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and fuel temperature profile for the running loss test) for all vehicles in that evaporative/refueling emission family, and a description of the method used to develop those unique procedures.

(20) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family:

(i) Canister working capacity, according to the procedures specified in § 86.132-96(h)(1)(iv);

(ii) Canister bed volume; and

(iii) Fuel temperature profile for the running loss test, according to the procedures specified in § 86.129-94(d).

(c)(11)(ii)(C)-(c)(11)(ii)(D)(5) [Reserved]. For guidance see § 86.095-14.

(c)(11)(ii)(D)(6) [Reserved].

(c)(11)(ii)(D)(7)-(c)(15) [Reserved]. For guidance see § 86.094-14.

[59 FR 16289, Apr. 6, 1994]

§ 86.098-15 NO_x and particulate averaging, trading, and banking for heavy-duty engines.

Section 86.098-15 includes text that specifies requirements that differ from § 86.094-15. Where a paragraph in § 86.094-15 is identical and applicable to § 86.098-15, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.094-15.”

(a)-(b) [Reserved]. For guidance see § 86.094-15.

(c)(1) For each participating engine family, NO_x and particulate emission credits (positive or negative) are to be calculated according to one of the following equations and rounded, in accordance with ASTM E29-93a, to the nearest one-tenth of a Megagram (MG). Consistent units are to be used throughout the equation.

(i) For determining credit need for all engine families and credit availability for engine families generating credits for averaging programs only:

Emission credits = (Std - FEL) × (CF) × (UL) × (Production) × (10⁻⁶)

(ii) For determining credit availability for engine families generating credits for trading or banking programs:

Emission credits = (Std - FEL) × (CF) × (UL) × (Production) × (10⁻⁶) × (Discount)

(iii) For purposes of the equations in paragraphs (c)(1)(i) and (ii) of this section:

Std = the current and applicable heavy-duty engine NO_x or particulate emission standard in grams per brake horsepower hour or grams per Megajoule.

FEL = the NO_x or particulate family emission limit for the engine family in grams per brake horsepower hour or grams per Megajoule.

CF = a transient cycle conversion factor in BHP-hr/mi or MJ/mi, as given in paragraph (c)(2) of this section.

UL = the useful life, or alternative life as described in paragraph (f) of § 86.094-21, for the given engine family in miles.

Production = the number of engines produced for U.S. sales within the given engine family during the model year. Quarterly production projections are used for initial certification. Actual production is used for end-of-year compliance determination.

Discount = a one-time discount applied to all credits to be banked or traded within the model year generated. The discount applied here is 0.8. Banked credits traded in a subsequent model year will not be subject to an additional discount. Banked credits used in a subsequent model year's averaging program will not have the discount restored.

(2)(i) The transient cycle conversion factor is the total (integrated) cycle brake horsepower-hour or Megajoules, divided by the equivalent mileage of the applicable transient cycle. For Otto-cycle heavy-duty engines, the equivalent mileage is 6.3 miles. For diesel heavy-duty engines, the equivalent mileage is 6.5 miles.

(ii) When more than one configuration is chosen by EPA to be tested in the certification of an engine family (as described in § 86.085-24), the conversion factor used is to be based upon a production weighted average value of the configurations in an engine family to calculate the conversion factor.

(d)-(i) [Reserved]. For guidance see § 86.094-15.

(j) *Optional program for early banking.* Provisions set forth in paragraphs (a) through (i) of this section apply except as specifically stated otherwise in paragraph (j) of this section.

(1) To be eligible for the optional program described in paragraph (j) of this section, the following must apply:

(i) Credits are generated from diesel cycle heavy-duty engines.

(ii) During certification, the manufacturer shall declare its intent to include specific engine families in the program described in this paragraph (j). Separate declarations are required for each program and no engine families may be included in both programs in the same model year.

(2) *Credit generation and use.* (i) Credits shall only be generated by 1998 and later model year engine families.

(ii) Credits may only be used for 2004 and later model year heavy-duty diesel engines. When used with 2004 and later model year engines, NO_x credits may be used to meet the NO_x plus NMHC standard, except as otherwise provided in § 86.004-11(a)(1)(i)(D).

(iii) If a manufacturer chooses to use credits generated under paragraph (j) of this section prior to model year 2004, the averaging, trading, and banking of such credits shall be governed by the program provided in paragraphs (a) through (i) of this section and shall be subject to all discounting, credit life limits and all other provisions contained therein. In the case where the manufacturer can demonstrate that the credits were discounted under the program provided in paragraph (j) of this section, that discount may be accounted for in the calculation of credits described in paragraph (c) of this section.

(3) *Program flexibilities.* (i) NO_x and PM credits that are banked until model year 2004 under this paragraph (j) may be used in 2004 or any model year thereafter without being forfeited due to credit age. This supersedes the requirement in paragraph (f)(2)(i) of this section.

(ii) There are no regional category restraints for averaging, trading, and banking of credits generated under the program described in paragraph (j) of this section. This supersedes the regional category provisions described in the opening text of paragraphs (d) and (e) of this section.

(iii) *Credit discounting.* (A) For NO_x and PM credits generated under this paragraph (j) from engine families with NO_x certification levels greater than 3.5 grams per brake horsepower-hour for oxides of nitrogen, a Discount value of 0.9 shall be used in place of 0.8 in the

credit availability equation in paragraph (c)(1) of this section.

(B) For NO_x and PM credits generated under this paragraph (j) from engine families with NO_x certification levels less than or equal to 3.5 grams per brake horsepower-hour for oxides of nitrogen, a Discount value of 1.0 shall be used in place of 0.8 in the credit availability equation in paragraph (c)(1) of this section.

(iv) *Credit apportionment.* At the manufacturer's option, credits generated under the provisions described in this section may be sold to or otherwise provided to another party for use in programs other than the averaging, trading and banking program described in this section.

(A) The manufacturer shall pre-identify two emission levels per engine family for the purposes of credit apportionment. One emission level shall be the FEL and the other shall be the level of the standard that the engine family is required to certify to under § 86.098-11. For each engine family, the manufacturer may report engine sales in two categories, "ABT-only credits" and "nonmanufacturer-owned credits".

(1) For engine sales reported as "ABT-only credits", the credits generated must be used solely in the ABT program described in this section.

(2) The engine manufacturer may declare a portion of engine sales "nonmanufacturer-owned credits" and this portion of the credits generated between the standard and the FEL, based on the calculation in paragraph (c)(1) of this section, would belong to another party. For ABT, the manufacturer may not generate any credits for the engine sales reported as "nonmanufacturer-owned credits". Engines reported as "nonmanufacturer-owned credits" shall comply with the FEL and the requirements of the ABT program in all other respects.

(B) Only manufacturer-owned credits reported as "ABT-only credits" shall be used in the averaging, trading, and banking provisions described in this section.

(C) Credits shall not be double-counted. Credits used in the ABT program may not be provided to an engine purchaser for use in another program.

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(D) Manufacturers shall determine and state the number of engines sold as “ABT-only credits” and “nonmanufacturer-owned credits” in the end-of-model year reports required under § 86.098-23.

[62 FR 54716, Oct. 21, 1997]

§ 86.098-17 Emission control diagnostic system for 1998 and later light-duty vehicles and light-duty trucks.

Section 86.098-17 includes text that specifies requirements that differ from § 86.094-17. Where a paragraph in § 86.094-17 is identical and applicable to § 86.098-17, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.094-17.”

(a) introductory text through (a)(3) [Reserved]. For guidance see § 86.094-17.

(a)(4) Any other deterioration or malfunction within the powertrain which occurs in actual use and which results in an exhaust emission increase of greater than 0.2 g/mi HC, 1.7 g/mi CO, or 0.5 g/mi NO_x, or any vapor leak in the evaporative and/or refueling system which results in an evaporative emissions increase of greater than 30.0 g/test measured over the first 24 hours of the diurnal portion of the revised evaporative emissions test procedure, in accordance with test procedures set forth in subpart B of this part, for vehicles certified to that test procedure.

(b)(1) The electronic evaporative and/or refueling emission purge control, if equipped, and all emission-related powertrain components connected to a computer shall, at a minimum, be monitored for circuit continuity. All components required by these regulations to be monitored shall be evaluated periodically, but no less frequently than once per Urban Dynamometer Driving Schedule as defined in 40 CFR part 86, appendix I, paragraph (a), or similar trip.

(b)(2)-(i) [Reserved]. For guidance see § 86.094-17.

(j) Demonstration of compliance with California OBD II requirements (Title 13 California Code Sec. 1968.1), as modified pursuant to California Mail Out #97-24 (December 9, 1997), shall satisfy the requirements of this section, except that compliance with Title 13

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California Code Secs. 1968.1(b)(4.2.2), pertaining to evaporative leak detection, and 1968.1(d), pertaining to tampering protection, are not required to satisfy the requirements of this section.

[59 FR 16289, Apr. 6, 1994, as amended at 63 FR 70694, Dec. 22, 1998]

§ 86.098-21 Application for certification.

Section 86.098-21 includes text that specifies requirements that differ from § 86.094-21 or § 86.096-21. Where a paragraph in § 86.094-21 or § 86.096-21 is identical and applicable to § 86.098-21, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.094-21.” or “[Reserved]. For guidance see § 86.096-21.”.

(a)-(b)(3) [Reserved]. For guidance see § 86.094-21.

(b)(4)(i) For light-duty vehicles and light-duty trucks, a description of the test procedures to be used to establish the evaporative emission and/or refueling emission deterioration factors (as applicable) required to be determined and supplied in § 86.098-23(b)(2).

(b)(4)(ii)-(iv) [Reserved]. For guidance see § 86.094-21.

(b)(5)(v) For light-duty vehicles with non-integrated refueling emission control systems, the number of continuous UDDS cycles, determined from the fuel economy on the UDDS applicable to the test vehicle of that evaporative/refueling emission family-emission control system combination, required to use a volume of fuel equal to 85% of fuel tank volume.

(b)(6)-(8) [Reserved]. For guidance see § 86.094-21.

(b)(9) For each light-duty vehicle, light-duty truck, or heavy-duty vehicle evaporative/refueling emission family, a description of any unique procedures required to perform evaporative and/or refueling emission tests (as applicable) (including canister working capacity, canister bed volume, and fuel temperature profile for the running loss test) for all vehicles in that evaporative/refueling emission family, and a description of the method used to develop those unique procedures.