR 1037.615. If you generate credits from Phase 1 vehicles certified with advanced technology (in model years 2014 through 2020), you may multiply these credits by 1.50. If you generate credits from model year 2021 through 2026 ~~Phase 2~~-vehicles certified with advanced technology, you may multiply these credits by 3.5 for plug-in hybrid electric vehicles, 4.5 for electric vehicles, and 5.5 for fuel cell vehicles. Advanced-technology credits from Phase 1 vehicles may be used to show compliance with any standards of this part or 40 CFR part 1036 or part 1037, subject to the restrictions in 40 CFR 1037.740. Similarly, you may use up to 60,000 Mg per year of advanced-technology credits generated under 40 CFR 1036.615 or 1037.615 (from Phase 1 vehicles) to demonstrate compliance with the CO₂ standards in this section. Include vehicles generating credits in separate fleet-average calculations (and exclude them from your conventional fleet-average calculation). You must first apply these advanced-technology vehicle credits to any deficits for other vehicles in the averaging set before applying them to other averaging sets.

* * * * * ~~(10) *CO₂ rounding.* For model year 2014 and earlier vehicles, you may round measured and calculated CO₂ emission levels to the nearest 0.1 g/mile, instead of the nearest whole g/mile as specified in paragraphs (a), (b), and (g) of this section.~~

46. Amend § 86.1820-01 by revising paragraphs (b) introductory text and (b)(7) and adding paragraph (b)(8) to read as follows:

§ 86.1820-01 Durability group determination.

* * * * *

(b) To be included in the same durability group, vehicles must be identical in all the respects listed in paragraphs (b)(1) through (7) of this section and meet one of the criteria specified in paragraph (b)(8) of this section:

* * * * *

(7) Type of particulate filter (none, catalyzed, noncatalyzed).

(8) The manufacturer must choose one of the following two criteria:

(i) Grouping statistic:

(A) Vehicles are grouped based upon the value of the grouping statistic determined using the following equation:

$$GS = [(Cat Vol)/(Disp)] \times \text{Loading Rate}$$

Where:

GS = Grouping Statistic used to evaluate the range of precious metal loading rates and relative sizing of the catalysts compared to the engine displacement that are allowable within a durability group. The grouping statistic shall be rounded to a tenth of a gram/liter.

Cat Vol = Total volume of the catalyst(s) in liters. Include the volume of any catalyzed particulate filters.

Disp = Displacement of the engine in liters.

Loading rate = The mass of total precious metal(s) in the catalyst (or the total mass of all precious metal(s) of all the catalysts if the vehicle is equipped with multiple catalysts) in grams divided by the total volume of the catalyst(s) in liters. Include the mass of precious metals in any catalyzed particulate filters.

(B) Engine-emission control system combinations which have a grouping statistic which is either less than 25 percent of the largest grouping statistic value, or less than 0.2 g/liter (whichever allows the greater coverage of the durability group) shall be grouped into the same durability group.

(ii) The manufacturer may elect to use another procedure which results in at least as many durability groups as required using criteria in paragraph (b)(87)(i) of this section providing that only vehicles with similar emission deterioration or durability are combined into a single durability group.

* * * * *

§ 86.1823-01—[Removed]

47. Remove § 86.1823-01.

48. Amend § 86.1823-08 by revising paragraph (f)(1)(iii), adding paragraph (f)(1)(iv), and revising paragraph (n) to read as follows:

§ 86.1823-08 Durability demonstration procedures for exhaust emissions.

* * * * *

(f) * * *

(1) * * *

(iii) For Tier 3 vehicles, ~~T~~the DF calculated by these procedures will be used for determining full and intermediate useful life compliance with FTP exhaust emission standards, SFTP exhaust emission standards, and cold CO emission standards. At the manufacturer's option and using procedures approved by the Administrator, a separate DF may be calculated exclusively using cold CO test data to determine compliance with cold CO emission standards. Also, at the manufacturer's option and using procedures approved by the Administrator, a separate DF may be calculated exclusively using US06 and/or air conditioning (SC03) test data to determine compliance with the SFTP emission standards.

(iv) For Tier 4 vehicles, the DF calculated by these procedures may be used for determining compliance with all the standards identified in § 86.1811-27. At the manufacturer's option and using procedures approved by the Administrator, manufacturers may calculate a separate DF for the following standards and driving schedules:

(A) Testing to determine compliance with cold temperature emission standards.

(B) US06 testing.

(C) SC03 testing.

(D) HFET.

(E) Mid-temperature intermediate soak testing.

(F) Early driveaway testing.

(G) High-power PHEV engine starts.

* * * * *

(n) *Emission component durability.* ~~[Reserved]. For guidance see 40 CFR 86.1823-01(e).~~ The manufacturer shall use good engineering judgment to determine that all emission-related components are designed to operate properly for the full useful life of the vehicles in actual use.

§§ 86.1824-01 and 86.1824-07—[Removed]

49. Remove §§ 86.1824-01 and 86.1824-07.

50. Amend § 86.1824-08 by revising paragraphs (c)(1) and (k) to read as follows:

§ 86.1824-08 Durability demonstration procedures for evaporative emissions.

* * * * *

(c) * * *

(1) Mileage accumulation must be conducted using the SRC or any road cycle approved under the provisions of § 86.1823-08(e)(1).

* * * * *

(k) *Emission component durability.* ~~[Reserved]. For guidance see 40 CFR 86.1824-01(d).~~ The manufacturer shall use good engineering judgment to determine that all emission-related components are designed to operate properly for the full useful life of the vehicles in actual use.

§ 86.1825-01—[Removed]

51. Remove § 86.1825-01.

52. Amend § 86.1825-08 by revising the introductory text and paragraphs (c)(1) and (h) to read as follows:

§ 86.1825-08 Durability demonstration procedures for refueling emissions.

~~This section applies to 2008 and later model year light-duty vehicles, light-duty trucks, and heavy-duty vehicles which are certified under light-duty rules as allowed under the provisions of § 86.1801-01(e)(1) which are subject to refueling loss emission compliance. Optionally, a manufacturer may elect to use this section for earlier model year light-duty vehicles, light-duty trucks, and heavy-duty vehicles which are certified under light-duty rules as allowed under the provisions of § 86.1801-01(e)(1) which are subject to refueling loss emission compliance. The durability-related requirements of this section apply for vehicles subject to refueling standards under this subpart. Refer to the provisions of §§ 86.1801 and 86.181386.1811, 86.1812, 86.1813, 86.1814, and 86.1815 to determine applicability of the refueling standards to different classes of vehicles for various model years. Diesel-fueled vehicles be exempt from may qualify for an exemption to the requirements of this section under § 86.1829the provisions of § 86.1810.~~

* * * * *

(c) * * *

(1) Mileage accumulation must be conducted using the SRC or a road cycle approved under the provisions of § 86.1823-08(e)(1).

* * * * *

(h) *Emission component durability.* ~~[Reserved]. For guidance see 40 CFR 86.1845-01(e).~~ The manufacturer shall use good engineering judgment to determine that all emission-related components are designed to operate properly for the full useful life of the vehicles in actual use.

* * * * *

53. Amend § 86.1827-01 by revising paragraph (a)(5) to read as follows:

§ 86.1827-01 Test group determination.

* * * * *

(a) * * *

(5) Subject to the same emission standards (except for CO₂), or FEL in the case of cold temperature NMHC or NMOG+NO_x standards, except that a manufacturer may request to group vehicles into the same test group as vehicles subject to more stringent standards, so long as all the vehicles within the test group are certified to the most stringent standards applicable to any vehicle within that test group. Light-duty trucks and light-duty vehicles may be included in the same test group if all vehicles in the test group are subject to the same emission standards, with the exception of the CO₂ standard and/or the total HC standard.

* * * * *

54. Amend § 86.1828-01 by revising paragraphs (a), (b)(1), (c), (e), and (f) and removing paragraph (g) to read as follows:

§ 86.1828-01 Emission data vehicle selection.

(a) Criteria exhaust FTP and SFTP testing. Within each test group, the vehicle configuration shall be selected which is expected to be worst-case for exhaust emission compliance on candidate in-use vehicles, considering all criteria exhaust emission constituents, all exhaust test procedures, and the potential impact of air conditioning on test results. Starting with Tier 4 vehicles, include consideration of cold temperature testing. See paragraph (c) of this section for cold temperature testing with vehicles subject to Tier 3 standards. The selected vehicle will include an air conditioning engine code unless the worst-case vehicle configuration selected is not available with air conditioning. This vehicle configuration will be used as the EDV calibration.

(b) * * *

(1) The vehicle configuration expected to exhibit the highest evaporative and/or refueling emission on candidate in-use vehicles shall be selected for each evaporative/refueling family and evaporative refueling emission system combination from among the corresponding vehicles selected for ~~FTP and SFTP~~ testing under paragraph (a) of this section. Separate vehicles may be selected to be tested for evaporative and refueling testing.

* * * * *

(c) Cold CO temperature testing—Tier 3. For vehicles subject to Tier 3 standards, select test vehicles for cold temperature testing as follows:

(1) For cold temperature CO exhaust emission compliance for each durability group, the vehicle expected to emit the highest CO emissions at 20 degrees F on candidate in-use vehicles shall be selected from the test vehicles selected in accordance with paragraph (a) of this section.

(2g) Cold temperature NMHC testing. For cold temperature NMHC exhaust emission compliance for each durability group, the manufacturer must select the vehicle expected to emit the highest NMHC emissions at 20 °F on candidate in-use vehicles from the test vehicles specified in paragraph (a) of this section. When the expected worst-case cold temperature NMHC vehicle is also the expected worst-case cold temperature CO vehicle as

selected in paragraph (c)(1) of this section, then cold temperature testing is required only for that vehicle; otherwise, testing is required for both the worst-case cold temperature CO vehicle and the worst-case cold temperature NMHC vehicle.

* * * * *

(e) Alternative configurations. The manufacturer may ~~use~~select, using good engineering judgment ~~to select~~; an equivalent or worst-case configuration in lieu of testing the vehicle selected in paragraphs (a) through (c) of this section. Carryover data satisfying the provisions of § 86.1839-01 may also be used in lieu of testing the configuration selected in paragraphs (a) through (c) of this section.

(f) Good engineering judgment. The manufacturer shall use good engineering judgment in making selections of vehicles under this section. ~~(g) Cold temperature NMHC testing. For cold temperature NMHC exhaust emission compliance for each durability group, the manufacturer must select the vehicle expected to emit the highest NMHC emissions at 20 °F on candidate in-use vehicles from the test vehicles specified in paragraph (a) of this section. When the expected worst case cold temperature NMHC vehicle is also the expected worst case cold temperature CO vehicle as selected in paragraph (e) of this section, then cold temperature testing is required only for that vehicle; otherwise, testing is required for both the worst case cold temperature CO vehicle and the worst case cold temperature NMHC vehicle.~~

§ 86.1829-01—[Removed]

55. Remove § 86.1829-01.

56. Amend § 86.1829-15 by revising paragraphs (a), (b), (d)(1) introductory text, (d)(6), and (f) to read as follows:

§ 86.1829-15 Durability and emission testing requirements; waivers.

* * * * *

(a) Durability requirements apply as follows:

(1) One durability demonstration is required for each durability group. The configuration of the DDV is determined according to § 86.1822. The DDV shall be tested and accumulate service mileage according to the provisions of §§ 86.1823, 86.1824, 86.1825, and 86.1831. Small-volume manufacturers and small-volume test groups may optionally use the alternative durability provisions of § 86.1838.

(2) The following durability testing requirements apply for electric vehicles and plug-in hybrid electric vehicles:

(i) Manufacturers must perform monitor accuracy testing on in-use vehicles as described in § 86.1845-04(g) for each monitor family. Carryover provisions apply as described in § 86.1839-01(c).

(ii) Manufacturers must perform battery durability testing as described in § 86.1815(f)(2).

(b) The manufacturer must test EDVs as follows to demonstrate compliance with emission standards:

~~(1) Test one EDV in each durability group using the test procedures in 40 CFR part 1066 to demonstrate compliance with cold temperature CO and NMHC exhaust emission standards.~~

(12) ~~Except as specified in this section, Test one EDV in each test group using the FTP, SFTP, and HFET test procedures specified in this subpart 40 CFR part 1066 to demonstrate compliance with other exhaust emission standards.~~

(2) Test one EDV in each durability group using the test procedures in 40 CFR part 1066 to demonstrate compliance with cold temperature exhaust emission standards.

(3) Test one EDV in each test group to each of the three discrete mid-temperature intermediate soak standards identified in § 86.1811-27.

~~(43) Test one EDV in each evaporative/refueling family and evaporative/refueling emission control system combination using the test procedures in subpart B of this part to demonstrate compliance with evaporative and refueling emission standards.~~

* * * * *

(d) * * *

(1) For vehicles subject to the Tier 3 PM standards in § 86.1811-17 (not the Tier 4 PM standards in § 86.1811-27), a manufacturer may provide a statement in the application for certification that vehicles comply with applicable PM standards instead of submitting PM test data for a certain number of vehicles. However, each manufacturer must test vehicles from a minimum number of durability groups as follows:

* * * * *

~~(6) Manufacturers may provide a statement in the application for certification that vehicles comply with the mid-temperature intermediate soak standards for soak times not covered by testing. For model years 2012 through 2016, a manufacturer may provide a statement in its application for certification that vehicles comply with the applicable standards instead of measuring N₂O emissions. Such a statement may also be used for model year 2017 and 2018 vehicles only if the application for certification for those vehicles is based upon data carried over from a prior model year, as allowed under this subpart. No model year 2019 and later vehicles may be waived from testing for N₂O emissions. Vehicles certified to N₂O standards using a compliance statement instead of submitting test data are not required to collect and submit N₂O emission data under the in-use testing requirements of § 86.1845.~~

* * * * *

(f) For electric vehicles and fuel cell vehicles, manufacturers may provide a statement in the application for certification that vehicles comply with all the emission standards and related requirements of this subpart instead of submitting test data. Tailpipe emissions of regulated pollutants from vehicles powered solely by electricity are deemed to be zero.

57. Amend § 86.1834-01 by revising paragraph (h) to read as follows:

§ 86.1834-01 Allowable maintenance.

* * * * *

(h) When air conditioning ~~SFTP~~ exhaust emission tests are required, the manufacturer must document that the vehicle's air conditioning system is operating properly and in a representative condition. Required air conditioning system maintenance is performed as unscheduled maintenance and does not require the Administrator's approval.

58. Amend § 86.1835-01 by revising paragraphs (a)(1)(i), (a)(4), (b)(1), and (d) introductory text to read as follows:

§ 86.1835-01 Confirmatory certification testing.

(a) * * *

(1) * * *

(i) The Administrator may adjust or cause to be adjusted any adjustable parameter of an emission-data vehicle which the Administrator has determined to be subject to adjustment for certification testing in accordance with § 86.1833-01(a)(1), to any setting within the physically adjustable range of that parameter, as determined by the Administrator in accordance with § 86.1833-01(a)(3), prior to the performance of any tests to determine whether such vehicle or engine conforms to applicable emission standards, including tests performed by the manufacturer ~~under § 86.1829-01(b)~~. However, if the idle speed parameter is one which the Administrator has determined to be subject to adjustment, the Administrator shall not adjust it to a setting which causes a higher engine idle speed than would have been possible within the physically adjustable range of the idle speed parameter on the engine before it accumulated any dynamometer service, all other parameters being identically adjusted for the purpose of the comparison. The Administrator, in making or specifying such adjustments, will consider the effect of the deviation from the manufacturer's recommended setting on emissions performance characteristics as well as the likelihood that similar settings will occur on in-use light-duty vehicles, light-duty trucks, or complete heavy-duty vehicles. In determining likelihood, the Administrator will consider factors such as, but not limited to, the effect of the adjustment on vehicle performance characteristics and surveillance information from similar in-use vehicles.

* * * * *

(4) Retesting for fuel economy reasons or for compliance with greenhouse gas exhaust emission standards in § 86.1818-12 may be conducted under the provisions of §40 CFR 600.008-08 ~~of this chapter~~.

(b) * * *

(1) If the Administrator determines not to conduct a confirmatory test under the provisions of paragraph (a) of this section, manufacturers ~~of light-duty vehicles, light-duty trucks, and/or medium-duty passenger vehicles~~ will conduct a confirmatory test at their facility after submitting the original test data to the Administrator under either of the following circumstances: whenever any of the conditions listed in paragraphs (b)(1)(i) through (vi) of this section exist, and complete heavy-duty vehicles manufacturers will conduct a confirmatory test at their facility after submitting the original test data to the Administrator whenever the conditions listed in paragraph (b)(1)(i) or (b)(1)(ii) of this section exist, as follows:

- (i) The vehicle configuration has previously failed an emission standard.;
- (ii) The test exhibits high emission levels determined by exceeding a percentage of the standards specified by the Administrator for that model year.;
- ~~(iii) The fuel economy value of the test as measured in accordance with the procedures in 40 CFR part 600 is higher than expected based on procedures approved by the Administrator.;~~

- ~~(iv) The fuel economy value as measured in accordance with the procedures in part 600 of this title, is close to a Gas Guzzler Tax threshold value based on tolerances established by the Administrator for that model year; or~~
- ~~(v) The fuel economy value as measured in accordance with the procedures in part 600 of this title, is a potential fuel economy leader for a class of vehicles based on Administrator provided cut points for that model year.~~
- ~~(vi) The exhaust carbon related exhaust emissions of the test as measured in accordance with the procedures in 40 CFR part 600 are lower than expected based on procedures approved by the Administrator.~~

* * * * *

(d) Conditional certification. Upon request of the manufacturer, the Administrator may issue a conditional certificate of conformity for a test group which has not completed the Administrator testing required under paragraph (a) of this section. Such a certificate will be issued based upon the condition that the confirmatory testing be completed in an expedited manner and that the results of the testing be in compliance with all standards and procedures.

* * * * *

59. Amend § 86.1838-01 by revising paragraph (b)(1)(i), the heading for paragraph (b)(2) introductory text, and paragraph (b)(2)(i) to read as follows:

§ 86.1838-01 Small-volume manufacturer certification procedures.

* * * * *

(b) * * *

(1) * * *

(i) Optional small-volume manufacturer certification procedures apply for vehicles produced by manufacturers with the following number of combined sales of vehicles subject to standards under this subpart in all states and territories of the United States in the model year for which certification is sought, including all vehicles and engines imported under the provisions of 40 CFR 85.1505 and 85.1509:

(A) At or below 5,000 units for the Tier 3 standards described in §§ 86.1811-17, 86.1813-17, and 86.1816-18 and the Tier 4 standards described in § 86.1811-27. This volume threshold applies for phasing in the Tier 3 and Tier 4 standards and for determining the corresponding deterioration factors. ~~This is based on average nationwide sales volumes for model years 2012 through 2014 for manufacturers that sell vehicles in model year 2012. The provision allowing delayed compliance with the Tier 3 standards applies for qualifying companies even if sales after model year 2014 increase beyond 5,000 units. Manufacturers with no sales in model year 2012 may instead rely on projected sales volumes; however, if nationwide sales exceed an average value of 5,000 units in any three consecutive model years, the manufacturer is no longer eligible for provisions that apply to small volume manufacturers after two additional model years. For example, if actual sales in model years 2015 through 2017 exceed 5,000 units, the small volume provisions would no longer apply starting in model year 2020.~~

(B) No small-volume sales threshold applies for the heavy-duty greenhouse gas standards; alternative small-volume criteria apply as described in § 86.1819-14(k)(5).

(C) At or below 15,000 units for all other requirements. See § 86.1845 for separate provisions that apply for in-use testing.

* * * * *

(2) *Small-volume test groups and small-volume monitor families*. (i) If the aggregated sales in all states and territories of the United States, as determined in paragraph (b)(3) of this section are equal to or greater than 15,000 units, then the manufacturer (or each manufacturer in the case of manufacturers in an aggregated relationship) will be allowed to certify a number of units under the small-volume test group certification procedures in accordance with the criteria identified in paragraphs (b)(2)(ii) through (iv) of this section. Similarly, the manufacturer will be exempt from Part A testing for monitor accuracy as described in § 86.1845-04(g) in accordance with the criteria identified in paragraphs (b)(2)(ii) through (iv) of this section for individual monitor families with aggregated sales up to 5,000 units in the current model year.

* * * * *

60. Amend § 86.1839-01 by revising paragraph (a) and adding paragraph (c) to read as follows:

§ 86.1839-01 Carryover of certification and battery monitoring data.

(a) In lieu of testing an emission-data or durability vehicle selected under § 86.1822-01, § 86.1828-01, or § 86.1829-01, and submitting data therefrom, a manufacturer may submit exhaust emission data, evaporative emission data and/or refueling emission data, as applicable, on a similar vehicle for which certification has been obtained or for which all applicable data required under § 86.1845-01 has previously been submitted. To be eligible for this provision, the manufacturer must use good engineering judgment and meet the following criteria:

(1) In the case of durability data, the manufacturer must determine that the previously generated durability data represent a worst case or equivalent rate of deterioration for all applicable emission constituents compared to the configuration selected for durability demonstration. ~~(i) Prior to certification, the Administrator may require the manufacturer to provide data showing that the distribution of catalyst temperatures of the selected durability configuration is effectively equivalent or lower than the distribution of catalyst temperatures of the vehicle configuration which is the source of the previously generated data.~~

~~(ii) For the 2001, 2002, and 2003 model years only, paragraph (a)(1) of this section does not apply to the use of exhaust emission deterioration factors meeting the requirements of § 86.1823-01(e)(2).~~

(2) In the case of emission data, the manufacturer must determine that the previously generated emissions data represent a worst case or equivalent level of emissions for all applicable emission constituents compared to the configuration selected for emission compliance demonstration.

* * * * *

(c) In lieu of testing electric vehicles or plug-in hybrid electric vehicles for monitor accuracy under § 86.1822-01(a) and submitting the test data, a manufacturer may rely on previously conducted testing on a similar vehicle for which such test data have previously been submitted to demonstrate compliance with monitor accuracy requirements. For vehicles to be eligible for this provision, they must have designs for battery monitoring that are identical in all material respects to the vehicles tested under § 86.1845-04(g). If a monitor family fails to meet accuracy requirements, repeat the testing under § 86.1845-04(g) as soon as practicable.

61. Revise § 86.1840-01 to read as follows:

§ 86.1840-01 Special test procedures.

Provisions for special test procedures apply as described in 40 CFR 1065.10 and 1066.10. For example, manufacturers must propose a procedure for EPA’s review and advance approval for testing and certifying vehicles equipped with periodically regenerating aftertreatment devices, including sufficient documentation and data for EPA to fully evaluate the request.

~~(a) The Administrator may, on the basis of written application by a manufacturer, prescribe test procedures, other than those set forth in this part, for any light-duty vehicle, light-duty truck, or complete heavy-duty vehicle which the Administrator determines is not susceptible to satisfactory testing by the procedures set forth in this part.~~

~~(b) If the manufacturer does not submit a written application for use of special test procedures but the Administrator determines that a light-duty vehicle, light-duty truck, or complete heavy-duty vehicle is not susceptible to satisfactory testing by the procedures set forth in this part, the Administrator shall notify the manufacturer in writing and set forth the reasons for such rejection in accordance with the provisions of § 86.1848(a)(2).~~

~~(c) Manufacturers of vehicles equipped with periodically regenerating aftertreatment devices must propose a procedure for testing and certifying such vehicles, including SFTP testing, for the review and approval of the Administrator. The manufacturer must submit its proposal before it begins any service accumulation or emission testing. The manufacturer must provide with its submittal sufficient documentation and data for the Administrator to fully evaluate the operation of the aftertreatment devices and the proposed certification and testing procedure.~~

~~(d) The provisions of paragraph (a) and (b) of this section also apply to MDPVs.~~

62. Amend § 86.1841-01 by revising paragraphs (a)(1)(iii), (a)(3), and (e) to read as follows:

§ 86.1841-01 Compliance with emission standards for the purpose of certification.

(a) * * *

(1) * * *

(iii) For a ~~the SFTP~~-composite standard of NMHC + NO_x, the measured results of NMHC and NO_x must each be adjusted by their corresponding deterioration factors before the composite NMHC + NO_x certification level is calculated. Where the applicable FTP exhaust hydrocarbon emission standard is an NMOG standard, the applicable NMOG deterioration factor must be used in place of the NMHC deterioration factor, unless otherwise approved by the Administrator.

* * * * *

(3) Compliance with full useful life CO₂ exhaust emission standards shall be demonstrated at certification by the certification levels on the duty cycles specified ~~FTP and HFET tests~~ for carbon-related exhaust emissions ~~determined~~ according to § 600.113 of this chapter.

* * * * *

(e) Unless otherwise approved by the Administrator, manufacturers must not use Reactivity Adjustment Factors (RAFs) in their calculation of the certification level of any pollutant for any vehicle ~~except for LDVs and LLDTs participating in the National Low Emission Vehicle (NLEV) program described in subpart R of this part, regardless of the fuel used in the test vehicle.~~

63. Amend § 86.1844-01 by:
- a. Revising paragraphs (d)(7)(i) and (ii), (d)(11)(iv), and (d)(15).
 - b. Adding paragraphs (d)(18) through (20).
 - c. Revising paragraphs (e)(1), (3), and (5), (g)(11), and (h).
 - d. Removing paragraph (i).

The revisions and addition read as follows:

§ 86.1844-01 Information requirements: Application for certification and submittal of information upon request.

* * * * *

(d) * * *

(7) * * *

(i) For vehicles certified to any Tier 3 or Tier 4 emission standards, include a comparison of drive-cycle metrics as specified in 40 CFR 1066.425(j) for each drive cycle or test phase, as appropriate.

(ii) For gasoline-fueled ~~Tier 3~~ vehicles subject to Tier 3 evaporative emission standards, identify the method of accounting for ethanol in determining evaporative emissions, as described in § 86.1813.

* * * * *

(11) * * *

(iv) For Tier 4 vehicles with spark-ignition engines, describe how AECs comply with the requirements of §§ 86.1809-12(d)(2) and 86.1811-27(d).

* * * * *

~~(15)(i) For HEVs and EVs, describe the recharging procedures and methods for determining battery performance, such as state of charge and charging capacity. (ii) For vehicles with fuel-fired heaters, include the information specified in this paragraph (d)(15)(ii). D~~Describe the control system logic of the fuel-fired heater, including an evaluation of the conditions under which it can be operated and an evaluation of the possible operational modes and conditions under which evaporative emissions can exist. Use good engineering judgment to establish an estimated exhaust emission rate from the fuel-fired heater in grams per mile for each pollutant subject to a fleet-average standard. Adjust fleet-average compliance calculations in §§ 86.1861, 86.1864, and 86.1865 as appropriate to account for emissions from fuel-fired heaters. Describe the testing used to establish the exhaust emission rate.

* * * * *

(18) For vehicles equipped with RESS, the recharging procedures and methods for determining battery performance, such as state of charge and charging capacity.

(19) The following information for each monitor family for electric vehicles and plug-in hybrid electric vehicles, as applicable:

(1) The monitor, battery, and other specifications that are relevant to establishing monitor families and battery durability families to comply with the requirements of this section.

(2) The certified usable battery energy for each battery durability family.

(3) A statement attesting that the SOCE monitor meets the 5 percent accuracy requirement.

(4) For light-duty program vehicles, a statement that each battery durability family meets the Minimum Performance Requirement.

(20) Acknowledgement, if applicable, that you are including vehicles with engines certified under 40 CFR part 1036 in your calculation to demonstrate compliance with the fleet average CO₂ standard in this subpart as described in § 86.1819-14(j).

(e) * * *

(1) Identify all emission-related components, including those that can affect GHG emissions. Also identify software, AECs, and other elements of design that are used to control criteria, GHG, or evaporative/refueling emissions. Identify the emission-related components by part number. Identify software by part number or other convention, as appropriate. A list of part numbers of all emission-related components and AECs for each emission control system, including those found on actual components. The Organize part numbers shall be organized by engine code or other similar classification scheme.

* * * * *

(3) Identification and description of all vehicles covered by each certificate of conformity to be produced and sold within the U.S. The description must be sufficient to identify whether any given in-use vehicle is, or is not, covered by a given certificate of conformity, the test group and the evaporative/refueling family to which it belongs and the standards that are applicable to it, by matching readily observable vehicle characteristics and information given in the emission control information label (and other permanently attached labels) to indicators in the Part 1 Application. For example, the description must include any components or features that contribute to measured or demonstrated control of emissions for meeting criteria, GHG, or evaporative/refueling standards under this subpart. In addition, the description must be sufficient to determine for each vehicle covered by the certificate, all appropriate test parameters and any special test procedures necessary to conduct an official certification exhaust or evaporative emission test as was required by this subpart to demonstrate compliance with applicable emission standards. The description shall include, but is not limited to, information such as model name, vehicle classification (light-duty vehicle, light-duty truck, or complete heavy-duty vehicle), sales area, engine displacement, engine code, transmission type, tire size and parameters necessary to conduct exhaust emission tests such as equivalent test weight, curb and gross vehicle weight, test horsepower (with and without air conditioning adjustment), coast down time, shift schedules, cooling fan configuration, etc. and evaporative tests such as canister working capacity, canister bed volume, and fuel temperature profile. Actual values must be provided for all parameters.

* * * * *

(5) Copies of all service manuals, service bulletins and instructions regarding the use, repair, adjustment, maintenance, or testing of such vehicles relevant to the control of crankcase, exhaust or evaporative emissions, as applicable, issued by the manufacturer (~~in written or electronic form~~) for use by other manufacturers, assembly plants, distributors, dealers, and ultimate purchasers. These shall be submitted in electronic form to the Agency when they are made available to the public and must be updated as appropriate throughout the useful life of the corresponding vehicles.

* * * * *

(g) * * *

(11) A description of all procedures, including any special procedures, used to comply with applicable test requirements of this subpart. Any special procedures used to establish durability data or emission deterioration factors required to be determined under §§ 86.1823-~~01~~, 86.1824-~~01~~ and 86.1825-~~01~~ and to conduct emission tests required to be performed on

applicable emission data vehicles under § 86.1829-01 according to test procedures contained within this Title must also be included.

* * * * *

(h) ~~In-use information requirements.~~ Manufacturers must submit the in-use testing information required in § 86.1847-01.

~~(i) For exhaust emission testing for Tier 2 and interim non-Tier 2 vehicles, if approved by the Administrator in advance, manufacturers may submit exhaust emission test data generated under California test procedures to comply with any certification and in-use testing requirements under this subpart. The Administrator may require supporting information to establish that differences between California and Federal exhaust testing procedures and fuels will not produce significant differences in emission results. The Administrator may require that in-use testing be performed using Federal test fuels as specified in § 86.113-04(a)(1).~~

64. Amend § 86.1845-04 by:

- a. Revising paragraph (a)(3)(i).
- b. Adding paragraph (a)(4).
- c. Revising paragraphs (b)(5) through (7), (c)(5), (d), (e)(2).
- d. Adding paragraph (f) introductory text.
- e. Revising paragraph (f)(1).
- f. Adding paragraph (g).

The revisions and additions read as follows:

§ 86.1845-04 Manufacturer in-use verification testing requirements.

(a) * * *

(3) * * *

(i) Vehicles certified ~~to Tier 3 standards~~ under § 86.1811 must always measure emissions over the FTP, then over the HFET (if applicable), then over the US06 ~~portion of the SFTP~~. If a ~~Tier 3~~ vehicle meets all the applicable emission standards except the FTP or HFET emission standard for NMOG + NO_x, and a fuel sample from the tested vehicle (representing the as-received condition) has a measured fuel sulfur level exceeding 15 ppm when measured as described in 40 CFR 1065.710, the manufacturer may repeat the FTP and HFET measurements and use the new emission values as the official results for that vehicle. For all other cases ~~of testing Tier 3 vehicles~~, measured emission levels from the first test will be considered the official results for the test vehicle, regardless of any test results from additional test runs. Where repeat testing is allowed, the vehicle may operate for up to two US06 cycles (with or without measurement) before repeating the FTP and HFET measurements. The repeat measurements must include both FTP and HFET, even if the vehicle failed only one of those tests, unless the HFET is not required for a particular vehicle. ~~Tier 3 v~~ Vehicles may not undergo any other vehicle preconditioning to eliminate fuel sulfur effects on the emission control system, unless we approve it in advance. This paragraph (a)(3)(i) does not apply for Tier 2 vehicles.

* * * * *

(4) Battery-related in-use testing requirements apply for electric vehicles and plug-in hybrid electric vehicles as described in paragraph (g) of this section.

(b) * * *

- (5) *Testing.* (i) Each test vehicle of a test group shall be tested in accordance with the FTP and the US06 ~~portion of the SFTP~~ as described in subpart B of this part, when such test vehicle is tested for compliance with applicable exhaust emission standards under this subpart. Test vehicles subject to applicable exhaust CO₂ emission standards under this subpart shall also be tested in accordance with the HFET as described in 40 CFR 1066.840.
- (ii) For vehicles subject to Tier 3 PM standards, manufacturers must measure PM emissions over the FTP and US06 driving schedules for at least 50 percent of the vehicles tested under paragraph (b)(5)(i) of this section. For vehicles subject to Tier 4 PM standards, this test rate increases to 100 percent.
- (iii) Starting with model year 2018 vehicles, manufacturers must demonstrate compliance with the Tier 3 leak standard specified in § 86.1813, if applicable, as described in this paragraph (b)(5)(iii). Manufacturers must evaluate each vehicle tested under paragraph (b)(5)(i) of this section, except that leak testing is not required for vehicles tested under paragraph (b)(5)(iv) of this section for diurnal emissions. In addition, manufacturers must evaluate at least one vehicle from each leak family for a given model year. Manufacturers may rely on OBD monitoring instead of testing as follows:
- (A) A vehicle is considered to pass the leak test if the OBD system completed a leak check within the previous 750 miles of driving without showing a leak fault code.
- (B) Whether or not a vehicle's OBD system has completed a leak check within the previous 750 miles of driving, the manufacturer may operate the vehicle as needed to force the OBD system to perform a leak check. If the OBD leak check does not show a leak fault, the vehicle is considered to pass the leak test.
- (C) If the most recent OBD leak check from paragraph (b)(5)(iii)(A) or (B) of this section shows a leak-related fault code ~~as specified in § 86.1806-17(b)~~, the vehicle is presumed to have failed the leak test. Manufacturers may perform the leak measurement procedure described in 40 CFR 1066.985 for an official result to replace the finding from the OBD leak check.
- (D) Manufacturers may not perform repeat OBD checks or leak measurements to over-ride a failure under paragraph (b)(5)(iii)(C) of this section.
- (iv) ~~For nongaseous-fueled vehicles,~~ For vehicles other than gaseous-fueled vehicles and electric vehicles, one test vehicle of each evaporative/refueling family shall be tested in accordance with the supplemental 2-diurnal-plus-hot-soak evaporative emission and refueling emission procedures described in subpart B of this part, when such test vehicle is tested for compliance with applicable evaporative emission and refueling standards under this subpart. For gaseous-fueled vehicles, one test vehicle of each evaporative/refueling family shall be tested in accordance with the 3-diurnal-plus-hot-soak evaporative emission and refueling emission procedures described in subpart B of this part, when such test vehicle is tested for compliance with applicable evaporative emission and refueling standards under this subpart. The test vehicles tested to fulfill the evaporative/refueling testing requirement of this paragraph (b)(5)(iv) will be counted when determining compliance with the minimum number of vehicles as specified in Table S04-06 and Table S04-07 in paragraph (b)(3) of this section for testing under paragraph (b)(5)(i) of this section only if the vehicle is also tested for exhaust emissions under the requirements of paragraph (b)(5)(i) of this section.

(6) *Test condition.* Each test vehicle not rejected based on the criteria specified in appendix II to this subpart shall be tested in as-received condition.

(7) *Diagnostic maintenance.* A manufacturer may conduct subsequent diagnostic maintenance and/or testing of any vehicle. Any such maintenance and/or testing shall be reported to the Agency as specified in § 86.1847.

(c) * * *

(5) *Testing.* (i) Each test vehicle shall be tested in accordance with the FTP and the US06 ~~portion of the SFTP~~ as described in subpart B of this part when such test vehicle is tested for compliance with applicable exhaust emission standards under this subpart. Test vehicles subject to applicable exhaust CO₂ emission standards under this subpart shall also be tested in accordance with the HFET as described in 40 CFR 1066.840. One test vehicle from each test group shall be tested over the FTP at high altitude. The test vehicle tested at high altitude is not required to be one of the same test vehicles tested at low altitude. The test vehicle tested at high altitude is counted when determining the compliance with the requirements shown in Table S04-06 and Table S04-07 in paragraph (b)(3) of this section or the expanded sample size as provided for in this paragraph (c).

(ii) For vehicles subject to Tier 3 PM standards, manufacturers must measure PM emissions over the FTP and US06 driving schedules for at least 50 percent of the vehicles tested under paragraph (c)(5)(i) of this section. For vehicles subject to Tier 4 PM standards, this test rate increases to 100 percent.

(iii) Starting with model year 2018 vehicles, manufacturers must evaluate each vehicle tested under paragraph (c)(5)(i) of this section to demonstrate compliance with the Tier 3 leak standard specified in § 86.1813, except that leak testing is not required for vehicles tested under paragraph (c)(5)(iv) of this section for diurnal emissions. In addition, manufacturers must evaluate at least one vehicle from each leak family for a given model year. Manufacturers may rely on OBD monitoring instead of testing as described in paragraph (b)(5)(iii) of this section.

(iv) For vehicles other than gaseous-fueled vehicles and electric vehicles, For nongaseous-fueled vehicles, one test vehicle of each evaporative/refueling family shall be tested in accordance with the supplemental 2-diurnal-plus-hot-soak evaporative emission procedures described in subpart B of this part, when such test vehicle is tested for compliance with applicable evaporative emission and refueling standards under this subpart. For gaseous-fueled vehicles, one test vehicle of each evaporative/refueling family shall be tested in accordance with the 3-diurnal-plus-hot-soak evaporative emission procedures described in subpart B of this part, when such test vehicle is tested for compliance with applicable evaporative emission and refueling standards under this subpart. The vehicles tested to fulfill the evaporative/refueling testing requirement of this paragraph (c)(5)(iv) will be counted when determining compliance with the minimum number of vehicles as specified in Table S04-06 and table S04-07 in paragraph (b)(3) of this section for testing under paragraph (c)(5)(i) of this section only if the vehicle is also tested for exhaust emissions under the requirements of paragraph (c)(5)(i) of this section.

* * * * *

(d) *Test vehicle procurement.* ~~(1)~~ Vehicles tested under this section shall be procured as follows: pursuant to the provisions of this paragraph (d).

(1) Vehicle ownership. Vehicles shall be procured from the group of persons who own or lease vehicles registered in the procurement area. ~~(2)~~ Vehicles shall be procured from persons

which own or lease the vehicle, excluding commercial owners/lessees ~~which are~~ owned or controlled by the vehicle manufacturer, using the procedures described in appendix I to this subpart. See § 86.1838-01(c)(2)(i) for small volume manufacturer requirements.

(23) *Geographical limitations.* (i) Test groups certified to 50-state standards: For low altitude testing no more than fifty percent of the test vehicles may be procured from California.

The test vehicles procured from the 49-state area must be procured from a location with a heating degree day 30-year annual average equal to or greater than 4,000.

(ii) Test groups certified to 49-state standards: The test vehicles procured from the 49-state area must be procured from a location with a heating degree day 30-year annual average equal to or greater than 4,000.

(iii) Vehicles procured for high altitude testing may be procured from any area located above 4,000 feet.

(34) *Rejecting candidate vehicles.* Vehicles may be rejected for procurement or testing under this section if they meet one or more of the rejection criteria in appendix II to this subpart. Vehicles may also be rejected after testing under this section if they meet one or more of the rejection criteria in appendix II to this subpart. Any vehicle rejected after testing must be replaced in order that the number of test vehicles in the sample comply with the sample size requirements of this section. Any post-test vehicle rejection and replacement procurement and testing must take place within the testing completion requirements of this section.

(e) * * *

(2) *Notification of test facility.* The manufacturer shall notify the Agency of the name and location of the testing laboratory(s) to be used to conduct testing of vehicles of each model year conducted pursuant to this section. Such notification shall occur at least thirty working days prior to the initiation of testing of the vehicles of that model year.

* * * * *

(f) *NMOG and formaldehyde. The following provisions apply for measuring NMOG and formaldehyde:*

(1) A manufacturer must conduct in-use testing on a test group by determining NMOG exhaust emissions using the same methodology used for certification, as described in ~~§ 86.1810-01(e)~~ or 40 CFR 1066.635.

* * * * *

(g) Manufacturers of electric vehicles and plug-in hybrid electric vehicles must perform in-use testing related to battery monitor accuracy and battery durability for those vehicles as described in § 86.1815. Perform Part A testing for each monitor family as follows to verify that SOCE monitors meet accuracy requirements:

(1) Determine accuracy by measuring SOCE from in-use vehicles using the procedures specified in § 86.1815(c) and comparing the measured values to the SOCE value displayed on the monitor at the start of testing.

(2) Perform low-mileage testing of the vehicles in a monitor family within 12 months of the end of production of that monitor family for that model year. All test vehicles must have a minimum odometer mileage of 10,000 miles.

(3) Perform intermediate-mileage testing of the vehicles in a monitor family within 3 years of the end of production of that monitor family for that model year. All test vehicles must have a minimum odometer mileage of 30,000 miles.

(4) Perform high-mileage testing of the vehicles in a monitor family by starting the test program within 4 years of the end of production of the monitor family and completing the

test program within 5 years of the end of production of the monitor family. All test vehicles must have a minimum odometer mileage of 50,000 miles.

(5) Select test vehicles from the United States as described in paragraphs (b)(6), (c)(6), and (d)(1) and (3) of this section. Send notification regarding test location as described in paragraph (e)(2) of this section.

(6) You may perform diagnostic maintenance as specified in paragraph (b)(7) and (c)(7) of this section.

(7) See § 86.1838-01(b)(2) for a testing exemption that applies for small-volume monitor families.

65. Amend § 86.1846-01 by revising paragraphs (a)(1), (b), (e), and (j) to read as follows:

§ 86.1846-01 Manufacturer in-use confirmatory testing requirements.

(a) * * *

(1) Manufacturers must test, or cause testing to be conducted, under this section when the emission levels shown by a test group sample from testing under § 86.1845 exceeds the criteria specified in paragraph (b) of this section. The testing required under this section applies separately to each test group and at each test point (low and high mileage) that meets the specified criteria. The testing requirements apply separately for each model year. ~~These provisions apply to heavy-duty vehicles starting with model year 2007.~~ These provisions do not apply to emissions of ~~CO₂, CH₄, and or~~ N₂O.

* * * * *

(b) *Criteria for additional testing.* (1) A manufacturer shall test a test group, or a subset of a test group, as described in paragraph (j) of this section when the results from testing conducted under § 86.1845 show mean exhaust emissions ~~for that test group~~ of any criteria pollutant(s) (except CO₂, CH₄, and N₂O) to be equal to or greater than for that test group to be at or above 1.30 times the applicable in-use standard for at least 50 percent of vehicles tested from the test group. and a failure rate, among the test group vehicles, for the corresponding pollutant(s) of fifty percent or greater.

(2) A manufacturer shall test a test group, or a subset of a test group, as described in paragraph (j) of this section when the results from testing conducted under § 86.1845 show mean exhaust emissions of CO₂ (City-highway combined CREE) for that test group to be at or above the applicable in-use standard for at least 50 percent of vehicles tested from the test group.

~~(3)~~ Additional testing is not required under this paragraph (b)~~(1)~~ based on evaporative/refueling testing or based on low-mileage ~~US06 Supplemental FTP~~ testing conducted under § 86.1845-04(b)(5)(i). Testing conducted at high altitude under the requirements of § 86.1845-04(c) will be included in determining if a test group meets the criteria triggering the testing required under this section.

~~(4)~~ The vehicle designated for testing under the requirements of § 86.1845-04(c)(2) with a minimum odometer reading of 105,000 miles or 75% of useful life, whichever is less, will not be included in determining if a test group meets the triggering criteria.

~~(5)~~ The SFTP composite emission levels for Tier 3 vehicles shall include the IUVP FTP emissions, the IUVP US06 emissions, and the values from the SC03 Air Conditioning EDV certification test (without DFs applied). The calculations shall be made using the equations prescribed in § 86.164. If more than one set of certification SC03 data exists (due to running

change testing or other reasons), the manufacturer shall choose the SC03 result to use in the calculation from among those data sets using good engineering judgment.

(62) If fewer than 50 percent of the vehicles from a leak family pass either the leak test or the diurnal test under § 86.1845, EPA may require further leak testing under this paragraph

(b)(62). Testing under this section must include five vehicles from the family. If all five of these vehicles fail the test, the manufacturer must test five additional vehicles.

EPA will determine whether to require further leak testing under this section after providing the manufacturer an opportunity to discuss the results, including consideration of any of the following information, or other items that may be relevant:

(i) Detailed system design, calibration, and operating information, technical explanations as to why the individual vehicles tested failed the leak standard.

(ii) Comparison of the subject vehicles to other similar models from the same manufacturer.

(iii) Data or other information on owner complaints, technical service bulletins, service campaigns, special policy warranty programs, warranty repair data, state I/M data, and data available from other manufacturer-specific programs or initiatives.

(iv) Evaporative emission test data on any individual vehicles that did not pass leak testing during IUVP.

* * * * *

(e) *Emission testing.* Each test vehicle of a test group or Agency-designated subset shall be tested in accordance with the ~~FTP and/or the SFTP (whichever of these tests~~ driving cycles performed under § 86.1845 corresponding to ~~produces~~ emission levels requiring testing under this section) as described in subpart B of this part, when such test vehicle is tested for compliance with applicable exhaust emission standards under this subpart.

* * * * *

(j) *Testing a subset.* EPA may designate a subset of the test group based on transmission type for testing under this section in lieu of testing the entire test group when the results for the entire test group from testing conducted under § 86.1845 show mean emissions and a failure rate which meet these criteria for additional testing.

66. Amend § 86.1847-01 by adding paragraph (g) to read as follows:

§ 86.1847-01 Manufacturer in-use verification and in-use confirmatory testing; submittal of information and maintenance of records.

* * * * *

(g) Manufacturers of electric vehicles and plug-in hybrid electric vehicles certified under this subpart must meet the following reporting and recordkeeping requirements related to testing under § 86.1815:

(1) Submit the following records organized by battery durability family and monitor family related to Part A testing to verify accuracy of SOCE monitors within 30 days after completing low-mileage, intermediate-mileage, or high-mileage testing:

(i) A complete record of all tests performed, the dates and location of testing, measured SOCE values for each vehicle, along with the corresponding displayed SOCE values at the start of testing.

(ii) Test vehicle information, including model year, make, model, and odometer reading.

- (iii) A summary of statistical information showing whether the testing shows a pass or fail result.
- (2) Keep the following records related to testing under paragraph (g)(1) of this section:
- (i) Test reports submitted under paragraph (g)(1) of this section.
 - (ii) Test facility information.
 - (iii) Routine testing records, such as dynamometer trace, and temperature and humidity during testing.
- (3) Submit an annual report related to Part B testing to verify compliance with the Minimum Performance Requirement for SOCE. Submit the report by October 1 for testing you perform over the preceding year or ask us to approve a different annual reporting period based on your practice for starting a new model year. Include the following information in your annual reports, organized by battery durability family and monitor family:
- (i) Displayed values of SOCE for each sampled vehicle, along with a description of each vehicle to identify its model year, make, model, odometer reading, and state of registration. Also include the date for assessing each selected vehicle.
 - (ii) A summary of results to show whether 90 percent of sampled vehicles from each battery durability family meet the Minimum Performance Requirement.
 - (iii) A description of any selected vehicles excluded from the test results and the justification for excluding them.
 - (iv) Information regarding warranty claims and statistics on repairs for batteries and for other components or systems for each battery durability family that might influence a vehicle's electric energy consumption.
- (4) Keep the following records related to testing under paragraph (g)(3) of this section:
- (i) Test reports submitted under paragraph (g)(3) of this section.
 - (ii) Documentation related to the method of selecting vehicles.
- (5) Keep records required under this paragraph (g) for eight years after submitting reports to EPA.

§ 86.1848-01—[Removed]

67. Remove § 86.1848-01.

68. Revise § 86.1848-10 to read as follows:

§ 86.1848-10 Compliance with emission standards for the purpose of certification.

~~Section 86.1848-10 includes text that specifies requirements that differ from § 86.1848-01. Where a paragraph in § 86.1848-01 is identical and applicable to § 86.1848-10, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.1848-01.” Where a corresponding paragraph of § 86.1848-01 is not applicable, this is indicated by the statement “[Reserved]”~~

- (a)(1) If, after a review of the manufacturer's submitted Part I application, information obtained from any inspection, such other information as the Administrator may require, and any other pertinent data or information, the Administrator determines that the application is complete and that all vehicles within a test group or monitor family as described in the application meet the requirements of this part and the Clean Air Act, the Administrator shall issue a certificate of conformity.

(2) If, after review of the manufacturer's application, request for certification, information obtained from any inspection, such other information as the Administrator may require, and any other pertinent data or information, the Administrator determines that the application is not complete or the vehicles within a test group or monitor family as described in the application, do not meet applicable requirements or standards of the Act or of this part, the Administrator may deny the issuance of, suspend, or revoke a previously issued certificate of conformity. The Administrator will notify the manufacturer in writing, setting forth the basis for the determination. The manufacturer may request a hearing on the Administrator's determination.

(b) A certificate of conformity will be issued by the Administrator for a period not to exceed one model year and upon such terms as deemed necessary or appropriate to assure that any new motor vehicle covered by the certificate will meet the requirements of the Act and of this part.

(c) Failure to meet any of the following conditions will be considered a failure to satisfy a condition upon which a certificate was issued, and any affected vehicles are not covered by the certificate:~~The following conditions apply to all certificates:~~

(1) The manufacturer must supply all required information according to the provisions of §§ 86.1843-01 and 86.1844-01.

(2) The manufacturer must comply with all certification and in-use emission standards contained in subparts S ~~and H~~ of this part both during and after model year production. This includes the monitor accuracy and battery durability requirements for electric vehicles and plug-in hybrid electric vehicles as described in § 86.1815.

(3) The manufacturer must comply with all implementation schedules sales percentages as required in ~~§ 86.1810 or elsewhere in this subpart.~~ Failure to meet a required implementation schedule sales percentage will be considered to be a failure to satisfy a condition upon which the certificate was issued and any vehicles or trucks sold in violation of the implementation schedule are not to be covered by the certificate.

(4) ~~New For incomplete light-duty trucks and incomplete heavy-duty vehicles~~ must, a certificate covers only those new motor vehicles that, when completed by having the primary load-carrying device or container attached, conform to the maximum curb weight and frontal area limitations described in the application for certification as required in § 86.1844-01.

(5) The manufacturer must meet the in-use testing and reporting requirements contained in §§ 86.1815, 86.1845-01, 86.1846-01, and 86.1847-01, as applicable. ~~Failure to meet the in-use testing or reporting requirements shall be considered a failure to satisfy a condition upon which the certificate was issued. A vehicle or truck is considered to be covered by the certificate only if the manufacturer fulfills this condition upon which the certificate was issued.~~

(6) Vehicles must ~~are covered by a certificate of conformity only if they are~~ in all material respects be as described in the manufacturer's application for certification (Part I and Part II).

(7) ~~All certificates of conformity issued are conditional upon compliance with~~ Manufacturers must meet all the provisions of §§ 86.1811, 86.1813, through 86.1816, and §§ 86.1860 through 86.1862 both during and after model year production, including compliance with the applicable fleet average standard and phase-in requirements. The manufacturer bears the burden of establishing to the satisfaction of the Administrator that the terms and conditions upon which each certificate was issued were satisfied. For recall and warranty purposes, vehicles not covered by a certificate of conformity will continue to be held to the standards

stated or referenced in the certificate that otherwise would have applied to the vehicles. A manufacturer may not sell credits it has not generated.

~~(i) Failure to meet the applicable fleet average standard will be considered to be a failure to satisfy the terms and conditions upon which the certificate was issued and the vehicles sold in violation of the fleet average standard will not be covered by the certificate.~~

~~(ii) Failure to comply fully with the prohibition against selling credits that it has not generated or that are not available, as specified in § 86.1861, will be considered a failure to satisfy the terms and conditions upon which the certificate was issued and the vehicles sold in violation of this prohibition will not be covered by the certificate.~~

~~(iii) Failure to comply fully with the phase-in requirements of §§ 86.1811 through 86.1816 will be considered a failure to satisfy the terms and conditions upon which the certificate was issued and the vehicles sold that do not comply with the applicable standards, up to the number needed to comply, will not be covered by the certificate.~~

(8) ~~For LDV/LLDTs and HLDT/MDPVs, all certificates of conformity issued are conditional upon compliance with~~ Manufacturers must meet all provisions related to cold temperature standards in ~~of §§ 86.1811-10 and 86.1864-10~~ both during and after model year production, including compliance with the applicable fleet average standard and phase-in requirements.

The manufacturer bears the burden of establishing to the satisfaction of the Administrator that the terms and conditions upon which ~~each the~~ certificate(s) was ~~(were)~~ issued were satisfied. For recall and warranty purposes, vehicles not covered by a certificate of conformity will continue to be held to the standards stated or referenced in the certificate that otherwise would have applied to the vehicles. A manufacturer may not sell credits it has not generated.

~~(i) Failure to meet the fleet average cold temperature NMHC requirements will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of the fleet average NMHC standard will not be covered by the certificate(s).~~

~~(ii) Failure to comply fully with the prohibition against selling credits that are not generated or that are not available, as specified in § 86.1864-10, will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of this prohibition will not be covered by the certificate(s).~~

~~(iii) Failure to comply fully with the phase-in requirements of § 86.1811-10 will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold that do not comply with cold temperature NMHC requirements, up to the number needed to comply, will not be covered by the certificate(s).~~

(9) ~~For 2012 and later model year LDVs, LDTs, and MDPVs, all certificates of conformity issued are conditional upon compliance with all~~ Manufacturers must meet all the provisions of §§ 86.1818, 86.1819, and 86.1865 both during and after model year production, including compliance with the applicable fleet average standard. Similarly, for 2014 and later model year HDV, and other HDV subject to standards under § 86.1819, ~~all certificates of conformity issued are conditional upon compliance with all provisions of §§ 86.1819 and 86.1865 both during and after model year production.~~ The manufacturer bears the burden of establishing to the satisfaction of the Administrator that the terms and conditions upon which the certificate(s) was (were) issued were satisfied. For recall and warranty purposes, vehicles

not covered by a certificate of conformity will continue to be held to the standards stated or referenced in the certificate that otherwise would have applied to the vehicles. A manufacturer may not sell credits it has not generated.

~~(i) Failure to meet the fleet average CO₂ requirements will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of the fleet average CO₂ standard will not be covered by the certificate(s). The vehicles sold in violation will be determined according to § 86.1865-12(k)(8).~~

~~(ii) Failure to comply fully with the prohibition against selling credits that are not generated or that are not available, as specified in § 86.1865-12, will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of this prohibition will not be covered by the certificate(s).~~

~~(iii) For manufacturers using the conditional exemption under § 86.1801-12(k), failure to fully comply with the fleet production thresholds that determine eligibility for the exemption will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of the stated sales and/or production thresholds will not be covered by the certificate(s).~~

~~(iv) For manufacturers that are determined to be operationally independent under § 86.1838-01(d) must, failure to report a material change in their status within 60 days as required by § 86.1838-01(d)(2) will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of the operationally independent criteria will not be covered by the certificate(s).~~

~~(iv) For manufacturers subject to an alternative fleet average greenhouse gas emission standard approved under § 86.1818-12(g) must, failure to comply with the annual sales thresholds that are required to maintain use of those standards, including the thresholds required for new entrants into the U.S. market, will be considered a failure to satisfy the terms and conditions upon which the certificate(s) was (were) issued and the vehicles sold in violation of stated sales and/or production thresholds will not be covered by the certificate(s).~~

(10) Manufacturers must meet all the provisions of § 86.1815 both during and after model year production. The manufacturer bears the burden of establishing to the satisfaction of the Administrator that the terms and conditions related to issued certificates were satisfied.

(d) One certificate will be issued for each test group and evaporative/refueling family combination. For plug-in hybrid electric vehicles, one certificate will be issued for each test group, evaporative/refueling family, and monitor family combination. For electric vehicles, one certificate will be issued for each monitor family. For diesel fueled vehicles, one certificate will be issued for each test group. A certificate of conformity is deemed to cover the vehicles named in such certificate and produced during the model year.

(e) A manufacturer of new light-duty vehicles, light-duty trucks, and complete heavy-duty vehicles must obtain a certificate of conformity covering such vehicles from the Administrator prior to selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing into the United States the new vehicle. Vehicles produced prior to the effective date of a certificate of conformity may also be covered by the certificate, once it is effective, if the following conditions are met:

- (1) The vehicles conform in all respects to the vehicles described in the application for the certificate of conformity.
- (2) The vehicles are not sold, offered for sale, introduced into commerce, or delivered for introduction into commerce prior to the effective date of the certificate of conformity.
- (3) EPA is notified prior to the beginning of production when such production will start, and EPA is provided a full opportunity to inspect and/or test the vehicles during and after their production. EPA must have the opportunity to conduct SEA production line testing as if the vehicles had been produced after the effective date of the certificate.
- (f) Vehicles imported by an original equipment manufacturer after December 31 of the calendar year for which the model year is named are still covered by the certificate of conformity as long as the production of the vehicle was completed before December 31 of that year.
- (g) For test groups required to have an emission control diagnostic system, certification will not be granted if, for any emission data vehicle or other test vehicle approved by the Administrator in consultation with the manufacturer, the malfunction indicator light does not illuminate as required under ~~any of the circumstances described in § 86.1806-01(k)(1) through (6)~~.
- (h) Vehicles equipped with aftertreatment technologies such as catalysts, otherwise covered by a certificate, which are driven outside the United States, Canada, and Mexico will be presumed to have been operated on leaded gasoline resulting in deactivation of such components as catalysts and oxygen sensors. If these vehicles are imported or offered for importation without retrofit of the catalyst or other aftertreatment technology, they will be considered not to be within the coverage of the certificate unless included in a catalyst or other aftertreatment technology control program operated by a manufacturer or a United States Government agency and approved by the Administrator. ~~(i) For all light-duty vehicles and light light-duty trucks certified to NLEV standards under §§ 86.1710 through 86.1712, the following provisions apply:~~
 - ~~(1) All certificates issued are conditional upon manufacturer compliance with all provisions of §§ 86.1710 through 86.1712 both during and after model year production.~~
 - ~~(2) Failure to meet the requirements of § 86.1710(a) through (d) will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the vehicles sold in violation of the fleet average NMOG standard shall not be covered by the certificate.~~
 - ~~(3) Failure to comply fully with the prohibition against a manufacturer selling credits that it has not generated or are not available, as specified in § 86.1710(e), will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the vehicles sold in violation of this prohibition shall not be covered by the certificate.~~
 - ~~(4) Failure to comply fully with the prohibition against offering for sale Tier 1 vehicles and TLEVs in the Northeast Trading Region, as defined in § 86.1702, after model year 2000 if vehicles with the same test groups are not certified and offered for sale in California in the same model year, as specified in § 86.1711(a), will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the vehicles sold in violation of this prohibition shall not be covered by the certificate.~~
 - ~~(5)(i) The Administrator will issue a National LEV certificate of conformity for 2000-model year vehicles or engines certified to comply with the California TLEV emission standards.~~
 - ~~(ii) This certificate of conformity shall be granted after the Administrator has received and reviewed the California Executive Order a manufacturer has received for the same vehicles or engines.~~

~~(iii) Vehicles or engines receiving a certificate of conformity under the provisions in this paragraph can only be sold in the states included in the NTR, as defined in § 86.1702, and those states where the sale of California-certified vehicles is otherwise authorized.~~

~~(6) The manufacturer shall bear the burden of establishing to the satisfaction of the Administrator that the conditions upon which the certificate was issued were satisfied.~~

~~(7) For recall and warranty purposes, vehicles not covered by a certificate because of a violation of these conditions of the certificate will continue to be held to the standards stated in the certificate that would have otherwise applied to the vehicles.~~

69. Amend § 86.1850-01 by revising the section heading and paragraphs (b) introductory text and (d) and removing paragraph (f) to read as follows:

§ 86.1850-01 ~~Denial, suspension or revocation of~~ EPA decisions regarding a certificate of conformity.

* * * * *

(b) Notwithstanding the fact that the vehicles described in the application may comply with all other requirements of this subpart, the Administrator may deny issuance of, suspend, ~~or~~ revoke, or void a previously issued certificate of conformity if the Administrator finds any one of the following infractions ~~to be substantial~~:

* * * * *

(d) If a manufacturer ~~knowingly commits an infraction specified in paragraphs (b)(1) through (b)(7) of this section, knowingly~~ commits any fraudulent act ~~which~~ that results in the issuance of a certificate of conformity, or fails to comply with the conditions specified in § 86.1843-01, the Administrator may deem such certificate void ab initio.

* * * * *

~~(f) Any suspension or revocation of a certificate of conformity shall extend no further than to forbid the introduction into commerce of vehicles previously covered by the certificate which are still in the possession of the manufacturer, except in cases of such fraud or other misconduct that makes the certification void ab initio.~~

§ 86.1860-04—[Removed]

70. Remove § 86.1860-04.

71. Amend § 86.1860-17 by revising the section heading and paragraphs (a) and (b) and removing paragraph (c)(4) to read as follows:

§ 86.1860-17 How to comply with the Tier 3 and Tier 4 fleet-average standards.

(a) You must show that you meet the applicable Tier 3 fleet-average NMOG + NOx standards from §§ 86.1811-17 and 86.1816-18, ~~and~~ the Tier 3 fleet-average evaporative emission standards from § 86.1813-17, and the Tier 4 fleet-average NMOG + NOx standards from § 86.1811-27 as described in this section. Note that separate fleet-average calculations are required for ~~the Tier 3~~ FTP and SFTP exhaust emission standards under § 86.1811-17.

(b) Calculate your fleet-average value for each model year for all vehicle models subject to a separate fleet-average standard using the following equation, rounded to the nearest 0.001 g/mile for NMOG + NO_x emissions and the nearest 0.001 g/test for evaporative emissions:

$$\text{Fleet average value} = \frac{\sum_{i=1}^B (N_i \cdot FEL_i)}{N_{\text{total}}}$$

Where:

I = A counter associated with each separate [Tier 3](#)-test group or evaporative family.

B = The number of separate [Tier 3](#)-test groups or evaporative families from a given averaging set to which you certify your vehicles.

N_i = The actual nationwide sales for the model year for test group or evaporative family *i*. Include allowances for evaporative emissions as described in § 86.1813.

FEL_i = The FEL selected for test group or evaporative family *i*. Disregard any separate standards that apply for in-use testing or for testing under high-altitude conditions.

N_{total} = The actual nationwide sales for the model year for all [your Tier 3](#)-vehicles from the averaging set, except as described in paragraph (c) of this section. The pool of vehicle models included in *N_{total}* may vary by model year, and it may be different for evaporative standards, FTP exhaust standards, and SFTP exhaust standards in a given model year.

(c) * * *

~~(4) For model year 2017, do not include vehicle sales in California or the section 177 states for calculating the fleet average value for evaporative emissions.~~

* * * * *

§ 86.1861-04—[Removed]

72. Remove § 86.1861-04.

73. Amend § 86.1861-17 by revising paragraphs (b) and (c) to read as follows:

§ 86.1861-17 How do the NMOG + NO_x and evaporative emission credit programs work?

* * * * *

(b) The following restrictions apply instead of those specified in 40 CFR 1037.740:

(1) Except as specified in paragraph (b)(2) of this section, emission credits may be exchanged only within an averaging set, as follows:

(i) HDV represent a separate averaging set with respect to all emission standards.

(ii) Except as specified in paragraph (b)(1)(iii) of this section, LDV and LDT represent a single averaging set with respect to all emission standards. Note that FTP and SFTP credits [for Tier 3 vehicles](#) are not interchangeable.

(iii) LDV and LDT1 certified to standards based on a useful life of 120,000 miles and 10 years together represent a single averaging set with respect to NMOG + NO_x emission standards. Note that FTP and SFTP credits [for Tier 3 vehicles](#) are not interchangeable.

(iv) The following separate averaging sets apply for evaporative emission standards:

(A) LDV and LDT1 together represent a single averaging set.

(B) LDT2 represents a single averaging set.

(C) HLDT represents a single averaging set.

(D) HDV represents a single averaging set.

(2) You may exchange evaporative emission credits across averaging sets as follows if you need additional credits to offset a deficit after the final year of maintaining deficit credits as allowed under paragraph (c) of this section:

(i) You may exchange LDV/LDT1 and LDT2 emission credits.

(ii) You may exchange HLDT and HDV emission credits.

(3) Except as specified in paragraph (b)(4) of this section, credits expire after five years. For example, credits you generate in model year 2018 may be used only through model year 2023.

(4) For the Tier 3 declining fleet-average FTP and SFTP emission standards for NMOG + NO_x described in § 86.1811-17(b)(8), credits generated in model years 2017 through 2024 expire after eight years, or after model year 2030, whichever comes first; however, these credits may not be traded after five years. This extended credit life also applies for small-volume manufacturers generating credits under § 86.1811-17(h)(1) in model years 2022 through 2024. Note that the longer credit life does not apply for heavy-duty vehicles, for vehicles certified under the alternate phase-in described in § 86.1811-17(b)(9), or for vehicles generating early Tier 3 credits under § 86.1811-17(b)(11) in model year 2017.

(5) Tier 3 credits for NMOG+NO_x may be used to demonstrate compliance with Tier 4 standards without adjustment, except as specified in § 86.1811-27.

(c) The credit-deficit provisions 40 CFR 1037.745 apply to the NMOG + NO_x and evaporative emission standards for Tier 3 and Tier 4 vehicles.

* * * * *

74. Amend § 86.1862-04 by revising paragraphs (a), (c)(2), and (d) to read as follows:

§ 86.1862-04 Maintenance of records and submittal of information relevant to compliance with fleet-average standards.

(a) *Overview.* This section describes reporting and recordkeeping requirements for vehicles subject to the following standards:

(1) Tier 4 criteria exhaust emission standards, including cold temperature NMOG+NO_x standards, in § 86.1811-27. ~~Tier 2 NO_x emission standard for LDV and LDT in § 86.1811-04.~~

(2) Tier 3 evaporative emission standards in § 86.1813-17.

~~(3)~~ Tier 3 FTP emission standard for NMOG + NO_x for LDV and LDT in § 86.1811-17.

~~(4)~~ Tier 3 SFTP emission standard for NMOG + NO_x for LDV and LDT (including MDPV) in § 86.1811-17.

~~(4) Tier 3 evaporative emission standards in § 86.1813.~~

(5) Tier 3 FTP emission standard for NMOG + NO_x for HDV (other than MDPV) in § 86.1816-18.

(6) Cold temperature NMHC standards in § 86.1811-17 for vehicles subject to Tier 3 NMOG+NO_x standards.

* * * * *

(c) * * *

(2) When a manufacturer calculates compliance with the fleet-average standard using the provisions in ~~§ 86.1860-04(c)(2) or~~ § 86.1860-17(f), the annual report must state that the

manufacturer has elected to use such provision and must contain the fleet-average standard as the fleet-average value for that model year.

* * * * *

(d) *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 40 CFR part 1068, subpart G, and, if a manufacturer requests such a hearing, will be made only after an initial decision by the Presiding Officer.

§ 86.1863-07—[Removed]

75. Remove § 86.1863-07.

76. Revise § 86.1864-10 to read as follows:

§ 86.1864-10 How to comply with ~~the fleet-average~~ cold temperature ~~NMHC~~ fleet-average standards.

(a) *Applicability.* Cold temperature ~~NMHC fleet-average exhaust emission~~ standards apply for NMHC or NMOG+NOx emissions as described in § 86.1811. Certification testing provisions described in this subpart apply equally for meeting cold temperature exhaust emission standards except as specified to the following vehicles, subject to the phase-in requirements in § 86.1811-10(g)(3) and (4):

~~(1) 2010 and later model year LDV/LLDTs.~~

~~(2) 2012 and later model year HLDT/MDPVs.~~

~~(3) [Reserved]~~

~~(4) Vehicles imported by ICIs as defined in 40 CFR 85.1502.~~

~~(b) Useful life requirements.~~ Full useful life requirements for cold temperature NMHC standards are defined in § 86.1805-04(g). There is not an intermediate useful life standard for cold temperature NMHC standards.

~~(c) Altitude.~~ Altitude requirements for cold temperature NMHC standards are provided in § 86.1810-09(f).

~~(d) Small volume manufacturer certification procedures.~~ Certification procedures for small volume manufacturers are provided in § 86.1838-01.

~~(e) Cold temperature NMHC standards.~~ Fleet average cold temperature NMHC standards are provided in § 86.1811-10(g)(2).

~~(f) Phase-in.~~ Phase-in of the cold temperature NMHC standards are provided in § 86.1811-10(g)(3) and (4).

~~(g) Phase-in flexibilities for small volume manufacturers.~~ Phase-in flexibilities for small volume manufacturer compliance with the cold temperature NMHC standards are provided in § 86.1811-04(k)(5).

~~(h) Hardship provisions for small volume manufacturers.~~ Hardship provisions for small volume manufacturers related to the cold temperature NMHC standards are provided in § 86.1811-04(q)(1).

~~(i) In-use standards for applicable phase-in models.~~ In-use cold temperature NMHC standards for applicable phase-in models are provided in § 86.1811-10(u).

~~(j) Durability procedures and method of determining deterioration factors (DFs).~~ The durability data vehicle selection procedures of § 86.1822-01 and the durability demonstration procedures of

§ 86.1823-06 apply for cold temperature NMHC standards. For determining compliance with full useful life cold temperature NMHC emission standards, the 68-86 °F, 120,000 mile full useful life NMOG-DF may be used.

~~(k) *Vehicle test procedure.* (1) The test procedure for demonstrating compliance with cold temperature NMHC standards is contained in subpart C of this part. With prior EPA approval, alternative testing procedures may be used, as specified in § 86.106-96(a), provided cold temperature NMHC emissions test results are equivalent or superior.~~

~~(2) Testing of all LDVs, LDTs and MDPVs to determine compliance with cold temperature NMHC exhaust emission standards set forth in this section must be on a loaded vehicle weight (LVW) basis, as defined in § 86.1803-01.~~

~~(3) Testing for the purpose of providing certification data is required only at low altitude conditions and only for vehicles that can operate on gasoline, except as requested in §§ 86.1810-09(f) and 86.1844-01(d)(11). If hardware and software emission control strategies used during low altitude condition testing are not used similarly across all altitudes for in-use operation, the manufacturer must include a statement in the application for certification, in accordance with §§ 86.1844-01(d)(11) and 86.1810-09(f), stating what the different strategies are and why they are used. If hardware and software emission control strategies used during testing with gasoline are not used similarly with all fuels that can be used in multi-fuel vehicles, the manufacturer will include a statement in the application for certification, in accordance with §§ 86.1844-01(d)(11) and 86.1810-09(f), stating what the different strategies are and why they are used. For example, unless a manufacturer states otherwise, air pumps used to control emissions on dedicated gasoline vehicles or multi-fuel vehicles during low altitude conditions must also be used to control emissions at high altitude conditions, and software used to control emissions or closed loop operation must also operate similarly at low and high altitude conditions and similarly when multi-fueled vehicles are operated on gasoline and alternate fuels. These examples are for illustrative purposes only; similar strategies would apply to other currently used emission control technologies and/or emerging or future technologies.~~

~~(l) *Emission data vehicle (EDV) selection.* Provisions for selecting the appropriate EDV for the cold temperature NMHC standards are provided in §§ 86.1828-10(g) and 86.1829-01(b)(3).~~

~~(**bm**) *Calculating the fleet-average cold temperature NMHC fleet-average standard.*~~

Manufacturers must compute separate sales-weighted fleet average cold temperature NMHC fleet-average emissions at the end of the model year ~~for LDV/LLDTs and HLDT/MDPVs~~, using actual sales, and certifying test groups to FELs, as defined in § 86.1803-01. The FEL becomes the standard for each test group, and every test group can have a different FEL. The certification resolution for the FEL ~~will be~~ is 0.1 grams/mile. Determine fleet-average emissions separately for each set of vehicles subject to different fleet-average emission standards. Do not include electric vehicles or fuel cell vehicles when calculating fleet-average emissions. Starting with Tier 4 vehicles, determine fleet-average emissions based on separate averaging sets for light-duty program vehicles and medium-duty vehicles. LDVs and LLDTs must be grouped together when calculating the fleet average, and HLDTs and MDPVs must also be grouped together to determine the fleet average. Manufacturers must compute Calculate the sales-weighted cold temperature NMHC fleet averages using the following equation, rounded to the nearest 0.1 grams/mile:

~~Fleet average~~ Cold temperature ~~NMHC fleet-average~~ exhaust emissions (grams/mile) = Σ (N × FEL) ÷ Total number of vehicles sold ~~of from~~ the applicable ~~cold temperature averaging set~~ weight category (i.e., either LDV + LLDTs, or HLDT + MDPVs)

Where:

N = The number of ~~vehicles subject to a given fleet-average emission standard~~ LDVs and LLDTs, or HLDTs and MDPVs, sold within the applicable FEL, based on vehicles counted ~~to at~~ the point of first sale.

FEL = Family Emission Limit (grams/mile).

~~(c)~~ Certification compliance and enforcement requirements for cold temperature ~~NMHC fleet-average~~ standards. ~~(1) Compliance and enforcement requirements are provided in § 86.1864-10 and § 86.1848-10(e)(8).~~

~~(2) The certificate issued for each test group requires all vehicles within that test group to meet the emission standard or FEL to which the vehicles were certified.~~

~~(3) Each manufacturer must comply with the applicable cold temperature NMHC fleet average standard on a sales-weighted average basis, at the end of each model year, using the procedure described in paragraph (m) of this section.~~

~~(4) During a phase-in year, the manufacturer must comply with the applicable cold temperature NMHC fleet average standard for the required phase-in percentage for that year as specified in § 86.1811-10(g)(3) or (4).~~

~~(5) Manufacturers must compute separate cold temperature NMHC fleet averages for LDV/LLDTs and HLDT/MDPVs. The sales-weighted cold temperature NMHC fleet averages must be compared with the applicable fleet average standard.~~

~~(6) Each manufacturer must comply on an annual basis with the fleet-average standards as follows:~~

~~(1i)~~ Manufacturers must report in their annual reports to the Agency that they met the relevant ~~corporate fleet-average~~ standard by showing that their sales-weighted ~~average~~ cold temperature ~~NMHC fleet-average~~ emissions ~~of LDV/LLDTs and HLDT/MDPVs, as applicable,~~ are at or below the applicable fleet-average standard ~~for each averaging set.~~

~~(2ii)~~ If the sales-weighted average is above the applicable fleet-average standard, manufacturers must obtain and apply sufficient ~~NMHC~~ credits as permitted under paragraph ~~(d)~~(8) of this section. A manufacturer must show via the use of credits that they have offset any exceedance of the ~~corporate cold temperature fleet-average~~ standard. Manufacturers must also include their credit balances or deficits.

~~(3iii)~~ If a manufacturer fails to meet the ~~corporate average~~ cold temperature ~~NMHC fleet-average~~ standard for two consecutive years, the vehicles causing the ~~corporate average~~ exceedance will be considered not covered by the certificate of conformity (see paragraph ~~(d)~~(8) of this section). A manufacturer will be subject to penalties on an individual-vehicle basis for sale of vehicles not covered by a certificate.

~~(4iv)~~ EPA will review each manufacturer's sales to designate the vehicles that caused the exceedance of the ~~corporate average fleet-average~~ standard. EPA will designate as nonconforming those vehicles in test groups with the highest certification emission values first, continuing until reaching a number of vehicles equal to the calculated number of noncomplying vehicles as determined above. In a group where only a portion of vehicles would be deemed nonconforming, EPA will determine the actual nonconforming vehicles by counting backwards from the last vehicle produced in that test group. Manufacturers will be liable for penalties for each vehicle sold that is not covered by a certificate.

- ~~(d)~~ *Requirements for the cold temperature NMHC averaging, banking, and trading (ABT) program.* (1) Manufacturers must average the cold temperature ~~NMHC~~ fleet average emissions of their vehicles and comply with the cold temperature ~~NMHC~~ fleet average corporate standard. ~~Manufacturers may generate credits during and after the phase-in period. Manufacturers may generate credits prior to the phase-in periods as described in paragraph (e)(5) of this section.~~ A manufacturer whose cold temperature ~~NMHC~~ fleet average emissions exceed the applicable standard must complete the calculation in paragraph ~~(d)~~(4) of this section to determine the size of its ~~NMHC~~ credit deficit. A manufacturer whose cold temperature ~~NMHC~~ fleet average emissions are less than the applicable standard must complete the calculation in paragraph ~~(d)~~(4) of this section to generate ~~NMHC~~ credits.
- (2) There are no property rights associated with ~~NMHC~~ cold temperature credits generated under this subpart. Credits are a limited authorization to emit the designated amount of emissions. Nothing in this part or any other provision of law should be construed to limit EPA's authority to terminate or limit this authorization through a rulemaking.
- (3) Cold temperature NMHC credits may be used to demonstrate compliance with the cold temperature NMOG+NOx emission standards for Tier 4 vehicles. The value of a cold temperature NMHC credit is deemed to be equal to the value of a cold temperature NMOG+NOx credit. ~~Each manufacturer must comply with the reporting and recordkeeping requirements of paragraph (p) of this section for NMHC credits, including early credits. The averaging, banking and trading program is enforceable through the certificate of conformity that allows the manufacturer to introduce any regulated vehicles into commerce.~~
- (4) Credits are earned on the last day of the model year. Manufacturers must calculate, for a given model year, the number of credits or debits it has generated according to the following equation, rounded to the nearest 0.1 grams/mile:

$$\text{NMHC Fleet average Credits or Debits} = (\text{Cold Temperature NMHC or NMOG+NOx Standard} - \text{Manufacturer's Sales-Weighted Fleet Average Cold Temperature Fleet Average NMHC Emissions}) \times (\text{Total Number of Vehicles Sold})$$

Where:

~~Cold Temperature NMHC Standard = 0.3 grams/mile for LDV/LLDTs or 0.5 grams/mile for HLDT/MDPV, per § 86.1811-10(g)(2).~~

~~Manufacturer's Sales-Weighted Fleet Average Cold Temperature NMHC Fleet Average Emissions = average calculated according to paragraph (bm) of this section.~~

~~Total Number of Vehicles Sold = Total 50-State sales based on the point of first sale.~~

- (5) [Reserved] ~~The following provisions apply for early banking:~~
- (i) ~~Manufacturers may certify LDV/LLDTs to the cold temperature NMHC exhaust standards in § 86.1811-10(g)(2) for model years 2008-2009 to bank credits for use in the 2010 and later model years. Manufacturers may certify HLDT/MDPVs to the cold temperature NMHC exhaust standards in § 86.1811-10(g)(2) for model years 2010-2011 to bank credits for use in the 2012 and later model years.~~
- (ii) ~~This process is referred to as "early banking" and the resultant credits are referred to as "early credits." To bank early credits, a manufacturer must comply with all exhaust emission standards and requirements applicable to LDV/LLDTs and/or HLDT/MDPVs. To generate early credits, a manufacturer must separately compute the sales-weighted cold temperature NMHC average of the LDV/LLDTs and HLDT/MDPVs it certifies to the exhaust requirements and separately compute credits using the calculations in paragraph (e)(4) of this section. Early HLDT/MDPV credits may not be applied to~~

~~LDV/LLDTs before the 2010 model year. Early LDV/LLDT credits may not be applied to HLDT/MDPV before the 2012 model year.~~

(6) NMHC credits are not subject to any discount or expiration date except as required under the deficit carryforward provisions of paragraph (d)(8) of this section. There is no discounting of unused credits. NMHC credits have unlimited lives, subject to the limitations of paragraph (d)(2) of this section. Tier 3 to Tier 4.

(7) Credits may be used as follows:

(i) Credits generated and calculated according to the method in paragraph (d)(4) of this section may be used only to offset deficits accrued with respect to the standard in § 86.1811-10(g)(2). Credits may be banked and used in a future model year in which a manufacturer's average cold temperature NMHC fleet average level exceeds the applicable standard. Credits may be exchanged only within averaging sets between the LDT/LLDT and HLDT/MDPV fleets of a given manufacturer. Credits may also be traded to another manufacturer according to the provisions in paragraph (d)(9) of this section. Before trading or carrying over credits to the next model year, a manufacturer must apply available credits to offset any credit deficit, where the deadline to offset that credit deficit has not yet passed.

(ii) The use of credits shall not be permitted to address Selective Enforcement Auditing or in-use testing failures. The enforcement of the averaging standard occurs through the vehicle's certificate of conformity. A manufacturer's certificate of conformity is conditioned upon compliance with the averaging provisions. The certificate will be void ab initio if a manufacturer fails to meet the corporate average standard and does not obtain appropriate credits to cover its shortfalls in that model year or in the subsequent model year (see deficit carryforward provision in paragraph (d)(8) of this section). Manufacturers must track their certification levels and sales unless they produce only vehicles certified with FELs at or below the applicable to cold temperature NMHC fleet average levels below the standard and have chosen to forgo credit banking. do not plan to bank credits.

(8) The following provisions apply if debits are accrued:

(i) If a manufacturer calculates that it has negative credits (also called "debits" or a "credit deficit") for a given model year, it may carry that deficit forward into the next model year. Such a carry-forward may only occur after the manufacturer exhausts any supply of banked credits. At the end of that next model year, the deficit must be covered with an appropriate number of credits that the manufacturer generates or purchases. Any remaining deficit is subject to an enforcement action, as described in this paragraph (d)(8). Manufacturers are not permitted to have a credit deficit for two consecutive years.

(ii) If debits are not offset within the specified time period, the number of vehicles not meeting the ~~fleet average~~ cold temperature NMHC fleet average standards (and therefore not covered by the certificate) must be calculated by dividing the total amount of debits for the model year by the ~~fleet average~~ cold temperature NMHC fleet average standard applicable for the model year in which the debits were first incurred.

(iii) EPA will determine the number of vehicles for which the condition on the certificate was not satisfied by designating vehicles in those test groups with the highest certification cold temperature NMHC or NMOG+NOx emission values first and continuing until reaching a number of vehicles equal to the calculated number of

noncomplying vehicles as determined above. If this calculation determines that only a portion of vehicles in a test group contribute to the debit ~~situation~~, then EPA will designate actual vehicles in that test group as not covered by the certificate, starting with the last vehicle produced and counting backwards.

(iv)(A) If a manufacturer ceases production of vehicles affected by a debit balance LDV/LLDTs and HLDT/MDPVs, the manufacturer continues to be responsible for offsetting any debits outstanding within the required time period. Any failure to offset the debits will be considered a violation of paragraph (d)(8)(i) of this section and may subject the manufacturer to an enforcement action for sale of vehicles not covered by a certificate, pursuant to paragraphs (d)(8)(ii) and (iii) of this section.

(B) If a manufacturer is purchased by, merges with, or otherwise combines with another manufacturer, the controlling entity is responsible for offsetting any debits outstanding within the required time period. Any failure to offset the debits will be considered a violation of paragraph (d)(8)(i) of this section and may subject the manufacturer to an enforcement action for sale of vehicles not covered by a certificate, pursuant to paragraphs (d)(8)(ii) and (iii) of this section.

(v) For purposes of calculating the statute of limitations, a violation of the requirements of paragraph (d)(8)(i) 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)(8)(i) of this section.

(9) The following provisions apply for trading cold temperature credits ~~to NMHC credit trading~~:

(i) EPA may reject ~~NMHC~~ credit trades if the involved manufacturers fail to submit the credit trade notification in the annual report. A manufacturer may not sell credits that are not available for sale pursuant to the provisions in paragraphs (d)(7)(i) of this section.

(ii) In the event of a negative credit balance resulting from a transaction that a manufacturer could not cover by the reporting deadline for the model year in which the trade occurred, both the buyer and seller are liable, except in cases involving fraud by either the buyer or seller. EPA may void ab initio the certificates of conformity of all engine families participating in such a trade.

(iii) A manufacturer may only trade credits that it has generated pursuant to paragraph (d)(4) of this section or acquired from another party.

~~(p) Reporting and recordkeeping. Keep records and submit information for demonstrating compliance with the fleet average cold temperature NMHC standard as described in § 86.1862-04.~~

77. Amend § 86.1865-12 by revising paragraphs (i)(1) and (2) introductory text, and (j) and removing paragraph (k)(7)(iii) to read as follows:

§ 86.1865-12 How to comply with the fleet average CO₂ standards.

* * * * *

(i) * * *

(1) Through model year 2026, ~~M~~m manufacturers must compute separate production-weighted fleet average carbon-related exhaust emissions at the end of the model year for passenger

automobiles and light trucks, using actual production, where production means vehicles produced and delivered for sale, and certifying model types to standards as defined in § 86.1818-12. The model type carbon-related exhaust emission results determined according to 40 CFR part 600, subpart F (in units of grams per mile rounded to the nearest whole number) become the certification standard for each model type.

(2) Through model year 2026, ~~M~~manufacturers must separately calculate production-weighted fleet average carbon-related exhaust emissions levels for the following averaging sets according to the provisions of 40 CFR part 600, subpart F:

* * * * *

(j) *Certification compliance and enforcement requirements for ~~CO₂~~ exhaust emission standards.* (1) Compliance and enforcement requirements are provided in this section and § 86.1848-10(c)(9).

(2) The certificate issued for each test group requires all model types within that test group to meet the in-use emission standards to which each model type is certified. The in-use standards for passenger automobiles and light duty trucks (including MDPV) are described in § 86.1818-12(d). The in-use standards for non-MDPV heavy-duty vehicles are described in § 86.1819-14(b).

(3) EPA will issue a recall order as described in 40 CFR part 85, subpart S, if EPA or the manufacturer determines that a substantial number of a class or category of vehicles produced by that manufacturer, although properly maintained and used, do not conform to in-use CO₂ emission standards, or do not conform to the monitor accuracy requirements in § 86.1815. The recall would be intended to remedy repairable problems to bring the vehicle into compliance; however, if there is no demonstrable, repairable problem that could be remedied to bring the vehicles into compliance, the manufacturer must submit an alternative plan for to address the noncompliance. For example, manufacturers may need to calculate a correction to its emission credit balance based on the GHG emissions of the actual number of vehicles produced. EPA may void credits originally calculated from noncompliant vehicles, unless traded, and will adjust debits. In the case of traded credits, EPA will adjust the selling manufacturer's credit balance to reflect the sale of such credits and any resulting credit deficit. Manufacturers may voluntarily recall vehicles to remedy such a noncompliance and submit a voluntary recall report as described in 40 CFR part 85, subpart T.

(4) The manufacturer may request a hearing under 40 CFR part 1068, subpart G, regarding any voiding of credits or adjustment of debits under paragraph (j)(3) of this section. Manufacturers must submit such a request in writing describing the objection and any supporting data within 30 days after we make a decision.

(5) Each manufacturer must comply with the applicable CO₂ fleet average standard on a production-weighted average basis, at the end of each model year. Use the procedure described in paragraph (i) of this section for passenger automobiles and light trucks (including MDPV). Use the procedure described in § 86.1819-14(d)(9)(iv) for non-MDPV heavy-duty vehicles.

(6) Each manufacturer must comply on an annual basis with the fleet average standards as follows:

(i) Manufacturers must report in their annual reports to the Agency that they met the relevant corporate average standard by showing that the applicable production-weighted average CO₂ emission levels are at or below the applicable fleet average standards; or

- (ii) If the production-weighted average is above the applicable fleet average standard, manufacturers must obtain and apply sufficient CO₂ credits as authorized under paragraph (k)(8) of this section. A manufacturer must show that they have offset any exceedance of the corporate average standard via the use of credits. Manufacturers must also include their credit balances or deficits in their annual report to the Agency.
- (iii) If a manufacturer fails to meet the corporate average CO₂ standard for four consecutive years, the vehicles causing the corporate average exceedance will be considered not covered by the certificate of conformity (see paragraph (k)(8) of this section). A manufacturer will be subject to penalties on an individual-vehicle basis for sale of vehicles not covered by a certificate.
- (iv) EPA will review each manufacturer's production to designate the vehicles that caused the exceedance of the corporate average standard. EPA will designate as nonconforming those vehicles in test groups with the highest certification emission values first, continuing until reaching a number of vehicles equal to the calculated number of noncomplying vehicles as determined in paragraph (k)(8) of this section. In a group where only a portion of vehicles would be deemed nonconforming, EPA will determine the actual nonconforming vehicles by counting backwards from the last vehicle produced in that test group. Manufacturers will be liable for penalties for each vehicle sold that is not covered by a certificate.

(k) * * *

(7) * * * ~~(iii) The following provisions apply for passenger automobiles and light trucks under the Temporary Leadtime Allowance Alternative Standards:~~

~~(A) Credits generated by vehicles subject to the fleet average CO₂ standards specified in § 86.1818-12(e) may only be used to offset a deficit generated by vehicles subject to the Temporary Leadtime Allowance Alternative Standards specified in § 86.1818-12(e).~~

~~(B) Credits generated by a passenger automobile or light truck averaging set subject to the Temporary Leadtime Allowance Alternative Standards specified in § 86.1818-12(e)(4)(i) or (ii) may be used to offset a deficit generated by an averaging set subject to the Temporary Leadtime Allowance Alternative Standards through the 2015 model year, except that manufacturers qualifying under the provisions of § 86.1818-12(e)(3) may use such credits to offset a deficit generated by an averaging set subject to the Temporary Leadtime Allowance Alternative Standards through the 2016 model year.~~

~~(C) Credits generated by an averaging set subject to the Temporary Leadtime Allowance Alternative Standards specified in § 86.1818-12(e)(4)(i) or (ii) of this section may not be used to offset a deficit generated by an averaging set subject to the fleet average CO₂ standards specified in § 86.1818-12(e)(2) or (3) or otherwise transferred to an averaging set subject to the fleet average CO₂ standards specified in § 86.1818-12(e)(2) or (3).~~

~~(D) Credits generated by vehicles subject to the Temporary Leadtime Allowance Alternative Standards specified in § 86.1818-12(e)(4)(i) or (ii) may be banked for use in a future model year (to offset a deficit generated by an averaging set subject to the Temporary Leadtime Allowance Alternative Standards). All such credits may not be used to demonstrate compliance for model year 2016 and later vehicles, except that manufacturers qualifying under the provisions of § 86.1818-12(e)(3) may use such credits to offset a deficit generated by an averaging set subject to the Temporary Leadtime Allowance Alternative Standards through the 2016 model year.~~

~~(E) A manufacturer with any vehicles subject to the Temporary Leadtime Allowance Alternative Standards specified in § 86.1818-12(e)(4)(i) or (ii) of this section in a model year in which that manufacturer also generates credits with vehicles subject to the fleet average CO₂ standards specified in § 86.1818-12(c) may not trade or bank credits earned against the fleet average standards in § 86.1818-12(c) for use in a future model year.~~

~~(iv) Credits generated in the 2017 through 2020 model years under the provisions of § 86.1818-12(e)(3)(ii) may not be traded or otherwise provided to another manufacturer.~~

~~(v) Credits generated under any alternative fleet average standards approved under § 86.1818-12(g) may not be traded or otherwise provided to another manufacturer.~~

* * * * *

78. Amend § 86.1866-12 by revising paragraphs (a) and (c)(3) to read as follows:

§ 86.1866-12 CO₂ credits for advanced technology vehicles.

* * * * *

~~(a) Electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles, as those terms are defined in § 86.1803-01, that are certified and produced for sale in U.S. sale, where “U.S.” means the states and territories of the United States, in the 2012 through 2025 model years may use a value of zero (0) grams CO₂ per /mile of CO₂ to represent the proportion of electric operation of a vehicle that is derived from electricity that is generated from sources that are not onboard the vehicle, as specified by this paragraph (a).~~

~~(1) Model years 2012 through 2016: The use of zero (0) grams/mile CO₂ is limited to the first 200,000 combined electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles produced for U.S. sale, where “U.S.” means the states and territories of the United States, in the 2012 through 2016 model years, except that a manufacturer that produces 25,000 or more such vehicles for U.S. sale in the 2012 model year shall be subject to a limitation on the use of zero (0) grams/mile CO₂ to the first 300,000 combined electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles produced and delivered for sale by a manufacturer in the 2012 through 2016 model years.~~

~~(2) Model years 2017 through 2026: For electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles produced for U.S. sale, where “U.S.” means the states and territories of the United States, in the 2017 through 2026 model years, such use of zero (0) grams/mile CO₂ is unrestricted.~~

* * * * *

(c) * *

(3) Multiplier-based credits for model years 2022 through ~~2024~~2025 may not exceed credit caps, as follows:

(i) Calculate a nominal annual credit cap in Mg using the following equation, rounded to the nearest whole number:

$$CAP_{annual} = 5.025 \frac{\text{g}}{\text{mile}} \cdot [195,264 \text{ miles} \cdot P_{auto} + 225,865 \cdot P_{truck}] \cdot 10^{-6} \frac{\text{tonne}}{\text{g}}$$

Where:

P_{auto} = total number of certified passenger automobiles the manufacturer produced in a given model year for sale in any state or territory of the United States.

P_{truck} = total number of certified light trucks (including MDPV) the manufacturer produced in a given model year for sale in any state or territory of the United States.

(ii) Calculate an annual g/mile equivalent value for the multiplier-based credits using the following equation, rounded to the nearest 0.1 g/mile:

$$\text{annual g per mile equivalent value} = 5.025 \cdot \frac{\text{annual credits}}{CAP_{\text{annual}}}$$

Where:

annual credits = a manufacturer's total multiplier-based credits in a given model year from all passenger automobiles and light trucks as calculated under this paragraph (c).

(iii) Calculate a cumulative g/mile equivalent value for the multiplier-based credits in ~~each year 2022 through 2025~~ by adding the annual g/mile equivalent values calculated under paragraph (c)(3)(ii) of this section.

(iv) The cumulative g/mile equivalent value may not exceed 10.0 in any year.

(v) For every year of certifying with multiplier-based credits, The annual credit report must include ~~for every model year from 2022 through 2025, as applicable,~~ the calculated values for the nominal annual credit cap in Mg and the cumulative g/mile equivalent value.

79. Amend § 86.1867-12 by revising the introductory text to read as follows:

§ 86.1867-12 CO₂ credits for reducing leakage of air conditioning refrigerant.

Through model year 2026, Manufacturers may generate credits applicable to the CO₂ fleet average program described in § 86.1865-12 by implementing specific air conditioning system technologies designed to reduce air conditioning refrigerant leakage over the useful life of their passenger automobiles and/or light trucks (including MDPV); only the provisions of paragraph (a) of this section apply for non-MDPV heavy-duty vehicles. Credits shall be calculated according to this section for each air conditioning system that the manufacturer is using to generate CO₂ credits. Manufacturers may no longer generate credits under this section starting in model year 2027. ~~Manufacturers may also generate early air conditioning refrigerant leakage credits under this section for the 2009 through 2011 model years according to the provisions of § 86.1871-12(b).~~

* * * * *

80. Amend § 86.1868-12 by:
- a. Revising the introductory text.
 - b. Removing paragraph (a)(1).
 - c. Redesignating paragraph (a)(2) as paragraph (a).
 - d. Revising the redesignated paragraph (a) introductory text.
 - e. Revising paragraph (b).
 - f. Removing and reserving paragraphs (e) and (f).
 - g. Revising paragraph (g) introductory text.

The revisions read as follows:

§ 86.1868-12 CO₂ credits for improving the efficiency of air conditioning systems.

Manufacturers may generate credits applicable to the CO₂ fleet average program described in § 86.1865-12 by implementing specific air conditioning system technologies designed to reduce air conditioning-related CO₂ emissions over the useful life of their passenger automobiles and/or light trucks (including MDPV). The provisions of this section do not apply for non-MDPV heavy-duty vehicles. Credits shall be calculated according to this section for each air conditioning system that the manufacturer is using to generate CO₂ credits. Manufacturers must validate credits under this section based on testing as described in paragraph (g) of this section. Starting in model year 2027, manufacturers may generate credits under this section only for vehicles propelled by internal combustion engines. ~~Manufacturers may also generate early air conditioning efficiency credits under this section for the 2009 through 2011 model years according to the provisions of § 86.1871-12(b). For model years 2012 and 2013 the manufacturer may determine air conditioning efficiency credits using the requirements in paragraphs (a) through (d) of this section. For model years 2014 through 2016 the eligibility requirements specified in either paragraph (e) or (f) of this section must be met before an air conditioning system is allowed to generate credits. For model years 2017 through 2019 the eligibility requirements specified in paragraph (f) of this section must be met before an air conditioning system is allowed to generate credits. For model years 2020 and later the eligibility requirements specified in paragraph (g) of this section must be met before an air conditioning system is allowed to generate credits.~~

~~(a) (1) 2012 through 2016 model year air conditioning efficiency credits are available for the following technologies in the gram per mile amounts indicated in the following table:~~

| Air conditioning technology | Credit value (g/mi) |
|--|----------------------------|
| Reduced reheat, with externally controlled, variable displacement compressor (e.g. a compressor that controls displacement based on temperature setpoint and/or cooling demand of the air conditioning system control settings inside the passenger compartment). | 1.7 |
| Reduced reheat, with externally controlled, fixed displacement or pneumatic variable displacement compressor (e.g. a compressor that controls displacement based on conditions within, or internal to, the air conditioning system, such as head pressure, suction pressure, or evaporator outlet temperature). | 1.1 |
| Default to recirculated air with closed loop control of the air supply (sensor feedback to control interior air quality) whenever the ambient temperature is 75 °F or higher: Air conditioning systems that operated with closed loop control of the air supply at different | 1.7 |

~~temperatures may receive credits by submitting an engineering analysis to the Administrator for approval.~~

~~Default to recirculated air with open-loop control air supply (no sensor feedback) whenever the ambient temperature is 75 °F or higher. Air conditioning systems that operate with open-loop control of the air supply at different temperatures may receive credits by submitting an engineering analysis to the Administrator for approval.~~ 1.1

~~Blower motor controls which limit wasted electrical energy (e.g. pulse width modulated power controller).~~ 0.9

~~Internal heat exchanger (e.g. a device that transfers heat from the high pressure, liquid-phase refrigerant entering the evaporator to the low pressure, gas-phase refrigerant exiting the evaporator).~~ 1.1

~~Improved condensers and/or evaporators with system analysis on the component(s) indicating a coefficient of performance improvement for the system of greater than 10% when compared to previous industry standard designs).~~ 1.1

~~Oil separator. The manufacturer must submit an engineering analysis demonstrating the increased improvement of the system relative to the baseline design, where the baseline component for comparison is the version which a manufacturer most recently had in production on the same vehicle design or in a similar or related vehicle model. The characteristics of the baseline component shall be compared to the new component to demonstrate the improvement.~~ 0.6

~~(2) 2017 and later model year a~~

~~(a) Air conditioning efficiency credits are available for the following technologies in the gram per mile amounts indicated for each vehicle category in the following table:~~

~~* * * * *~~

~~(b) Air conditioning efficiency credits are determined on an air conditioning system basis. For each air conditioning system that is eligible for a credit based on the use of one or more of the items listed in paragraph (a) of this section, the total credit value is the sum of the gram per mile values for the appropriate model year listed in paragraph (a) of this section for each item that applies to the air conditioning system. (1) In the 2012 through 2016 model years the total credit value for an air conditioning system for passenger automobiles or light trucks may not be greater than 5.7 grams per mile. (2) In the 2017 and later model years the total credit value for an air conditioning system may not be greater than 5.0 grams per mile for any passenger automobile or 7.2 grams per mile for any light truck.~~

~~* * * * *~~

~~(c) - (f) [Reserved] For the 2014 through 2016 model years, manufacturers must validate air conditioning credits by using the Air Conditioning Idle Test Procedure according to the provisions of this paragraph (c) or, alternatively, by using the AC17 reporting requirements specified in paragraph (f) of this section. The Air Conditioning Idle Test Procedure is not applicable after the 2016 model year.~~

~~(1) For each air conditioning system selected by the manufacturer to generate air conditioning efficiency credits, the manufacturer shall perform the Air Conditioning Idle Test Procedure specified in § 86.165-12 of this part.~~

~~(2) Using good engineering judgment, the manufacturer must select the vehicle configuration to be tested that is expected to result in the greatest increased CO2 emissions as a result of the operation of the air conditioning system for which efficiency credits are being sought. If the air~~

conditioning system is being installed in passenger automobiles and light trucks, a separate determination of the quantity of credits for passenger automobiles and light trucks must be made, but only one test vehicle is required to represent the air conditioning system, provided it represents the worst case impact of the system on CO₂ emissions.

(3) The manufacturer shall determine an idle test threshold (ITT) for the tested vehicle configuration. A comparison of this threshold value with the CO₂ emissions increase recorded over the Air Conditioning Idle Test Procedure in § 86.165-12 determines the total credits that may be generated by an air conditioning system. The manufacturer may choose one of the following idle test threshold (ITT) values for an air conditioning system:

(i) 14.9 grams per minute; or

(ii) The value determined from the following equation, rounded to the nearest tenth of a gram per minute:

$$\text{Idle Test Threshold (ITT)} = 20.5 - (1.58 \times \text{Displacement})$$

Where:

Displacement = the engine displacement of the test vehicle, expressed in liters and rounded to the nearest one tenth of a liter.

(4)(i) If the CO₂ emissions value determined from the Idle Test Procedure in § 86.165-12 is less than or equal to the idle test threshold (ITT) determined in paragraph (e)(3) of this section, the total CO₂ efficiency credit value (Credit) for use in paragraph (e) of this section shall be the applicable value determined in paragraph (b) of this section.

(ii) If the CO₂ emissions value determined from the Idle Test Procedure in § 86.165-12 is greater than the idle test threshold (ITT) determined in paragraph (e)(3) of this section, the total CO₂ efficiency credit value (Credit) for use in paragraph (e) of this section shall be determined using

$$\text{Credit} = \text{TCV} \times \left[1 - \left(\frac{\text{ITP} - \text{ITT}}{6.4} \right) \right]$$

the following formula:

Where:

Credit = The CO₂ efficiency credit value (Credit) that must be used in paragraph (e) of this section to calculate the total credits (in Megagrams) of air conditioning efficiency credits;

TCV = The total CO₂ efficiency credit value determined according to paragraph (b) of this section; and

ITP = the increased CO₂ emissions determined from the Idle Test Procedure in § 86.165-14.

ITT = the idle test threshold determined in paragraph (e)(3) of this section and rounded to the nearest one tenth of a gram per minute;

(iii) Air conditioning systems that record an increased CO₂ emissions value on the Idle Test Procedure in § 86.165-14 that is greater than or equal to the idle test threshold (ITT) determined in paragraph (e)(3) of this section plus 6.4 grams per minute are not eligible for an air conditioning efficiency credit.

(5) Air conditioning systems with compressors that are solely powered by electricity shall submit Air Conditioning Idle Test Procedure data to be eligible to generate credits in the 2014 and later model years, but such systems are not required to meet a specific threshold to be eligible to generate such credits, as long as the engine remains off for a period of at least 2 cumulative minutes during the air conditioning on portion of the Idle Test Procedure in § 86.165-12(d).

(f) **AC17 reporting requirements.** Manufacturers may use the provisions of this paragraph (f) as an alternative to the use of the Air Conditioning Idle Test to demonstrate eligibility to generate

air conditioning efficiency credits for the 2014 through 2016 model years. This paragraph (f) is required for the 2017 through 2019 model years.

(1) ~~The manufacturer shall perform the AC17 test specified in 40 CFR 1066.845 on each unique air conditioning system design and vehicle platform combination (as those terms are defined in § 86.1803) for which the manufacturer intends to accrue air conditioning efficiency credits. The manufacturer must test at least one unique air conditioning system within each vehicle platform in a model year, unless all unique air conditioning systems within a vehicle platform have been previously tested. A unique air conditioning system design is a system with unique or substantially different component designs or types and/or system control strategies (e.g., fixed displacement vs. variable displacement compressors, orifice tube vs. thermostatic expansion valve, single vs. dual evaporator, etc.). In the first year of such testing, the tested vehicle configuration shall be the highest production vehicle configuration within each platform. In subsequent model years the manufacturer must test other unique air conditioning systems within the vehicle platform, proceeding from the highest production untested system until all unique air conditioning systems within the platform have been tested, or until the vehicle platform experiences a major redesign. Whenever a new unique air conditioning system is tested, the highest production configuration using that system shall be the vehicle selected for testing. Air conditioning system designs which have similar cooling capacity, component types, and control strategies, yet differ in terms of compressor pulley ratios or condenser or evaporator surface areas will not be considered to be unique system designs. The test results from one unique system design may represent all variants of that design. Manufacturers must use good engineering judgment to identify the unique air conditioning system designs which will require AC17 testing in subsequent model years. Results must be reported separately for all four phases (two phases with air conditioning off and two phases with air conditioning on) of the test to the Environmental Protection Agency, and the results of the calculations required in 40 CFR 1066.845 must also be reported. In each subsequent model year additional air conditioning system designs, if such systems exist, within a vehicle platform that is generating air conditioning credits must be tested using the AC17 procedure. When all unique air conditioning system designs within a platform have been tested, no additional testing is required within that platform, and credits may be carried over to subsequent model years until there is a significant change in the platform design, at which point a new sequence of testing must be initiated. No more than one vehicle from each credit-generating platform is required to be tested in each model year.~~

(2) ~~The manufacturer shall also report the following information for each vehicle tested: the vehicle class, model type, curb weight, engine displacement, transmission class and configuration, interior volume, climate control system type and characteristics, refrigerant used, compressor type, and evaporator/condenser characteristics.~~

(g) *AC17 validation testing and reporting requirements.* ~~For 2020 and later model years,~~ **m**Manufacturers must validate air conditioning credits by using the AC17 Test Procedure in 40 CFR 1066.845 as follows:

* * * * *

81. Amend § 86.1869-12 by revising the introductory text and paragraph (b)(2) to read as follows:

§ 86.1869-12 CO₂ credits for off-cycle CO₂ reducing technologies.

This section describes how manufacturers may generate credits for off-cycle CO₂-reducing technologies through model year 2030. The provisions of this section do not apply for non-MDPV heavy-duty vehicles, except that § 86.1819-14(d)(13) describes how to apply paragraphs (c) and (d) of this section for those vehicles. Manufacturers may no longer generate credits under this section starting in model year 2027 for vehicles deemed to have zero tailpipe emissions and in model year 2031 for all other vehicles. Manufacturers may no longer generate credits under paragraphs (c) and (d) of this section for any type of vehicle starting in model year 2027.

* * * * *

(b) * * *

(2) The maximum allowable decrease in the manufacturer's combined passenger automobile and light truck fleet average CO₂ emissions attributable to use of the default credit values in paragraph (b)(1) of this section is specified in paragraph (b)(2)(v) of this section~~15 g/mi for model years 2023 through 2026 and 10 g/mi in all other model years~~. If the total of the CO₂ g/mi credit values from paragraph (b)(1) of this section does not exceed the specified off-cycle credit cap~~10 or 15 g/mi (as applicable)~~ for any passenger automobile or light truck in a manufacturer's fleet, then the total off-cycle credits may be calculated according to paragraph (f) of this section. If the total of the CO₂ g/mi credit values from paragraph (b)(1) of this section exceeds the specified off-cycle credit cap~~10 or 15 g/mi (as applicable)~~ for any passenger automobile or light truck in a manufacturer's fleet, then the gram per mile decrease for the combined passenger automobile and light truck fleet must be determined according to paragraph (b)(2)(ii) of this section to determine whether the applicable limitation has been exceeded.

(i) Determine the gram per mile decrease for the combined passenger automobile and light truck fleet using the following formula:

$$\text{Decrease} = \frac{\text{Credits} \times 1,000,000}{[(\text{Prod}_C \times 195,264) + (\text{Prod}_T \times 225,865)]}$$

Where:

Credits = The total of passenger automobile and light truck credits, in Megagrams, determined according to paragraph (f) of this section and limited to those credits accrued by using the default gram per mile values in paragraph (b)(1) of this section.

Prod_C = The number of passenger automobiles produced by the manufacturer and delivered for sale in the U.S.

Prod_T = The number of light trucks produced by the manufacturer and delivered for sale in the U.S.

(ii) If the value determined in paragraph (b)(2)(i) of this section is greater than the off-cycle credit cap specified in paragraph (b)(2)(v) of this section~~10 or 15 grams per mile (as applicable)~~, the total credits, in Megagrams, that may be accrued by a manufacturer using the default gram per mile values in paragraph (b)(1) of this section shall be determined using the following formula:

$$\text{Credit (Megagrams)} = \frac{[10\text{cap} \times ((\text{Prod}_C \times 195,264) + (\text{Prod}_T \times 225,865))]}{1,000,000}$$

Where:

cap = the off-cycle credit cap specified in paragraph (b)(2)(v) of this section.

Prod_C = The number of passenger automobiles produced by the manufacturer and delivered for sale in the U.S.

Prod_T = The number of light trucks produced by the manufacturer and delivered for sale in the U.S.

(iii) If the value determined in paragraph (b)(2)(i) of this section is not greater than the off-cycle credit cap specified in paragraph (b)(2)(v) of this section~~10 or 15 grams per mile (as applicable)~~, then the credits that may be accrued by a manufacturer using the default gram per mile values in paragraph (b)(1) of this section do not exceed the allowable limit, and total credits may be determined for each category of vehicles according to paragraph (f) of this section.

(iv) If the value determined in paragraph (b)(2)(i) of this section is greater than the off-cycle credit cap specified in paragraph (b)(2)(v) of this section~~10 or 15 grams per mile (as applicable)~~, then the combined passenger automobile and light truck credits, in Megagrams, that may be accrued using the calculations in paragraph (f) of this section must not exceed the value determined in paragraph (b)(2)(ii) of this section. This limitation should generally be done by reducing the amount of credits attributable to the vehicle category that caused the limit to be exceeded such that the total value does not exceed the value determined in paragraph (b)(2)(ii) of this section.

(v) The manufacturer's combined passenger automobile and light truck fleet average CO₂ emissions attributable to use of the default credit values in paragraph (b)(1) of this section may not exceed the specific values as described in this paragraph (b)(2)(v). Starting in model year 2027, adjust the credit contribution from PHEVs in the fleet-average calculation by dividing the PHEV off-cycle credit value by the utility factor established under 40 CFR 600.116-12(c)(1) or (c)(10)(iii) (weighted 55 percent city, 45 percent highway). For example, if a PHEV has utility factor of 0.3 and an off-cycle credit of 3.0, count it as having a credit value of 10 (3/0.3) for calculating the fleet average value. The following maximum values apply for off-cycle credits:

| <u>Model Year</u> | <u>Off-cycle credit cap (g/mile)</u> |
|----------------------|--------------------------------------|
| <u>(A) 2023-2026</u> | <u>15</u> |
| <u>(B) 2027</u> | <u>10</u> |
| <u>(C) 2028</u> | <u>8.0</u> |
| <u>(D) 2029</u> | <u>6.0</u> |
| <u>(E) 2030</u> | <u>3.0</u> |

* * * * *

§ 86.1871-12—[Removed]

82. Remove § 86.1871-12.

PART 600—FUEL ECONOMY AND GREENHOUSE GAS EXHAUST EMISSIONS OF MOTOR VEHICLES

83. The authority citation for part 1036 continues to read as follows:
Authority: 49 U.S.C. 32901 – 23919q, Pub. L. 109-58.

84. Amend § 600.007 by revising paragraph (b)(4) introductory text to read as follows:

§ 600.007 Vehicle acceptability.

* * * * *

(b) * * *

(4) Each fuel economy data vehicle must meet the same exhaust emission standards as certification vehicles of the respective engine-system combination during the test in which the ~~city~~-fuel economy test results are generated. This may be demonstrated using one of the following methods:

* * * * *

85. Amend § 600.113-12 by revising the introductory text and paragraph (n) to read as follows:

§ 600.113-12 Fuel economy, CO₂ emissions, and carbon-related exhaust emission calculations for FTP, HFET, US06, SC03 and cold temperature FTP tests.

The Administrator will use the calculation procedure set forth in this ~~paragraph~~-~~section~~ for all official EPA testing of vehicles fueled with gasoline, diesel, alcohol-based or natural gas fuel. The calculations of the weighted fuel economy and carbon-related exhaust emission values require input of the weighted grams/mile values for total hydrocarbons (HC), carbon monoxide (CO), and carbon dioxide (CO₂); and, additionally for methanol-fueled automobiles, methanol (CH₃OH) and formaldehyde (HCHO); and, additionally for ethanol-fueled automobiles, methanol (CH₃OH), ethanol (C₂H₅OH), acetaldehyde (C₂H₄O), and formaldehyde (HCHO); and additionally for natural gas-fueled vehicles, non-methane hydrocarbons (NMHC) and methane (CH₄). For manufacturers selecting the fleet averaging option for N₂O and CH₄ as allowed under § 86.1818 of this chapter the calculations of the carbon-related exhaust emissions require the input of grams/mile values for nitrous oxide (N₂O) and methane (CH₄). Emissions shall be determined for the FTP, HFET, US06, SC03, and cold temperature FTP tests. Additionally, the specific gravity, carbon weight fraction and net heating value of the test fuel must be determined. The FTP, HFET, US06, SC03, and cold temperature FTP fuel economy and carbon-related exhaust emission values shall be calculated as specified in this section. An example fuel economy calculation appears in Appendix II of this part.

* * * * *

(n) ~~Manufacturers shall determine CO₂ emissions and carbon-related exhaust emissions for electric vehicles, fuel cell vehicles, and plug-in hybrid electric vehicles according to the provisions of this paragraph (n). Subject to the limitations on the number of vehicles produced and delivered for sale as described in § 86.1866 of this chapter, the manufacturer may be allowed to~~ **Manufacturers may** use a value of 0 grams **CO₂ and CREE per** /mile to represent the emissions of fuel cell vehicles and the proportion of electric operation of a electric vehicles and plug-in hybrid electric vehicles that is derived from electricity that is generated from sources that are not

onboard the vehicle, as described in paragraphs (n)(1) through (3) of this section. For purposes of labeling under this part, the CO₂ emissions for electric vehicles shall be 0 grams per mile. Similarly, for purposes of labeling under this part, the CO₂ emissions for plug-in hybrid electric vehicles shall be 0 grams per mile for the proportion of electric operation that is derived from electricity that is generated from sources that are not onboard the vehicle. For all 2027 and later model year electric vehicles, fuel cell vehicles, and plug-in hybrid electric vehicles, the provisions of this paragraph (n) shall be used to determine the non-zero value for CREE for purposes of meeting the greenhouse gas emission standards described in § 86.1818 of this chapter.

(1) For electric vehicles, but not including fuel cell vehicles, the carbon related exhaust emissions in grams per mile is to be calculated using the following equation and rounded to the nearest one gram per mile: -

$$CREE = CREEUP - CREEGAS$$

Where:

CREE means the carbon related exhaust emission value as defined in § 600.002, which may be set equal to zero for eligible 2012 through 2026 model year electric vehicles as described in § 86.1866-12(a) of this chapter.

$$CREE_{UP} = \frac{EC}{GRIDLOSS} \times AVGUSUP, \text{ and}$$

$$CREE_{GAS} = \frac{2478}{8887} \times TargetCO_2,$$

Where:

EC = The vehicle energy consumption in watt hours per mile, for combined FTP/HFET operation, determined according to procedures established by the Administrator under § 600.116-12.

GRIDLOSS = 0.935 (to account for grid transmission losses).

AVGUSUP = 0.534 (the nationwide average electricity greenhouse gas emission rate at the powerplant, in grams per watt hour).

2478 is the estimated grams of upstream greenhouse gas emissions per gallon of gasoline.

8887 is the estimated grams of CO₂ per gallon of gasoline.

TargetCO₂ = The CO₂ Target Value for the fuel cell or electric vehicle determined according to § 86.1818 of this chapter for the appropriate model year.

(2) For plug-in hybrid electric vehicles, the carbon related exhaust emissions in grams per mile is to be calculated according to the provisions of § 600.116, except that the CREE for charge-depleting operation shall be the sum of the CREE associated with gasoline consumption and the net upstream CREE determined according to paragraph (n)(1) of this section, rounded to the nearest one gram per mile.

(3) For 2012 and later model year fuel cell vehicles, the carbon related exhaust emissions in grams per mile shall be calculated using the method specified in paragraph (n)(1) of this section, except that CREEUP shall be determined according to procedures established by the Administrator under § 600.111-08(f). As described in § 86.1866 of this chapter, the value of CREE may be set equal to zero for 2012 through 2026 model year fuel cell vehicles.

* * * * *

86. Amend § 600.116-12 by revising paragraphs (c)(1), (c)(2)(i) and (iii), (c)(5) and (10) and adding paragraph (c)(11) to read as follows:

§ 600.116-12 Special procedures related to electric vehicles and hybrid electric vehicles.

* * * * *

(c) * * *

(1) To determine CREE values to demonstrate compliance with GHG standards, calculate composite values representing combined operation during charge-depleting and charge-sustaining operation using the following utility factors, except as otherwise specified in this paragraph (c):

Table 1 of § 600.116-12(c)(1)—Fleet Utility Factors for Urban “City” Driving

| Schedule range for UDDS phases, miles | <u>Model year 2026 and earlier</u> | | <u>Model year 2027 and later</u> | |
|--|------------------------------------|----------------------|----------------------------------|----------------------|
| | <u>Cumulative UF</u> | <u>Sequential UF</u> | <u>Cumulative UF</u> | <u>Sequential UF</u> |
| 3.59 | 0.125 | 0.125 | <u>0.062</u> | <u>0.062</u> |
| 7.45 | 0.243 | 0.117 | <u>0.125</u> | <u>0.062</u> |
| 11.04 | 0.338 | 0.095 | <u>0.178</u> | <u>0.054</u> |
| 14.90 | 0.426 | 0.088 | <u>0.232</u> | <u>0.053</u> |
| 18.49 | 0.497 | 0.071 | <u>0.278</u> | <u>0.046</u> |
| 22.35 | 0.563 | 0.066 | <u>0.324</u> | <u>0.046</u> |
| 25.94 | 0.616 | 0.053 | <u>0.363</u> | <u>0.040</u> |
| 29.80 | 0.666 | 0.049 | <u>0.403</u> | <u>0.040</u> |
| 33.39 | 0.705 | 0.040 | <u>0.437</u> | <u>0.034</u> |
| 37.25 | 0.742 | 0.037 | <u>0.471</u> | <u>0.034</u> |
| 40.84 | 0.772 | 0.030 | <u>0.500</u> | <u>0.029</u> |
| 44.70 | 0.800 | 0.028 | <u>0.530</u> | <u>0.029</u> |
| 48.29 | 0.822 | 0.022 | <u>0.555</u> | <u>0.025</u> |
| 52.15 | 0.843 | 0.021 | <u>0.580</u> | <u>0.025</u> |
| 55.74 | 0.859 | 0.017 | <u>0.602</u> | <u>0.022</u> |
| 59.60 | 0.875 | 0.016 | <u>0.624</u> | <u>0.022</u> |
| 63.19 | 0.888 | 0.013 | <u>0.643</u> | <u>0.019</u> |
| 67.05 | 0.900 | 0.012 | <u>0.662</u> | <u>0.019</u> |
| 70.64 | 0.909 | 0.010 | <u>0.679</u> | <u>0.017</u> |

Table 2 of § 600.116-12(c)(1)—Fleet Utility Factors for Highway Driving

| Schedule range for HFET, miles | Model year 2026 and earlier | | Model year 2027 and later | |
|--------------------------------|-----------------------------|---------------|---------------------------|---------------|
| | Cumulative UF | Sequential UF | Cumulative UF | Sequential UF |
| 10.3 | 0.123 | 0.123 | <u>0.168</u> | <u>0.168</u> |
| 20.6 | 0.240 | 0.117 | <u>0.303</u> | <u>0.136</u> |
| 30.9 | 0.345 | 0.105 | <u>0.414</u> | <u>0.110</u> |
| 41.2 | 0.437 | 0.092 | <u>0.503</u> | <u>0.090</u> |
| 51.5 | 0.516 | 0.079 | <u>0.576</u> | <u>0.073</u> |
| 61.8 | 0.583 | 0.067 | <u>0.636</u> | <u>0.060</u> |
| 72.1 | 0.639 | 0.056 | <u>0.685</u> | <u>0.049</u> |

(2) * * *

(i) For vehicles that are not dual fueled automobiles, determine fuel economy using the utility factors ~~described~~ specified in paragraph (c)(1) of this section for model year 2026 and earlier vehicles. Do not use the petroleum-equivalence factors described in 10 CFR 474.3.

* * * * *

(iii) For 2016 and later model year dual fueled automobiles, you may determine fuel economy based on the following equation, separately for city and highway driving:

$$MPGe_{CAFE} = \frac{1}{\left(\frac{UF}{MPGe_{elec}} + \frac{(1-UF)}{MPGe_{gas}} \right)}$$

Where:

UF = The appropriate utility factor for city or highway driving ~~as described~~ specified in paragraph (c)(1) of this section for model year 2026 and earlier vehicles.

* * * * *

(5) Instead of the utility factors specified in paragraphs (c)(1) through (3) of this section, calculate utility factors using the following equation for vehicles whose maximum speed is less than the maximum speed specified in the driving schedule, where the vehicle's maximum speed is determined, to the nearest 0.1 mph, from observing the highest speed over the first duty cycle (FTP, HFET, etc.):

$$UF_i = 1 - \left[\exp \left(- \sum_{j=1}^k \left(\left(\frac{d_i}{ND} \right)^j \times C_j \right) \right) \right] - \sum_{i=1}^n UF_{i-1}$$

Where:

UF_i = the utility factor for phase i . Let $UF_0 = 0$.

J = a counter to identify the appropriate term in the summation (with terms numbered consecutively).

K = the number of terms in the equation (see Table 35 of this section).

d_i = the distance driven in phase i .

ND = the normalized distance. Use 399 for both FTP and HFET operation for fleet values caféCAFE, and for GHG through model year 2026. Use 583 399 for both FTP and HFET

operation for GHG fleet values starting in model year 2027. Use 399 for both FTP and HFET operation for multi-day individual value for labeling.

C_j = the coefficient for term j from the following table:

Table 5 of § 600.116-12(c)(5)—City/Highway Specific Utility Factor Coefficients

| Coefficient | Fleet values for I ₂ and for values | | Fleet values for GHG starting in MY 2027 | Multi-day individual value for labeling |
|-------------|--|---------|--|---|
| | City | Highway | City or highway | City or highway |
| 1 | 14.86 | 4.8 | 10.52 | 13.1 |
| 2 | 2.965 | 13 | -7.282 | -18.7 |
| 3 | -84.05 | -65 | -26.37 | 5.22 |
| 4 | 153.7 | 120 | 79.08 | 8.15 |
| 5 | -43.59 | -100.00 | -77.36 | 3.53 |
| 6 | -96.94 | 31.00 | 26.07 | -1.34 |
| 7 | 14.47 | | | -4.01 |
| 8 | 91.70 | | | -3.90 |
| 9 | -46.36 | | | -1.15 |
| 10 | | | | 3.88 |

n = the number of test phases (or bag measurements) before the vehicle reaches the end-of-test criterion.

* * * * *

(10) The utility factors described in this paragraph (c) and in § 600.510 are derived from equations in SAE J2841. You may alternatively calculate utility factors directly from the corresponding equations in SAE J2841 as follows:

(i) Calculate utility factors for labeling directly from the equation in SAE J2841 Section 6.2 using the Table 2 MDIUF Fit Coefficients (C1 through C10) and a normalized distance (norm_dist) of 399 miles.

(ii) Calculate utility factors for fuel economy standards from the equation in SAE J2841 Section 6.2 using the Table 5 Fit Coefficients for city/Hwy Specific FUF curves weighted 55 percent city, 45 percent highway and a normalized distance (norm_dist) of 399 miles.

(iii) Starting in model year 2027, calculate utility factors for GHG compliance with emission standards from the equation in SAE J2841 Section 6.2 using the Table 2 FUF Fit Coefficients (C1 through C6) and a normalized distance (norm_dist) of 583 miles. For model year 2026 and earlier, calculate utility factors for compliance with GHG emission standards as described in paragraph (c)(10)(ii) of this section.

(11) The following methodology is used to determine the useable battery energy (UBE) for a PHEV using data obtained during either the UDDS Full Charge Test (FCT) or the HFET Full Charge Test as described in SAE J1711:

(i) Perform the measurements described in SAE J1711 Section 4.3.2.3.d. Record initial and final SOC of the RESS for each cycle in the FCT.

(ii) Calculate utility factors for fuel economy standards from the equation in SAE J2841 Section 6.2 using the Table 5 Fit Coefficients for city/Hwy Specific FUF curves

(weighted 55 percent city, 45 percent highway) and a normalized distance (norm_dist) of 399 miles.

(iii) Determine average RESS voltage during each cycle of the FCT by averaging the results of either the continuous voltage measurement or by averaging the initial and final voltage measurement.

(iv) Determine the DC discharge energy for each cycle of the FCT by multiplying the change in SOC of each cycle by the average voltage for the cycle. You may instead use a DC wideband power analyzer meeting the requirements of SAE J1711 Section 4.2.a. to directly measure the DC discharge energy of the RESS during each cycle of the FCT.

(v) After completing the FCT, determine the cycles comprising the Charge-Depleting Cycle Range (Rcdc) as described in SAE J1711 Section 3.1.13. Rcdc includes the transitional cycle or cycles where the vehicle may have operated in both charge-depleting and charge-sustaining modes. Do not include charge-sustaining cycles in Rcdc.

(vi) Determine the UBE of the PHEV by summing the measured DC discharge energy for each cycle comprising Rcdc. Following the charge-depleting cycles and during the transition to charge-sustaining operation, one or more of the transition cycles may involve vehicle charging without discharging the RESS. Include these negative discharge results in the summation.

* * * * *

87. Revise § 600.117 to read as follows:

§ 600.117 Interim provisions.

(a) The following provisions apply instead of other provisions specified in this part through model year ~~2026~~2019:

~~(1a)~~ Except as specified in paragraph ~~(a)(5) and (6)(e)~~ of this section, manufacturers must demonstrate compliance with greenhouse gas emission standards and determine fuel economy values using E0 gasoline test fuel as specified in 40 CFR 86.113-04(a)(1), regardless of any testing with ~~Tier 3 E10~~ test fuel specified in 40 CFR 1065.710(b) under paragraph ~~(a)(2)(b)~~ of this section.

~~(2b)~~ Manufacturers may demonstrate that vehicles comply with ~~Tier 3~~ emission standards for criteria pollutants as specified in 40 CFR part 86, subpart S, during fuel economy measurements using the E0 gasoline test fuel specified in 40 CFR 86.113-04(a)(1), as long as this test fuel is used in fuel economy testing for all applicable duty cycles specified in 40 CFR part 86, subpart S. If a vehicle fails to meet an ~~an~~ ~~Tier 3~~ emission standard for a criteria pollutant using the E0 gasoline test fuel specified in 40 CFR 86.113-04(a)(1), the manufacturer must retest the vehicle using the ~~Tier 3 E10~~ test fuel specified in 40 CFR 1065.710(b) (or the equivalent LEV III test fuel for California) to demonstrate compliance with all applicable emission standards over that test cycle.

~~(3e)~~ If a manufacturer demonstrates compliance with emission standards for criteria pollutants over all five test cycles using the ~~Tier 3 E10~~ test fuel specified in 40 CFR 1065.710(b) (or the equivalent LEV III test fuel for California), the manufacturer may use test data with the same test fuel to determine whether a test group meets the criteria described in § 600.115 for derived 5-cycle testing for fuel economy labeling. Such vehicles may be tested over the FTP and HFET cycles with the E0 gasoline test fuel specified in 40 CFR 86.113-04(a)(1) under this paragraph ~~(a)(3)(e)~~; the vehicles must meet the ~~Tier 3~~ emission

standards for criteria pollutants over those test cycles as described in paragraph (a)(2)(b) of this section.

(4d) Manufacturers may perform testing with the appropriate gasoline test fuels specified in 40 CFR 86.113-04(a)(1), 40 CFR 86.213(a)(2), and in 40 CFR 1065.710(b) to evaluate whether their vehicles meet the criteria for derived 5-cycle testing under 40 CFR 600.115. All five tests must use test fuel with the same nominal ethanol concentration.

(5e) For IUVP testing under § 86.1845, manufacturers may demonstrate compliance with greenhouse gas emission standards using a test fuel meeting specifications for demonstrating compliance with emission standards for criteria pollutants.

(6) Manufacturers may alternatively demonstrate compliance with greenhouse gas emission standards and determine fuel economy values using E10 gasoline test fuel as specified in 40 CFR 1065.710(b). However, manufacturers must then multiply measured CO₂ results by 1.0166 and round to the nearest 0.01 g/mile and calculate fuel economy using the equations appropriate equation for testing with E10 test fuel.

(7) If a vehicle uses an E10 test fuel for evaporative emission testing and E0 is the applicable test fuel for exhaust emission testing, exhaust measurement and reporting requirements apply over the course of the evaporative emission test, but the vehicle need not meet the exhaust emission standards during the evaporative emission test run.

(b) Manufacturers may certify model year 2027 through 2029 vehicles to greenhouse gas emission standards using data with E0 test fuel from testing for earlier model years, subject to the carryover provisions of 40 CFR 86.1839. In the case of the fleet average CO₂ standard, manufacturers must divide the measured CO₂ results by 1.0166 and round to the nearest 0.01 g/mile.

PART 1036— CONTROL OF EMISSIONS FROM NEW AND IN-USE HEAVY-DUTY HIGHWAY ENGINES

88. The authority citation for part 1036 continues to read as follows:

Authority: 42 U.S.C. 7401 – 7671q.

89. Add § 1036.635 to read as follows:

§ 1036.635 Certification requirements for high-GCWR medium-duty vehicles.

This section describes provisions that apply for engines certified under this part for installation in vehicles at or below 14,000 pounds GVWR that have GCWR above 22,000 pounds.

(a) Engines that will be installed in complete vehicles must meet the criteria pollutant emission standards specified in § 1036.104. Those engines are exempt from the greenhouse gas emission standards in § 1036.108, but engine certification under this part 1036 depends on the following conditions:

(1) The vehicles in which the engines are installed must meet the following vehicle-based standards under 40 CFR part 86, subpart S:

(i) Evaporative and refueling emission standards as specified in 40 CFR 86.1813-17.

(ii) Greenhouse gas emission standards as specified in 40 CFR 86.1819-14.

(iii) For electric vehicles, battery durability standards in 40 CFR 86.1815.

(2) Additional provisions related to greenhouse gas emission standards from 40 CFR part 86, subpart S, apply for certifying engines under this part, as illustrated in the following examples:

(i) The engine's emission control information label must state that the vehicle meets evaporative and refueling emission standards under 40 CFR 86.1813-17 and greenhouse gas emission standards under 40 CFR 86.1819-14.

(ii) The application for certification must include the information related to complying with evaporative, refueling, and greenhouse gas emission standards.

(iii) We may require you to perform testing on in-use vehicles as specified in 40 CFR 86.1845-04 and 86.1846-01.

(iv) Demonstrate compliance with the fleet average CO₂ standard as described in 40 CFR 86.1865-12 by including vehicles certified under this section in the compliance calculations as part of the averaging set for medium-duty vehicles certified under 40 CFR part 86, subpart S.

(3) State in the application for certification that you are using the provisions of this section to meet the fleet average CO₂ standard in 40 CFR 86.1819-14 instead of meeting the standards of § 1036.108 and instead of certifying the vehicle to standards under 40 CFR part 1037.

(b) The provisions of this section are optional for engines installed in incomplete vehicles at or below 14,000 pounds GVWR that have GCWR above 22,000 pounds.

PART 1037— CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES

90. The authority citation for part 1037 continues to read as follows:
Authority: 42 U.S.C. 7401 – 7671q.

91. Amend § 1037.150 by revising paragraph (l) to read as follows:

§ 1037.150 Interim provisions.

* * * * *

(l) ~~Optional *sister-vehicle* certification to GHG standards under 40 CFR part 86. You may certify certain complete or cab-complete vehicles to the GHG standards of 40 CFR 86.1819~~The greenhouse gas standards in 40 CFR part 86, subpart S, may apply instead of the standards of § 1037.105 ~~as follows: as specified in 40 CFR 86.1819-14(j).~~

(i) Complete or cab-complete vehicles may optionally meet alternative standards as described in 40 CFR 86.1819-14(j).

(ii) Complete high-GCWR vehicles must meet the greenhouse gas standards of 40 CFR part 86, subpart S, as described in 40 CFR 1036.635.

(iii) Incomplete high-GCWR vehicles may meet the greenhouse gas standards of 40 CFR part 86, subpart S, as described in 40 CFR 1036.635.

* * * * *

PART 1066 – VEHICLE-TESTING PROCEDURES

92. The authority citation for part 1066 continues to read as follows:

Authority: 42 U.S.C. 7401 – 7671q.

93. Amend § 1066.801 by revising paragraphs (c) and (e) to read as follows:

§ 1066.801 Applicability and general provisions.

This subpart I specifies how to apply the test procedures of this part for light-duty vehicles, light-duty trucks, and heavy-duty vehicles at or below 14,000 pounds GVWR that are subject to chassis testing for exhaust emissions under 40 CFR [p](#)Part 86, subpart S. For these vehicles, references in this part 1066 to the standard-setting part include this subpart I.

* * * * *

(c) This subpart covers the following test procedures:

(1) The Federal Test Procedure (FTP), which includes the general driving cycle. This procedure is also used for measuring evaporative emissions. This may be called the conventional test since it was adopted with the earliest emission standards.

(i) The FTP consists of one Urban Dynamometer Driving Schedule (UDDS) as specified in paragraph (a) of [a](#)Appendix I of 40 CFR [p](#)Part 86, followed by a 10-minute soak with the engine off and repeat driving through the first 505 seconds of the UDDS. Note that the UDDS represents about 7.5 miles of driving in an urban area. Engine startup (with all accessories turned off), operation over the initial UDDS, and engine shutdown make a complete cold-start test. The hot-start test consists of the first 505 seconds of the UDDS following the 10-minute soak and a hot-running portion of the UDDS after the first 505 seconds. The first 505 seconds of the UDDS is considered the transient portion; the remainder of the UDDS is considered the stabilized (or hot-stabilized) portion. The hot-stabilized portion for the hot-start test is generally measured during the cold-start test; however, in certain cases, the hot-start test may involve a second full UDDS following the 10-minute soak, rather than repeating only the first 505 seconds. See §§ 1066.815 and 1066.820.

(ii) Evaporative emission testing includes a preconditioning drive with the UDDS and a full FTP cycle, including exhaust measurement, followed by evaporative emission measurements. In the three-day diurnal test sequence, the exhaust test is followed by a running loss test consisting of a UDDS, then two New York City Cycles as specified in paragraph (e) of [a](#)Appendix I of 40 CFR [p](#)Part 86, followed by another UDDS; see 40 CFR 86.134. Note that the New York City Cycle represents about 1.18 miles of driving in a city center. The running loss test is followed by a high-temperature hot soak test as described in 40 CFR 86.138 and a three-day diurnal emission test as described in 40 CFR 86.133. In the two-day diurnal test sequence, the exhaust test is followed by a low-temperature hot soak test as described in 40 CFR 86.138-96(k) and a two-day diurnal emission test as described in 40 CFR 86.133-96(p).

(iii) Refueling emission tests for vehicles that rely on integrated control of diurnal and refueling emissions includes vehicle operation over the full FTP test cycle corresponding to the three-day diurnal test sequence to precondition and purge the evaporative canister. For non-integrated systems, there is a preconditioning drive over the UDDS and a

refueling event, followed by repeated UDDS driving to purge the evaporative canister.

The refueling emission test procedures are described in 40 CFR 86.150 through 86.157.

~~(2) The Supplemental Federal Test Procedure (SFTP) measures the emission effects from aggressive driving and operation with the vehicle's air conditioner. The SFTP is based on a composite of three different test elements. In addition to the FTP, vehicles generally operate over the US06 and SC03 driving schedules as The US06 driving cycle is specified in paragraphs (g) and (h) of Appendix I of 40 CFR part 86, respectively. In the case of heavy-duty vehicles above 10,000 pounds GVWR and at or below 14,000 pounds GVWR, SFTP testing involves additional driving over the Hot LA 92 driving schedule as specified in paragraph (c) of 40 CFR part 86, Appendix I, instead of the US06 driving schedule. Note that the US06 driving schedule cycle represents about 8.0 miles of relatively aggressive driving.~~

~~(3) The SC03 driving cycle is specified in paragraph (h) of appendix I of 40 CFR part 86.;~~ Note that the SC03 driving schedule represents about 3.6 miles of urban driving with the air conditioner operating.

~~(4); and~~ I hot portion of the LA-92 driving cycle schedule is specified in paragraph (c) of appendix I of 40 CFR part 86. Note that the hot portion of the LA-92 driving cycle represents about 9.8 miles of relatively aggressive driving for commercial trucks. This driving cycle applies for heavy-duty vehicles above 10,000 pounds GVWR and at or below 14,000 pounds GVWR only for vehicles subject to Tier 3 standards. See § 1066.830.

~~(5)~~ The Highway Fuel Economy Test (HFET) is specified in aAppendix I of 40 CFR part 600. Note that the HFET represents about 10.2 miles of rural and freeway driving with an average speed of 48.6 mi/hr and a maximum speed of 60.0 mi/hr. See § 1066.840.

~~(6)~~ Cold temperature standards apply for CO and NMHC emissions when vehicles operate over the FTP at a nominal temperature of -7°C . See 40 CFR pPart 86, subpart C, and subpart H of this part.

~~(7)~~ Emission measurement to determine air conditioning credits for greenhouse gas standards. In this optional procedure, manufacturers operate vehicles over repeat runs of the AC17 test sequence to allow for calculating credits as part of demonstrating compliance with CO₂ emission standards. The AC17 test sequence consists of a UDDS preconditioning drive, followed by emission measurements over the SC03 and HFET driving cycleschedules. See § 1066.845.

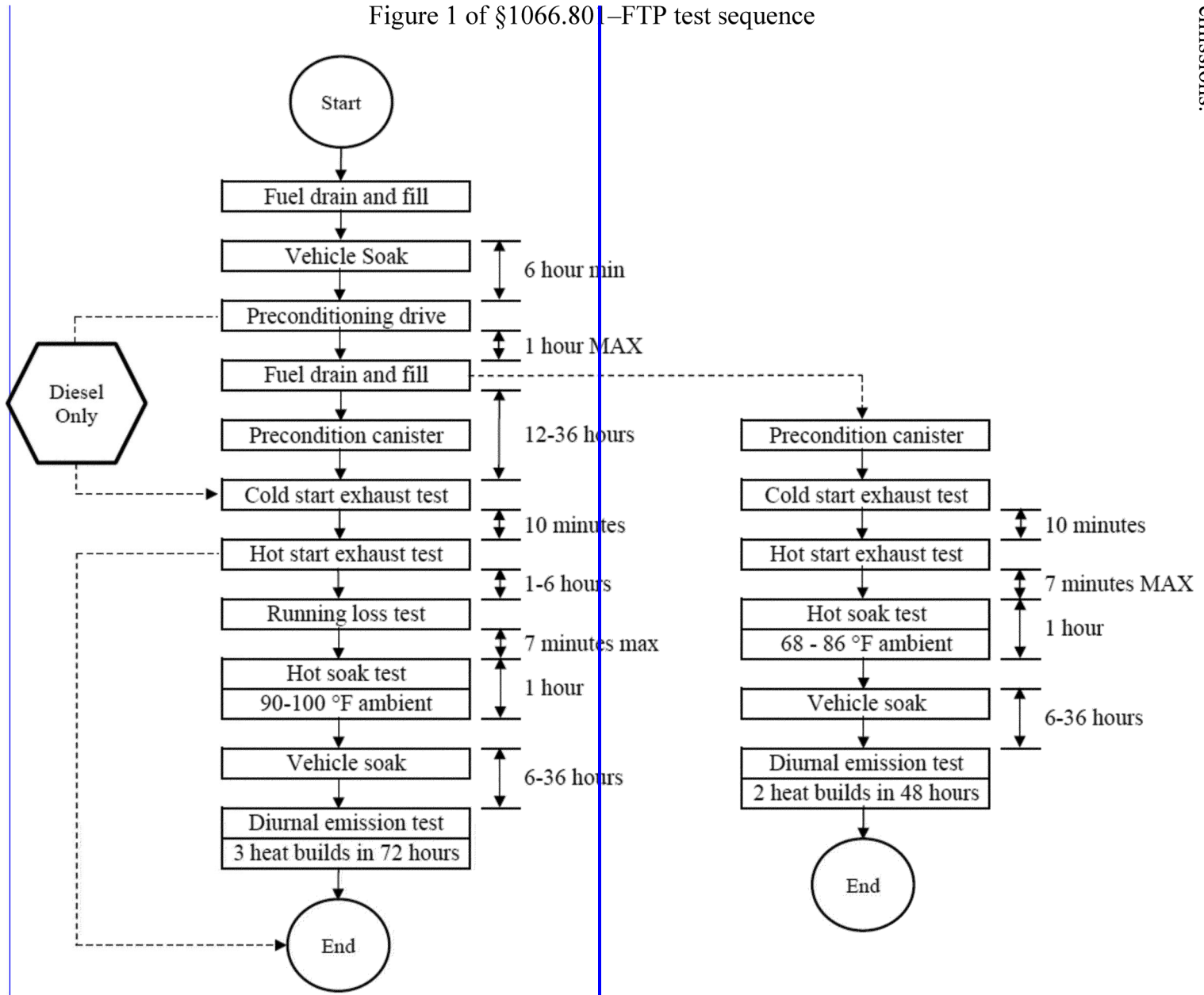
~~(8)~~ The mid-temperature intermediate soak FTP is specified in CARB's Advanced Clean Car II Program at 13 CCR 1962.4(d)(2)(B)1.a. with procedures as specified in Part II, Section B.9.1 and B.9.3 of the exhaust test procedures for conventional vehicles, in Part II Section I.7 of the exhaust test procedures for hybrid vehicles, and in Section E.4.4 of the exhaust test procedures for plug-in hybrid electric vehicles (incorporated by reference in § 1066.1010).

~~(9)~~ The early driveaway FTP is specified in CARB's Advanced Clean Car II Program at 13 CCR 1962.4(d)(2)(C)1.a. with procedures as specified in Part II, Section B.9.2 and B.9.4 of the exhaust test procedures for conventional vehicles, in Part II Section I.8 of the exhaust test procedures for hybrid vehicles, and in Section E.4.5 of the exhaust test procedures for plug-in hybrid electric vehicles (incorporated by reference in § 1066.1010).

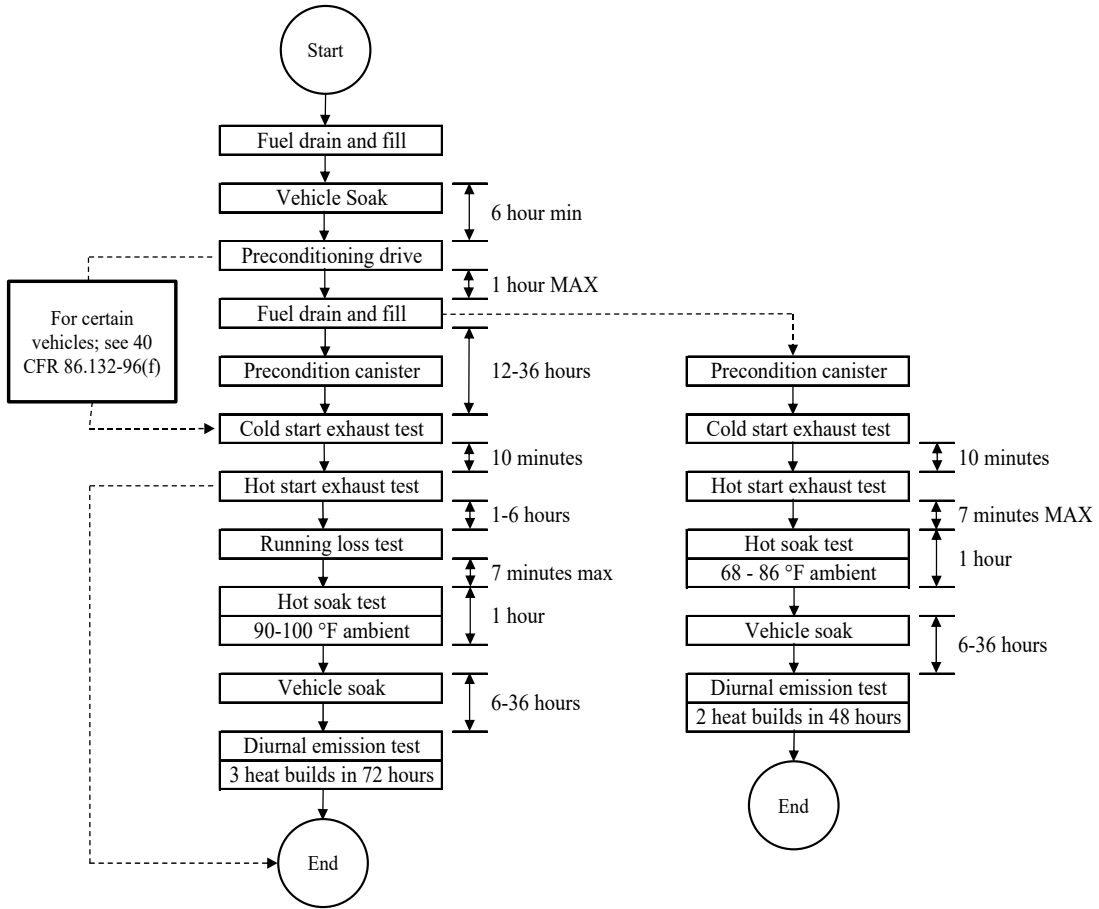
~~(10)~~ The high-load PHEV engine starts US06 is specified in CARB's Advanced Clean Car II Program at 13 CCR 1962.4(d)(3)(B)1.a. using the cold-start US06 charge-depleting emission test specified in Section E.7.2 of the exhaust test procedures for plug-in hybrid electric vehicles (incorporated by reference in § 1066.1010).

* * * * *

Figure 1 of §1066.801-FTP test sequence



(e) The following figure illustrates the FTP test sequence for measuring exhaust and evaporative emissions:



94. Amend § 1066.805 by revising paragraph (c) to read as follows:

§ 1066.805 Road-load power, test weight, and inertia weight class determination.

* * * * *

(c) For FTP, US06, SC03, SFTP, New York City Cycle, HFET, and LA-92 testing, determine road-load forces for each test vehicle at speeds between 9.3 and 71.5 miles per hour. The road-load force must represent vehicle operation on a smooth, level road with no wind or calm winds, no precipitation, an ambient temperature of approximately 20 °C, and atmospheric pressure of 98.21 kPa. You may extrapolate road-load force for speeds below 9.3 mi/hr.

95. Revise § 1066.830 to read as follows:

§ 1066.830 Supplemental Federal Test Procedures; overview.

Sections 1066.831 and 1066.835 describe the detailed procedures for the Supplemental Federal Test Procedure (SFTP). This testing applies for ~~all Tier 3~~ vehicles subject to the SFTP standards in 40 CFR ~~86.1811-17 or 86.1816-18~~ part 86, subpart S. The SFTP test procedure consists of FTP testing and two additional test elements – a sequence of vehicle operation with more aggressive driving and a sequence of vehicle operation that accounts for the impact of the vehicle’s air conditioner. Tier 4 vehicles subject to 40 CFR 86.1811-27 must meet standards for each individual driving cycle.

(a) The SFTP standard applies as a composite representing the three test elements. The emission results from the aggressive driving test element (§ 1066.831), the air conditioning test element (§ 1066.835), and the FTP test element (§ 1066.820) are analyzed according to the calculation methodology and compared to the applicable SFTP emission standards as described in 40 CFR part 86, subpart S.

(b) The test elements of the SFTP may be run in any sequence that includes the specified preconditioning steps.

96. Amend § 1066.831 by revising paragraph (e)(2) to read as follows:

§ 1066.831 Exhaust emission test procedures for aggressive driving.

* * * * *

(e) * * *

(2) Operate the vehicle over the full US06 driving schedule, with the following exceptions that apply only for Tier 3 vehicles ~~except as follows:~~

(i) For heavy-duty vehicles above 10,000 pounds GVWR, operate the vehicle over the Hot LA-92 driving schedule.

(ii) Heavy-duty vehicles at or below 10,000 pounds GVWR with a power-to-weight ratio at or below 0.024 hp/~~pound~~ ~~lbm~~ may be certified using only the highway portion of the US06 driving schedule as described in 40 CFR 86.1816.

~~(iii) Non-MDPV heavy-duty vehicles shall be tested at their adjusted loaded vehicle weight as described in 40 CFR 86.1816.~~

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97. Amend § 1066.1001 by removing the definition of “SFTP” and adding a definition of “Supplemental FTP (SFTP)” to read as follows:

§ 1066.1001 Definitions.

* * * * *

Supplemental FTP (SFTP) means the collection of test cycles as given in 1066.830801(e)(2).

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98. Amend § 1066.1010 by adding paragraph (c) to read as follows:

§ 1066.1010 Incorporation by reference.

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(c) California Air Resources Board. The following documents are available from the California Air Resources Board, 1001 I Street, Sacramento, CA 95812, (916) 322-2884, or <http://www.arb.ca.gov>:

(1) California Requirements Applicable to the Advanced Clean Car II Program, codified in Title 13, California Code of Regulations, Section 1961.4, Exhaust Emission Standards and Test Procedures - 2026 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles; operative November 30, 2022; IBR approved for § 1066.801(c).

(2) California 2026 and Subsequent Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, And Medium-Duty Vehicles; adopted August 25, 2022; IBR approved for § 1066.801(c).

(3) California Test Procedures for 2026 and Subsequent Model Year Zero-Emission Vehicles and Plug-In Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes; adopted August 25, 2022; IBR approved for § 1066.801(c).