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after implementing any production related change (running change) that would affect vehicle emissions. This notification shall include any changes to the information required under paragraph (c)(11)(ii) of this section. The manufacturer shall also amend as necessary its records required under paragraph (c)(4) of this section to confirm with the production design change.

(14) Section 86.082-34 of this subpart is not applicable.

(15) Sections 86.092-35, 86.079-36, 86.082-37, 86.087-38 and 86.084-39 of this subpart are applicable.

[55 FR 7187, Feb. 28, 1990]

§ 86.092-15 NO_x and particulate averaging, trading, and banking for heavy-duty engines.

(a)(1) Heavy-duty engines eligible for the NO_x and particulate averaging, trading, and banking programs are described in the applicable emission standards sections in this subpart. Participation in these programs is voluntary.

(2)(i) Engine families with FELs exceeding the applicable standard shall obtain emission credits in a mass amount sufficient to address the shortfall. Credits may be obtained from averaging, trading, or banking, within the averaging set restrictions described in this section.

(ii) Engine families with FELs below the applicable standard will have emission credits available to average, trade, bank or a combination thereof. Credits may not be used to offset emissions that exceed an FEL. Credits may not be used to remedy an in-use nonconformity determined by a Selective Enforcement Audit or by recall testing. However, credits may be used to allow subsequent production of engines for the family in question if the manufacturer elects to recertify to a higher FEL.

(iii) Credits scheduled to expire in the earliest model year shall be used, prior to using other available credits, to offset emissions of engine families with FELs exceeding the applicable standard.

(b) Participation in the NO_x and/or particulate averaging, trading, and banking programs shall be done as fol-

lows. (1) During certification, the manufacturer shall:

(i) Declare its intent to include specific engine families in the averaging, trading and/or banking programs. Separate declarations are required for each program and for each pollutant (i.e., NO_x and particulate).

(ii) Declare an FEL for each engine family participating in one or more of these three programs.

(A) The FEL must be to the same level of significant digits as the emission standard (one-tenth of a gram per brake horsepower for NO_x emissions and one-hundredth of a gram per brake horsepower-hour for particulate emissions).

(B) In no case may the FEL exceed the upper limit prescribed in the section concerning the applicable heavy-duty engine NO_x and particulate emission standards.

(iii) Calculate the projected emission credits (+/-) based on quarterly production projections for each participating family and for each pollutant (NO_x and particulate), using the equation in paragraph (c) of this section and the applicable factors for the specific engine family.

(iv)(A) Determine and state the source of the needed credits according to quarterly projected production for engine families requiring credits for certification.

(B) State where the quarterly projected credits will be applied for engine families generating credits.

(C) Credits may be obtained from or applied to only engine families within the same averaging set as described in paragraphs (d) and (e) of this section. Credits available for averaging, trading, or banking as defined in § 86.090-2, may be applied to a given engine family(y) (ies), or reserved as defined in § 86.091-2.

(2) Based on this information each manufacturer's certification application must demonstrate:

(i) That at the end of model year production, each engine family has a net emissions credit balance of zero or more using the methodology in paragraph (c) of this section with any credits obtained from averaging, trading or banking.

(ii) The source of the credits to be used to comply with the emission standard if the FEL exceeds the standard, or where credits will be applied if the FEL is less than the emission standard. In cases where credits are being obtained, each engine family involved must state specifically the source (manufacturer/engine family) of the credits being used. In cases where credits are being generated/supplied, each engine family involved must state specifically the designated use (manufacturer/engine family or reserved) of the credits involved. All such reports shall include all credits involved in averaging, trading or banking.

(3) During the model year manufacturers must:

(i) Monitor projected versus actual production to be certain that compliance with the emission standards is achieved at the end of the model year.

(ii) Provide the end-of-model year reports required under § 86.091-23.

(iii) Maintain the quarterly records required under § 86.091-7(c)(8).

(4) Projected credits based on information supplied in the certification application may be used to obtain a certificate of conformity. However, any such credits may be revoked based on review of end-of-model year reports, follow-up audits, and any other verification steps deemed appropriate by the Administrator.

(5) Compliance under averaging, banking, and trading will be determined at the end of the model year. Engine families without an adequate amount of actual NO_x and/or particulate emission credits will violate the conditions of the certificate of conformity. The certificates of conformity may be voided ab initio for those engine families.

(6) If EPA or the manufacturer determines that a reporting error occurred on an end-of-year report previously submitted to EPA under this section, the manufacturer's credits and credit calculations will be recalculated. Erroneous positive credits will be void. Erroneous negative credit balances may be adjusted by EPA.

(i) If EPA review of a manufacturer's end-of-year report indicates an inadvertent credit shortfall, the manufacturer will be permitted to purchase the

necessary credits to bring the credit balance for that engine family to zero, at the ratio of 1.2 credits purchased for every credit needed to bring the balance to zero. If sufficient credits are not available to bring the credit balance for the engine family in question to zero, EPA may void the certificate for that engine family ab initio.

(ii) If within 180 days of receipt of the manufacturer's end-of-year report, EPA review determines a reporting error in the manufacturer's favor (i.e., resulting in a positive credit balance) or if the manufacturer discovers such an error within 180 days of EPA receipt of the end-of-year report, the credits will be restored for use by the manufacturer. For the 1992 model year, corrections to the end-of-year reports may be submitted until May 9, 1994.

(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 E29-67, to the nearest one-tenth of a Megagram (Mg). Consistent units are to be used throughout the equation.

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

$$\text{Emission credits} = (\text{StdFEL}) \times (\text{CF}) \times (\text{UL}) \times (\text{Production}) \times (106)$$

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

$$\text{Emission credits} = (\text{StdFEL}) \times (\text{CF}) \times (\text{UL}) \times (\text{Production}) \times (106) \times (0.8)$$

Where:

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 § 86.090-21, for the given engine family in miles.

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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.

0.8—a one-time discount applied to all credits to be banked or traded within the model year generated. 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) 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. 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 the configuration generating the highest conversion factor when determining credit need and the lowest conversion factor when determining credit availability for banking, trading or averaging.

(d) Averaging sets for NO_x emission credits: The averaging and trading of NO_x emission credits will only be allowed between heavy-duty engine families in the same averaging set and in the same regional category. Engines produced for sale in California constitute a separate regional category than engines produced for sale in the other 49 states. Banking and trading are not applicable to engines sold in California. The averaging sets for the averaging and trading of NO_x emission credits for heavy-duty engines are defined as follows:

(1) For Otto-cycle heavy-duty engines:

(i) Otto-cycle heavy-duty engines constitute an averaging set. Averaging and trading among all Otto-cycle heavy-duty engine families is allowed. There are no subclass restrictions.

(ii) Gasoline-fueled heavy-duty vehicles certified under the provisions of § 86.085-1(b) may not average or trade credits with gasoline-fueled heavy-duty

Otto-cycle engines, but may average or trade credits with light-duty trucks.

(2) For diesel cycle heavy-duty engines:

(i) Each of the three primary intended service classes for heavy-duty diesel engines, as defined in § 86.090-2, constitute an averaging set. Averaging and trading among all diesel cycle engine families within the same primary service class is allowed.

(ii) Urban buses are treated as members of the primary intended service class where they would otherwise fall.

(e) Averaging sets for particulate emission credits. The averaging and trading of particulate emission credits will only be allowed between diesel cycle heavy-duty engine families in the same averaging set and in the same regional category. Engines produced for sale in California constitute a separate regional category than engines produced for sale in the other 49 states. Banking and trading are not applicable to engines sold in California. The averaging sets for the averaging and trading of particulate emission credits for diesel cycle heavy-duty engines are defined as follows:

(1) Engines intended for use in urban buses constitute a separate averaging set from all other heavy-duty engines. Averaging and trading among all diesel cycle bus engine families is allowed.

(2) For heavy-duty engines, exclusive of urban bus engines, each of the three primary intended service classes for heavy-duty diesel cycle engines, as defined in § 86.090-2, constitute an averaging set. Averaging and trading between diesel cycle engine families within the same primary service class is allowed.

(3) Otto-cycle engines may not participate in particulate averaging, trading, or banking.

(f) Banking of NO_x and particulate emission credits:

(1) *Credit deposits.* (i) Under this phase of the banking program, emission credits may be banked from engine families produced during the three model years prior to the effective model year of the new HDE NO_x or particulate emission standard. Credits may not be banked from engine families made during any other model years.

(ii) Manufacturers may bank credits only after the end of the model year and after EPA has reviewed their end-of-year report. During the model year and before submittal of the end-of-year report, credits originally designated in the certification process for banking will be considered reserved and may be redesignated for trading or averaging.

(2) *Credit withdrawals.* (i) After being generated, banked/reserved credits shall be available for use three model years prior to, through three model years immediately after the effective date of the new HDE NO_x or particulate emission standard, as applicable. However, credits not used within the period specified above shall be forfeited.

(ii) Manufacturers withdrawing banked emission credits shall indicate so during certification and in their credit reports, as described in § 86.091-23.

(3) *Use of banked emission credits.* The use of banked credits shall be within the averaging set and other restrictions described in paragraphs (d) and (e) of this section, and only for the following purposes:

(i) Banked credits may be used in averaging, trading, or in any combination thereof, during the certification period. Credits declared for banking from the previous model year but unreviewed by EPA may also be used. However, they may be revoked at a later time following EPA review of the end-of-year report or any subsequent audit actions.

(ii) Banked credits may not be used for NO_x or particulate averaging and trading to offset emissions that exceed an FEL. Banked credits may not be used to remedy an in-use nonconformity determined by a Selective Enforcement Audit or by recall testing. However, banked credits may be used for subsequent production of the engine family if the manufacturer elects to recertify to a higher FEL.

(g)(1) For purposes of this paragraph (g), assume NO_x and particulate nonconformance penalties (NCPs) will be available for the 1991 and later model year HDEs.

(2) Engine families paying an NCP for noncompliance of any emission standard may not:

(i) Participate in the averaging program,

(ii) Generate emission credits for any pollutant under banking and trading, and

(iii) Use emission credits for any pollutant from banking and trading.

(3) If a manufacturer has any engine family to which application of NCPs and averaging, banking, and trading credits is desired, that family must be separated into two distinct families. One family, whose FEL equals the standard, must use NCPs only, while the other, whose FEL does not equal the standard, must use emission credits only.

(4) If a manufacturer has any engine family in a given averaging set which is using NO_x and/or particulate NCPs, none of that manufacturer's engine families in that averaging set may generate credits for banking and trading.

(h) In the event of a negative credit balance in a trading situation, both the buyer and the seller would be liable.

(i) Certification fuel used for credit generation must be of a type that is both available in use and expected to be used by the engine purchaser. Therefore, upon request by the Administrator, the engine manufacturer must provide information acceptable to the Administrator that the designated fuel is readily available commercially and would be used in customer service.

[59 FR 14106, Mar. 25, 1994]

§ 86.092-23 Required data.

(a) The manufacturer shall perform the tests required by the applicable test procedures, and submit to the Administrator the following information: *Provided, however,* That if requested by the manufacturer, the Administrator may waive any requirement of this section for testing of vehicle (or engine) for which emission data are available or will be made available under the provisions of § 86.091-29.

(b)(1)(i) Exhaust emission durability data on such light-duty vehicles tested in accordance with applicable test procedures and in such numbers as specified, which will show the performance of the systems installed on or incorporated in the vehicle for extended