(b)(3) of this section refer to a composite sample of evaporative emissions collected under the conditions and measured in accordance with the procedures set forth in subpart M of this part. For certification vehicles only, manufacturers may conduct testing to quantify a level of nonfuel background emissions for an individual test vehicle. Such a demonstration must include a description of the source(s) of emissions and an estimated decay rate. The demonstrated level of nonfuel background emissions may be subtracted from emission test results from certification vehicles if approved in advance by the Administrator.

(B) For vehicles with a Gross Vehicle Weight Rating of greater than 26,000 lbs., the standards set forth in paragraph (b)(3)(ii) of this section refer to the manufacturer’s engineering design evaluation using good engineering practice (a statement of which is required in §86.091–23(b)(4)(ii)).

(c) No crankcase emissions shall be discharged into the ambient atmosphere from any new 2004 or later model year methanol-, natural gas-, or liquefied petroleum gas-fueled diesel, or any naturally-aspirated diesel HDE. For petroleum-fueled engines only, this provision does not apply to engines using turbochargers, pumps, blowers, or superchargers for air induction.

(d) Every manufacturer of new motor vehicle engines subject to the standards prescribed in this section shall, prior to taking any of the actions specified in section 203(a)(1) of the Act, test or cause to be tested motor vehicle engines in accordance with applicable procedures in subpart I or N of this part to ascertain that such test engines meet the requirements of this section.

(e) The standards described in this section do not apply to diesel-fueled medium-duty passenger vehicles (MDPVs) that are subject to regulation under subpart S of this part, except as specified in subpart S of this part. The standards described in this section also do not apply to diesel engines used in such MDPVs, except as specified in the regulations in subpart S of this part. The term “medium-duty passenger vehicle” is defined in §86.1803.

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The ABT program requirements contained in §86.000–15 apply for 2004 model year Otto-cycle engines, rather than the provisions contained in this §86.004–15. Participation in these programs is voluntary.

(2) 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 for averaging or trading 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.

(b) Participation in the NO\textsubscript{X} plus NMHC and/or particulate averaging, trading, and banking programs shall be done as follows:

(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\textsubscript{X} plus NMHC, and particulate).

(ii) Declare an FEL for each engine family participating in one or more of these two 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-hour for NO\textsubscript{X} plus NMHC 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\textsubscript{X} plus NMHC and particulate emission standards.

(iii) Calculate the projected emission credits (positive or negative) based on quarterly production projections for each participating family and for each pollutant, using the applicable 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 paragraph (d) or (e) of this section. Credits available for averaging, trading, or banking as defined in §86.090–2, may be applied exclusively to a given engine family, 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 §86.001–23.

(iii) For manufacturers participating in emission credit trading, maintain
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the quarterly records required under § 86.009–7(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 compliance measures 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 NOₓ, NOₓ plus NMHC, and/or particulate emission credits will violate the conditions of the certificate of conformity. The certificates of conformity may be voided ab initio for engine families exceeding the emission standard.

(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 balances may be adjusted by EPA for retroactive use.

(i) If EPA review of a manufacturer’s end-of-year report indicates a credit shortfall, the manufacturer will be permitted to purchase the necessary credits to bring the credit balance for that engine family to zero, using the discount specified in paragraph (c)(1)(i) of this section. Consistent units are to be used throughout the equation. In accordance with ASTM E29–93a (incorporated by reference at § 86.1), to the nearest one-tenth of a Megagram (Mg). Consistent units are to be used throughout the equation.

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

\[
\text{Emission credits} = (\text{Std} - \text{FEL}) \times (\text{CF}) \times (\text{UL}) \times (\text{Production}) \times (10^{-6}) \times (\text{Discount})
\]

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

\[
\text{Std} = \text{the current and applicable heavy-duty engine NO}_{x} \text{ plus NMHC or particulate emission standard in grams per brake horsepower hour or grams per Megajoule.}
\]

\[
\text{FEL} = \text{the NO}_{x} \text{ plus NMHC, or particulate family emission limit for the engine family in grams per brake horsepower hour or grams per Megajoule.}
\]

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

\[
\text{UL} = \text{the useful life described in §86.004–2, or alternative life as described in §86.004–21(f), for the given engine family in miles.}
\]

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

\[
\text{Discount} = \text{a one-time discount applied to all credits to be banked or traded within the model year generated. Except as otherwise allowed in paragraphs (k) and (l) of this section, the discount applied here is 0.9. Banked credits traded in a subsequent model year’s averaging program will not have the discount restored.}
\]

(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
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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 §86.004–2, 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 NOx plus NMHC, and particulate emission credits—(1) Credit deposits. (i) NOx plus NMHC, and particulate emission credits may be banked from engine families produced in any model year.

(ii) Manufacturers may bank credits only after the end of the model year and after actual credits have been reported to EPA in the 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) NOx plus NMHC and particulate credits generated in 2004 and later model years do not expire. NOx plus NMHC credits generated by Otto-cycle engines in the 2003 model year for manufacturers selecting Option 1 contained in §86.005–10(f)(1) also do not expire.

(ii) Manufacturers withdrawing banked NOx plus NMHC, and/or particulate 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, or in trading, or in any combination thereof, during the certification period. Credits declared for banking from the previous model year but not reported to EPA may also be used. However, if EPA finds that the reported credits can not be proven, they will be revoked and unavailable for use.
(ii) Banked credits may not be used for NO\textsubscript{X} plus NMHC 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.

(iii) NO\textsubscript{X} credits banked under paragraph §86.098–15(j) or §86.000–15(k) may be used in place of NO\textsubscript{X} plus NMHC credits in 2004 and later model years provided that they are used in the correct averaging set. NO\textsubscript{X} credits banked under paragraph §86.000–15(k) may also be used in place of NO\textsubscript{X} plus NMHC credits in the 2003 model year for manufacturers selecting Option 1 contained in §86.005–10(f)(1), provided that they are used in the correct averaging set.

(iv) Except for early credits banked under §86.000–15(k), NO\textsubscript{X} credits banked in accordance with §86.000–15 may not be used to meet the Otto-cycle engine standards contained in §86.005–10.

(g)(1) This paragraph (g) assumes NO\textsubscript{X} plus NMHC, and particulate nonconformance penalties (NCPs) will be available for the 2004 and later model year HD\textsuperscript{2}Es.

(2) Engine families using NO\textsubscript{X} plus NMHC and/or particulate NCPs but not involved in averaging:
   (i) May not generate NO\textsubscript{X} plus NMHC or particulate credits for banking and trading.
   (ii) May not use NO\textsubscript{X} plus NMHC or particulate credits from banking and trading.

(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.

(j) 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.

(1) 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 §86.005–10 or §86.004–11. For each engine family, the manufacturer may report engine sales in two categories, “ABT-only credits” and “nonmanufacturer-owned credits”:

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

(ii) 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 (c)(1) of this section, would belong to the engine purchaser. 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.

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

(3) Credits shall not be double-counted. Credits used in the ABT program
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Section 86.004–21 includes text that specifies requirements that differ from §86.004–21 or §86.096–21. Where a paragraph in §86.004–21 or §86.096–21 is identical and applicable to §86.004–21, this