

of this paragraph (i), the term “infrequent” means having an expected frequency of less than once per transient test cycle. Calculation and use of adjustment factors are described in paragraphs (i)(1)–(i)(5) of this section.

(1) *Development of adjustment factors.* Manufacturers must develop separate pairs of adjustment factors (an upward adjustment factor and a downward adjustment factor) for each pollutant based on measured emission data and observed regeneration frequency. Adjustment factors may be carried-over to subsequent model years or carried-across to other engine families only where the Administrator determines that such carry-over or carry-across is consistent with good engineering judgment. Adjustment factors should generally apply to an entire engine family, but manufacturers may develop separate adjustment factors for different engine configurations within an engine family. All adjustment factors for regeneration are additive.

(2) *Calculation of adjustment factors.* The adjustment factors are calculated from the following parameters: the measured emissions from a test in which the regeneration occurs ( $EF_H$ ), the measured emissions from a test in which the regeneration does not occur ( $EF_L$ ), and the frequency of the regeneration event in terms of fraction of tests during which the regeneration occurs ( $F$ ). The average emission rate ( $EF_A$ ) is calculated as:

$$EF_A = (F)(EF_H) + (1 - F)(EF_L)$$

(i) The upward adjustment factor (UAF) is calculated as:  $UAF = EF_A - EF_L$ .

(ii) The downward adjustment factor (DAF) is calculated as:  $DAF = EF_A - EF_H$ .

(3) *Use of adjustment factors.* Upward adjustment factors are added to measured emission rates for all tests in which the regeneration does not occur. Downward adjustment factors are added to measured emission rates for all tests in which the regeneration occurs. The occurrence of the regeneration must be identified in a manner that is readily apparent during all testing. Where no regeneration is identified, the upward adjustment factor shall be applied.

(4) *Sample calculation.* If  $EF_L$  is 0.10 g/bhp-hr,  $EF_H$  is 0.50 g/bhp-hr, and  $F$  is 0.1 (i.e., the regeneration occurs once for each ten tests), then:

$$EF_A = (0.1)(0.5 \text{ g/bhp-hr}) + (1.0 - 0.1)(0.1 \text{ g/bhp-hr}) = 0.14 \text{ g/bhp-hr}$$

$$UAF = 0.14 \text{ g/bhp-hr} - 0.10 \text{ g/bhp-hr} = 0.04 \text{ g/bhp-hr}$$

$$DAF = 0.14 \text{ g/bhp-hr} - 0.50 \text{ g/bhp-hr} = -0.36 \text{ g/bhp-hr}$$

(5) *Options.* (i) A manufacturer may elect to omit adjustment factors for one or more of its engine families (or configurations) because the effect of the regeneration is small, or because it is not practical to identify when regenerations occur. In these cases, no upward or downward adjustment factor shall be added, and the manufacturer is liable for compliance with the emission standards for all tests, without regard to whether a regeneration occurs.

(ii) Upon request by the manufacturer, the Administrator may account for regeneration events differently than is provided in this paragraph (i). However, this option only applies for events that occur extremely infrequently, and which cannot be practically addressed using the adjustment factors described in this paragraph (i).

[61 FR 54890, Oct. 22, 1996, as amended at 62 FR 54726, Oct. 21, 1997; 65 FR 59948, Oct. 6, 2000; 66 FR 5159, Jan. 18, 2001; 71 FR 51486, Aug. 30, 2006]

#### § 86.004-30 Certification.

Section 86.004-30 includes text that specifies requirements that differ from §§ 86.094-30, 86.095-30, 86.096-30, 86.098-30 or 86.001-30. Where a paragraph in § 86.094-30, § 86.095-30, § 86.096-30, § 86.098-30 or § 86.001-30 is identical and applicable to § 86.004-30, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.094-30.” or “[Reserved]. For guidance see § 86.095-30.” or “[Reserved]. For guidance see § 86.096-30.” or “[Reserved]. For guidance see § 86.098-30.” or “[Reserved]. For guidance see § 86.001-30.”.

(a)(1) and (a)(2) [Reserved]. For guidance see § 86.094-30.

(a)(3)(i) One such certificate will be issued for each engine family. For gasoline-fueled and methanol-fueled light-duty vehicles and light-duty trucks,

and petroleum-fueled diesel cycle light-duty vehicles and light-duty trucks not certified under § 86.098-28(g), one such certificate will be issued for each engine family-evaporative/refueling emission family combination. Each certificate will certify compliance with no more than one set of in-use and certification standards (or family emission limits, as appropriate).

(ii) For gasoline-fueled and methanol fueled heavy-duty vehicles, one such certificate will be issued for each manufacturer and will certify compliance for those vehicles previously identified in that manufacturer's statement(s) of compliance as required in § 86.098-23(b)(4) (i) and (ii).

(iii) For diesel light-duty vehicles and light-duty trucks, or diesel HDEs, included in the applicable particulate averaging program, the manufacturer may at any time during production elect to change the level of any family particulate emission limit by demonstrating compliance with the new limit as described in § 86.094-28(a)(6), § 86.094-28(b)(5)(i), or § 86.004-28(c)(5)(i). New certificates issued under this paragraph will be applicable only for vehicles (or engines) produced subsequent to the date of issuance.

(iv) For light-duty trucks or HDEs included in the applicable NO<sub>x</sub> averaging program, the manufacturer may at any time during production elect to change the level of any family NO<sub>x</sub> emission limit by demonstrating compliance with the new limit as described in § 86.094-28(b)(5)(ii) or § 86.004-28(c)(5)(ii). New certificates issued under this paragraph will be applicable only for vehicles (or engines) produced subsequent to the day of issue.

(4)(i) For exempt light-duty vehicles and light-duty trucks under the provisions of § 86.094-8(j) or § 86.094-9(j), an adjustment or modification performed in accordance with instructions provided by the manufacturer for the altitude where the vehicle is principally used will not be considered a violation of section 203(a)(3) of the Clean Air Act (42 U.S.C. 7522(a)(3)).

(ii) A violation of section 203(a)(1) of the Clean Air Act (42 U.S.C. 7522(a)(1)) occurs when a manufacturer sells or delivers to an ultimate purchaser any light-duty vehicle or light-duty truck,

subject to the regulations under the Act, under any of the conditions specified in paragraph (a)(4)(ii) of this section.

(A) When a light-duty vehicle or light-duty truck is exempted from meeting high-altitude requirements as provided in § 86.090-8(h) or § 86.094-9(h):

(1) At a designated high-altitude location, unless such manufacturer has reason to believe that such vehicle will not be sold to an ultimate purchaser for principal use at a designated high-altitude location; or

(2) At a location other than a designated high-altitude location, when such manufacturer has reason to believe that such motor vehicle will be sold to an ultimate purchaser for principal use at a designated high-altitude location.

(B) When a light-duty vehicle or light-duty truck is exempted from meeting low-altitude requirements as provided in § 86.094-8(i) or § 86.094-9(i):

(1) At a designated low-altitude location, unless such manufacturer has reason to believe that such vehicle will not be sold to an ultimate purchaser for principal use at a designated low-altitude location; or

(2) At a location other than a designated low-altitude location, when such manufacturer has reason to believe that such motor vehicle will be sold to an ultimate purchaser for principal use at a designated low-altitude location.

(a)(4)(iii) introductory text through (a)(4)(iii)(C) [Reserved]. For guidance see § 86.094-30.

(a)(4)(iv) introductory text [Reserved]. For guidance see § 86.095-30.

(a)(4)(iv)(A)-(a)(9) [Reserved]. For guidance see § 86.094-30.

(10)(i) For diesel-cycle light-duty vehicle and diesel-cycle light-duty truck families which are included in a particulate averaging program, the manufacturer's production-weighted average of the particulate emission limits of all engine families in a participating class or classes shall not exceed the applicable diesel-cycle particulate standard, or the composite particulate standard defined in § 86.090-2 as appropriate, at the end of the model year, as determined in accordance with this part. The certificate shall be void ab initio

## Environmental Protection Agency

## § 86.004-30

for those vehicles causing the production-weighted FEL to exceed the particulate standard.

(ii) For all heavy-duty diesel-cycle engines which are included in the particulate ABT programs under § 86.098-15 or superseding ABT sections as applicable, the provisions of paragraphs (a)(10)(ii) (A)-(C) of this section apply.

(A) All certificates issued are conditional upon the manufacturer complying with the provisions of § 86.098-15 or superseding ABT sections as applicable and the ABT related provisions of other applicable sections, both during and after the model year production.

(B) Failure to comply with all provisions of § 86.098-15 or superseding ABT sections as applicable will be considered to be a failure to satisfy the conditions upon which the certificate was issued, and the certificate may be deemed void ab initio.

(C) 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 or excused.

(11)(i) For light-duty truck families which are included in a NO<sub>x</sub> averaging program, the manufacturer's production-weighted average of the NO<sub>x</sub> emission limits of all such engine families shall not exceed the applicable NO<sub>x</sub> emission standard, or the composite NO<sub>x</sub> emission standard defined in § 86.088-2, as appropriate, at the end of the model year, as determined in accordance with this part. The certificate shall be void ab initio for those vehicles causing the production-weighted FEL to exceed the NO<sub>x</sub> standard.

(ii) For all HDEs which are included in the NO<sub>x</sub> plus NMHC ABT programs contained in § 86.098-15, or superseding ABT sections as applicable, the provisions of paragraphs (a)(11)(ii) (A)-(C) of this section apply.

(A) All certificates issued are conditional upon the manufacturer complying with the provisions of § 86.098-15 or superseding ABT sections as applicable and the ABT related provisions of other applicable sections, both during and after the model year production.

(B) Failure to comply with all provisions of § 86.098-15 or superseding ABT sections as applicable will be considered to be a failure to satisfy the condi-

tions upon which the certificate was issued, and the certificate may be deemed void ab initio.

(C) 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 or excused.

(a)(12) [Reserved]. For guidance see § 86.094-30.

(a)(13) [Reserved]. For guidance see § 86.095-30.

(a)(14) [Reserved]. For guidance see § 86.094-30.

(a) (15)-(18) [Reserved]. For guidance see § 86.096-30.

(a)(19) [Reserved]. For guidance see § 86.098-30.

(a)(20) [Reserved]. For guidance see § 86.001-30.

(a)(21) For all light-duty trucks certified to refueling emission standards under § 86.004-9, the provisions of paragraphs (a)(21) (i)-(iii) of this section apply.

(i) All certificates issued are conditional upon the manufacturer complying with all provisions of § 86.004-9 both during and after model year production.

(ii) Failure to meet the required implementation schedule sales percentages as specified in § 86.004-9 will be considered to be a failure to satisfy the conditions upon which the certificate(s) was issued and the individual vehicles sold in violation of the implementation schedule shall not be covered by the certificate.

(iii) 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.

(b)(1) introductory text through (b)(1)(ii)(A) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(B) The emission data vehicle(s) selected under § 86.001-24(b)(vii) (A) and (B) shall represent all vehicles of the same evaporative/refueling control system within the evaporative/refueling family.

(b)(1)(ii)(C) [Reserved]. For guidance see § 86.094-30.

(b)(1)(ii)(D) The emission-data vehicle(s) selected under § 86.098-24(b)(1)(viii) shall represent all vehicles

of the same evaporative/refueling control system within the evaporative/refueling emission family, as applicable.

(b)(1)(iii) and (b)(1)(iv) [Reserved]. For guidance see § 86.094–30.

(b)(2) [Reserved]. For guidance see § 86.098–30.

(b)(3)–(b)(4)(i) [Reserved]. For guidance see § 86.094–30.

(b)(4)(ii) introductory text [Reserved]. For guidance see § 86.098–30.

(b)(4)(ii)(A) [Reserved]. For guidance see § 86.094–30.

(b)(4)(ii)(B)–(b)(4)(iv) [Reserved]. For guidance see § 86.098–30.

(b)(5)–(e) [Reserved]. For guidance see § 86.094–30.

(f) For engine families required to have an OBD system, certification will not be granted if, for any test vehicle approved by the Administrator in consultation with the manufacturer, the malfunction indicator light does not illuminate under any of the following circumstances, unless the manufacturer can demonstrate that any identified OBD problems discovered during the Administrator's evaluation will be corrected on production vehicles.

(1)(i) *Otto-cycle*. A catalyst is replaced with a deteriorated or defective catalyst, or an electronic simulation of such, resulting in an increase of 1.5 times the NMHC+NO<sub>x</sub> standard or FEL above the NMHC+NO<sub>x</sub> emission level measured using a representative 4000 mile catalyst system.

(ii) *Diesel*. (A) If monitored for emissions performance—a catalyst is replaced with a deteriorated or defective catalyst, or an electronic simulation of such, resulting in exhaust emissions exceeding 1.5 times the applicable standard or FEL for NMHC+NO<sub>x</sub> or PM.

(B) If monitored for performance—a particulate trap is replaced with a trap that has catastrophically failed, or an electronic simulation of such.

(2)(i) *Otto-cycle*. An engine misfire condition is induced resulting in exhaust emissions exceeding 1.5 times the applicable standards or FEL for NMHC+NO<sub>x</sub> or CO.

(ii) *Diesel*. An engine misfire condition is induced and is not detected.

(3) If so equipped, any oxygen sensor is replaced with a deteriorated or defective oxygen sensor, or an electronic

simulation of such, resulting in exhaust emissions exceeding 1.5 times the applicable standard or FEL for NMHC+NO<sub>x</sub> or CO.

(4) If so equipped, a vapor leak is introduced in the evaporative and/or refueling system (excluding the tubing and connections between the purge valve and the intake manifold) greater than or equal in magnitude to a leak caused by a 0.040 inch diameter orifice, or the evaporative purge air flow is blocked or otherwise eliminated from the complete evaporative emission control system.

(5) A malfunction condition is induced in any emission-related engine system or component, including but not necessarily limited to, the exhaust gas recirculation (EGR) system, if equipped, the secondary air system, if equipped, and the fuel control system, singularly resulting in exhaust emissions exceeding 1.5 times the applicable emission standard or FEL for NMHC+NO<sub>x</sub>, CO or PM.

(6) A malfunction condition is induced in an electronic emission-related engine system or component not otherwise described above that either provides input to or receives commands from the on-board computer resulting in a measurable impact on emissions.

[59 FR 16287, Apr. 6, 1994, as amended at 62 FR 54727, Oct. 21, 1997; 65 FR 59948, Oct. 6, 2000]

#### § 86.004–38 Maintenance instructions.

This section includes text that specifies requirements that differ from those specified in § 86.096–38. Where a paragraph in § 86.096–38 is identical and applicable to § 86.004–38, this may be indicated by specifying the corresponding paragraph and the statement “[Reserved]. For guidance see § 86.096–38.”.

(a) The manufacturer shall furnish or cause to be furnished to the purchaser of each new motor vehicle (or motor vehicle engine) subject to the standards prescribed in § 86.099–8, § 86.004–9, § 86.004–10, or § 86.004–11, as applicable, written instructions for the proper maintenance and use of the vehicle (or engine), by the purchaser consistent with the provisions of § 86.004–25, which