

The EPA Administrator signed the following final rule on September 4, 28, 2008. It is being submitted for publication in the *Federal Register*. While EPA has taken steps to ensure the accuracy of this Internet version, it is not the official version of the rule. Please refer to the official version in a forthcoming *Federal Register* publication and on GPO's Web Site. The rule will likely be published in the *Federal Register* by October 9, 2008. You can access the *Federal Register* at: http://www.access.gpo.gov/su_docs/aces/aces140.html. When using this site, note that "text" files may be incomplete because they don't include graphics. Instead, select "Adobe Portable Document File" (PDF) files.

Table of Contents

Part 9 — OMB approvals under the Paperwork Reduction Act	1
Part 60— Standards of Performance for New Stationary Sources	2
Part 80— Regulation of Fuels and Fuel Additives	7
Part 85— Control of Air Pollution from Mobile Sources	8
Part 86— Control of Emissions from New and In-use Highway Vehicles and Engines	9
Part 89— Control of Emissions from New and In-use Nonroad Compression-ignition Engines	10
Part 90— Control of Emissions from Nonroad Spark-ignition Engines at or below 19 Kilowatts	11
Part 91— Control of Emissions from Marine Spark-ignition Engines	19
Part 92— Control of Air Pollution from Locomotives and Locomotive Engines	21
Part 94— Control of Emissions from Marine Compression-ignition Engines	22
Part 1027 — Fees for Engine, Vehicle, and Equipment Compliance Programs	23
Part 1033— Control of Emissions from Locomotives	32
Part 1039— Control of Emissions from New and In-use Nonroad Compression-ignition Engines	37
Part 1042— Control of Emissions from New and In-use Marine Compression-ignition Engines and Vessels	41
Part 1045— Control of Emissions from Spark-ignition Propulsion Marine Engines and Vessels	45
Part 1048— Control of Emissions from New, Large Nonroad Spark-ignition Engines	110
Part 1051— Control of Emissions from Recreational Engines and Vehicles	136
Part 1054— Control of Emissions from New, Small Nonroad Spark-ignition Engines and Equipment	163
Part 1060— Control of Evaporative Emissions from New and In-use Nonroad and Stationary Equipment	233
Part 1065— Engine-Testing Procedures	273
Part 1068— General Compliance Provisions for Nonroad Programs	318
Part 1074— Preemption of State Standards and Procedures for Waiver of Federal Preemption for Nonroad Engines and Nonroad Vehicles	379

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

PART 9— OMB approvals under the Paperwork Reduction Act

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 et seq., 136-136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601-2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 et seq., 1311, 1313d, 1314, 1318 1321, 1326, 1330, 1342 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 et seq., 6901-6992k, 7401-7671q, 7542, 9601-9657, 11023, 11048.

2. Section 9.1 is amended as follows:

- a. By adding a new center heading and entry in numerical order for “1027.140”.
- b. By adding a new center heading and entry in numerical order for “1045.825”.
- c. By removing “1048.20 ”, “1048.201-250 ”, “1048.345 ”, “1048.350 ”, “1048.420 ”, and “1048.425 ” and adding a new entry in numerical order under that center heading for “1048.825”.
- d. By removing “1051.201-255 ”, “1051.345 ”, “1051.350 ”, “1051.725 ”, and “1051.730 ” and adding a new entry in numerical order under that center heading for “1051.825”.
- e. By adding a new center heading and entry in numerical order for “1054.825”.
- f. By adding a new center heading and entry in numerical order for “1060.825”.

§ 9.1 OMB approvals under the Paperwork Reduction Act.

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40 CFR citation	OMB control No.
* * * * *	
Fees for Engine, Vehicle, and Equipment Compliance Programs	
1027.140	2060-0104, 2060-0545
* * * * *	
Control of Emissions from Spark-ignition Propulsion Marine Engines	
1045.825	2060-0321
Control of Emissions from New, Large Nonroad Spark-ignition Engines	
1048.825	2060-0338
Control of Emissions from Recreational Engines and Vehicles	
1051.825	2060-0338
Control of Emissions from New, Small Nonroad Spark-ignition Engines and Equipment	
1054.825	2060-0338
Control of Evaporative Emissions from New and In-use Nonroad and Stationary Equipment	
1060.825	2060-0321, 2060-0338
* * * * *	

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PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

3. The authority citation for part 60 continues to read as follows:

Authority: 42 U.S.C. 7401, et seq.

Subpart JJJJ—[Amended]

4. Section 60.4231 is amended as follows:

- a. By revising the section heading.
- b. By revising paragraph (a).
- c. By revising paragraph (b).
- d. By revising paragraph (c).
- e. By revising paragraph (d).
- f. By adding paragraph (f).

§60.4231 What emission standards must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing such engines?

(a) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008 to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as follows:

If engine displacement is...	and manufacturing dates are...	the engine must meet emission standards and related requirements for nonhandheld engines under...
(1) below 225 cc	July 1, 2008 to December 31, 2011	40 CFR part 90.
(2) below 225 cc	January 1, 2012 or later	40 CFR part 1054.
(3) at or above 225 cc	July 1, 2008 to December 31, 2010	40 CFR part 90.
(4) at or above 225 cc	January 1, 2011 or later	40 CFR part 1054.

(b) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that use gasoline and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cubic centimeters (cc) to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(c) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that are rich burn engines that use LPG and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify

their emergency stationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(d) Stationary SI internal combustion engine manufacturers who choose to certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) under the voluntary manufacturer certification program described in this subpart must certify those engines to the certification emission standards for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers who choose to certify their emergency stationary SI ICE greater than 25 HP and less than 130 HP, must certify those engines to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate. For stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) manufactured prior to January 1, 2011, manufacturers may choose to certify these engines to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP.

* * * * *

(f) Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, to the extent they apply to equipment manufacturers.

5. Section 60.4238 is revised to read as follows:

§60.4238 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines ≤19 KW (25 HP) or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(a) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

6. Section 60.4239 is revised to read as follows:

§60.4239 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that use gasoline or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(b) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II

engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

7. Section 60.4240 is revised to read as follows:

§60.4240 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that are rich burn engines that use LPG or a manufacturer of equipment containing such engines?

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(c) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

8. Section 60.4241 is amended by revising paragraph (b) and adding paragraph (i) to read as follows:

§60.4241 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines participating in the voluntary certification program or a manufacturer of equipment containing such engines?

* * * * *

(b) Manufacturers of engines other than those certified to standards in 40 CFR part 90 or 40 CFR part 1054 must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must follow the same test procedures that apply to large SI nonroad engines under 40 CFR part 1048, but must use the D-1 cycle of International Organization of Standardization 8178-4: 1996(E) (incorporated by reference, see 40 CFR 60.17) or the test cycle requirements specified in Table 5 to 40 CFR 1048.505, except that Table 5 of 40 CFR 1048.505 applies to high load engines only. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

* * * * *

(i) For engines being certified to the voluntary certification standards in Table 1 of this subpart, the VOC measurement shall be made by following the procedures in 40 CFR 1065.260 and 1065.265 in order to determine the total NMHC emissions by using a flame-ionization detector and non-methane cutter. As an alternative to the nonmethane cutter, manufacturers may use a gas chromatograph as allowed under 40 CFR 1065.267 and may measure ethane, as well as methane, for excluding such levels from the total

VOC measurement.

9. Section 60.4242 is amended by revising paragraphs (a) and (b) and adding paragraph (f) to read as follows:

§60.4242 What other requirements must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

(a) Stationary SI internal combustion engine manufacturers must meet the provisions of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as applicable, as well as 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1048 or 1054, except that engines certified pursuant to the voluntary certification procedures in §60.4241 are subject only to the provisions indicated in §60.4247 and are permitted to provide instructions to owners and operators allowing for deviations from certified configurations, if such deviations are consistent with the provisions of paragraphs §60.4241(c) through (f). Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, as applicable. Labels on engines certified to 40 CFR part 1048 must refer to stationary engines, rather than or in addition to nonroad engines, as appropriate.

(b) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054 for that model year may certify any such family that contains both nonroad and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts. This provision also applies to equipment or component manufacturers certifying to standards under 40 CFR part 1060.

* * * * *

(f) For manufacturers of gaseous-fueled stationary engines required to meet the warranty provisions in 40 CFR 90.1103 or 1054.120, we may establish an hour-based warranty period equal to at least the certified emissions life of the engines (in engine operating hours) if we determine that these engines are likely to operate for a number of hours greater than the applicable useful life within 24 months. We will not approve an alternate warranty under this paragraph (f) for nonroad engines. An alternate warranty period approved under this paragraph (f) will be the specified number of engine operating hours or two years, whichever comes first. The engine manufacturer shall request this alternate warranty period in its application for certification or in an earlier submission. We may approve an alternate warranty period for an engine family subject to the following conditions:

- (1) The engines must be equipped with non-resettable hour meters.
- (2) The engines must be designed to operate for a number of hours substantially greater than the applicable certified emissions life.
- (3) The emission-related warranty for the engines may not be shorter than any published warranty offered by the manufacturer without charge for the engines. Similarly, the emission-related warranty for any component shall not be shorter than any published warranty offered by the manufacturer without charge for that component.

10. Section 60.4245 is amended by revising paragraph (a)(3) to read as follows:

§60.4245 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?

* * * * *

(a) * * *

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.

* * * * *

11. Section 60.4247 is amended by revising paragraphs (a) and (b) to read as follows:

§60.4247 What parts of the mobile source provisions apply to me if I am a manufacturer of stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

(a) Manufacturers certifying to emission standards in 40 CFR part 90, including manufacturers certifying emergency engines below 130 HP, must meet the provisions of 40 CFR part 90. Manufacturers certifying to emission standards in 40 CFR part 1054 must meet the provisions of 40 CFR part 1054. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060 to the extent they apply to equipment manufacturers.

(b) Manufacturers required to certify to emission standards in 40 CFR part 1048 must meet the provisions of 40 CFR part 1048. Manufacturers certifying to emission standards in 40 CFR part 1048 pursuant to the voluntary certification program must meet the requirements in Table 4 to this subpart as well as the standards in 40 CFR 1048.101.

* * * * *

12. Section 60.4248 is amended by revising the definitions for “Certified emissions life” and “Certified stationary internal combustion engine” to read as follows:

§60.4248 What definitions apply to this subpart?

* * * * *

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) are given in 40 CFR 90.105, 40 CFR 1054.107, and 40 CFR 1060.101, as appropriate. The values for certified emissions life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified to 40 CFR part 1048 are given in 40 CFR 1048.101(g). The certified emissions life for stationary SI ICE with a maximum engine power greater than 75 KW (100 HP) certified under the voluntary manufacturer certification program of this subpart is 5,000 hours or 7 years, whichever comes first.

Certified stationary internal combustion engine means an engine that belongs to an engine family that has a certificate of conformity that complies with the emission standards and requirements in this part, or of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as appropriate.

* * * * *

PART 80—REGULATION OF FUELS AND FUEL ADDITIVES

13. The authority citation for part 80 continues to read as follows:
Authority: 42 U.S.C. 7414, 7521(1), 7545 and 7601(a).

Subpart B—[Amended]

14. Section 80.22 is amended by revising paragraph (f) and adding paragraph (g) to read as follows:

§80.22 Controls and prohibitions.

* * * * *

(f) Every retailer and wholesale purchaser-consumer shall equip all gasoline pumps from which gasoline is dispensed into motor vehicles with a nozzle spout that meets all the following specifications:

- (1) The outside diameter of the terminal end shall not be greater than 0.840 inches (2.134 centimeters).
- (2) The terminal end shall have a straight section of at least 2.5 inches (6.34 centimeters).
- (3) The retaining spring shall terminate at least 3.0 inches (7.6 centimeters) from the terminal end.

(g) The specifications in this paragraph (g) apply for any new nozzle installations used primarily for dispensing gasoline into marine vessels beginning January 1, 2009. (Note that nozzles meeting the specifications of this paragraph (g) also meet the specifications of paragraph (f) of this section. Note also that the additional specifications in this paragraph (g) do not apply for nozzles used primarily for dispensing gasoline into motor vehicles rather than marine vessels.) Every retailer and wholesale purchaser-consumer shall use nozzles meeting these specifications for any new construction or for nozzle replacements. This does not require replacement of existing nozzles for refueling marine vessels before they would be replaced for other reasons. The following specifications apply to spouts on new or replacement nozzles intended for dispensing gasoline into marine vessels:

- (1) The outside diameter of the terminal end shall have a diameter of 0.824±0.017 inches (2.093 ±0.043 centimeters).
- (2) The spout shall include an aspirator hole for automatic shutoff positioned with a center that is 0.67±0.05 inches (1.70±0.13 centimeters) from the terminal end of the spout.
- (3) The terminal end shall have a straight section of at least 2.5 inches (6.34 centimeters) with no holes or grooves other than the aspirator hole.
- (4) The retaining spring (if applicable) shall terminate at least 3.0 inches (7.6 centimeters) from the terminal end.

* * * * *

PART 85—CONTROL OF AIR POLLUTION FROM MOBILE SOURCES

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

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

Subpart Q—[Reserved]

16. Subpart Q is removed and reserved.

Subpart R—[Amended]

§85.1703 Application of section 216(2). – [Revised]

17. Section 85.1703 is amended by removing and reserving paragraph (b).

18. Section 85.1713 is revised to read as follows:

§85.1713 Delegated-assembly exemption.

The provisions of 40 CFR 1068.261 related to shipping engines that are not yet in their certified configuration apply for manufacturers of heavy-duty highway engines starting in the 2010 model year, with the following exceptions and clarifications:

- (a) The relevant prohibitions are in Clean Air Act section 203 (42 U.S.C. 7522), rather than 40 CFR 1068.101.
- (b) References to equipment should be understood as references to vehicles.
- (c) The provisions related to reduced auditing rates in 40 CFR 1068.261(d)(3)(iii) apply starting with the 2014 model year.
- (d) The provisions related to supplemental labeling described in 40 CFR 1068.261(c)(7)(i) and (ii) apply starting with the 2010 model year.
- (e) The engine's model year does not change based on the date the vehicle manufacturer adds the aftertreatment device.

19. A new §85.1714 is added to subpart R to read as follows:

§85.1714 Replacement-engine exemption.

- (a) Engine manufacturers may use the provisions of 40 CFR 1068.240 to exempt new replacement heavy-duty highway engines as specified in this section.
- (b) The following provisions from 40 CFR part 1068 apply for all complete and partially complete engines produced by an engine manufacturer choosing to produce any exempt replacement engines under this section:
 - (1) The definition of engine in 40 CFR 1068.30.
 - (2) The provisions of 40 CFR 1068.260 and 1068.262.
- (c) Notify us in writing that you intend to use the provisions of this section prior to producing such engines. An authorized representative of your company must approve and sign the notification. Your notification is considered to be your agreement to comply with all the requirements of this section.
- (d) Engine manufacturers choosing to use the provisions of this section may opt out by sending us written notice that they will no longer introduce into U.S. commerce engines exempted under this section.

20. Subpart Y is revised to read as follows:

Subpart Y—Fees for the Motor Vehicle and Engine Compliance Program

§85.2401 Assessment of fees.

See 40 CFR part 1027 for the applicable fees associated with certifying engines, vehicles, and equipment under this chapter.

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

21. The authority citation for part 86 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart N—[Amended]

22. Section 86.1305-2010 is amended by adding paragraph (h) to read as follows:

§86.1305-2010 Introduction; structure of subpart.

* * * * *

(h) This paragraph (h) describes how testing performed prior to July 1, 2010 may be conducted using the test procedures of this subpart N rather than the corresponding provisions of 40 CFR part 1065 otherwise required by this section. You must use good engineering judgment when testing under this paragraph (h), and must comply with the following provisions of 40 CFR part 1065:

- (1) Generate a map of your engine according to 40 CFR 1065.510(b)(5)(ii) and generate test cycles according to 40 CFR 1065.610. Validate your cycle according to 40 CFR 1065.514.
- (2) Follow the provisions of 40 CFR 1065.342 to verify the performance of any sample dryers in your system. Correct your measurements according to 40 CFR 1065.659, except use the value of K_w in §1342-90(i) as the value of $(1-x_{H_2O_{exh}})$ in Equation 1065.659-1.
- (3) Verify your NO₂-to-NO converter according to 40 CFR 1065.378.
- (4) For diesel engine testing, correct NO_x emissions for intake-air humidity according to 40 CFR 1065.670.
- (5) You must comply with the provisions related to analyzer range and drift in 40 CFR 1065.550. If drift correction is required, correct your measurements according to 40 CFR 1065.672, but use the emission calculations specified in this subpart N rather than those specified in 40 CFR 1065.650.
- (6) You must comply with 40 CFR 1065.125, 1065.127, and 1065.130, except for references to 40 CFR 1065.530(a)(1)(i), 1065.640, and 1065.655.
- (7) Follow the provisions of 40 CFR 1065.370 to verify the performance of your CLD analyzer with respect to CO₂ and H₂O quench. You are not required to follow 40 CFR 1065.145(d)(2), 1065.248, or 1065.750, which are referenced in 40 CFR 1065.370.

PART 89—CONTROL OF EMISSIONS FROM NEW AND IN-USE NONROAD COMPRESSION-IGNITION ENGINES

23. The authority citation for part 89 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart G — [Amended]

§89.614—[Removed]

24. Section 89.614 is removed.

Subpart K — [Amended]

25. Section 89.1003 is amended by revising paragraphs (b)(7)(iii), (b)(7)(iv), and (b)(7)(v) to read as follows:

§89.1003 Prohibited acts.

* * * * *

(b) * * *

(7) * * *

(iii) If the engine being replaced was not subject to any emission standards under this part, the replacement engine must have a permanent label with your corporate name and trademark and the following language, or similar alternate language approved by the Administrator: THIS ENGINE DOES NOT COMPLY WITH FEDERAL NONROAD OR ON-HIGHWAY EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE FOR AN ENGINE MANUFACTURED PRIOR TO JANUARY 1 [INSERT APPROPRIATE YEAR] IS A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(iv) If the engine being replaced was subject to emission standards less stringent than those in effect when you produce the replacement engine, the replacement engine must have a permanent label with your corporate name and trademark and the following language, or similar alternate language approved by the Administrator:

THIS ENGINE COMPLIES WITH U.S. EPA NONROAD EMISSION REQUIREMENTS FOR [Identify the appropriate emission standards (by model year, tier, or emission levels) for the replaced engine] ENGINES UNDER 40 CFR 89.1003(b)(7). SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN TO REPLACE A [Identify the appropriate emission standards (by model year, tier, or emission levels) for the replaced engine] ENGINE MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(v) If the old engine was subject to emission standards less stringent than those in effect when you produce the replacement engine, you must make the replacement engine in a configuration identical in all material respects to the old engine. You may alternatively make the replacement engine in a configuration identical in all material respects to another certified engine of the same or later model year, as long as the engine is not certified with a family emission limit higher than that of the engine being replaced.

* * * * *

PART 90— CONTROL OF EMISSIONS FROM NONROAD SPARK-IGNITION ENGINES AT OR BELOW 19 KILOWATTS

26. The authority citation for part 90 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart A—[Amended]

27. Section 90.1 is amended by revising paragraphs (d)(1) and (d)(5) and adding paragraph (d)(8) to read as follows:

§90.1 Applicability.

* * * * *

(d) * * *

(1) Engines that are certified to meet the requirements of 40 CFR part 1051 or are otherwise subject to 40 CFR part 1051 (for example, engines used in snowmobiles and all-terrain vehicles). This part nevertheless applies to engines used in recreational vehicles if the manufacturer uses the provisions of 40 CFR 1051.145(a)(3) to exempt them from the requirements of 40 CFR part 1051. Compliance with the provisions of this part is a required condition of that exemption.

* * * * *

(5) Engines certified to meet the requirements of 40 CFR part 1048 or are otherwise subject to 40 CFR part 1048, subject to the provisions of §90.913.

* * * * *

(8) Engines that are subject to emission standards under 40 CFR part 1054. See 40 CFR 1054.1 to determine when part 1054 applies. Note that certain requirements and prohibitions apply to engines built on or after January 1, 2010 if they are installed in equipment that will be used solely for competition, as described in 40 CFR 1054.1 and 40 CFR 1068.1; those provisions apply instead of the provisions of this part 90.

* * * * *

28. Section 90.2 is amended by adding paragraphs (d) and (e) to read as follows:

§90.2 Effective dates.

* * * * *

(d) Engines used in emergency and rescue equipment as described in §90.1(d)(7) are subject to the provisions of this part through December 31, 2009. Starting January 1, 2010 the provisions in 40 CFR 1054.660 apply instead of those in §90.1(d)(7).

(e) Engines imported for personal use are subject to the provisions of §90.611 through December 31, 2009. Starting January 1, 2010 the provisions in 40 CFR 1054.630 apply instead of those in §90.611.

29. Section 90.3 is amended by adding a definition for “Fuel line” in alphabetical order to read as follows:

§90.3 Definitions.

* * * * *

Fuel line has the meaning given in 40 CFR 1054.801.

* * * * *

Subpart B—[Amended]

30. Section 90.101 is revised to read as follows:

§90.101 Applicability.

- (a) The requirements of this subpart B are applicable to all nonroad engines and vehicles subject to the provisions of subpart A of this part.
- (b) In a given model year, you may ask us to approve the use of procedures for certification, labeling, reporting and recordkeeping, or other administrative requirements specified in 40 CFR part 1054 or 1068 instead of the comparable procedures specified in this part 90. We may approve the request as long as it does not prevent us from ensuring that you fully comply with the intent of this part.

31. Section 90.107 is amended as follows:

- a. By revising paragraph (d)(11)(ii).
- b. By revising paragraph (d)(12).
- c. By adding paragraphs (d)(13) and (d)(14) to read as follows:

§90.107 Application for certification.

* * * * *

(d) * * *

(11) * * *

(ii) Provide the applicable useful life as determined under §90.105;

(12) A statement indicating whether you expect the engine family to contain only nonroad engines, only stationary engines, or both;

(13) Identification of an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part; and

(14) For imported engines, identification of the following starting with the 2010 model year:

(i) The port(s) at which the manufacturer has imported engines over the previous 12 months.

(ii) The names and addresses of the agents authorized to import the engines.

(iii) The location of test facilities in the United States where the manufacturer can test engines if EPA selects them for testing under a selective enforcement audit, as specified in subpart F of this part.

* * * * *

32. Section 90.114 is amended by revising paragraph (g) to read as follows:

§90.114 Requirement of certification— engine information label.

* * * * *

(g) Manufacturers may add appropriate features to prevent counterfeit labels. For example, manufacturers may include the engine's unique identification number on the label.

33. Section 90.116 is amended by revising paragraph (d)(5) and removing and reserving paragraph (e)(1) to read as follows:

§90.116 Certification procedure—determining engine displacement, engine class, and engine families.

* * * * *

(d) * * *

(5) The engine class. Engines of different displacements that are within 15 percent of the largest displacement may be included within the same engine family as long as all the engines are in the same class;

* * * * *

(e) * * *

(1) [Reserved]

* * * * *

34. Section 90.120 is amended by adding paragraph (b)(3) to read as follows:

§90.120 Certification procedure—use of special test procedures.

* * * * *

(b) * * *

(3) A manufacturer may elect to use the test procedures in 40 CFR part 1065 as an alternate test procedure without getting advance approval by the Administrator or meeting the other conditions of paragraph (b)(1) of this section. The manufacturer must identify in its application for certification that the engines were tested using the procedures in 40 CFR part 1065. For any EPA testing with Phase 1 or Phase 2 engines, EPA will use the manufacturer's selected procedures for mapping engines, generating duty cycles, and applying cycle-validation criteria. For any other parameters, EPA may conduct testing using either of the specified procedures.

* * * * *

35. A new §90.127 is added to subpart B to read as follows:

§90.127 Fuel line permeation from nonhandheld engines and equipment.

The following permeation standards apply to new nonhandheld engines and equipment with respect to fuel lines:

(a) Emission standards and related requirements. New nonhandheld engines and equipment with a date of manufacture of January 1, 2009 or later that run on a volatile liquid fuel (such as gasoline) must meet the emission standards specified in paragraph (a)(1) or (a)(2) of this section as follows:

(1) New nonhandheld engines and equipment must use only fuel lines that meet a permeation emission standard of 15 g/m²/day when measured according to the test procedure described in 40 CFR 1060.515.

(2) Alternatively, new nonhandheld engines and equipment must use only fuel lines that meet standards that apply for these engines and equipment in California for the same model year (see 40 CFR 1060.810). This may involve SHED-based measurements for equipment or testing with fuel lines alone. If this involves SHED-based measurements, all elements of the emission control system must remain in place for fully assembled engines and equipment.

(3) The emission standards in this section apply with respect to discrete fuel line segments of any length. Compliance may also be demonstrated using aggregated systems that include multiple sections of fuel line with connectors, and fittings. The standard applies with respect to the total permeation emissions divided by the wetted internal surface area of the assembly. Where it is not practical to determine the wetted internal surface area of the assembly, the internal surface area per unit length of the assembly may be assumed to be equal to the ratio of internal surface area per unit length of the hose section of the assembly.

(4) The emission standards in this section apply over a useful life of five years.

(5) Starting with the 2010 model year, fuel lines must be labeled in a permanent and legible manner with one of the following approaches:

(i) By meeting the labeling requirements that apply for these engines and equipment in California.

(ii) By identifying the certificate holder's corporate name or trademark, or the fuel line manufacturer's corporate name or trademark, and the fuel line's permeation level. For example, the fuel line may identify the emission standard from this section, the applicable SAE classification, or the family number identifying compliance with California standards. A continuous stripe or other pattern may be added to help identify the particular type or grade of fuel line.

(6) The requirements of this section do not apply to auxiliary marine engines.

(b) Certification requirements. Fuel lines subject to the requirements in this section must be covered by a certificate of conformity. Fuel line manufacturers or equipment manufacturers may apply for certification. Certification under this section must be based on emission data using the appropriate procedures that demonstrate compliance with the standard, including any of the following:

(1) Emission data demonstrating compliance with fuel line permeation requirements for model year 2008 equipment sold in California. You may satisfy this requirement by presenting an approved

Executive Order from the California Air Resources Board showing that the fuel lines meet the applicable standards in California. This may include an Executive Order from the previous model year if a new certification is pending.

(2) Emission data demonstrating a level of permeation control that meets any of the following industry standards:

(i) R11A specifications in SAE J30 as described in 40 CFR 1060.810.

(ii) R12 specifications in SAE J30 as described in 40 CFR 1060.810.

(iii) Category 1 specifications in SAE J2260 as described in 40 CFR 1060.810.

(iv) Emission data demonstrating compliance with the fuel line permeation standards in 40 CFR 1051.110.

(c) **Prohibitions.** (1) Except as specified in paragraph (c)(2) of this section, introducing engines or equipment into U.S. commerce without meeting all the requirements of this section violates §90.1003(a)(1).

(2) It is not a violation to introduce your engines into U.S. commerce if equipment manufacturers add fuel lines when installing your engines in their equipment. However, you must give equipment manufacturers any appropriate instructions so that fully assembled equipment will meet all the requirements in this section, as described in §90.128.

36. A new §90.128 is added to subpart B to read as follows:

§90.128 Installation instructions.

(a) If you sell an engine for someone else to install in a piece of nonroad equipment, give the engine installer instructions for installing it consistent with the requirements of this part. Include all information necessary to ensure that an engine will be installed in its certified configuration. In particular, describe the steps needed to control evaporative emissions, as described in §90.127. This may include information related to the delayed requirements for small-volume equipment manufacturers.

(b) You do not need installation instructions for engines you install in your own equipment.

(c) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available website for downloading or printing. If you do not provide the instructions in writing, explain in your application for certification how you will ensure that each installer is informed of the installation requirements.

(d) Equipment manufacturers failing to follow the engine manufacturer's emission-related installation instructions will be considered in violation of §90.1003.

37. A new §90.129 is added to subpart B to read as follows:

§90.129 Fuel tank permeation from handheld engines and equipment.

The permeation standards of this section apply to certain new handheld engines and equipment with respect to fuel tanks. For the purposes of this section, fuel tanks do not include fuel caps.

(a) **Emission standards and related requirements.** (1) New handheld engines and equipment with a date of manufacture of January 1, 2009 or later that run on a volatile liquid fuel (such as gasoline) and have been certified to meet applicable fuel tank permeation standards in California must meet one of the following emission standards:

(i) Engines and equipment must use only fuel tanks that meet a permeation emission standard of 2.0 g/m²/day when measured according to the applicable test procedure specified by the California Air Resources Board.

(ii) Engines and equipment must use only fuel tanks that meet the fuel tank permeation standards in 40 CFR 1060.103.

(iii) Engines and equipment must use only fuel tanks that meet standards that apply for these engines in California for the same model year. This may involve SHED-based measurements for equipment or testing with fuel tanks alone. If this involves SHED-based measurements, all elements of the emission-control system must remain in place for fully assembled engines and

equipment.

(2) Engine and equipment manufacturers may generate or use emission credits to show compliance with the requirements of this section under the averaging program as described in 40 CFR part 1054, subpart H.

(3) The emission standards in this section apply over a useful life of two years.

(4) Equipment must be labeled in a permanent and legible manner with one of the following approaches:

(i) By meeting the labeling requirements that apply for equipment in California.

(ii) By identifying the certificate holder's corporate name or trademark, or the fuel tank manufacturer's corporate name or trademark. Also include the family number identifying compliance with California standards or state: "THIS FUEL TANK COMPLIES WITH U.S. EPA STANDARDS." This label may be applied to the fuel tank or it may be combined with the emission control information label required in §90.114. If the label information is not on the fuel tank, the label must include a part identification number that is also permanently applied to the fuel tank.

(5) The requirements of this section do not apply to engines or equipment with structurally integrated nylon fuel tanks (as defined in 40 CFR 1054.801).

(b) Certification requirements. Fuel tanks subject to the requirements in this section must be covered by a certificate of conformity. Fuel tank manufacturers or equipment manufacturers may apply for certification. Certification under this section must be based on emission data using the appropriate procedures that demonstrate compliance with the standard. You may satisfy this requirement by presenting an approved Executive Order from the California Air Resources Board showing that the fuel tanks meet the applicable standards in California. This may include an Executive Order from the previous model year for cases where new certification based on carryover of emission data from the previous model year is pending.

(c) Prohibitions. Introducing equipment into U.S. commerce without meeting all the requirements of this section violates §90.1003(a)(1).

Subpart C—[Amended]

38. Section 90.201 is revised to read as follows:

§90.201 Applicability.

(a) The requirements of this subpart C are applicable to all Phase 2 spark-ignition engines subject to the provisions of subpart A of this part except as provided in §90.103(a). These provisions are not applicable to any Phase 1 engines. Participation in the averaging, banking and trading program is voluntary, but if a manufacturer elects to participate, it must do so in compliance with the regulations set forth in this subpart. The provisions of this subpart are applicable for HC+NO_x (NMHC+NO_x) emissions but not for CO emissions.

(b) See 40 CFR 1054.740 for special provisions for using emission credits generated under this part 90 from Phase 2 engines to demonstrate compliance with engines certified under 40 CFR part 1054.

(c) To the extent specified in 40 CFR part 60, subpart JJJJ, stationary engines certified under this part and subject to the standards of 40 CFR part 60, subpart JJJJ, may participate in the averaging, banking and trading program described in this subpart.

39. Section 90.210 is amended by adding paragraph (i) to read as follows:

§90.210 End-of-year and final reports.

* * * * *

(i) For 2007 and later model years, include in your end-of-year and final reports an accounting to show a separate balance of emission credits for handheld and nonhandheld engines. Use your best judgment to differentiate your current balance of banked credits for handheld and nonhandheld engines. You may

exchange handheld and nonhandheld credits to demonstrate compliance with the requirements of this part 90. However, emission credits you generate for banking under this part 90 will be restricted for engines subject to the requirements of 40 CFR part 1054.

Subpart E—[Amended]

40. Section 90.426 is amended as follows:

- a. By revising paragraph (b).
- b. By revising paragraph (c)(1).
- c. By revising paragraph (d).
- d. By revising paragraph (i).
- e. By adding paragraph (j).

§90.426 Dilute emission sampling calculations – gasoline fueled engines.

* * * * *

(b) The mass flow rate, W_i in g/hr, of an emission for mode i is determined from the following equation:

$$W_i = Q_i \times \text{Density} \times [C_{Di}/10^6 - C_{Bi}/10^6 \times (1-1/DF_i)]$$

Where:

Q_i = Volumetric flow rate [m^3/hr at STP].

Density = Density of a specific emission (DensityHC, DensityCO, DensityCO₂, DensityNOx) [g/m^3].

DF _{i} = Dilution factor of the dilute exhaust during mode i .

C_{Di} = Concentration of the emission (HC, CO, NOx) in dilute exhaust extracted from the CVS during mode i [ppm].

C_{Bi} = Concentration of the emission (HC, CO, NOx) in the background sample during mode i [ppm].

STP = Standard temperature and pressure. All volumetric calculations made for the equations in this section are to be corrected to a standard temperature of 20 °C and a standard pressure of 101.3 kPa.

(c) * * *

(1) The value of Density_{HC} above is calculated based on the assumption that the fuel used has a hydrogen to carbon ratio of 1:1.85. For other fuels Density_{HC} can be calculated from the following formula:

$$\text{Density}_{HC} = M_{HC}/R_{STP}$$

Where:

M_{HC} = The molecular weight of the hydrocarbon molecule divided by the number of carbon atoms in the molecule [g/mole].

R_{STP} = Ideal gas constant for a gas at STP = 0.024065 [$m^3 \cdot \text{mole}$].

* * * * *

(d) The dilution factor, DF, is the ratio of the volumetric flow rate of the background air to that of the raw engine exhaust. The following formula is used to determine DF:

$$DF = 13.4 \times 10^4 / (C_{DHC} + C_{DCO} + C_{DCO2})$$

C_{DHC} = Concentration of HC in the dilute sample [ppm].

C_{DCO} = Concentration of CO in the dilute sample [ppm].

C_{DCO₂} = Concentration of CO₂ in the dilute sample [ppm].

* * * * *

(i) The mass of fuel consumed during the mode sampling period, M_{FUEL}, can be calculated from the following equation:

$$M_{FUEL} = G_s / R_2$$

Where:

G_s = Mass of carbon measured during the mode sampling period [g].

R₂ = The fuel carbon weight fraction, which is the mass of carbon in fuel per mass of fuel [g/g].

(j) The grams of carbon measured during the mode, G_s , can be calculated from the following equation:

$$G_s = (12.011 \cdot HC_{\text{mass}}) / (12.011 + 1.008 \cdot \alpha) + 0.429 \cdot CO_{\text{mass}} + 0.273 \cdot CO_{2\text{mass}}$$

Where:

HC_{mass} =mass of hydrocarbon emissions for the mode sampling period [grams].

CO_{mass} =mass of carbon monoxide emissions for the mode sampling period [grams].

$CO_{2\text{mass}}$ =mass of carbon dioxide emissions for the mode sampling period [grams].

α =The atomic hydrogen-to-carbon ratio of the fuel.

Subpart G—[Amended]

41. Section 90.601 is amended by adding paragraph (c) to read as follows:

§90.601 Applicability.

* * * * *

(c) Importers must complete the appropriate EPA declaration form before importing an engine. These forms are available on the Internet at <http://www.epa.gov/OTAQ/imports/> or by phone at 734-214-4100. Importers must keep the forms for five years and make them available promptly upon request.

42. Section 90.615 is revised to read as follows:

§90.615 Model year restrictions related to imported engines and equipment.

The provisions of 40 CFR 1068.360 apply starting January 1, 2009. These provisions limit the importation of engines or equipment after new emission standards have started to apply if the engines or equipment were built before the emission standards took effect.

Subpart K—[Amended]

43. Section 90.1003 is amended by revising paragraph (b)(3) to read as follows:

§90.1003 Prohibited acts.

* * * * *

(b) * * *

(3) The following provisions apply for converting nonroad engines to use alternative fuels:

(i) Until December 31, 2009, converting an engine to use a clean alternative fuel (as defined in Title II of the Act) is not considered a prohibited act under paragraph (a) of this section if the engine complies with the applicable standard when operating on the alternative fuel. Also, in the case of engines converted to dual fuel or flexible use, the action must result in the proper functioning of the nonroad engine when it operates on conventional fuel.

(ii) The provisions of 40 CFR 1054.645 apply starting January 1, 2010.

* * * * *

44. A new §90.1007 is added to subpart K to read as follows:

§90.1007 Bonding requirements related to compliance, enforcement, and warranty assurance.

The bonding provisions of 40 CFR 1054.120(f)(4) and 1054.690 apply for all 2010 and later model year engines starting January 1, 2010. These provisions include measures to ensure that certifying manufacturers are able to cover any potential compliance or enforcement actions under the Clean Air Act and to meet their warranty obligations.

Subpart L—[Amended]

45. Section 90.1103 is amended by adding paragraph (e) to read as follows:

§90.1103 Emission warranty, warranty period.

* * * * *

(e) Starting with the 2010 model year, you must meet the conditions specified in 40 CFR 1054.120(f) to ensure that owners will be able to promptly obtain warranty repairs. Describe in your application for certification how you will meet these conditions.

PART 91— CONTROL OF EMISSIONS FROM MARINE SPARK-IGNITION ENGINES

46. The authority citation for part 91 continues to read as follows:

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

Subpart A—[Amended]

47. Section 91.1 is amended by adding paragraph (d) to read as follows:

§91.1 Applicability.

* * * * *

(d) This part does not apply to engines that are subject to emission standards under 40 CFR part 1045. See 40 CFR 1045.1 to determine when that part 1045 applies. Note that certain requirements and prohibitions apply to engines built on or after January 1, 2010 if they are installed in equipment that will be used solely for competition, as described in 40 CFR 1045.1 and 40 CFR 1068.1; those provisions apply instead of the provisions of this part 91.

Subpart B—[Amended]

48. Section 91.101 is revised to read as follows:

§91.101 Applicability.

(a) The requirements of this subpart B are applicable to all engines subject to the provisions of subpart A of this part.

(b) In a given model year, you may ask us to approve the use of procedures for certification, labeling, reporting and recordkeeping, or other administrative requirements specified in 40 CFR part 1045 or 1068 instead of the comparable procedures specified in this part 91. We may approve the request as long as it does not prevent us from ensuring that you fully comply with the intent of this part.

49. Section 91.107 is amended by adding paragraph (d)(12) to read as follows:

§91.107 Application for certification.

* * * * *

(d) * * *

(12) Identification of an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

* * * * *

50. Section 91.119 is amended by adding paragraph (b)(3) to read as follows:

§91.119 Certification procedure—use of special test procedures.

* * * * *

(b) * * *

(3) A manufacturer may elect to use the test procedures in 40 CFR part 1065 as an alternate test procedure without getting advance approval by the Administrator or meeting the other conditions of paragraph (b)(1) of this section. The manufacturer must identify in its application for certification that the engines were tested using the procedures in 40 CFR part 1065. For any EPA testing with engines subject to standards under this part, EPA will use the manufacturer's selected procedures for mapping engines, generating duty cycles, and applying cycle-validation criteria. For any other parameters, EPA may conduct testing using either of the specified procedures.

* * * * *

Subpart H — [Amended]

§91.707—[Removed]

51. Section 91.707 is removed.

Subpart K—[Amended]

52. A new §91.1013 is added to subpart K to read as follows:

§91.1013 Exemption for certified Small SI engines.

The provisions of 40 CFR 1045.605 and 1045.610 apply for engines subject to the standards of this part 91. This generally allows manufacturers to use marine engines that have been certified to emission standards for nonroad spark-ignition engines below 19 kW without recertifying those engines under this part 91.

Subpart L—[Amended]

53. Section 91.1103 is amended by revising paragraph (b)(3) to read as follows:

§91.1103 Prohibited acts.

* * * * *

(b) * * *

(3) The following provisions apply for converting marine SI engines to use alternative fuels:

(i) Until December 31, 2009, converting an engine to use a clean alternative fuel (as defined in Title II of the Act) is not considered a prohibited act under paragraph (a) of this section if the engine complies with the applicable standard when operating on the alternative fuel. Also, in the case of engines converted to dual fuel or flexible use, the action must result in the proper functioning of the engine when it operates on conventional fuel.

(ii) The provisions of 40 CFR 1045.645 apply starting January 1, 2010.

* * * * *

PART 92—CONTROL OF AIR POLLUTION FROM LOCOMOTIVES AND LOCOMOTIVE ENGINES

54. The authority citation for part 92 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart A — [Amended]

55. Section 92.9 is amended by revising paragraph (b)(1)(ii) to read as follows:

§92.9 Compliance with emission standards.

* * * * *

(b) * * *

(1) * * *

(ii) The emission values to compare with the standards shall be the emission values of a low mileage locomotive, or development engine, or low hour locomotive engine, adjusted by the deterioration factors developed in accordance with the provisions of paragraph (b)(2) of this section. Before any emission value is compared with the standard, it shall be rounded, in accordance with ASTM E 29-93a (incorporated by reference at §92.5), to the same number of decimal places as contained in the applicable standard.

* * * * *

Subpart D — [Amended]

56. Section 92.304 is amended by revising paragraph (n)(1) to read as follows:

§92.304 Compliance requirements.

* * * * *

(n) * * *

(1) All locomotives that are certified to an FEL that is different from the emission standard that would otherwise apply to the locomotive or locomotive engine are required to comply with that FEL for the remainder of their service lives, except as allowed by §92.8(a)(4)(iii) and this subpart.

* * * * *

Subpart I — [Amended]

§92.806—[Removed]

57. Section 92.806 is removed.

PART 94—CONTROL OF EMISSIONS FROM MARINE COMPRESSION-IGNITION ENGINES

58. The authority citation for part 94 continues to read as follows:

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

Subpart C — [Amended]

59. Section 94.201 is revised to read as follows:

§94.201 Applicability.

(a) The requirements of this subpart are applicable to manufacturers of engines subject to the standards of subpart A of this part.

(b) In a given model year, you may ask us to approve the use of procedures for certification, labeling, reporting and recordkeeping, or other administrative requirements specified in 40 CFR part 1042 or 1068 instead of the comparable procedures specified in this part 94. We may approve the request as long as it does not prevent us from ensuring that you fully comply with the intent of this part.

Subpart I — [Amended]

§94.806—[Removed]

60. Section 94.806 is removed.

61. A new part 1027 is added to subchapter U of chapter I to read as follows:

PART 1027 — FEES FOR ENGINE, VEHICLE, AND EQUIPMENT COMPLIANCE PROGRAMS

Sec.

1027.101 To whom do these requirements apply?

1027.105 How much are the fees?

1027.110 What special provisions apply for certification related to motor vehicles?

1027.115 What special provisions apply for certification related to nonroad and stationary engines?

1027.120 Can I qualify for reduced fees?

1027.125 Can I get a refund?

1027.130 How do I make a fee payment?

1027.135 What provisions apply to a deficient filing?

1027.140 What reporting and recordkeeping requirements apply under this part?

1027.150 What definitions apply to this subpart?

1027.155 What abbreviations apply to this subpart?

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

§1027.101 To whom do these requirements apply?

(a) This part prescribes fees manufacturers must pay for activities related to EPA's engine, vehicle, and equipment compliance program (EVECP). This includes activities related to approving certificates of conformity and performing tests and taking other steps to verify compliance with emission standards.

You must pay fees as described in this part if you are a manufacturer of any of the following products:

(1) Motor vehicles and motor vehicle engines we regulate under 40 CFR part 86. This includes light-duty vehicles, light-duty trucks, medium-duty passenger vehicles, highway motorcycles, and heavy-duty highway engines and vehicles.

(2) The following nonroad engines and equipment:

(i) Locomotives and locomotive engines we regulate under 40 CFR part 92 or 1033.

(ii) Nonroad compression-ignition engines we regulate under 40 CFR part 89 or 1039.

(iii) Marine compression-ignition engines we regulate under 40 CFR part 94 or 1042.

(iv) Marine spark-ignition engines and vessels we regulate under 40 CFR part 91, 1045, or 1060. We refer to these as Marine SI engines.

(v) Nonroad spark-ignition engines above 19 kW we regulate under 40 CFR part 1048. We refer to these as Large SI engines.

(vi) Recreational vehicles we regulate under 40 CFR part 1051.

(vii) Nonroad spark-ignition engines and equipment at or below 19 kW we regulate under 40 CFR part 90, 1054, or 1060. We refer to these as Small SI engines.

(3) The following stationary internal combustion engines:

(i) Stationary compression-ignition engines we certify under 40 CFR part 60, subpart IIII.

(ii) Stationary spark-ignition engines we certify under 40 CFR part 60, subpart JJJJ.

(b) This part applies to applications for certification that we receive on or after [INSERT DATE 60 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]. Earlier applications are subject to the provisions of 40 CFR part 85, subpart Y, as that provision read before [INSERT DATE 60 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

(c) Nothing in this part limits our authority to conduct testing or to require you to conduct testing as provided in the Act, including our authority to require you to conduct in-use testing under section 208 of the Act (42 U.S.C. 7542).

(d) Paragraph (a) of this section identifies the parts of the CFR that define emission standards and other requirements for particular types of engines and vehicles. This part 1027 refers to each of these other

parts generically as the “standard-setting part.” For example, 40 CFR part 1051 is always the standard-setting part for recreational vehicles. For some nonroad engines, we allow for certification related to evaporative emissions separate from exhaust emissions. In this case, 40 CFR part 1060 is the standard-setting part for the equipment or fuel system components you produce.

§1027.105 How much are the fees?

(a) Fees are determined based on the date we receive a complete application for certification. Each reference to a year in this subpart refers to the calendar year, unless otherwise specified. Paragraph (b) of this section specifies baseline fees, which applied for certificates received in 2005. For engine and vehicles not yet subject to standards in 2005, these values represent the fees that apply initially based on available information to characterize what the fees would have been in 2005. See paragraph (c) of this section for provisions describing how we calculate fees for future years.

(b) The following baseline fees for each application for certification:

(1) Except as specified in paragraph (b)(2) of this section for Independent Commercial Importers, the following fees apply for motor vehicles and motor vehicle engines:

Category	Certificate type	Fee
(i) Light-duty vehicles and trucks	Federal	\$33,883
(ii) Light-duty vehicles and trucks	California-only	\$16,944
(iii) Medium-duty passenger vehicles	Federal	\$33,883
(iv) Medium-duty passenger vehicles	California-only	\$16,944
(v) Highway motorcycle	All	\$2,414
(vi) Heavy-duty highway engine	Federal	\$21,578
(vii) Heavy-duty highway engine	California-only	\$826
(viii) Complete heavy-duty highway vehicles	Federal	\$33,883
(ix) Complete heavy-duty highway vehicles	California-only	\$16,944
(x) Heavy-duty vehicle	Evap	\$826

(2) A fee of \$8,387 applies for Independent Commercial Importers with respect to the following motor vehicles:

- (i) Light-duty vehicles and light-duty trucks.
- (ii) Medium-duty passenger vehicles.
- (iii) Complete heavy-duty highway vehicles.

(3) The following fees apply for nonroad and stationary engines, vehicles, equipment, and components:

Category	Certificate type	Fee
(i) Locomotives and locomotive engines	All	\$826
(ii) Marine compression-ignition engines and stationary compression-ignition engines with per-cylinder displacement at or above 10 liters	All, including Annex VI	\$826
(iii) Other nonroad compression-ignition engines and stationary compression-ignition engines with per-cylinder displacement below 10 liters	All	\$1,822
(iv) Large SI engines	All	\$826
(v) Stationary spark-ignition engines above 19 kW	All	\$826
(vi) Marine SI engines and Small SI engines	Exhaust only	\$826
(vii) Stationary spark-ignition engines at or below 19 kW	Exhaust only	\$826
(viii) Recreational vehicles	Exhaust (or combined exhaust and evap)	\$826
(ix) Equipment and fuel system components associated with nonroad and stationary spark-ignition engines	Evap (where separate certification is required)	\$241

(c) We will calculate adjusted fees for later years based on changes in the Consumer Price Index and the number of certificates. We will announce adjusted fees for a given year by January 31 of the preceding year.

(1) We will adjust the values specified in paragraph (b) of this section for later years as follows:

(i) Use the fee identified in §1027.105(b)(3) through 2014 for certification related to evaporative emissions from nonroad and stationary engines when a separate fee applies for certification to evaporative emission standards. Use the following equation starting with 2015:

$$\text{Certificate Fee}_{CY} = [(\text{Op} + \text{L}) \cdot (\text{CPI}_{CY-2} / \text{CPI}_{2006})] \cdot 1.169 / [(\text{cert}\#_{MY-2} + \text{cert}\#_{MY-3}) \cdot 0.5]$$

Where:

Certificate Fee_{CY} = Fee per certificate for a given year.

Op = operating costs are all of EPA's nonlabor costs for each category's compliance program, including any fixed costs associated with EPA's testing laboratory, as described in paragraph (d)(1) of this section.
L = the labor costs, to be adjusted by the Consumer Price Index, as described in paragraph (d)(1) of this section.

CPI_{CY-2} = the Consumer Price Index for the month of November two years before the applicable calendar year, as described in paragraph (d)(2) of this section.

CPI₂₀₀₆ = 201.8. This is based on the October 2006 value of the Consumer Price Index.

OH = 1.169. This is based on EPA overhead, which is applied to all costs.

cert#_{MY-2} = the total number of certificates issued for a fee category in the model year two years before the calendar year for the applicable fees as described in paragraph (d)(3) of this section.

cert#_{MY-3} = the total number of certificates issued for a fee category in the model year three years before the calendar year for the applicable fees as described in paragraph (d)(3) of this section.

(ii) Use the following equation for all other certificates for 2006 and later:

$$\text{Certificate Fee}_{CY} = [\text{Op} + \text{L} \cdot (\text{CPI}_{CY-2} / \text{CPI}_{2002})] \cdot 1.169 / [(\text{cert}\#_{MY-2} + \text{cert}\#_{MY-3}) \cdot 0.5]$$

Where:

CPI₂₀₀₂ = 180.9. This is based on the December 2002 value of the Consumer Price Index as described in paragraph (d)(2) of this section.

- (2) The fee for any year will remain at the previous year's amount until the value calculated in paragraph (c)(1) of this section differs by at least \$50 from the amount specified for the previous year.
- (d) Except as specified in §1027.110(a) for motor vehicles and motor vehicle engines, we will use the following values to determine adjusted fees using the equation in paragraph (c) of this section:

(1) The following values apply for operating costs and labor costs:

Engine or Vehicle Category	Op	L
(i) Light-duty, medium-duty passenger, and complete heavy-duty highway vehicle certification	\$3,322,039	\$2,548,110
(ii) Light-duty, medium-duty passenger, and complete heavy-duty highway vehicle in-use testing	\$2,858,223	\$2,184,331
(iii) Independent Commercial Importers identified in §1027.105(b)(2)	\$344,824	\$264,980
(iv) Highway motorcycles	\$225,726	\$172,829
(v) Heavy-duty highway engines	\$1,106,224	\$1,625,680
(vi) Nonroad compression-ignition engines that are not locomotive or marine engines, and stationary compression-ignition engines with per-cylinder displacement below 10 liters	\$486,401	\$545,160
(vii) Evaporative certificates related to nonroad and stationary engines	\$5,039	\$236,670
(viii) All other	\$177,425	\$548,081

(2) The applicable Consumer Price Index is based on the values published by the Bureau of Labor Statistics for all U.S. cities using the "U.S. city average" area, "all items," and "not seasonally adjusted" numbers (see <ftp://ftp.bls.gov/pub/special.requests/cpi/cpi.ai.txt>). For example, we calculated the 2006 fees using the Consumer Price Index for November 2004, which is 191.0.

(3) Fee categories for counting the number of certificates issued are based on the grouping shown in paragraph (d)(1) of this section.

(e) The following example for calculating the 2006 complete federal heavy duty highway vehicle fee illustrates the fee adjustment:

$$\text{Op} = \$1,106,224$$

$$\text{L} = \$1,625,680$$

$$\text{CPI}_{2002} = 180.9$$

$$\text{CPI}_{2004} = 191.0$$

$$\text{cert \#}_{2004} = 131$$

$$\text{cert\#}_{2003} = 95$$

$$\text{Fee}_{06} = [\$1,106,224 + \$1,625,680 \cdot (191.0/180.9)] \cdot 1.169 / [(131+95) \cdot 0.5] = \$29,200.88$$

$$\text{Assessed Fee} = \$29,201$$

§1027.110 What special provisions apply for certification related to motor vehicles?

(a) We will adjust fees for 2006 and later years for light-duty, medium-duty passenger, and complete heavy-duty highway vehicles as follows:

(1) California-only certificates. Calculate adjusted fees for California-only certificates by applying the light-duty, medium-duty passenger, and complete heavy-duty highway vehicle certification Op and L values to the equation in §1027.105(c). The total number of certificates issued will be the total number of California-only and federal light-duty, medium-duty passenger, and complete heavy-duty highway vehicle certificates issued during the appropriate model years.

(2) Federal certificates. Calculate adjusted fees for federal certificates with the following three steps:

(i) Apply the light-duty, medium-duty passenger, and complete heavy-duty highway vehicle certification Op and L values to the equation in §1027.105(c) to determine the certification

portion of the light-duty fee. The total number of certificates issued will be the total number of California-only and federal light-duty, medium-duty passenger and complete heavy-duty highway vehicle certificates issued during the appropriate model years.

(ii) Apply the light-duty, medium-duty passenger, and complete heavy-duty highway vehicle in-use testing Op and L values to the equation in §1027.105(c) to determine the in-use testing portion of the fee. The total number of certificates issued will be the total number of federal light-duty, medium-duty passenger, and complete heavy-duty highway vehicle certificates issued during the appropriate model years.

(iii) Add the certification and in-use testing portions determined in paragraphs (a)(2)(i) and (ii) of this section to determine the total light-duty, medium-duty passenger, and complete heavy-duty highway vehicle fee for each federal certificate.

(b) For light-duty vehicles, light-duty trucks, medium-duty passenger vehicles, highway motorcycles, and complete heavy-duty highway vehicles subject to exhaust emission standards, the number of certificates issued as specified in §1027.105(d)(3) is based only on engine families with respect to exhaust emissions. A separate fee applies for each evaporative family for heavy-duty engines.

(c) If you manufacture a heavy-duty vehicle that another company has certified as an incomplete vehicle such that you exceed the maximum fuel tank size specified by the original manufacturer in the applicable certificate of conformity, you must submit a new application for certification and certification fee for the vehicle.

§1027.115 What special provisions apply for certification related to nonroad and stationary engines?

(a) For spark-ignition engines above 19 kW that we regulate under 40 CFR part 1048 and for all compression-ignition engines, the applicable fee is based only on engine families with respect to exhaust emissions.

(b) For manufacturers certifying recreational vehicles with respect to both exhaust and evaporative emission standards, fees are determined using one of the following approaches:

(1) If your engine family includes demonstration of compliance with both exhaust and evaporative emission standards, the applicable fee is based on certification related to the combined family. No separate fee applies for certification with respect to evaporative emission standards. These are all considered engine families complying with exhaust emissions for determining the number of certificates for calculating fees for later years.

(2) If you have separate families for demonstrating compliance with exhaust and evaporative emission standards, a separate fee from the appropriate fee category applies for each unique family. Also, the number of certificates issued as specified in §1027.105(d)(3) is based on a separate count of emission families for exhaust and evaporative emissions for each respective fee category.

(c) For manufacturers certifying other spark-ignition engines or equipment with respect to exhaust and evaporative emission standards, a separate fee from the appropriate fee category applies for each unique family. A single engine or piece of equipment may involve separate emission families and certification fees for exhaust and evaporative emissions. Also, the number of certificates issued as specified in §1027.105(d)(3) is based on a separate count of emission families for exhaust and evaporative emissions for each respective fee category.

(d) For any certification related to evaporative emissions from engines, equipment, or components not covered by paragraph (a) through (c) of this section, the fee applies for each certified product independent of certification for exhaust emissions, as illustrated in the following examples:

(1) A fuel tank certified to meet permeation and diurnal emission standards would count as a single family for assessing the certification fee and for calculating fee amounts for future years.

(2) If an equipment manufacturer applies for certification to generate or use emission credits for fuel tanks and fuel lines, each affected fuel-tank and fuel-line family would count as a single family for assessing the certification fee and for calculating fee amounts for future years. This fee applies whether or not the equipment manufacturer is applying for certification to demonstrate compliance with another emission standard, such as running losses.

- (e) If you certify fuel system components under 40 CFR part 1060, a single fee applies for each emission family even if those components are used with different types of nonroad or stationary engines.
- (f) If your application for certification relates to emission standards that apply only in California, you must pay the same fee identified for meeting EPA standards.
- (g) For marine compression-ignition engines, if you apply for a federal certificate and an Annex VI certificate for the same engine family, a single fee applies for the engine family (see 40 CFR parts 94 and 1042).
- (h) If you produce engines for multiple categories in a single engine family, a single fee applies for the engine family. For example, 40 CFR 60.4210 allows you to produce stationary and nonroad compression-ignition engines in a single engine family. If the certification fee for the different types of engines is different, the fee that applies for these engines is based on the emission standards to which you certify the engine family. For example, if you certify marine diesel engines to the standards that apply to land-based nonroad diesel engines under 40 CFR 94.912, the certification fee is based on the rate that applies for land-based nonroad diesel engines.

§1027.120 Can I qualify for reduced fees?

- (a) Eligibility requirements. Both of the following conditions must be met before you are eligible for a reduced fee:
 - (1) The certificate is to be used for sale of vehicles or engines within the United States.
 - (2) The full fee for an application for certification for a model year exceeds 1.0% of the aggregate projected retail sales price of all vehicles or engines covered by the certificate.
- (b) Initial reduced fee calculation.
 - (1) If the conditions of paragraph (a) of this section are met, the initial fee paid must be \$750 or 1.0% of the aggregate projected retail sales price of all the vehicles or engines to be covered by the certificate, whichever is greater.
 - (2) For vehicles or engines that are converted to operate on an alternative fuel using as the basis for the conversion a vehicle or engine that is covered by an existing certificate of conformity, the cost basis used in this section must be the aggregate projected retail value-added to the vehicle or engine by the conversion rather than the full cost of the vehicle or engine. For this provision to apply, the existing certificate must cover the same sales area and model year as the requested certificate for the converted vehicle or engine.
 - (3) For remanufacturing systems, the cost basis used in this section must be the aggregate projected retail cost of a complete remanufacture, including the cost of the replacement components, software, and assembly.
 - (4) For ICI certification applications, the cost basis of this section must be the aggregate projected retail cost of the entire vehicle(s) or engine(s), not just the value added by the conversion. If the vehicles/engines covered by an ICI certificate are not being offered for sale, the manufacturer shall use the fair retail market value of the vehicles/engines as the retail sale price required in this section. For an ICI application for certification, the retail sales price (or fair retail market value) must be based on the applicable National Automobile Dealer's Association (NADA) appraisal guide and/or other evidence of the actual market value.
 - (5) The aggregate cost used in this section must be based on the total projected sales of all vehicles and engines under a certificate, including vehicles and engines modified under the modification and test option in 40 CFR 85.1509 and 89.609. The projection of the number of vehicles or engines to be covered by the certificate and their projected retail selling price must be based on the latest information available at the time of the fee payment.
 - (6) You may submit a reduced fee as described in this section if it is accompanied by a calculation of the fee based on the number of vehicles covered and the projected aggregate retail sales price as specified on the fee filing form. Your reduced fee calculation shall be deemed approved unless we determine that the criteria of this section have not been met. We may make such a determination either before or after issuing a certificate of conformity. If we determine that the requirements of this section have not been met, we may deny future reduced fee applications and require submission of the full fee payment until you demonstrate to our satisfaction that your reduced fee submissions are based

on accurate data and that final fee payments are made within 45 days of the end of the model year.
(7) If we deny your request for a reduced fee, you must send us the appropriate fee within 30 days after we notify you.

- (c) Revision of the number of vehicles or engines covered by the certificate. (1) You must take both of the following steps if the number of vehicles or engines to be produced or imported under the certificate exceeds the number indicated on the certificate (including a certificate under which modification and test vehicles are imported under 40 CFR 85.1509 and 89.609):
- (i) Request that we revise the certificate with a number that indicates the new projection of the vehicles or engines to be covered by the certificate. We must issue the revised certificate before the additional number of vehicles or engines may be sold or finally imported into the United States.
 - (ii) Submit payment of 1.0% of the aggregate projected retail sales price of all the additional vehicles or engines.
- (2) You must receive a revised certificate before the sale or final importation of any vehicles or engines, including modification and test vehicles, that are not originally included in the certificate issued under paragraph (b) of this section, or as indicated in a revised certificate issued under paragraph (c)(1) of this section. Such vehicles that are sold or imported before we issue a revised certificate are deemed to be not covered by a certificate of conformity.
- (d) Final reduced fee calculation and adjustment. (1) If the initial fee payment is less than the final reduced fee, you must pay the difference between the initial reduced fee and the final reduced fee using the provisions of §1027.130. Calculate the final reduced fee using the procedures of paragraph (c) of this section but using actual production figures rather than projections and actual retail sales value rather than projected retail sales value.
- (2) You must pay the difference between the initial reduced fee and the final reduced fee within 45 days of the end of the model year. The total fees paid for a certificate may not exceed the applicable full fee specified in §1027.105. We may void the applicable certificate if you fail to make a complete payment within the specified period. We may also refuse to grant reduced fee requests submitted under paragraph (b)(5) of this section.
- (3) If the initial fee payment exceeds the final reduced fee, you may request a refund using the procedures of §1027.125.
- (e) Records retention. You are subject to the applicable requirements to maintain records under this chapter. If you fail to maintain required records or provide them to us, we may void the certificate associated with such records. You must also record the basis you used to calculate the projected sales and fair retail market value and the actual sales and retail price for the vehicles and engines covered by each certificate issued under this section. You must keep this information for at least three years after we issue the certificate and provide it to us within 30 days of our request.

§1027.125 Can I get a refund?

- (a) We will refund the total fee imposed under this part if you ask for a refund after failing to get a certificate for any reason.
- (b) If your actual sales or the actual retail prices in a given year are less than you projected for calculating a reduced fee under §1027.120, we will refund the appropriate portion of the fee. We will also refund a portion of the initial payment if it exceeds the final fee for the engines, vehicles, or equipment covered by the certificate application.
- (1) You are eligible for a partial refund related only to a certificate used for the sale of engines, vehicles, or equipment under that certificate in the United States.
 - (2) Include all the following in your request for a partial refund of reduced fee payments:
 - (i) State that you sold engines, vehicles, or equipment under the applicable certificate in the United States.
 - (ii) Identify the number of engines, vehicles, or equipment you produced or imported under the certificate, and whether the engines, vehicles, or equipment have been sold.
 - (iii) Identify the reduced fee that you paid under the applicable certificate.

- (iv) Identify the actual retail sales price for the engines, vehicles, or equipment produced or imported under the certificate.
 - (v) Calculate the final value of the reduced fee using actual production figures and retail prices.
 - (vi) Calculate the refund amount.
- (c) We will approve your request to correct errors in the amount of the fee.
 - (d) All refunds must be applied for within six months after the end of the model year.
 - (e) Send refund and correction requests to the Fee Program Specialist, U.S. Environmental Protection Agency, Vehicle Programs and Compliance Division, 2000 Traverwood Dr., Ann Arbor, MI 48105, online at www.Pay.gov, or as specified in guidance by the Administrator.
 - (f) You may request to have refund amounts applied to the amount due on another application for certification.

§1027.130 How do I make a fee payment?

- (a) Pay fees to the order of the Environmental Protection Agency in U.S. dollars using any of the following methods: money order, bank draft, certified check, corporate check, electronic funds transfer, any method available for payment online at www.Pay.gov, or as specified in EPA guidance
- (b) Send a completed fee filing form to the address designated on the form for each fee payment or electronically at www.Pay.gov, or as provided in EPA guidance. These forms are available on the Internet at <http://www.epa.gov/otaq/guidance.htm>.
- (c) You must pay the fee amount due before we will start to process an application for certification.
- (d) If we deny a reduced fee, you must pay the proper fee within 30 days after we notify you of our decision.

§1027.135 What provisions apply to a deficient filing?

- (a) Any filing under this part is deficient if it is not accompanied by a completed fee filing form and full payment of the appropriate fee.
- (b) A deficient filing will be rejected unless the completed form and full payment are submitted within a time limit we specify. We will not process an application for certification if the associated filing is deficient.

§1027.140 What reporting and recordkeeping requirements apply under this part?

Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for engines, vehicles, and equipment regulated under this part:

- (a) Filling out fee filing forms under §1027.130.
- (b) Retaining fee records, including reduced fee documentation, under §1027.120.
- (c) Requesting refunds under §1027.125.

§1027.150 What definitions apply to this subpart?

The definitions in this section apply to this part. As used in this part, all undefined terms have the meaning the Act or the standard-setting part gives to them. The definitions follow:

Annex VI means MARPOL Annex VI, which is an annex to the International Convention on the Prevention of Pollution from Ships, 1973, as modified by the protocol of 1978 relating thereto. This is an international treaty regulating disposal of waste products from marine vessels.

Application for Certification means a manufacturer's submission of an application for certification.

California-only certificate is a certificate of conformity issued by EPA showing compliance with emission standards established by California.

Federal certificate is a certificate of conformity issued by EPA showing compliance with EPA emission standards specified in one of the standard-setting parts specified in §1027.101(a).

Light-duty means relating to light-duty vehicles and light-duty trucks.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any

person who manufactures an engine, vehicle, vessel, or piece of equipment for sale in the United States or otherwise introduces a new engine, vehicle, vessel, or piece of equipment into commerce in the United States. This includes importers who import such products for resale, but not dealers.

Total number of certificates issued means the number of certificates for which fees have been paid. This term is not intended to represent multiple certificates that are issued within a single family or test group.

Void has the meaning given in 40 CFR 1068.30.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

§1027.155 What abbreviations apply to this subpart?

The following symbols, acronyms, and abbreviations apply to this part:

CFR	Code of Federal Regulations.
EPA	U.S. Environmental Protection Agency.
Evap	Evaporative Emissions.
EVECP	Engine, vehicle, and equipment compliance program.
ICI	Independent Commercial Importer.
U.S.	United States.

PART 1033— CONTROL OF EMISSIONS FROM LOCOMOTIVES

62. The authority citation for part 1033 continues to read as follows:
 Authority: 42 U.S.C. 7401-7671q.

Subpart B—[Amended]

63. Section 1033.101 is amended by revising paragraph (b) to read as follows:

§1033.101 Exhaust emission standards.

* * * * *

(b) Emission standards for switch locomotives. Exhaust emissions from your new locomotives may not exceed the applicable emission standards in Table 2 to this section during the useful life of the locomotive. (Note: §1033.901 defines locomotives to be “new” when originally manufactured and when remanufactured.) Measure emissions using the applicable test procedures described in subpart F of this part.

Table 2 to §1033.101 Switch Locomotive Emission Standards					
Year of original manufacture	Tier of standards	Standards (g/bhp-hr)			
		NOx	PM	HC	CO
1973-2001	Tier 0	11.8	0.26	2.10	8.0
2002-2004	Tier 1 ^a	11.0	0.26	1.20	2.5
2005-2010	Tier 2 ^a	8.1	0.13 ^b	0.60	2.4
2011-2014	Tier 3	5.0	0.10	0.60	2.4
2015 or later	Tier 4	1.3 ^c	0.03	0.14 ^c	2.4

^a Switch locomotives subject to the Tier 1 through Tier 2 emission standards must also meet line-haul standards of the same tier.

^b The PM standard for new Tier 2 switch locomotives is 0.24 g/bhp-hr until January 1, 2013.

^c Manufacturers may elect to meet a combined NOx+HC standard of 1.4 g/bhp-hr instead of the otherwise applicable Tier 4 NOx and HC standards, as described in paragraph (j) of this section.

* * * * *

64. Section 1033.115 is amended by adding and reserving a paragraph (f)(2) and revising paragraph (g) to read as follows:

§1033.115 Other requirements.

* * * * *

(f) * * *

(2) [Reserved]

(g) Idle controls. All new locomotives must be equipped with automatic engine stop/start as described in this paragraph (g). All new locomotives must be designed to allow the engine(s) to be restarted at least six times per day without causing engine damage that would affect the expected interval between remanufacturing. Note that it is a violation of 40 CFR 1068.101(b)(1) to circumvent the provisions of this paragraph (g).

- (1) Except as allowed by paragraph (g)(2) of this section, the stop/start systems must shut off the main locomotive engine(s) after 30 minutes of idling (or less).
- (2) Stop/start systems may restart or continue idling for the following reasons:
 - (i) To prevent engine damage such as to prevent the engine coolant from freezing.
 - (ii) To maintain air pressure for brakes or starter system, or to recharge the locomotive battery.
 - (iii) To perform necessary maintenance.
 - (iv) To otherwise comply with federal regulations.
- (3) You may ask to use alternate stop/start systems that will achieve equivalent idle control.
- (4) See §1033.201 for provisions that allow you to obtain a separate certificate for idle controls.
- (5) It is not considered circumvention to allow a locomotive to idle to heat or cool the cab, provided such heating or cooling is necessary.

* * * * *

65. Section 1033.120 is amended by revising paragraph (b) to read as follows:

§1033.120 Emission-related warranty requirements.

* * * * *

(b) Warranty period. Except as specified in this paragraph, the minimum warranty period is one-third of the useful life. Your emission-related warranty must be valid for at least as long as the minimum warranty periods listed in this paragraph (b) in MW-hrs of operation (or miles for Tier 0 locomotives not equipped with MW-hr meters) and years, whichever comes first. You may offer an emission-related warranty more generous than we require. The emission-related warranty for the locomotive may not be shorter than any published warranty you offer without charge for the locomotive. Similarly, the emission-related warranty for any component may not be shorter than any published warranty you offer without charge for that component. If you provide an extended warranty to individual owners for any components covered in paragraph (c) of this section for an additional charge, your emission-related warranty must cover those components for those owners to the same degree. If the locomotive does not record MW-hrs, we base the warranty periods in this paragraph (b) only on years. The warranty period begins when the locomotive is placed into service, or back into service after remanufacture.

* * * * *

66. Section 1033.135 is amended by revising paragraph (b)(2)(i) to read as follows:

§1033.135 Labeling.

* * * * *

- (b) * * *
- (2) * * *

(i) The label must be permanent and legible and affixed to the locomotive in a position in which it will remain readily visible. Attach it to a locomotive chassis part necessary for normal operation and not normally requiring replacement during the service life of the locomotive. You may not attach this label to the engine or to any equipment that is easily detached from the locomotive. Attach the label so that it cannot be removed without destroying or defacing the label. For Tier 0 and Tier 1 locomotives, the label may be made up of more than one piece, as long as all pieces are permanently attached to the locomotive.

* * * * *

67. Section 1033.150 is amended by revising paragraph (b) and adding paragraph (m) to read as follows:

§1033.150 Interim provisions.

* * * * *

(b) Idle controls. A locomotive equipped with an automatic engine stop/start system that was originally installed before January 1, 2009 and that conforms to the requirements of §1033.115(g) is deemed to be covered by a certificate of conformity with respect to the requirements of §1033.115(g). Note that the

provisions of subpart C of this part also allow you to apply for a conventional certificate of conformity for such systems.

* * * * *

(m) **Assigned deterioration factors.** The provisions of this paragraph (m) apply for Tier 0 and Tier 1 locomotives to the standards of this part during model years 2008 or 2009. Remanufacturers certifying such locomotives to the standards of this part during these model years may use an assigned deterioration factor of 0.03 g/bhp-hr for PM and an assigned deterioration factor of zero for other pollutants. For purposes of determining compliance other than for certification or production-line testing, calculate the applicable in-use compliance limits for these locomotives by adjusting the applicable PM standards/FELs upward by 0.03 g/bhp-hr.

Subpart C—[Amended]

§1033.205 Applying for a certificate of conformity. – [Revised]

68. Section 1033.205 is amended by removing and reserving paragraph (b).

69. Section 1033.230 is amended by revising paragraph (f) to read as follows:

§1033.230 Grouping locomotives into engine families.

* * * * *

(f) During the first six calendar years after a new tier of standards becomes applicable, remanufactured engines/locomotives may be included in the same engine family as freshly manufactured locomotives, provided the same engines and emission controls are used for locomotive models included in the engine family.

Subpart D—[Amended]

70. Section 1033.335 is amended by revising paragraph (g) introductory text to read as follows:

§1033.335 Remanufactured locomotives: installation audit requirements.

* * * * *

(g) Within 45 calendar days of the end of each quarter, the remanufacturer must send the Designated Compliance Officer a report which includes the following information:

* * * * *

Subpart F—[Amended]

71. Section 1033.510 is amended by revising the introductory text to read as follows:

§1033.510 Auxiliary power units.

If your locomotive is equipped with an auxiliary power unit (APU) that operates during an idle shutdown mode, you must account for the APU's emissions rates as specified in this section, unless the APU is part of an AESS system that was certified separately from the rest of the locomotive. This section does not apply for auxiliary engines that only provide hotel power.

* * * * *

72. Section 1033.515 is amended by revising paragraph (c)(5) and by redesignating paragraphs (f) and (g) as paragraphs (d) and (e), respectively, to read as follows.

§1033.515 Discrete-mode steady-state emission tests of locomotives and locomotive engines.

* * * * *

(c) * * *

(5) Begin proportional sampling of PM emissions at the beginning of each sampling period and terminate sampling within ± 5 seconds of the specified time in each test mode. If the PM sample is sufficiently large, take one of the following actions consistent with good engineering judgment:

- (i) Extend the sampling period up to a maximum of 15 minutes.
- (ii) Use three different dilution ratios for the modes: one for both idle modes, one for dynamic brake through notch 5, and one for notches 6 through 8.

* * * * *

73. Section 1033.530 is amended by revising paragraph (e) to read as follows:

§1033.530 Duty cycles and calculations.

* * * * *

(e) Automated Start-Stop. For locomotive equipped with features that shut the engine off after prolonged periods of idle, multiply the measured idle mass emission rate over the idle portion of the applicable test cycles by a factor equal to one minus the estimated fraction reduction in idling time that will result in use from the shutdown feature. Do not apply this factor to the weighted idle power. Application of this adjustment is subject to our approval if the fraction reduction in idling time that is estimated to result from the shutdown feature is greater than 25 percent. This paragraph (e) does not apply if the locomotive is (or will be) covered by a separate certificate for idle control.

* * * * *

Subpart G—[Amended]

74. Section 1033.601 is amended by revising paragraphs (c)(1) and (c)(3) to read as follows:

§1033.601 General compliance provisions.

* * * * *

(c) * * *

(1) The exemption provisions of 40 CFR 1068.240 (i.e., exemptions for replacement engines) do not apply for domestic or imported locomotives. (Note: You may introduce into commerce freshly manufactured replacement engines under this part, provided the locomotives into which they are installed are covered by a certificate of conformity.)

* * * * *

(3) The exemption provisions of 40 CFR 1068.261 (i.e., exemptions for delegated assembly) do not apply for domestic or imported locomotives, except as specified in §1033.630.

* * * * *

75. Section 1033.630 is amended by revising paragraph (b) introductory text to read as follows:

§1033.630 Staged assembly and delegated assembly exemptions.

* * * * *

(b) Delegated assembly. This paragraph (b) applies where the engine manufacturer/remanufacturer does not complete assembly of the locomotives and the engine is shipped after being manufactured or remanufactured (partially or completely). The provisions of this paragraph (b) apply differently depending on who holds the certificate of conformity and the state of the engine when it is shipped. You may request an exemption under this paragraph (b) in your application for certification, or in a separate submission. If you include your request in your application, your exemption is approved when we grant your certificate. A manufacturer/remanufacturer may request an exemption under 40 CFR 1068.261 instead of under this section.

* * * * *

76. Section 1033.640 is amended by revising paragraph (b) to read as follows:

§1033.640 Provisions for repowered and refurbished locomotives.

* * * * *

(b) A single existing locomotive cannot be divided into parts and combined with new parts to create more than one remanufactured locomotive. However, any number of locomotives can be divided into parts and combined with new parts to create more than one remanufactured locomotive, provided the number of locomotives created (remanufactured and freshly manufactured) does not exceed the number of locomotives that were disassembled.

* * * * *

77. Section 1033.645 is amended by revising paragraph (a) to read as follows:

§1033.645 Non-OEM component certification program.

* * * * *

(a) Applicability. This section applies only for components that are commonly replaced during remanufacturing. It does not apply for other types of components that are replaced during a locomotive’s useful life, but not typically replaced during remanufacture. Certified components may be used for remanufacturing or other maintenance.

* * * * *

Subpart I—[Amended]

78. Section 1033.810 is amended by revising paragraph (c) introductory text to read as follows:

§1033.810 In-use testing program.

* * * * *

(c) Test locomotive selection. Unless we specify a different option, select test locomotives as specified in paragraph (c)(1) of this section (Option 1). In no case may you exclude locomotives because of visible smoke, a history of durability problems, or other evidence of malmaintenance. You may test more locomotives than this section requires.

* * * * *

Subpart J—[Amended]

79. Section 1033.901 is amended by revising paragraph (2)(ii) of the definition for “New” to read as follows:

§1033.901 Definitions.

* * * * *

New, when relating to a locomotive or locomotive engine, has the meaning given in paragraph (1) of this definition, except as specified in paragraph (2) of this definition:

* * * * *

(2) * * *

(ii) Locomotives that are owned and operated by a small railroad and that have never been certified (i.e., manufactured or remanufactured into a certified configuration) are not considered to become new when remanufactured. The provisions of paragraph (1) of this definition apply for locomotives that have previously been remanufactured into a certified configuration.

* * * * *

PART 1039—CONTROL OF EMISSIONS FROM NEW AND IN-USE NONROAD COMPRESSION-IGNITION ENGINES

80. The authority citation for part 1039 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart A—[Amended]

81. Section 1039.5 is amended by revising paragraph (d) and adding paragraph (e) to read as follows:
§1039.5 Which engines are excluded from this part’s requirements?

* * * * *

(d) Hobby engines. Engines installed in reduced-scale models of vehicles that are not capable of transporting a person are not subject to the provisions of this part 1039.

(e) Engines used in recreational vehicles. Engines certified to meet the requirements of 40 CFR part 1051 or are otherwise subject to 40 CFR part 1051 (for example, engines used in snowmobiles and all-terrain vehicles) are not subject to the provisions of this part 1039.

Subpart B—[Amended]

82. Section 1039.102 is amended by revising paragraph (g)(4) to read as follows:
§1039.102 What exhaust emission standards and phase-in allowances apply for my engines in model year 2014 and earlier?

* * * * *

(g) * * *

(4) Special provisions for 37-56 kW engines. For engines at or above 37 kW and below 56 kW from model years 2008 through 2012, you must add information to the emission-related installation instructions to clarify the equipment manufacturer’s obligations under §1039.104(f).

83. Section 1039.125 is amended by revising paragraphs (a)(2)(i) and (a)(3)(i) to read as follows:
§1039.125 What maintenance instructions must I give to buyers?

* * * * *

(a) * * *

(2) * * *

(i) For EGR-related filters and coolers, PCV valves, crankcase vent filters, and fuel injector tips (cleaning only), the minimum interval is 1,500 hours.

* * * * *

(3) * * *

(i) For EGR-related filters and coolers, PCV valves, crankcase vent filters, and fuel injector tips (cleaning only), the minimum interval is 1,500 hours.

* * * * *

84. Section 1039.135 is amended by revising paragraph (c)(4) to read as follows:
§1039.135 How must I label and identify the engines I produce?

* * * * *

(c) * * *

(4) State the power category or subcategory from §1039.101 or §1039.102 that determines the applicable emission standards for the engine family. For engines at or above 37 kW and below 56 kW from model years 2008 through 2012, and for engines less than 8 kW utilizing the provision at §1039.101(c), you must state the applicable PM standard for the engine family.

* * * * *

Subpart G—[Amended]

85. Section 1039.625 is amended as follows:

- a. By revising paragraph (d)(1).
- b. By revising paragraphs (e) introductory text, (e)(1), and (e)(3).
- c. By revising paragraph (f)(4).
- d. By revising paragraphs (g)(1) introductory text, (g)(1)(ii), and (g)(1)(iv).
- e. By revising paragraph (g)(2).
- f. By revising paragraph (j).
- g. By revising paragraph (m)(2) introductory text.

§1039.625 What requirements apply under the program for equipment-manufacturer flexibility?

* * * * *

(d) * * *

(1) If you use the provisions of 40 CFR 1068.105(a) to use up your inventories of engines not certified to new emission standards, do not include these units in your count of equipment with exempted engines under paragraph (b) of this section. However, you may include these units in your count of total equipment you produce for the given year for the percentage calculation in paragraph (b)(1) of this section.

* * * * *

(e) Standards. If you produce equipment with exempted engines under this section, the engines must meet emission standards specified in this paragraph (e). Note that we consider engines to be meeting emission standards even if they are certified with a family emission limit that is higher than the emission standard that would otherwise apply.

(1) If you are using the provisions of paragraph (d)(4) of this section, engines must meet the applicable Tier 1 or Tier 2 emission standards described in §89.112.

* * * * *

(3) In all other cases, engines at or above 56 kW and at or below 560 kW must meet the appropriate Tier 3 standards described in 40 CFR 89.112. Engines below 56 kW and engines above 560 kW must meet the appropriate Tier 2 standards described in 40 CFR 89.112.

(f) * * *

(4) An e-mail address and phone number to contact for further information, or a website that includes this contact information.

* * * * *

(g) * * *

(1) Before you use the provisions of this section, send the Designated Compliance Officer a written notice of your intent, including: * * *

(ii) The name, phone number and e-mail address of a person to contact for more information.

* * * * *

(iv) The name and address of each company you expect to produce engines for the equipment you manufacture under this section.

* * * * *

(2) For each year that you use the provisions of this section, send the Designated Compliance Officer a written report by March 31 of the following year. Identify the following things in your report:

(i) The total count of units you sold in the preceding year for each power category, based on actual U.S.-directed production information.

(ii) The percentages of U.S.-directed production that correspond to the number of units in each power category and the cumulative numbers and percentages of units for all the units you have sold under this section for each power category. You may omit the percentage figures if you include in the report a statement that you will not be using the percent-of-production allowances in paragraph (b)(1) of this section.

(iii) The manufacturer of the engine installed in the equipment you produce under this section if this is different than you specified under paragraph (g)(1)(iv) of this section.

* * * * *

(j) Provisions for engine manufacturers. As an engine manufacturer, you may produce exempted engines as needed under this section. You do not have to request this exemption for your engines, but you must have written assurance from equipment manufacturers that they need a certain number of exempted engines under this section. Send us an annual report of the engines you produce under this section, as described in §1039.250(a). For engines produced under the provisions of paragraph (a)(2) of this section, you must certify the engines under this part 1039. For all other exempt engines, the engines must meet the emission standards in paragraph (e) of this section and you must meet all the requirements of 40 CFR 1068.265. If you show under 40 CFR 1068.265(c) that the engines are identical in all material respects to engines that you have previously certified to one or more FELs above the standards specified in paragraph (e) of this section, you must supply sufficient credits for these engines. Calculate these credits under subpart H of this part using the previously certified FELs and the alternate standards. You must meet the labeling requirements in 40 CFR 89.110 or §1039.135, as applicable, with the following exceptions:

(1) Add the following statement instead of the compliance statement in 40 CFR 89.110(b)(10) or §1039.135(c)(12), as applicable:

THIS ENGINE MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1039.625.
SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN FOR THE
EQUIPMENT FLEXIBILITY PROVISIONS OF 40 CFR 1039.625 MAY BE A VIOLATION OF
FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(2) You may omit the family emission limits if they are below the emission standards.

* * * * *

(m) * * *

(2) To apply for exemptions under this paragraph (m), send the Designated Compliance Officer a written request as soon as possible before you are in violation. In your request, include the following information:

* * * * *

86. Section 1039.626 is amended as follows:

- a. By revising paragraph (a)(2).
- b. By revising paragraph (a)(9)(ii)(B).
- c. By revising paragraph (a)(9)(iv).
- d. By revising paragraph (b)(1) introductory text.
- e. By revising paragraph (b)(2).

§1039.626 What special provisions apply to equipment imported under the equipment-manufacturer flexibility program?

* * * * *

(a) * * *

(2) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

* * * * *

(9) * * *

(ii) * * *

(B) Get us to approve a waiver from the bonding requirement if you can show that you meet the asset thresholds described in 40 CFR 1054.690.

* * * * *

(iv) You will forfeit the proceeds of the bond posted under this section if you need to satisfy any U.S. administrative settlement agreement, administrative final order or judicial judgment against

you arising from your violation of this chapter, or violation of 18 U.S.C. 1001, 42 U.S.C. 7413(c)(2), or other applicable provisions of the Clean Air Act.

* * * * *

(b) * * *

(1) Before you use the provisions of this section, send the Designated Compliance Officer a written notice of your intent, including:

* * * * *

(2) For each year that you use the provisions of this section, send the Designated Compliance Officer a written report by March 31 of the following year. Include in your report the total number of engines you imported under this section in the preceding calendar year, broken down by engine manufacturer and by equipment manufacturer.

Subpart I– [Amended]

87. Section 1039.801 is amended by revising the definition for “Designated Compliance Officer” to read as follows:

§1039.801 What definitions apply to this part?

* * * * *

Designated Compliance Officer means the Manager, Heavy-Duty and Nonroad Engine Group (6405-J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

* * * * *

**PART 1042— CONTROL OF EMISSIONS FROM NEW AND IN-USE MARINE
COMPRESSION-IGNITION ENGINES AND VESSELS**

88. The authority citation for part 1042 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart A—[Amended]

89. Section 1042.5 is amended by revising paragraph (b) to read as follows:

§1042.5 Exclusions.

* * * * *

(b) Hobby engines. Engines installed in reduced-scale models of vessels that are not capable of transporting a person are not subject to the provisions of this part 1042.

Subpart B—[Amended]

90. Section 1042.101 is amended by revising Table 1 in paragraph (a)(3) to read as follows:

§1042.101 Exhaust emission standards.

(a) * * *

(3) * * *

Table 1 to §1042.101— Tier 3 Standards for Category 1 Engines Below 3700 kW ^a

Power Density and Application	Displacement (L/cyl)	Maximum Engine Power	Model Year	PM (g/kW-hr)	NO _x +HC (g/kW-hr) ^b	
all	disp.< 0.9	kW <19	2009+	0.40	7.5	
		19 ≤ kW < 75	2009-2013	0.30	7.5	
			2014+	0.30	4.7	
Commercial engines with kW/L ≤ 35 ^b	disp.< 0.9	kW ≥ 75	2012+	0.14	5.4	
	0.9 ≤ disp. < 1.2	all	2013+	0.12	5.4	
	1.2 ≤ disp. < 2.5	kW < 600	2014-2017	0.11	5.6	
			2018+	0.10	5.6	
	2.5 ≤ disp. < 3.5	kW ≥ 600	2014+	0.11	5.6	
			kW < 600	2013-2017	0.11	5.6
				2018+	0.10	5.6
	3.5 ≤ disp.< 7.0	kW ≥ 600	2013+	0.11	5.6	
			kW < 600	2012-2017	0.11	5.8
				2018+	0.10	5.8
	2012+	0.11	5.8			
Commercial engines with kW/L > 35 and all recreational engines ^b	disp. < 0.9	kW ≥ 75	2012+	0.15	5.8	
	0.9 ≤ disp. < 1.2	all	2013+	0.14	5.8	
	1.2 ≤ disp. < 2.5		2014+	0.12	5.8	
	2.5 ≤ disp. < 3.5		2013+	0.12	5.8	
	3.5 ≤ disp. < 7.0		2013+	0.12	5.8	
2012+			0.11	5.8		

^a No Tier 3 standards apply for commercial Category 1 engines at or above 3700 kW. See §1042.1(c) and paragraph (a)(6) of this section for the standards that apply for these engines.

^b The applicable NO_x+HC standards specified for Tier 2 engines in Appendix I of this part continue to apply instead of the values noted in the table for engines at or above 2000 kW. FELs for these engines may not be higher than the Tier 1 NO_x standard specified in Appendix I of this part.

* * * * *

91. Section 1042.107 is revised to read as follows:

§1042.107 Evaporative emission standards.

(a) There are no evaporative emission standards for diesel-fueled engines, or engines using other nonvolatile or nonliquid fuels (for example, natural gas).

(b) If an engine uses a volatile liquid fuel, such as methanol, the engine’s fuel system and the vessel in which the engine is installed must meet the evaporative emission requirements of 40 CFR part 1045 that apply with respect to spark-ignition engines. Manufacturers subject to evaporative emission standards

must meet the requirements of 40 CFR 1045.112 as described in 40 CFR part 1060 and do all the following things in the application for certification:

- (1) Describe how evaporative emissions are controlled.
- (2) Present test data to show that fuel systems and vessels meet the evaporative emission standards we specify in this section if you do not use design-based certification under 40 CFR 1060.240. Show these figures before and after applying deterioration factors, where applicable.

92. Section 1042.115 is amended by revising paragraph (f)(1) to read as follows:

§1042.115 Other requirements.

* * * * *

(f) * * *

- (1) The conditions of concern were substantially included in the applicable duty-cycle test procedures described in subpart F of this part (the portion during which emissions are measured).

* * * * *

93. Section 1042.145 is amended by revising Table 2 in paragraph (f) to read as follows:

§1042.145 Interim provisions.

* * * * *

(f) * * *

Table 2 to §1042.145—
Optional In-use Adjustments for the First Three Model Years of the Tier 4 Standards

Fraction of useful life already used	In-use adjustments (g/kW-hr)	
	For model year 2017 and earlier Tier 4 NO _x standards	For model year 2017 and earlier Tier 4 PM standards
0 < hours < 50% of useful life	0.3	0.05
50 < hours < 75% of useful life	0.4	0.05
hours > 75% of useful life	0.5	0.05

* * * * *

Subpart G—[Amended]

§1042.601 General compliance provisions for marine engines and vessels— [Amended]

94. Section 1042.601 is amended by removing paragraph (g).

95. Section 1042.615 is amended by revising paragraph (a) introductory text to read as follows:

§1042.615 Replacement engine exemption.

* * * * *

- (a) This paragraph (a) applies instead of the provisions of 40 CFR 1068.240(b)(3). The prohibitions in 40 CFR 1068.101(a)(1) do not apply to a new replacement engine if all the following conditions are met:

* * * * *

Subpart I—[Amended]

96. Section 1042.801 is amended by revising paragraph (f) to read as follows:

§1042.801 General provisions.

* * * * *

(f) Remanufacturing systems that require a fuel change or use of a fuel additive may be certified under this part. However, they are not considered to be “available” with respect to triggering the requirement for an engine to be covered by a certificate of conformity under §1042.815. The following provisions apply:

- (1) Only fuels and additives registered under 40 CFR part 79 may be used under this paragraph (f).
- (2) You must demonstrate in your application that the fuel or additive will actually be used by operators, including a description of how the vessels and dispensing tanks will be labeled. We may require you to provide the labels to the operators.
- (3) You must also describe analytical methods that can be used by EPA or others to verify that fuel meets your specifications.
- (4) You must provide clear instructions to the operators specifying that they may only use the specified fuel/additive, label their vessels and fuel dispensing tanks, and keep records of their use of the fuel/additive in order for their engine to be covered by your certificate. Use of the incorrect fuel (or fuel without the specified additive) or any other failure to comply with the requirements of this paragraph is a violation of 40 CFR 1068.101(b)(1).

* * * * *

97. Section 1042.836 is amended by revising paragraph (a) introductory text to read as follows:

§1042.836 Marine certification of locomotive remanufacturing systems.

* * * * *

(a) Include the following with your application for certification under 40 CFR part 92 or 1033 (or as an amendment to your application):

* * * * *

98. A new part 1045 is added to subchapter U of chapter I to read as follows:

PART 1045—CONTROL OF EMISSIONS FROM SPARK-IGNITION PROPULSION MARINE ENGINES AND VESSELS

Subpart A—Overview and Applicability

- 1045.1 Does this part apply for my products?
- 1045.2 Who is responsible for compliance?
- 1045.5 Which engines are excluded from this part's requirements?
- 1045.10 How is this part organized?
- 1045.15 Do any other CFR parts apply to me?
- 1045.20 What requirements apply to my vessels?
- 1045.25 How do the requirements related to evaporative emissions apply to engines and their fuel systems?
- 1045.30 Submission of information.

Subpart B—Emission Standards and Related Requirements

- 1045.101 What exhaust emission standards and requirements must my engines meet?
- 1045.103 What exhaust emission standards must my outboard and personal watercraft engines meet?
- 1045.105 What exhaust emission standards must my sterndrive/inboard engines meet?
- 1045.107 What are the not-to-exceed emission standards?
- 1045.110 How must my engines diagnose malfunctions?
- 1045.112 What are the standards for evaporative emissions?
- 1045.115 What other requirements apply?
- 1045.120 What emission-related warranty requirements apply to me?
- 1045.125 What maintenance instructions must I give to buyers?
- 1045.130 What installation instructions must I give to vessel manufacturers?
- 1045.135 How must I label and identify the engines I produce?
- 1045.140 What is my engine's maximum engine power?
- 1045.145 Are there interim provisions that apply only for a limited time?

Subpart C—Certifying Engine Families

- 1045.201 What are the general requirements for obtaining a certificate of conformity?
- 1045.205 What must I include in my application?
- 1045.210 May I get preliminary approval before I complete my application?
- 1045.220 How do I amend the maintenance instructions in my application?
- 1045.225 How do I amend my application for certification to include new or modified engines or change an FEL?
- 1045.230 How do I select engine families?
- 1045.235 What emission testing must I perform for my application for a certificate of conformity?
- 1045.240 How do I demonstrate that my engine family complies with exhaust emission standards?
- 1045.245 How do I determine deterioration factors from exhaust durability testing?
- 1045.250 What records must I keep and what reports must I send to EPA?
- 1045.255 What decisions may EPA make regarding my certificate of conformity?

Subpart D—Testing Production-line Engines

- 1045.301 When must I test my production-line engines?
- 1045.305 How must I prepare and test my production-line engines?
- 1045.310 How must I select engines for production-line testing?
- 1045.315 How do I know when my engine family fails the production-line testing requirements?

- 1045.320 What happens if one of my production-line engines fails to meet emission standards?
- 1045.325 What happens if an engine family fails the production-line testing requirements?
- 1045.330 May I sell engines from an engine family with a suspended certificate of conformity?
- 1045.335 How do I ask EPA to reinstate my suspended certificate?
- 1045.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?
- 1045.345 What production-line testing records must I send to EPA?
- 1045.350 What records must I keep?

Subpart E—In-use Testing

- 1045.401 What testing requirements apply to my engines that have gone into service?
- 1045.405 How does this program work?
- 1045.410 How must I select, prepare, and test my in-use engines?
- 1045.415 What happens if in-use engines do not meet requirements?
- 1045.420 What in-use testing information must I report to EPA?
- 1045.425 What records must I keep?

Subpart F—Test Procedures

- 1045.501 How do I run a valid emission test?
- 1045.505 How do I test engines using discrete-mode or ramped-modal duty cycles?
- 1045.515 What are the test procedures related to not-to-exceed standards?
- 1045.520 What testing must I perform to establish deterioration factors?

Subpart G—Special Compliance Provisions

- 1045.601 What compliance provisions apply to these engines?
- 1045.605 What provisions apply to engines already certified under the motor vehicle or Large SI programs?
- 1045.610 What provisions apply to using engines already certified to Small SI emission standards?
- 1045.620 What are the provisions for exempting engines used solely for competition?
- 1045.625 What requirements apply under the Diurnal Transition Program?
- 1045.630 What is the personal-use exemption.
- 1045.635 What special provisions apply for small-volume engine manufacturers?
- 1045.640 What special provisions apply to branded engines?
- 1045.645 What special provisions apply for converting an engine to use an alternate fuel?
- 1045.650 Do delegated-assembly provisions apply for marine engines?
- 1045.655 What special provisions apply for installing and removing altitude kits?
- 1045.660 How do I certify outboard or personal watercraft engines for use in jet boats?

Subpart H—Averaging, Banking, and Trading for Certification

- 1045.701 General provisions.
- 1045.705 How do I generate and calculate exhaust emission credits?
- 1045.706 How do I generate and calculate evaporative emission credits?
- 1045.710 How do I average emission credits?
- 1045.715 How do I bank emission credits?
- 1045.720 How do I trade emission credits?
- 1045.725 What must I include in my application for certification?
- 1045.730 What ABT reports must I send to EPA?
- 1045.735 What records must I keep?
- 1045.745 What can happen if I do not comply with the provisions of this subpart?

Subpart I—Definitions and Other Reference Information

- 1045.801 What definitions apply to this part?

- 1045.805 What symbols, acronyms, and abbreviations does this part use?
1045.810 What materials does this part reference?
1045.815 What provisions apply to confidential information?
1045.820 How do I request a hearing?
1045.825 What reporting and recordkeeping requirements apply under this part?

Appendix I to Part 1045— Summary of Previous Emission Standards
Appendix II to Part 1045— Duty Cycles for Propulsion Marine Engines

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

Subpart A—Overview and Applicability

§1045.1 Does this part apply for my products?

- (a) Except as provided in §1045.5, the regulations in this part 1045 apply as follows:
- (1) The requirements of this part related to exhaust emissions apply to new, spark-ignition propulsion marine engines beginning with the 2010 model year.
 - (2) The requirements of this part related to evaporative emissions apply to fuel lines and fuel tanks used with marine engines that use a volatile liquid fuel (such as gasoline) as specified in 40 CFR part 1045.112. This includes fuel lines and fuel tanks used with auxiliary marine engines. This also includes portable marine fuel tanks and associated fuel lines.
- (b) We specify optional standards for certifying sterndrive/inboard engines before the 2010 model year in §1045.145(a). Engines certified to these standards are subject to all the requirements of this part as if these optional standards were mandatory.
- (c) See 40 CFR part 91 for requirements that apply to outboard and personal watercraft engines not yet subject to the requirements of this part 1045.
- (d) The provisions of §§1045.620 and 1045.801 apply for new engines used solely for competition beginning January 1, 2010.

§1045.2 Who is responsible for compliance?

The requirements and prohibitions of this part apply to manufacturers of engines and fuel-system components as described in §1045.1. The requirements of this part are generally addressed to manufacturers subject to this part's requirements. The term "you" generally means the certifying manufacturer. For provisions related to exhaust emissions, this generally means the engine manufacturer, especially for issues related to certification (including production-line testing, reporting, etc.). For provisions related to certification with respect to evaporative emissions, this generally means the vessel manufacturer. Vessel manufacturers must meet applicable requirements as described in §1045.20. Engine manufacturers must meet requirements related to evaporative emissions as described in §1045.25.

§1045.5 Which engines are excluded from this part's requirements?

- (a) Auxiliary engines. The exhaust emission standards of this part do not apply to auxiliary marine engines. See 40 CFR part 90, 1048, or 1054 for the exhaust emission standards that apply. Evaporative emission standards apply as specified in §1045.112.
- (b) Hobby engines and vessels. This part does not apply with respect to reduced-scale models of vessels that are not capable of transporting a person.
- (c) Large natural gas engines. Propulsion marine engines powered by natural gas with maximum engine power at or above 250 kW are deemed to be compression-ignition engines. These engines are therefore subject to all the requirements of 40 CFR part 1042 instead of this part even if they would otherwise meet the definition of "spark-ignition" in §1045.801.

§1045.10 How is this part organized?

This part 1045 is divided into the following subparts:

- (a) Subpart A of this part defines the applicability of this part 1045 and gives an overview of regulatory requirements.
- (b) Subpart B of this part describes the emission standards and other requirements that must be met to certify engines under this part 1045. Note that §1045.145 discusses certain interim requirements and compliance provisions that apply only for a limited time.
- (c) Subpart C of this part describes how to apply for a certificate of conformity.
- (d) Subpart D of this part describes general provisions for testing production-line engines.
- (e) Subpart E of this part describes general provisions for testing in-use engines.
- (f) Subpart F of this part describes how to test your engines (including references to other parts of the Code of Federal Regulations).
- (g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to engine manufacturers, vessel manufacturers, owners, operators, rebuilders, and all others.
- (h) Subpart H of this part describes how you may generate and use exhaust and evaporative emission credits to certify your engines and vessels.
- (i) Subpart I of this part contains definitions and other reference information.

§1045.15 Do any other CFR parts apply to me?

- (a) Part 1060 of this chapter describes standards and procedures that apply for controlling evaporative emissions from engines fueled by gasoline or other volatile liquid fuels and the associated fuel systems. See §1045.112 for information about how that part applies.
- (b) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1045 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the exhaust emission standards in this part.
- (c) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, imports, installs, owns, operates, or rebuilds any of the engines subject to this part 1045, or vessels powered by these engines. Part 1068 of this chapter describes general provisions, including these seven areas:
 - (1) Prohibited acts and penalties for engine manufacturers, vessel manufacturers, and others.
 - (2) Rebuilding and other aftermarket changes.
 - (3) Exclusions and exemptions for certain engines.
 - (4) Importing engines.
 - (5) Selective enforcement audits of your production.
 - (6) Defect reporting and recall.
 - (7) Procedures for hearings.
- (d) Other parts of this chapter apply if referenced in this part 1045.

§1045.20 What requirements apply to my vessels?

- (a) If you manufacture vessels with engines certified to the exhaust emission standards in this part, your vessels must meet all emission standards with the engine and fuel system installed.
- (b) You may need to certify your vessels or fuel systems as described in 40 CFR 1060.1 and 1060.601. If you produce vessels subject to this part without obtaining a certificate, you must still meet the requirements of 40 CFR 1060.101(e) and (f) and keep records as described in 40 CFR 1060.210.
- (c) You must identify and label vessels you produce under this section consistent with the requirements of §1045.135 and 40 CFR part 1060.
- (d) You must follow all emission-related installation instructions from the certifying manufacturers as described in §1045.130 and 40 CFR 1068.105. If you do not follow the installation instructions, we may consider your vessel to be not covered by the certificates of conformity. Introduction of such vessels into U.S. commerce violates 40 CFR 1068.101.

§1045.25 How do the requirements related to evaporative emissions apply to engines and their fuel systems?

- (a) Engine manufacturers must provide the installation instructions required by §1045.130 to the ultimate purchasers of the engine. These instructions may be combined with the maintenance instructions required by §1045.125.
- (b) Engines sold with attached fuel lines or installed fuel tanks must be covered by the appropriate certificates of conformity issued under 40 CFR part 1060.
- (c) Fuel lines intended to be used with new engines and new portable marine fuel tanks must be certified to the applicable requirements of 40 CFR part 1060. Similarly, fuel tanks intended to be used with new engines must be certified to the applicable requirements of 40 CFR part 1060.
- (d) All persons installing engines certified under this part 1045 must follow the certifying manufacturer's emission-related installation instructions (see §1045.130 and 40 CFR 1068.105).

§1045.30 Submission of information.

- (a) This part includes various requirements to record data or other information. Refer to §1045.825 and 40 CFR 1068.25 regarding recordkeeping requirements. If recordkeeping requirements are not specified, store these records in any format and on any media and keep them readily available for one year after you send an associated application for certification, or one year after you generate the data if they do not support an application for certification. You must promptly send us organized, written records in English if we ask for them. We may review them at any time.
- (b) The regulations in §1045.255 and 40 CFR 1068.101 describe your obligation to report truthful and complete information and the consequences of failing to meet this obligation. This includes information not related to certification.
- (c) Send all reports and requests for approval to the Designated Compliance Officer (see §1045.801).
- (d) Any written information we require you to send to or receive from another company is deemed to be a required record under this section. Such records are also deemed to be submissions to EPA. We may require you to send us these records whether or not you are a certificate holder.

Subpart B—Emission Standards and Related Requirements

§1045.101 What exhaust emission standards and requirements must my engines meet?

- (a) You must show that your engines meet the following requirements:
 - (1) Outboard and personal watercraft engines must meet the exhaust emission standards specified in §1045.103.
 - (2) Sterndrive/inboard engines must meet the exhaust emission standards specified in §1045.105. You may optionally meet these standards earlier than we require, as specified in §1045.145(b).
 - (3) Sterndrive/inboard engines must meet the engine-diagnostic requirements in §1045.110.
 - (4) All engines must meet the requirements in §1045.115.
- (b) It is important that you read §1045.145 to determine if there are other interim requirements or interim compliance provisions that apply for a limited time.

§1045.103 What exhaust emission standards must my outboard and personal watercraft engines meet?

- (a) Duty-cycle emission standards. Starting in the 2010 model year, exhaust emissions from your outboard and personal watercraft engines may not exceed emission standards as follows:
 - (1) Measure emissions using the applicable steady-state test procedures described in subpart F of this part.
 - (2) The exhaust emission standards from the following table apply:

Table 1 to §1045.103—Emission Standards
for Outboard and Personal Watercraft Engines (g/kW-hr)

Pollutant	Power ¹	Emission Standard
HC+NOx	P ≤ 4.3 kW	30.0
	P > 4.3 kW	$2.1 + 0.09 \times (151 + 557/P^{0.9})$
CO	P ≤ 40 kW	$500 - 5.0 \times P$
	P > 40 kW	300

¹ Power (P) = maximum engine power for the engine family, in kilowatts (kW).

(3) For engines whose standard depends on maximum engine power, round the calculated HC+NOx emission standard to the nearest 0.1 g/kW-hr; round the calculated CO emission standard to the nearest g/kW-hr. Determine maximum engine power for the engine family as described in §1045.140.

(b) Averaging, banking, and trading. You may generate or use emission credits under the averaging, banking, and trading (ABT) program described in subpart H of this part for demonstrating compliance with HC+NOx emission standards. For CO emissions, you may generate or use emission credits for averaging as described in subpart H of this part, but not for banking or trading. To generate or use emission credits, you must specify a family emission limit for each pollutant you include in the ABT program for each engine family. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meets the emission standards using emission credits and the engines within the family meet the family emission limit. The following FEL caps apply:

(1) For engines with maximum engine power at or below 4.3 kW, the maximum value of the family emission limit for HC+NOx is 81.0 g/kW-hr. For all other engines, the maximum value of the family emission limit for HC+NOx is defined by the following formula, with results rounded to the nearest 0.1 g/kW-hr:

$$FEL_{\max, HC+NOx} = 6.0 + 0.25 \times (151 + 557/P^{0.9})$$

(2) For engines with maximum engine power above 40 kW, the maximum value of the family emission limit for CO is 450 g/kW-hr. For all other engines, the maximum value is defined by the following formula, with results rounded to the nearest g/kW-hr:

$$FEL_{\max, CO} = 650 - 5.0 \times P$$

(c) Not-to-exceed emission standards. Exhaust emissions may not exceed the not-to-exceed standards specified in §1045.107.

(d) Fuel types. The exhaust emission standards in this section apply for engines using the fuel type on which the engines in the engine family are designed to operate. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

- (1) Alcohol-fueled engines: THCE emissions.
- (2) Natural gas-fueled engines: NMHC emissions.
- (3) Other engines: THC emissions.

(e) Useful life. Your engines must meet the exhaust emission standards in paragraphs (a) through (c) of this section over the full useful life as follows:

- (1) For outboard engines, the minimum useful life is 350 hours of engine operation or 10 years, whichever comes first.
- (2) For personal watercraft engines, the minimum useful life is 350 hours of engine operation or 5 years, whichever comes first.
- (3) You must specify a longer useful life in terms of hours for the engine family if the average service life of your vehicles is longer than the minimum value, as follows:

- (i) Except as allowed by paragraph (e)(3)(ii) of this section, your useful life (in hours) may not be less than either of the following:
 - (A) Your projected operating life from advertisements or other marketing materials for any engines in the engine family.
 - (B) Your basic mechanical warranty for any engines in the engine family.
- (ii) Your useful life may be based on the average service life of vehicles in the engine family if you show that the average service life is less than the useful life required by paragraph (e)(3)(i) of this section, but more than the minimum useful life (350 hours of engine operation). In determining the actual average service life of vehicles in an engine family, we will consider all available information and analyses. Survey data is allowed but not required to make this showing.

(f) Applicability for testing. The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in §1045.505, including certification, production-line, and in-use testing. The not-to-exceed standards apply for all testing performed according to the procedures of subpart F of this part.

§1045.105 What exhaust emission standards must my sterndrive/inboard engines meet?

(a) Duty-cycle emission standards. Starting in the 2010 model year, exhaust emissions from your sterndrive/inboard engines may not exceed emission standards as follows:

- (1) Measure emissions using the applicable steady-state test procedures described in subpart F of this part.
- (2) For conventional sterndrive/inboard engines, the HC+NO_x emission standard is 5.0 g/kW-hr and the CO emission standard is 75.0 g/kW-hr.
- (3) The exhaust emission standards from the following table apply for high-performance engines:

Table 1 to §1045.105—Emission Standards for High-Performance Engines (g/kW-hr)

Model Year	Power ¹	HC+NO _x	CO
2010	P ≤ 485 kW	20.0	350
	P > 485 kW	25.0	350
2011+	P ≤ 485 kW	16.0	350
	P > 485 kW	22.0	350

¹ Power (P) = maximum engine power in kilowatts (kW).

(b) Averaging, banking, and trading. You may not generate or use emission credits for high-performance engines. You may generate or use emission credits under the averaging, banking, and trading (ABT) program described in subpart H of this part for demonstrating compliance with HC+NO_x and CO emission standards for conventional sterndrive-inboard engines. To generate or use emission credits, you must specify a family emission limit for each pollutant you include in the ABT program for each engine family. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meets the emission standards using emission credits and the engines within the family meet the family emission limit. Family emission limits for conventional sterndrive/inboard engines may not be higher than 16.0 g/kW-hr for HC+NO_x and 150 g/kW-hr for CO except as specified in §1045.145(c).

(c) Not-to-exceed emission standards. Exhaust emissions may not exceed the not-to-exceed standards specified in §1045.107 for conventional sterndrive/inboard engines. These standards do not apply for high-performance engines.

(d) Fuel types. The exhaust emission standards in this section apply for engines using the fuel type on which the engines in the engine family are designed to operate. You must meet the numerical emission

standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

- (1) Alcohol-fueled engines: THCE emissions.
- (2) Natural gas-fueled engines: NMHC emissions.
- (3) Other engines: THC emissions.

(e) Useful life. Your engines must meet the exhaust emission standards in paragraphs (a) through (c) of this section over their full useful life, as follows:

(1) For high-performance engines with maximum engine power above 485 kW, the useful life is 50 hours of operation or 1 year, whichever comes first. For high-performance engines with maximum engine power at or below 485 kW, the useful life is 150 hours of operation or 3 years, whichever comes first.

(2) For conventional sterndrive/inboard engines, the minimum useful life is 480 hours of operation or ten years, whichever comes first. However, you may request in your application for certification that we approve a shorter useful life for an engine family. We may approve a shorter useful life, in hours of engine operation but not in years, if we determine that these engines will rarely operate longer than the shorter useful life. If engines identical to those in the engine family have already been produced and are in use, your demonstration must include documentation from such in-use engines. In other cases, your demonstration must include an engineering analysis of information equivalent to such in-use data, such as data from research engines or similar engine models that are already in production. Your demonstration must also include any overhaul interval that you recommend, any mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The useful life value may not be shorter than any of the following:

- (i) 150 hours of operation.
- (ii) Your recommended overhaul interval.
- (iii) Your mechanical warranty for the engine.

(3) You must specify a longer useful life for conventional sterndrive/inboard engines in terms of hours if the average service life of engines from the engine family is longer than the minimum useful life value, as follows:

(i) Except as allowed by paragraph (e)(3)(ii) of this section, your useful life (in hours) may not be less than either of the following:

- (A) Your projected operating life from advertisements or other marketing materials for any engines in the engine family.
- (B) Your basic mechanical warranty for any engines in the engine family.

(ii) Your useful life may be based on the average service life of engines in the engine family if you show that the average service life is less than the useful life required by paragraph (e)(3)(i) of this section, but more than the minimum useful life (480 hours of engine operation). In determining the actual average service life of engines in an engine family, we will consider all available information and analyses. Survey data is allowed but not required to make this showing.

(f) Applicability for testing. The duty-cycle emission standards in this section apply to all testing performed according to the procedures in §1045.505, including certification, production-line, and in-use testing. The not-to-exceed standards apply for all testing performed according to the procedures of subpart F of this part.

§1045.107 What are the not-to-exceed emission standards?

Not-to-exceed emission standards apply as follows:

(a) Measure emissions using the not-to-exceed procedures in subpart F of this part:

(b) Determine the not-to-exceed standard, rounded to the same number of decimal places as the emission standard in Table 1 to this section from the following equation:

$$\text{Not-to-exceed standard} = (\text{STD}) \times (\text{M})$$

Where:

STD = The standard specified in paragraph (a) of this section if you certify without using ABT for that pollutant; or the FEL for that pollutant if you certify using ABT.

M = The NTE multiplier for that pollutant, as defined in paragraphs (c) through (e) of this section.

(c) For engines equipped with a catalyst, use NTE multipliers from the following table across the applicable zone specified in §1045.515:

Table 1 to §1045.107— NTE Multipliers for Catalyst-Equipped Engines

Pollutant	Subzone 1	Subzone 2
HC+NO _x	1.50	1.00
CO	not applicable	1.00

(d) For two-stroke engines not equipped with a catalyst, use an NTE multiplier of 1.2 for HC+NO_x and CO. Compare the weighted value specified in §1045.515(c)(5) to the NTE standards specified in paragraph (b) of this section.

(e) For engines not covered by paragraphs (c) and (d) of this section, use the NTE multipliers from the following table across the applicable zone specified in §1045.515:

Table 2 to §1045.107— NTE Multipliers for Four-Stroke Engines without Catalysts

Pollutant	Subzone 1	Subzone 2
HC+NO _x	1.40	1.60
CO	1.50	1.50

§1045.110 How must my engines diagnose malfunctions?

The following engine-diagnostic requirements apply for engines equipped with three-way catalysts and closed-loop control of air-fuel ratios:

- (a) Equip your engines with a diagnostic system. Equip each engine with a diagnostic system that will detect significant malfunctions in its emission control system using one of the following protocols:
- (1) If your emission control strategy depends on maintaining air-fuel ratios at stoichiometry, an acceptable diagnostic design would identify a malfunction whenever the air-fuel ratio does not cross stoichiometry for one minute of intended closed-loop operation. You may use other diagnostic strategies if we approve them in advance.
 - (2) If the protocol described in paragraph (a)(1) of this section does not apply to your engine, you must use an alternative approach that we approve in advance. Your alternative approach must generally detect when the emission control system is not functioning properly.
 - (3) Diagnostic systems approved by the California Air Resources Board for use with sterndrive/inboard engines fully satisfy the requirements of this section.
- (b) Use a malfunction indicator. The malfunction indicator must be designed such that the operator can readily see or hear it; visible signals may be any color except red. Visible malfunction indicators must display “Check Engine,” “Service Engine Soon,” or a similar message that we approve. The malfunction indicator must go on under each of the following circumstances:
- (1) When a malfunction occurs, as described in paragraph (a) of this section.
 - (2) When the diagnostic system cannot send signals to meet the requirement of paragraph (b)(1) of this section.
 - (3) When the engine’s ignition is in the "key-on" position before starting or cranking. The malfunction indicator should turn off after engine starting if the system detects no malfunction.
- (c) Control when the malfunction can turn off. If the malfunction indicator goes on to show a malfunction, it must remain on during all later engine operation until servicing corrects the malfunction. If the engine is not serviced, but the malfunction does not recur for three consecutive engine starts during

which the malfunctioning system is evaluated and found to be working properly, the malfunction indicator may stay off during later engine operation.

(d) Store trouble codes in computer memory. Record and store in computer memory any diagnostic trouble codes showing a malfunction that should activate the malfunction indicator. The stored codes must identify the malfunctioning system or component as uniquely as possible. Make these codes available through the data link connector as described in paragraph (g) of this section. You may store codes for conditions that do not activate the malfunction indicator. The system must store a separate code to show when the diagnostic system is disabled (from malfunction or tampering).

(e) Make data, access codes, and devices accessible. Make all required data accessible to us without any access codes or devices that only you can supply. Ensure that anyone servicing your engine can read and understand the diagnostic trouble codes stored in the onboard computer with generic tools and information.

(f) Consider exceptions for certain conditions. Your diagnostic systems may disregard trouble codes for the first three minutes after engine starting. You may ask us to approve diagnostic-system designs that disregard trouble codes under other conditions that would produce an unreliable reading, damage systems or components, or cause other safety risks.

(g) Follow standard references for formats, codes, and connections. Follow conventions defined in SAE J1939-05 (incorporated by reference in §1045.810) or ask us to approve using updated versions of (or variations from) this standard.

§1045.112 What are the standards for evaporative emissions?

Fuel systems must meet the evaporative emission requirements of 40 CFR part 1060 as specified in this section. These standards apply over a useful life period of five years for personal watercraft and ten years for all other vessels and for portable marine fuel tanks.

(a) Fuel line permeation. Nonmetal fuel lines must meet the permeation requirements specified in 40 CFR 1060.102 for EPA NRFL fuel lines as described in this paragraph (a).

(1) Except as specified in paragraphs (a)(2) and (3) of this section, the emission standard for fuel lines starts for vessels or portable marine fuel tanks with a date of manufacture on or after January 1, 2009.

(2) The emission standard for primer bulbs applies starting January 1, 2011.

(3) The emission standard for under-cowl fuel lines used with outboard engines apply over a phase-in period as specified in this paragraph (a)(3).

(i) Except as specified in paragraph (a)(3)(ii) of this section, the phase-in period is based on total length of fuel lines as specified in Table 1 to this section. For example, at least 30 percent of the length of under-cowl fuel lines used on your full lineup of 2010 model year outboard engines must meet the specified permeation standards. See §1045.145(k) for administrative requirements related to this phase-in.

Table 1 to §1045.112—
Phase-in Schedule for Under-Cowl Fuel Lines on Outboard Engines

Model Year	Percentage Phase-in
2010	30%
2011	60%
2012-2014	90%
2015+	100%

(ii) You may instead meet the permeation standards of this paragraph (a) by complying with the specified standards with 100 percent of your under-cowl fuel lines across your full lineup of 2011 model year outboard engines. In this case, the requirements of this part would not apply to under-cowl fuel lines before the 2011 model year. To use this option, you must notify the Designated Compliance Officer before December 31, 2009 of your intent to meet permeation standards on all your under-cowl fuel lines in the 2011 model year.

(b) Tank permeation. Fuel tanks must meet the permeation requirements specified in 40 CFR 1060.103. Portable marine fuel tanks must meet permeation standards starting January 1, 2011. Fuel tanks for personal watercraft must meet permeation standards starting in the 2011 model year. Other installed fuel tanks must meet permeation standards starting in the 2012 model year. Vessel manufacturers may generate or use emission credits to show compliance with the requirements of this paragraph under the averaging, banking, and trading (ABT) program, as described in subpart H of this part. Starting in the 2014 model year for personal watercraft and in the 2015 model year for other installed fuel tanks, family emission limits may not exceed 5.0 g/m²/day if testing occurs at a nominal temperature of 28°C, or 8.3 g/m²/day if testing occurs at a nominal temperature of 40°C. These FEL caps do not apply to fuel caps that are certified separately to meet permeation standards. Portable marine fuel tank manufacturers may not generate or use emission credits under subpart H of this part.

(c) Running loss. The running loss requirements specified in 40 CFR part 1060 do not apply.

(d) Diurnal emissions. Installed fuel tanks must meet the diurnal emission requirements specified in 40 CFR 1060.105. Fuel tanks for personal watercraft must meet diurnal emission standards starting in the 2010 model year. Other installed fuel tanks must meet diurnal emission standards for vessels produced on or after July 31, 2011, except as allowed by §1045.625. Fuel tanks meeting the definition of portable marine fuel tank in §1045.801 must comply with the diurnal requirements specified in 40 CFR part 1060 starting January 1, 2010.

(e) Other requirements. The requirements of 40 CFR 1060.101(e) and (f) apply to vessel manufacturers even if they do not obtain a certificate.

(f) Engine manufacturers. To the extent that engine manufacturers produce engines with fuel lines or fuel tanks, those fuel-system components must meet the requirements specified in this section. The timing of new standards is based on the date of manufacture of the engine.

§1045.115 What other requirements apply?

The following requirements apply with respect to engines that are required to meet the emission standards of this part:

(a) Crankcase emissions. Crankcase emissions may not be discharged directly into the ambient atmosphere from any engine throughout its useful life.

(b) Torque broadcasting. Starting in the 2013 model year, electronically controlled engines must broadcast their speed and output shaft torque (in newton-meters). Engines may alternatively broadcast a surrogate value for determining torque. Engines must broadcast engine parameters such that they can be read with a remote device, or broadcast them directly to their controller area networks. Your broadcasting protocol must allow for valid measurements using the field-testing procedures in 40 CFR part 1065, subpart J.

(c) EPA access to broadcast information. If we request it, you must provide us any hardware or tools we would need to readily read, interpret, and record all information broadcast by an engine's on-board computers and electronic control modules. If you broadcast a surrogate parameter for torque values, you must provide us what we need to convert these into torque units. We will not ask for hardware or tools if they are readily available commercially.

(d) Altitude adjustments. Engines must meet applicable emission standards for valid tests conducted under the ambient conditions specified in 40 CFR 1065.520. Engines must meet applicable emission standards at all specified atmospheric pressures, except that for atmospheric pressures below 94.0 kPa you may rely on an altitude kit for all testing if you meet the requirements specified in §1054.205(s). If you rely on an altitude kit for certification, you must identify in the owners manual the altitude range for which you expect proper engine performance and emission control with and without the altitude kit; you must also state in the owners manual that operating the engine with the wrong engine configuration at a given altitude may increase its emissions and decrease fuel efficiency and performance.

(e) Adjustable parameters. Engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. We may

require that you set adjustable parameters to any specification within the adjustable range during any testing, including certification testing, production-line testing, or in-use testing.

(f) Prohibited controls. You may not design your engines with emission-control devices, systems, or elements of design that cause or contribute to an unreasonable risk to public health, welfare, or safety while operating. For example, this would apply if the engine emits a noxious or toxic substance it would otherwise not emit that contributes to such an unreasonable risk.

(g) Defeat devices. You may not equip your engines with a defeat device. A defeat device is an auxiliary emission control device that reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use. This does not apply for altitude kits installed or removed consistent with §1045.655. This also does not apply to auxiliary emission control devices you identify in your application for certification if any of the following is true:

- (1) The conditions of concern were substantially included in the applicable duty-cycle test procedures described in subpart F of this part.
- (2) You show your design is necessary to prevent engine (or vessel) damage or accidents. For example, you may design your engine to include emergency operating modes (sometimes known as limp-home operation) that would allow a vessel to return to land in the event of a malfunction even if such operating modes result in higher emissions.
- (3) The reduced effectiveness applies only to starting the engine.

§1045.120 What emission-related warranty requirements apply to me?

(a) General requirements. You must warrant to the ultimate purchaser and each subsequent purchaser that the new engine, including all parts of its emission control system, meets two conditions:

- (1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.
- (2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.

(b) Warranty period. Your emission-related warranty must be valid during the periods specified in this paragraph (b). You may offer an emission-related warranty more generous than we require. The emission-related warranty for an engine may not be shorter than any published warranty you offer without charge for that engine. Similarly, the emission-related warranty for any component may not be shorter than any published warranty you offer without charge for that component. If an engine has no hour meter, we base the warranty periods in this paragraph (b) only on the engine’s age (in years). The warranty period begins when the engine is placed into service.

- (1) The minimum warranty period for outboard engines is 175 hours of engine operation or 5 years, whichever comes first. The minimum warranty period for personal watercraft engines is 175 hours of engine operation or 30 months, whichever comes first.
- (2) The minimum warranty period for sterndrive/inboard engines is shown in the following table:

Table 1 to §1045.120—Warranty Periods for Sterndrive/inboard Engines¹

Engine type	Electronic components	Mechanical components
Conventional	3 years/480 hours	3 years/480 hours
High-performance with maximum engine power at or below 485 kW	3 years/480 hours	3 years/150 hours
High-performance with maximum engine power above 485 kW	3 years/480 hours	1 year/50 hours

¹ The warranty period expires after the specified time period or number of operating hours, whichever comes first.

(c) Components covered. The emission-related warranty covers all components whose failure would increase an engine’s emissions of any regulated pollutant, including components listed in 40 CFR part

1068, Appendix I, and components from any other system you develop to control emissions. The emission-related warranty covers these components even if another company produces the component. Your emission-related warranty does not cover components whose failure would not increase an engine's emissions of any regulated pollutant.

(d) Limited applicability. You may deny warranty claims under this section if the operator caused the problem through improper maintenance or use, as described in 40 CFR 1068.115.

(e) Owners manual. Describe in the owners manual the emission-related warranty provisions from this section that apply to the engine.

§1045.125 What maintenance instructions must I give to buyers?

Give the ultimate purchaser of each new engine written instructions for properly maintaining and using the engine, including the emission control system as described in this section. The maintenance instructions also apply to service accumulation on your emission-data engines as described in §1045.245 and in 40 CFR part 1065.

(a) Critical emission-related maintenance. Critical emission-related maintenance includes any adjustment, cleaning, repair, or replacement of critical emission-related components. This may also include additional emission-related maintenance that you determine is critical if we approve it in advance. You may schedule critical emission-related maintenance on these components if you meet the following conditions:

(1) You demonstrate that the maintenance is reasonably likely to be done at the recommended intervals on in-use engines. We will accept scheduled maintenance as reasonably likely to occur if you satisfy any of the following conditions:

(i) You present data showing that any lack of maintenance that increases emissions also unacceptably degrades the engine's performance.

(ii) You present survey data showing that at least 80 percent of engines in the field get the maintenance you specify at the recommended intervals.

(iii) You provide the maintenance free of charge and clearly say so in your maintenance instructions.

(iv) You otherwise show us that the maintenance is reasonably likely to be done at the recommended intervals.

(2) You may not schedule critical emission-related maintenance within the useful life period for aftertreatment devices, pulse-air valves, fuel injectors, oxygen sensors, electronic control units, superchargers, or turbochargers, except as specified in paragraph (b) or (c) of this section.

(b) Recommended additional maintenance. You may recommend any additional amount of maintenance on the components listed in paragraph (a) of this section, as long as you state clearly that these maintenance steps are not necessary to keep the emission-related warranty valid. If operators do the maintenance specified in paragraph (a) of this section, but not the recommended additional maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these maintenance steps during service accumulation on your emission-data engines.

(c) Special maintenance. You may specify more frequent maintenance to address problems related to special situations, such as atypical engine operation. You must clearly state that this additional maintenance is associated with the special situation you are addressing.

(d) Noncritical emission-related maintenance. Subject to the provisions of this paragraph (d), you may schedule any amount of emission-related inspection or maintenance that is not covered by paragraph (a) of this section (i.e., maintenance that is neither explicitly identified as critical emission-related maintenance, nor that we approve as critical emission-related maintenance). Noncritical emission-related maintenance generally includes changing spark plugs, re-seating valves, or any other emission-related maintenance on the components we specify in 40 CFR part 1068, Appendix I that is not covered in paragraph (a) of this section. You must state in the owners manual that these steps are not necessary to keep the emission-related warranty valid. If operators fail to do this maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these inspection or maintenance steps during service accumulation on your emission-data engines.

(e) Maintenance that is not emission-related. For maintenance unrelated to emission controls, you may schedule any amount of inspection or maintenance. You may also take these inspection or maintenance steps during service accumulation on your emission-data engines, as long as they are reasonable and technologically necessary. This might include adding engine oil, changing air, fuel, or oil filters, servicing engine-cooling systems, and adjusting idle speed, governor, engine bolt torque, valve lash, or injector lash. You may perform this nonemission-related maintenance on emission-data engines at the least frequent intervals that you recommend to the ultimate purchaser (but not the intervals recommended for severe service).

(f) Source of parts and repairs. State clearly on the first page of your written maintenance instructions that a repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems. Your instructions may not require components or service identified by brand, trade, or corporate name. Also, do not directly or indirectly condition your warranty on a requirement that the engine be serviced by your franchised dealers or any other service establishments with which you have a commercial relationship. You may disregard the requirements in this paragraph (f) if you do one of two things:

- (1) Provide a component or service without charge under the purchase agreement.
- (2) Get us to waive this prohibition in the public's interest by convincing us the engine will work properly only with the identified component or service.

(g) Payment for scheduled maintenance. Owners are responsible for properly maintaining their engines. This generally includes paying for scheduled maintenance. However, manufacturers must pay for scheduled maintenance during the useful life if it meets all the following criteria:

- (1) Each affected component was not in general use on similar engines before the applicable dates shown in paragraph (5) of the definition of new propulsion marine engine in §1045.801.
- (2) The primary function of each affected component is to reduce emissions.
- (3) The cost of the scheduled maintenance is more than 2 percent of the price of the engine.
- (4) Failure to perform the maintenance would not cause clear problems that would significantly degrade the engine's performance.

(h) Owners manual. Explain the owner's responsibility for proper maintenance in the owners manual.

§1045.130 What installation instructions must I give to vessel manufacturers?

(a) If you sell an engine for someone else to install in a vessel, give the engine installer instructions for installing it consistent with the requirements of this part. Include all information necessary to ensure that an engine will be installed in its certified configuration.

(b) Make sure the instructions have the following information:

- (1) Include the heading: "Emission-related installation instructions".
- (2) State: "Failing to follow these instructions when installing a certified engine in a vessel violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act."
- (3) Describe the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of §1045.205(u) related to in-use measurement and the requirements of §1045.655 related to altitude kits.
- (4) Describe the steps needed to control evaporative emissions as described in §1045.112. This will generally require notification that the installer and/or vessel manufacturer must meet the requirements of §1045.112 and 40 CFR part 1060.
- (5) Describe any necessary steps for installing the diagnostic system described in §1045.110.
- (6) Describe any limits on the range of applications needed to ensure that the engine operates consistently with your application for certification. For example, if your engines are certified only for personal watercraft, tell vessel manufacturers not to install the engines in vessels longer than 4.0 meters.
- (7) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. For example, this may include specified limits for

catalyst systems, such as exhaust backpressure, catalyst location, and temperature profiles during engine operation.

(8) State: "If you install the engine in a way that makes the engine's emission control information label hard to read during normal engine maintenance, you must place a duplicate label on the vessel, as described in 40 CFR 1068.105."

(c) You do not need installation instructions for engines you install in your own vessels.

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available website for downloading or printing. If you do not provide the instructions in writing, explain in your application for certification how you will ensure that each installer is informed of the installation requirements.

§1045.135 How must I label and identify the engines I produce?

The provisions of this section apply to engine manufacturers.

(a) Assign each engine a unique identification number and permanently affix, engrave, or stamp it on the engine in a legible way.

(b) At the time of manufacture, affix a permanent and legible label identifying each engine. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.

(2) Secured to a part of the engine needed for normal operation and not normally requiring replacement.

(3) Durable and readable for the engine's entire life.

(4) Written in English.

(c) The label must—

(1) Include the heading "EMISSION CONTROL INFORMATION".

(2) Include your full corporate name and trademark. You may identify another company and use its trademark instead of yours if you comply with the provisions of §1045.640.

(3) Include EPA's standardized designation for the engine family (and subfamily, where applicable).

(4) State the engine's displacement (in liters) and maximum engine power (in kW); however, you may omit the displacement from the label if all the engines in the engine family have the same per-cylinder displacement and total displacement.

(5) State the date of manufacture [DAY (optional), MONTH, and YEAR]; however, you may omit this from the label if you stamp, engrave, or otherwise permanently identify it elsewhere on the engine, in which case you must also describe in your application for certification where you will identify the date on the engine.

(6) State the FELs to which the engines are certified (in g/kW-hr) if certification depends on the ABT provisions of subpart H of this part.

(7) Identify the emission control system. Use terms and abbreviations as described in 40 CFR 1068.45. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

(8) List specifications and adjustments for engine tuneups; however, you may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

(9) Identify the fuel type and any requirements for fuel and lubricants; however, you may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

(10) State: "THIS MARINE ENGINE COMPLIES WITH U.S. EPA EXHAUST REGULATIONS FOR [MODEL YEAR]."

(11) If your durability demonstration for sterndrive/inboard engines is limited to fresh water, state: "THIS ENGINE IS NOT INTENDED FOR USE IN SALTWATER."

(d) You may add information to the emission control information label as follows:

(1) You may identify other emission standards that the engine meets or does not meet (such as California standards). You may include this information by adding it to the statement we specify or by including a separate statement.

- (2) You may add other information to ensure that the engine will be properly maintained and used.
- (3) You may add appropriate features to prevent counterfeit labels. For example, you may include the engine's unique identification number on the label.
- (e) You may ask us to approve modified labeling requirements in this part 1045 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the requirements of this part.
- (f) If you obscure the engine label while installing the engine in the vessel such that the label cannot be read during normal maintenance, you must place a duplicate label on the vessel. If others install your engine in their vessels in a way that obscures the engine label, we require them to add a duplicate label on the vessel (see 40 CFR 1068.105); in that case, give them the number of duplicate labels they request and keep the following records for at least five years:
 - (1) Written documentation of the request from the vessel manufacturer.
 - (2) The number of duplicate labels you send for each engine family and the date you sent them.

§1045.140 What is my engine's maximum engine power?

- (a) An engine configuration's maximum engine power is the maximum brake power point on the nominal power curve for the engine configuration, as defined in this section. Round the power value to the nearest whole kilowatt.
- (b) The nominal power curve of an engine configuration is the relationship between maximum available engine brake power and engine speed for an engine, using the mapping procedures of 40 CFR part 1065, based on the manufacturer's design and production specifications for the engine. This information may also be expressed by a torque curve that relates maximum available engine torque with engine speed.
- (c) The nominal power curve must be within the range of the actual power curves of production engines considering normal production variability. If after production begins it is determined that your nominal power curve does not represent production engines, we may require you to amend your application for certification under §1045.225.
- (d) Maximum engine power for an engine family is generally the weighted average value of maximum engine power of each engine configuration within the engine family based on your total U.S.-directed production volume of engines you produce from the engine family. However, alternative approaches for defining an engine family's maximum engine power apply in the following circumstances:
 - (1) For outboard or personal watercraft engines for which you neither generate nor use emission credits, you may identify the greatest value for maximum engine power from all the different configurations within the engine family to determine the appropriate emission standard under §1045.103.
 - (2) For high-performance engines, you must use the smallest value for maximum engine power from all the different configurations within the engine family to determine the standards and other requirements that apply under this subpart B.

§1045.145 Are there interim provisions that apply only for a limited time?

The provisions in this section apply instead of other provisions in this part. This section describes how and when these interim provisions apply.

- (a) Small-volume engine manufacturers. Special provisions apply to you for sterndrive/inboard engines if you are a small-volume engine manufacturer subject to the requirements of this part. Contact us before January 1, 2010 if you intend to use the provisions of this paragraph (a). You may delay complying with emission standards and other requirements that would otherwise apply until the 2011 model year for conventional sterndrive/inboard engines and until the 2013 model year for high-performance engines. Add a permanent label to a readily visible part of each engine exempted under this paragraph (a). This label must include at least the following items:
 - (1) The label heading "EMISSION CONTROL INFORMATION".
 - (2) Your corporate name and trademark.
 - (3) Engine displacement (in liters), rated power, and model year of the engine or whom to contact for further information.

(4) The following statement: "THIS ENGINE IS EXEMPT UNDER 40 CFR 1045.145(a) FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."

(b) Early banking. You may generate exhaust emission credits for conventional sterndrive/inboard engines before the 2010 model year (or before the 2011 model year for small-volume engine manufacturers) as follows:

(1) You must begin actual production of early-compliant engines by September 1, 2009 (or before September 1, 2010 for small-volume engine manufacturers).

(2) You may not generate emission credits under this paragraph (b) with engines you produce after December 31, 2009 (or December 31, 2010 for small-volume engine manufacturers).

(3) Early-compliant engines must be certified to the standards and requirements for conventional sterndrive/inboard engines under this part 1045, with all family emission limits at or below the specified emission standards.

(4) Calculate emission credits by setting STD equal to 16 g/kW-hr for HC+NO_x and 150 g/kW-hr for CO (see §1045.705).

(5) Small-volume engine manufacturers may calculate emission credits using a multiplier based on the number of model years before the 2011 model year. The multipliers are 1.25 for one year early, 1.5 for two years early, and 2.0 for three years early. For example, multiply your calculated emission credits generated from compliant 2009 model year engines by 1.5.

(6) You may not use the provisions of this paragraph (b) to generate emission credits for engines whose point of first retail sale is in California.

(7) HC+NO_x or CO credits you generate under this paragraph (b) may not be used after the 2012 model year (or the 2013 model year for small-volume engine manufacturers).

(c) Assigned emission factors. Through the 2013 model year, small-volume engine manufacturers may establish emission levels for certification without testing for conventional four-stroke sterndrive/inboard engines by selecting a family emission limit of 22.0 g/kW-hr for HC+NO_x emissions and 150 g/kW-hr for CO emissions. Note that you must use emission credits under the provisions of subpart H of this part to show that you meet applicable requirements if you use these family emission limits. Also, if you use these family emission limits, you must use them for both HC+NO_x and CO emissions.

(d) Early compliance with evaporative emission standards. You may sell or install fuel tanks that do not meet the specified permeation standards without violating the prohibition in 40 CFR 1068.101(a)(1) if you earn evaporative emission allowances, as follows:

(1) You may earn an evaporative emission allowance from one fuel tank certified to EPA's evaporative emission standards by producing it before EPA's evaporative emission standards start to apply. You may use this evaporative emission allowance by selling one fuel tank that does not meet the specified permeation emission standards. For example, you can earn an evaporative emission allowance by selling a low-permeation fuel tank for personal watercraft before the 2011 model year, in which case you could sell a high-permeation fuel tank for a personal watercraft in 2011. You must meet all the other requirements related to evaporative emissions that apply for fuel tanks covered by an EPA certificate of conformity.

(2) You must add a label to exempted fuel tanks you produce under this paragraph (d) with the following statement: "EXEMPT FROM EMISSION STANDARDS UNDER 40 CFR 1045.145(d)".

(3) Evaporative emission allowances you earn under this paragraph (d) from portable marine fuel tanks may be used only for other portable marine fuel tanks. Similarly, evaporative emission allowances from personal watercraft fuel tanks may be used only for personal watercraft fuel tanks and evaporative emission allowances from other installed fuel tanks may be used only for other installed fuel tanks.

(4) You may not use the allowances you generate under this paragraph (d) for portable marine fuel tanks and personal watercraft fuel tanks in 2014 or later model years. Similarly, you may not use the allowances you generate under this paragraph (d) for other installed fuel tanks in 2015 or later model years.

(5) Send the Designated Compliance Officer the following information for each year in which you use the provisions of this paragraph (d):

- (i) Send us a report within 45 days after the end of the model year describing how many pieces of equipment you produced in the preceding model year that generate allowances. You may combine this with the reports specified in §1045.250(a) if applicable.
- (ii) Describe the number of equipment using allowances under this paragraph (d) in your end-of-year reports and final reports after the end of the model year as described in §1045.730(a). If you do not participate in averaging, banking, and trading program, send this information separately within 90 days after the end of the model year.
- (e) Useful life for evaporative emission standards. A useful life period of two years applies for fuel tanks certified to meet the permeation emission standards in §1045.112(b) in 2013 and earlier model years. However, for fuel tanks with a family emission limit above or below the specified emission standard, calculate emission credits under §1045.706 based on the useful life values specified in §1045.112.
- (f) Delayed FEL caps for stand-up personal watercraft. The FEL caps specified in §1045.103(b) do not apply in the 2010 and 2011 model years for personal watercraft that are designed for operation from a standing position.
- (g) Delayed compliance with not-to-exceed emission standards. The not-to-exceed standards specified in §1045.107 do not apply in the 2010 through 2012 model years for engine families that are certified based on carryover emission data from the 2009 model year. This includes models that were certified only in California, as long as no new testing is otherwise required to get a new certificate.
- (h) Carryover of California ARB emission data. The provisions of 40 CFR 1065.10(c)(5) allow for the use of emission data generated for the California Air Resources Board as the basis for EPA certification. For sterndrive/inboard engines certified in California before the 2010 model year, you may use such emission data as the basis for meeting the standards of §1045.105, as long as you meet the conditions specified in §1045.235(d).
- (i) Hardship for obsolete engines. We have made the determination under 40 CFR 1068.255 that secondary engine manufacturers may use the hardship exemption to sell uncertified 4.3-liter and 8.1-liter engines from General Motors in the 2010 model year. These engines are exempt without request. You must label the engines as specified in 40 CFR 1068.255(b).
- (j) Adjusted NTE subzones for noncatalyzed four-stroke engines. For supercharged four-stroke outboard engines above 150 kW without catalysts, you may divide the NTE zone specified in §1045.515(c)(6) based on a speed cutpoint of 70 percent of maximum test speed instead of 50 percent of maximum test speed through the 2014 model year.
- (k) Averaging for under-cowl fuel lines. Section 1045.112 specifies phased-in standards for under-cowl fuel lines for 2010 through 2014 model years, subject to the following provisions:
- (1) You must comply with these requirements based on total lengths of compliant and noncompliant fuel lines. For each model year, calculate the percentage of compliant under-cowl fuel line by adding up the length of under-cowl fuel line certified to meet the applicable permeation standards and dividing this sum by the total length of under-cowl fuel line from all your outboard engines. You may count a fuel line as compliant only if you certify that its emission levels will be at or below the specified standard throughout the useful life.
 - (2) In your application for certification for each outboard engine family, identify the part numbers, descriptions, and locations of all the compliant fuel lines. You must include a drawing of any fuel lines in addition to the description if that is necessary for us to find which fuel lines you intend to be certified. Your descriptions must include the lengths of compliant and noncompliant fuel lines for each engine, including aggregated lengths for the whole set of fuel lines used on an engine. If the engine family includes noncompliant fuel lines, you must also include a statement that you will have enough compliant fuel lines to meet the phase-in requirements and provide detailed calculations to support your statement.
 - (3) Send the Designated Compliance Officer end-of-year reports and final reports after the end of each model year that you use noncompliant fuel lines as described in §1045.730(a). Include the production volumes with a point of retail sale in the United States, as described in §§1045.701(j). State your production volumes in terms of total engine sales by model and in terms of total lengths of compliant and noncompliant fuel lines. If a single engine family includes configurations with

different lengths of compliant or noncompliant fuel lines, count each configuration separately. If you changed your designs during the model year in a way that affects these compliance calculations, identify the actual production volumes associated with each unique design.

(4) Keep a copy of the reports we require in this paragraph (k) until December 31, 2022 as described in §1045.735(b). We may require you to keep additional records or to send us relevant information not required by this paragraph (k), as allowed under the Clean Air Act.

(5) Label your compliant low-permeation fuel lines as specified in §1060.137. Any fuel line observed without a complete identification as specified in §1060.137 will be considered noncompliant. In addition, for each model year in which you use noncompliant fuel lines, you must include one of the following statements on the engine label described in §1045.135:

(i) “LOW-PERM/HIGH-PERM = [x/y]”, where x is the percentage of low-permeation under-cowl fuel line and y is the percentage of high-permeation under-cowl fuel line (x and y must sum to 100).

(ii) “LOW-PERM = [x mm]; HIGH-PERM = [y mm]”, where x is the length of low-permeation under-cowl fuel line and y is the length of high-permeation under-cowl fuel line, in mm.

(l) [Reserved]

(m) Delayed labeling for fuel lines. You may omit fuel-line labeling requirements specified in 40 CFR part 1060 in the 2009 model year.

(n) Continued use of 40 CFR part 91 test procedures. You may continue to use the test procedures in 40 CFR part 91 instead of those in subpart F of this part for 2010 through 2012 model year outboard and personal watercraft engines. This applies for certification, production-line, and in-use testing. You may continue to use test data based on the test procedures in 40 CFR part 91 for engine families in 2013 and later model years, provided that we allow you to use carryover emission data under 40 CFR 1045.235(d) for your engine family. You may also use the test procedures in 40 CFR part 91 for production-line testing with any engine family whose certification is based on testing with those procedures.

Subpart C—Certifying Engine Families

§1045.201 What are the general requirements for obtaining a certificate of conformity?

Engine manufacturers must certify their engines with respect to the exhaust emission standards in this part. Manufacturers of engines, equipment, or fuel-system components may need to certify their products with respect to evaporative emission standards as described in 40 CFR 1060.1 and 1060.601. The following general requirements apply for obtaining a certificate of conformity:

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid starting with the indicated effective date but it is not valid for any production after December 31 of the model year for which it is issued. No certificate will be issued after December 31 of the model year.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see §1045.255).

(c) We may ask you to include less information than we specify in this subpart as long as you maintain all the information required by §1045.250.

(d) You must use good engineering judgment for all decisions related to your application (see 40 CFR 1068.5).

(e) An authorized representative of your company must approve and sign the application.

(f) See §1045.255 for provisions describing how we will process your application.

(g) We may require you to deliver your test engines to a facility we designate for our testing (see §1045.235(c)).

§1045.205 What must I include in my application?

This section specifies the information that must be in your application, unless we ask you to include less information under §1045.201(c). We may require you to provide additional information to evaluate your application.

- (a) Describe the engine family's specifications and other basic parameters of the engine's design and emission controls. List the fuel type on which your engines are designed to operate (for example, all-season gasoline). List each distinguishable engine configuration in the engine family. For each engine configuration, list the maximum engine power and the range of values for maximum engine power resulting from production tolerances, as described in §1045.140. Describe why your engines qualify as high-performance engines, if applicable.
- (b) Explain how the emission control systems operate. Describe in detail all system components for controlling exhaust emissions, including all auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production or test engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECDs any devices that modulate or activate differently from each other. Include sufficient detail to allow us to evaluate whether the AECDs are consistent with the defeat device prohibition of §1045.115.
- (c) Explain how the engine diagnostic system works, if applicable, describing especially the engine conditions (with the corresponding diagnostic trouble codes) that cause the malfunction indicator to go on. Propose the conditions under which the diagnostic system should disregard trouble codes, as described in §1045.110(f).
- (d) Describe the engines you selected for testing and the reasons for selecting them.
- (e) Describe the test equipment and procedures that you used, including any special or alternate test procedures you used.
- (f) Describe how you operated the emission-data engine before testing, including the duty cycle and the number of engine operating hours used to stabilize emission levels. Explain why you selected the method of service accumulation. Describe any scheduled maintenance you did.
- (g) List the specifications of the test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065.
- (h) Identify the engine family's useful life.
- (i) Include the maintenance and warranty instructions you will give to the ultimate purchaser of each new engine (see §§1045.120 and 1045.125).
- (j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vessel (see §1045.130).
- (k) Describe your emission control information label (see §1045.135).
- (l) Identify the emission standards or FELs to which you are certifying engines in the engine family.
- (m) Identify the engine family's deterioration factors and describe how you developed them (see §1045.245). Present any emission test data you used for this.
- (n) State that you operated your emission-data engines as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.
- (o) Present emission data to show that you meet emission standards, as follows:
 - (1) Present emission data by mode for hydrocarbons (such as THC or THCE, as applicable), NO_x, and CO on an emission-data engine to show your engines meet the duty-cycle emission standards we specify in §§1045.103(a) and 1045.105(a). Show weighted emission figures before and after applying deterioration factors for each engine. If we specify more than one grade of any fuel type (for example, low-temperature and all-season gasoline), you need to submit test data only for one grade, unless the regulations of this part specify otherwise for your engine.
 - (2) Note that §§1045.235 and 1045.245 allow you to submit an application in certain cases without new emission data.
- (p) State that all the engines in the engine family comply with the not-to-exceed emission standards we specify in subpart B of this part for all normal operation and use when tested as specified in §1045.515, if applicable. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement.

- (q) Report all test results, including those from invalid tests, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO₂, report those emission levels (in g/kW-hr). We may ask you to send other information to confirm that your tests were valid under the requirements of this part and 40 CFR parts 1060 and 1065.
- (r) Describe all adjustable operating parameters (see §1045.115(e)), including production tolerances. Include the following in your description of each parameter:
- (1) The nominal or recommended setting.
 - (2) The intended physically adjustable range.
 - (3) The limits or stops used to establish adjustable ranges.
 - (4) Information showing why the limits, stops, or other means of inhibiting adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your intended physically adjustable ranges.
- (s) Describe how your engines comply with emission standards at varying atmospheric pressures. Include a description of altitude kits you design to comply with the requirements of §1045.115(d). Identify the part number of each component you describe. Identify the altitude range for which you expect proper engine performance and emission control with and without the altitude kit. State that your engines will comply with applicable emission standards throughout the useful life with the altitude kit installed according to your instructions. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement. In addition, describe your plan for making information and parts available such that you would reasonably expect that altitude kits would be widely used in the high-altitude counties specified in 40 CFR part 1068, Appendix III. For example, engine owners should have ready access to information describing when an altitude kit is needed and how to obtain this service. Similarly, parts and service information should be available to qualified service facilities in addition to authorized service centers if that is needed for owners to have such altitude kits installed locally.
- (t) Provide the information needed to read, record, and interpret all the information broadcast by an engine's onboard computers and electronic control units. State that, upon request, you will give us any hardware, software, or tools we would need to do this. If you broadcast a surrogate parameter for torque values, you must provide us what we need to convert these into torque units. You may reference any appropriate publicly released standards that define conventions for these messages and parameters. Format your information consistent with publicly released standards.
- (u) Confirm that your emission-related installation instructions specify how to ensure that sampling of exhaust emissions will be possible after engines are installed in vessels and placed in service. Show how to sample exhaust emissions in a way that prevents diluting the exhaust sample with ambient air.
- (v) Unconditionally certify that all the engines in the engine family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.
- (w) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models.
- (x) Include the information required by other subparts of this part. For example, include the information required by §1045.725 if you participate in the ABT program.
- (y) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.
- (z) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.
- (aa) For imported engines, identify the following:
- (1) The port(s) at which you have imported engines over the previous 12 months.
 - (2) The names and addresses of the agents you have authorized to import your engines.
 - (3) The location of a test facility in the United States where you can test your engines if we select them for testing under a selective enforcement audit, as specified in 40 CFR part 1068, subpart E.

§1045.210 May I get preliminary approval before I complete my application?

If you send us information before you finish the application, we will review it and make any appropriate determinations, especially for questions related to engine family definitions, auxiliary emission control devices, deterioration factors, testing for service accumulation, maintenance, and compliance with not-to-exceed standards. Decisions made under this section are considered to be preliminary approval, subject to final review and approval. We will generally not reverse a decision where we have given you preliminary approval, unless we find new information supporting a different decision. If you request preliminary approval related to the upcoming model year or the model year after that, we will make the appropriate determinations as soon as practicable. We will generally not provide preliminary approval related to a future model year more than two years ahead of time.

§1045.220 How do I amend the maintenance instructions in my application?

You may amend your emission-related maintenance instructions after you submit your application for certification as long as the amended instructions remain consistent with the provisions of §1045.125. You must send the Designated Compliance Officer a written request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. If operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim.

(a) If you are decreasing, replacing, or eliminating any specified maintenance, you may distribute the new maintenance instructions to your customers 30 days after we receive your request, unless we disapprove your request. This would generally include replacing one maintenance step with another. We may approve a shorter time or waive this requirement.

(b) If your requested change would not decrease the specified maintenance, you may distribute the new maintenance instructions anytime after you send your request.

(c) You need not request approval if you are making only minor corrections (such as correcting typographical mistakes), clarifying your maintenance instructions, or changing instructions for maintenance unrelated to emission control. We may ask you to send us copies of maintenance instructions revised under this paragraph (c).

§1045.225 How do I amend my application for certification to include new or modified engines or change an FEL?

Before we issue you a certificate of conformity, you may amend your application to include new or modified engine configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or modified engine configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information included in your application.

(a) You must amend your application before you take any of the following actions:

(1) Add an engine configuration to an engine family. In this case, the engine configuration added must be consistent with other engine configurations in the engine family with respect to the criteria listed in §1045.230.

(2) Change an engine configuration already included in an engine family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the engine's lifetime.

(3) Modify an FEL for an engine family as described in paragraph (f) of this section.

(b) To amend your application for certification, send the Designated Compliance Officer the following information:

(1) Describe in detail the addition or change in the engine model or configuration you intend to make.

(2) Include engineering evaluations or data showing that the amended engine family complies with all applicable requirements. You may do this by showing that the original emission-data engine is still appropriate for showing that the amended family complies with all applicable requirements.

(3) If the original emission-data engine for the engine family is not appropriate to show compliance for the new or modified engine configuration, include new test data showing that the new or modified engine configuration meets the requirements of this part.

(c) We may ask for more test data or engineering evaluations. You must give us these within 30 days after we request them.

(d) For engine families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your newly added or modified engine. You may ask for a hearing if we deny your request (see §1045.820).

(e) For engine families already covered by a certificate of conformity, you may start producing the new or modified engine configuration anytime after you send us your amended application and before we make a decision under paragraph (d) of this section. However, if we determine that the affected engines do not meet applicable requirements, we will notify you to cease production of the engines and may require you to recall the engines at no expense to the owner. Choosing to produce engines under this paragraph (e) is deemed to be consent to recall all engines that we determine do not meet applicable emission standards or other requirements and to remedy the nonconformity at no expense to the owner. If you do not provide information required under paragraph (c) of this section within 30 days after we request it, you must stop producing the new or modified engines.

(f) You may ask us to approve a change to your FEL in certain cases after the start of production. The changed FEL may not apply to engines you have already introduced into U.S. commerce, except as described in this paragraph (f). If we approve a changed FEL after the start of production, you must include the new FEL on the emission control information label for all engines produced after the change.

You may ask us to approve a change to your FEL in the following cases:

(1) You may ask to raise your FEL for your engine family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. If you amend your application by submitting new test data to include a newly added or modified engine, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part. In all other circumstances, you must use the higher FEL for the entire family to calculate emission credits under subpart H of this part.

(2) You may ask to lower the FEL for your engine family only if you have test data from production engines showing that emissions are below the proposed lower FEL. The lower FEL applies only to engines you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

§1045.230 How do I select engine families?

(a) For purposes of certification, divide your product line into families of engines that are expected to have similar emission characteristics throughout their useful life as described in this section. Your engine family is limited to a single model year.

(b) Group engines into the same engine family if they are the same in all the following aspects:

(1) The combustion cycle and fuel. See paragraph (e) of this section for special provisions that apply for dual-fuel engines.

(2) Method of air aspiration (for example, turbocharged vs. naturally aspirated).

(3) The number, location, volume, and composition of catalytic converters.

(4) The number, arrangement, and approximate bore diameter of cylinders.

(5) Method of control for engine operation, other than governing (i.e., mechanical or electronic).

(6) The numerical level of the applicable emission standards. For example, an engine family may not include engines certified to different family emission limits, though you may change family emission limits without recertifying as specified in §1045.225.

(c) You may subdivide a group of engines that is identical under paragraph (b) of this section into different engine families if you show the expected emission characteristics are different during the useful life.

(d) You may group engines that are not identical with respect to the things listed in paragraph (b) of this section into the same engine family, as follows:

(1) In unusual circumstances, you may group such engines into the same engine family if you show that their emission characteristics during the useful life will be similar.

(2) If you are a small-volume engine manufacturer, you may group all your high-performance engines into a single engine family.

(3) The provisions of this paragraph (e) do not exempt any engines from meeting all the emission standards and requirements in subpart B of this part.

(e) You may certify dual-fuel or flexible-fuel engines in a single engine family. You may include dedicated-fuel versions of this same engine model in the same engine family, as long as they are identical to the engine configuration with respect to that fuel type for the dual-fuel or flexible-fuel version of the engine. For example, if you produce an engine that can alternately run on gasoline and natural gas, you can include the gasoline-only and natural gas-only versions of the engine in the same engine family as the dual-fuel engine if engine operation on each fuel type is identical with or without installation of components for operating on the other fuel.

§1045.235 What emission testing must I perform for my application for a certificate of conformity?

This section describes the emission testing you must perform to show compliance with the emission standards in §§1045.103 and 1045.105. See §1045.205(p) regarding emission testing related to the not-to-exceed standards. See §§1045.240 and 1045.245 and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing.

(a) Select an emission-data engine from each engine family for testing as described in 40 CFR 1065.401. Select the engine with a configuration that is most likely to exceed the exhaust emission standards, using good engineering judgment. Consider the emission levels of all exhaust constituents over the full useful life of the engine when operated in a vessel.

(b) Test your emission-data engines using the procedures and equipment specified in subpart F of this part. In the case of dual-fuel engines, measure emissions when operating with each type of fuel for which you intend to certify the engine. In the case of flexible-fuel engines, measure emissions when operating with the fuel mixture that is most likely to cause the engine to exceed the applicable HC+NO_x emission standard, though you may ask us to exclude fuel mixtures that you can show are not likely to occur in use.

(c) We may measure emissions from any of your emission-data engines or other engines from the engine family, as follows:

(1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the engine to a test facility we designate. The engine you provide must include appropriate manifolds, aftertreatment devices, electronic control units, and other emission-related components not normally attached directly to the engine block. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need.

(2) If we measure emissions on one of your engines, the results of that testing become the official emission results for the engine. Unless we later invalidate these data, we may decide not to consider your data in determining if your engine family meets applicable requirements.

(3) We may set the adjustable parameters of your engine to any point within the physically adjustable ranges (see §1045.115(e)).

(4) We may calibrate your engine within normal production tolerances for anything we do not consider an adjustable parameter. For example, this would apply where we determine that an engine parameter is not an adjustable parameter (as defined in §1045.801) but that it is subject to production variability.

(d) You may ask to use carryover emission data from a previous model year instead of doing new tests, but only if all the following are true:

- (1) The engine family from the previous model year differs from the current engine family only with respect to model year or other characteristics unrelated to emissions.
 - (2) The emission-data engine from the previous model year remains the appropriate emission-data engine under paragraph (b) of this section.
 - (3) The data show that the emission-data engine would meet all the requirements that apply to the engine family covered by the application for certification. For engines originally tested under the provisions of 40 CFR part 91, you may consider those test procedures to be equivalent to the procedures we specify in subpart F of this part.
- (e) We may require you to test another engine of the same or different configuration in addition to the engine(s) tested under paragraph (b) of this section.
- (f) If you use an alternate test procedure under 40 CFR 1065.10 and later testing shows that such testing does not produce results that are equivalent to the procedures specified in subpart F of this part, we may reject data you generated using the alternate procedure.

§1045.240 How do I demonstrate that my engine family complies with exhaust emission standards?

- (a) For purposes of certification, your engine family is considered in compliance with the duty-cycle emission standards in §1045.103 or §1045.105 if all emission-data engines representing that family have test results showing deteriorated emission levels at or below these standards. This includes all test points over the course of the durability demonstration. Note that your FELs are considered to be the applicable emission standards with which you must comply if you participate in the ABT program in subpart H of this part.
- (b) Your engine family is deemed not to comply if any emission-data engine representing that family has test results showing a deteriorated emission level for any pollutant that is above an applicable emission standard. Similarly, your engine family is deemed not to comply if any emission-data engine representing that family has test results showing any emission level above the applicable not-to-exceed emission standard for any pollutant. The provisions of this paragraph (b) apply for all test points over the course of the durability demonstration.
- (c) Determine a deterioration factor to compare emission levels from the emission-data engine with the applicable emission standards. Section 1045.245 specifies how to test engines to develop deterioration factors that represent the expected deterioration in emissions over your engines' full useful life. Your deterioration factors must take into account any available data from in-use testing with similar engines. You may ask us to give you an assigned deterioration factor for your high-performance engines. Small-volume engine manufacturers may use assigned deterioration factors that we establish for any engine families certified under this part. Apply deterioration factors as follows:
- (1) Additive deterioration factor for exhaust emissions. For engines that do not use aftertreatment technology, use an additive deterioration factor for exhaust emissions. An additive deterioration factor is the difference between exhaust emissions at the end of useful life and exhaust emissions at the low-hour test point. Adjust the official emission results for each tested engine at the selected test point by adding the factor to the measured emissions. If the deterioration factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the emission standard.
 - (2) Multiplicative deterioration factor for exhaust emissions. For engines that use aftertreatment technology, such as catalytic converters, use a multiplicative deterioration factor for exhaust emissions. A multiplicative deterioration factor is the ratio of exhaust emissions at the end of useful life to exhaust emissions at the low-hour test point. Adjust the official emission results for each tested engine at the selected test point by multiplying the measured emissions by the deterioration factor. If the deterioration factor is less than one, use one. Multiplicative deterioration factors must be specified to one more significant figure than the emission standard.
- (d) Collect emission data using measurements to one more decimal place than the applicable standard. Apply the deterioration factor to the official emission result, as described in paragraph (c) of this section, then round the adjusted figure to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each emission-data engine. In the case of

HC+NO_x standards, add the official emission results and apply the deterioration factor to the sum of the pollutants before rounding. However, if your deterioration factors are based on emission measurements that do not cover the vehicle's full useful life, apply the deterioration factor to each pollutant and then add the results before rounding.

§1045.245 How do I determine deterioration factors from exhaust durability testing?

This section describes how to determine deterioration factors, either with pre-existing test data or with new emission measurements.

(a) You may ask us to approve deterioration factors for an engine family based on emission measurements from similar engines if you have already given us these data for certifying the other engines in the same or earlier model years. Use good engineering judgment to decide whether the two engines are similar.

(b) If you are unable to determine deterioration factors for an engine family under paragraph (a) of this section, select engines, subsystems, or components for testing. Determine deterioration factors based on service accumulation and related testing. Include consideration of wear and other causes of deterioration expected under typical consumer use, including exposure to saltwater if applicable. Determine deterioration factors as follows:

(1) You must measure emissions from the emission-data engine at a low-hour test point and the end of the useful life. You may also test at evenly spaced intermediate points. Collect emission data using measurements to one more decimal place than the emission standard.

(2) Operate the engine over a representative duty cycle for a period at least as long as the useful life (in hours). You may operate the engine continuously. You may also use an engine installed in a vessel to accumulate service hours instead of running the engine only in the laboratory.

(3) In the case of dual-fuel or flexible-fuel engines, you may accumulate service hours on a single emission-data engine using the type or mixture of fuel expected to have the highest combustion and exhaust temperatures. For dual-fuel engines, you must measure emissions on each fuel type at each test point.

(4) You may perform maintenance on emission-data engines as described in §1045.125 and 40 CFR part 1065, subpart E.

(5) If you measure emissions at only two points to calculate your deterioration factor, base your calculations on a linear relationship connecting these two data points for each pollutant. If you measure emissions at three or more points, use a linear least-squares fit of your test data for each pollutant to calculate your deterioration factor.

(6) If you test more than one engine to establish deterioration factors, calculate the deterioration factor for each engine and average the deterioration factors from all the engines before rounding.

(7) Use good engineering judgment for all aspects of the effort to establish deterioration factors under this paragraph (b).

(8) You may use other testing methods to determine deterioration factors, consistent with good engineering judgment, as long as we approve those methods in advance.

(c) Include the following information in your application for certification:

(1) If you determine your deterioration factors based on test data from a different engine family, explain why this is appropriate and include all the emission measurements on which you base the deterioration factor.

(2) If you do testing to determine deterioration factors, describe the form and extent of service accumulation, including the method you use to accumulate hours.

§1045.250 What records must I keep and what reports must I send to EPA?

(a) Send the Designated Compliance Officer information related to your U.S.-directed production volumes as described in §1045.345. In addition, within 45 days after the end of the model year, you must send us a report describing information about engines you produced during the model year as follows:

(1) State the total production volume for each engine family that is not subject to reporting under §1045.345.

- (2) State the total production volume for any engine family for which you produce engines after completing the reports required in §1045.345.
- (3) For production volumes you report under this paragraph (a), identify whether or not the figures include California sales. Include a separate count of production volumes for California sales if those figures are available.
- (b) Organize and maintain the following records:
 - (1) A copy of all applications and any summary information you send us.
 - (2) Any of the information we specify in §1045.205 that you were not required to include in your application.
 - (3) A detailed history of each emission-data engine. For each engine, describe all of the following:
 - (i) The emission-data engine's construction, including its origin and buildup, steps you took to ensure that it represents production engines, any components you built specially for it, and all the components you include in your application for certification.
 - (ii) How you accumulated engine operating hours (service accumulation), including the dates and the number of hours accumulated.
 - (iii) All maintenance, including modifications, parts changes, and other service, and the dates and reasons for the maintenance.
 - (iv) All your emission tests, including documentation on routine and standard tests, as specified in part 40 CFR part 1065, and the date and purpose of each test.
 - (v) All tests to diagnose engine or emission control performance, giving the date and time of each and the reasons for the test.
 - (vi) Any other significant events.
 - (4) Production figures for each engine family divided by assembly plant.
 - (5) Keep a list of engine identification numbers for all the engines you produce under each certificate of conformity.
- (c) Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in this section for eight years after we issue your certificate.
- (d) Store these records in any format and on any media as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

§1045.255 What decisions may EPA make regarding my certificate of conformity?

- (a) If we determine your application is complete and shows that the engine family meets all the requirements of this part and the Clean Air Act, we will issue a certificate of conformity for your engine family for that model year. We may make the approval subject to additional conditions.
- (b) We may deny your application for certification if we determine that your engine family fails to comply with emission standards or other requirements of this part or the Clean Air Act. We will base our decision on all available information. If we deny your application, we will explain why in writing.
- (c) In addition, we may deny your application or suspend or revoke your certificate if you do any of the following:
 - (1) Refuse to comply with any testing or reporting requirements.
 - (2) Submit false or incomplete information (paragraph (e) of this section applies if this is fraudulent).
 - (3) Render inaccurate any test data.
 - (4) Deny us from completing authorized activities (see 40 CFR 1068.20). This includes a failure to provide reasonable assistance.
 - (5) Produce engines for importation into the United States at a location where local law prohibits us from carrying out authorized activities.
 - (6) Fail to supply requested information or amend your application to include all engines being produced.
 - (7) Take any action that otherwise circumvents the intent of the Clean Air Act or this part.

(d) We may void your certificate if you do not keep the records we require or do not give us information as required under this part or the Clean Air Act.

(e) We may void your certificate if we find that you intentionally submitted false or incomplete information.

(f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see §1045.820).

Subpart D—Testing Production-line Engines

§1045.301 When must I test my production-line engines?

(a) If you produce engines that are subject to the requirements of this part, you must test them as described in this subpart, except as follows:

(1) Small-volume engine manufacturers may omit testing under this subpart.

(2) We may exempt engine families with a projected U.S.-directed production volume below 150 units from routine testing under this subpart. Request this exemption in your application for certification and include your basis for projecting a production volume below 150 units. We will approve your request if we agree that you have made good-faith estimates of your production volumes. Your exemption is approved when we grant your certificate. You must promptly notify us if your actual production exceeds 150 units during the model year. If you exceed the production limit or if there is evidence of a nonconformity, we may require you to test production-line engines under this subpart, or under 40 CFR part 1068, subpart E, even if we have approved an exemption under this paragraph (a)(2).

(3) The requirements of this subpart do not apply to sterndrive/inboard engines.

(b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§1045.325 and 1045.340).

(c) Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families, without regard to whether they have passed these production-line testing requirements. The requirements of this subpart do not affect our ability to do selective enforcement audits, as described in 40 CFR part 1068. Individual engines in families that pass these production-line testing requirements must also conform to all applicable regulations of this part and 40 CFR part 1068.

(d) You may use alternate programs for testing production-line engines in the following circumstances:

(1) You may use analyzers and sampling systems that meet the field-testing requirements of 40 CFR part 1065, subpart J, but not the otherwise applicable requirements in 40 CFR part 1065 for laboratory testing, to demonstrate compliance with duty-cycle emission standards if you double the minimum sampling rate specified in §1045.310(b). Use measured test results to determine whether engines comply with applicable standards without applying a measurement allowance. This alternate program does not require prior approval but we may disallow use of this option where we determine that use of field-grade equipment would prevent you from being able to demonstrate that your engines are being produced to conform to the specifications in your application for certification.

(2) You may ask to use another alternate program for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your products meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate approach. For example, in certain circumstances you may be able to give us equal assurance that your products meet the requirements of this part by using less rigorous measurement methods if you offset that by increasing the number of test engines.

(e) If you certify an engine family with carryover emission data, as described in §1045.235(d), and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family. The minimum testing rate is one engine per engine family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of engines that have failed the emission tests.

(f) We may ask you to make a reasonable number of production-line engines available for a reasonable time so we can test or inspect them for compliance with the requirements of this part.

§1045.305 How must I prepare and test my production-line engines?

This section describes how to prepare and test production-line engines. You must assemble the test engine in a way that represents the assembly procedures for other engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production engines in the engine family.

(a) Test procedures. Test your production-line engines using the applicable testing procedures in subpart F of this part to show you meet the duty-cycle emission standards in subpart B of this part. The not-to-exceed standards apply for this testing, but you need not do additional testing to show that production-line engines meet the not-to-exceed standards.

(b) Modifying a test engine. Once an engine is selected for testing (see §1045.310), you may adjust, repair, prepare, or modify it or check its emissions only if one of the following is true:

- (1) You document the need for doing so in your procedures for assembling and inspecting all your production engines and make the action routine for all the engines in the engine family.
- (2) This subpart otherwise specifically allows your action.
- (3) We approve your action in advance.

(c) Engine malfunction. If an engine malfunction prevents further emission testing, ask us to approve your decision to either repair the engine or delete it from the test sequence.

(d) Setting adjustable parameters. Before any test, we may require you to adjust any adjustable parameter to any setting within its physically adjustable range.

- (1) We may require you to adjust idle speed outside the physically adjustable range as needed, but only until the engine has stabilized emission levels (see paragraph (e) of this section). We may ask you for information needed to establish an alternate minimum idle speed.
- (2) We may specify adjustments within the physically adjustable range by considering their effect on emission levels. We may also consider how likely it is that someone will make such an adjustment with in-use engines.

(e) Stabilizing emission levels. You may operate the engine to stabilize the emission levels before you test production-line engines. Using good engineering judgment, operate your engines in a way that represents the way production engines will be used. You may operate each engine for no more than the greater of two periods:

- (1) 12 hours.
- (2) The number of hours you operated your emission-data engine for certifying the engine family (see 40 CFR part 1065, subpart E, or the applicable regulations governing how you should prepare your test engine).

(f) Damage during shipment. If shipping an engine to a remote facility for production-line testing makes necessary an adjustment or repair, you must wait until after the initial emission test to do this work. We may waive this requirement if the test would be impossible or unsafe or if it would permanently damage the engine. Report to us in your written report under §1045.345 all adjustments or repairs you make on test engines before each test.

(g) Retesting after invalid tests. You may retest an engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If we determine that you improperly invalidated a test, we may require you to ask for our approval for future testing before substituting results of the new tests for invalid ones.

§1045.310 How must I select engines for production-line testing?

(a) Test engines from each engine family as described in this section based on test periods, as follows:

- (1) For engine families with projected U.S.-directed production volume of at least 1,600, the test periods are consecutive quarters (3 months). However, if your annual production period is less than 12 months long, you may take the following alternative approach to define quarterly test periods:

- (i) If your annual production period is 120 days or less, the whole model year constitutes a single test period.
 - (ii) If your annual production period is 121 to 210 days, divide the annual production period evenly into two test periods.
 - (iii) If your annual production period is 211 to 300 days, divide the annual production period evenly into three test periods.
 - (iv) If your annual production period is 301 days or longer, divide the annual production period evenly into four test periods.
- (2) For engine families with projected U.S.-directed production volume below 1,600, the whole model year constitutes a single test period.
- (b) Early in each test period, randomly select and test an engine from the end of the assembly line for each engine family.
- (1) In the first test period for newly certified engines, randomly select and test one more engine. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.
 - (2) In later test periods of the same model year, combine the new test result with all previous testing in the model year. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.
 - (3) In the first test period for engine families relying on previously submitted test data, combine the new test result with the last test result from the previous model year. Then, calculate the required sample size for the model year as described in paragraph (c) of this section. Use the last test result from the previous model year only for this first calculation. For all subsequent calculations, use only results from the current model year.
- (c) Calculate the required sample size for each engine family. Separately calculate this figure for HC+NO_x and CO. The required sample size is the greater of these calculated values. Use the following equation:

$$N = \left[\frac{(t_{95} \times \sigma)}{(x - STD)} \right]^2 + 1$$

Where:

- N = Required sample size for the model year.
- t₉₅ = 95% confidence coefficient, which depends on the number of tests completed, n, as specified in the table in paragraph (c)(1) of this section. It defines 95% confidence intervals for a one-tail distribution.
- σ = Test sample standard deviation (see paragraph (c)(2) of this section).
- x = Mean of emission test results of the sample.
- STD = Emission standard (or family emission limit, if applicable).

(1) Determine the 95% confidence coefficient, t_{95} , from the following table:

n	t_{95}	n	t_{95}	n	t_{95}
2	6.31	12	1.80	22	1.72
3	2.92	13	1.78	23	1.72
4	2.35	14	1.77	24	1.71
5	2.13	15	1.76	25	1.71
6	2.02	16	1.75	26	1.71
7	1.94	17	1.75	27	1.71
8	1.90	18	1.74	28	1.70
9	1.86	19	1.73	29	1.70
10	1.83	20	1.73	30+	1.70
11	1.81	21	1.72		

(2) Calculate the standard deviation, σ , for the test sample using the following formula:

$$\sigma = \sqrt{\frac{\sum (X_i - x)^2}{n - 1}}$$

Where:

- X_i = Emission test result for an individual engine.
- n = The number of tests completed in an engine family.

(d) Use final deteriorated test results to calculate the variables in the equations in paragraph (c) of this section (see §1045.315(a)(2)).

(e) After each new test, recalculate the required sample size using the updated mean values, standard deviations, and the appropriate 95-percent confidence coefficient.

(f) Distribute the remaining engine tests evenly throughout the rest of the year. You may need to adjust your schedule for selecting engines if the required sample size changes. If your scheduled quarterly testing for the remainder of the model year is sufficient to meet the calculated sample size, you may wait until the next quarter to do additional testing. Continue to randomly select engines from each engine family.

(g) Continue testing until one of the following things happens:

- (1) After completing the minimum number of tests required in paragraph (b) of this section, the number of tests completed in an engine family, n , is greater than the required sample size, N , and the sample mean, x , is less than or equal to the emission standard. For example, if $N = 5.1$ after the fifth test, the sample-size calculation does not allow you to stop testing.
- (2) The engine family does not comply according to §1045.315.
- (3) You test 30 engines from the engine family.
- (4) You test one percent of your projected annual U.S.-directed production volume for the engine family, rounded to the nearest whole number. Do not count an engine under this paragraph (g)(4) if it fails to meet an applicable emission standard.
- (5) You choose to declare that the engine family does not comply with the requirements of this subpart.

(h) If the sample-size calculation allows you to stop testing for one pollutant but not another, you must continue measuring emission levels of all pollutants for any additional tests required under this section. However, you need not continue making the calculations specified in this subpart for the pollutant for which testing is not required. This paragraph (h) does not affect the number of tests required under this section, the required calculations in §1045.315, or the remedial steps required under §1045.320.

(i) You may elect to test more randomly chosen engines than we require under this section. Include these engines in the sample-size calculations.

§1045.315 How do I know when my engine family fails the production-line testing requirements?

This section describes the pass-fail criteria for the production-line testing requirements. We apply these criteria on an engine-family basis. See §1045.320 for the requirements that apply to individual engines that fail a production-line test.

(a) Calculate your test results as follows:

(1) Initial and final test results. Calculate and round the test results for each engine. If you do several tests on an engine, calculate the initial results for each test, then add all the test results together and divide by the number of tests. Round this final calculated value for the final test results on that engine.

(2) Final deteriorated test results. Apply the deterioration factor for the engine family to the final test results (see §1045.240(c)).

(3) Round deteriorated test results. Round the results to the number of decimal places in the emission standard expressed to one more decimal place.

(b) Construct the following CumSum Equation for each engine family for HC+NO_x and CO emissions:

$$C_i = \text{Max}[0 \text{ or } C_{i-1} + X_i - (\text{STD} + 0.25 \times \sigma)]$$

Where:

C_i = The current CumSum statistic.

C_{i-1} = The previous CumSum statistic. For the first test, the CumSum statistic is 0 (i.e., $C_1 = 0$).

X_i = The current emission test result for an individual engine.

STD = Emission standard (or family emission limit, if applicable).

(c) Use final deteriorated test results to calculate the variables in the equation in paragraph (b) of this section (see §1045.315(a)).

(d) After each new test, recalculate the CumSum statistic.

(e) If you test more than the required number of engines, include the results from these additional tests in the CumSum Equation.

(f) After each test, compare the current CumSum statistic, C_i , to the recalculated Action Limit, H, defined as $H = 5.0 \times \sigma$.

(g) If the CumSum statistic exceeds the Action Limit in two consecutive tests, the engine family fails the production-line testing requirements of this subpart. Tell us within ten working days if this happens. You may request to amend the application for certification to raise the FEL of the entire engine family as described in §1045.225(f).

(h) If you amend the application for certification for an engine family under §1045.225, do not change any previous calculations of sample size or CumSum statistics for the model year.

§1045.320 What happens if one of my production-line engines fails to meet emission standards?

(a) If you have a production-line engine with final deteriorated test results exceeding one or more emission standards (see §1045.315(a)), the certificate of conformity is automatically suspended for that failing engine. You must take the following actions before your certificate of conformity can cover that engine:

- (1) Correct the problem and retest the engine to show it complies with all emission standards.
 - (2) Include the test results and describe the remedy for each engine in the written report required under §1045.345.
- (b) You may request to amend the application for certification to raise the FEL of the entire engine family at this point (see §1045.225).

§1045.325 What happens if an engine family fails the production-line testing requirements?

- (a) We may suspend your certificate of conformity for an engine family if it fails under §1045.315. The suspension may apply to all facilities producing engines from an engine family even if you find noncompliant engines only at one facility.
- (b) We will tell you in writing if we suspend your certificate in whole or in part. We will not suspend a certificate until at least 15 days after the engine family fails. The suspension is effective when you receive our notice.
- (c) Up to 15 days after we suspend the certificate for an engine family, you may ask for a hearing (see §1045.820). If we agree before a hearing occurs that we used erroneous information in deciding to suspend the certificate, we will reinstate the certificate.
- (d) Section 1045.335 specifies steps you must take to remedy the cause of the engine family's production-line failure. All the engines you have produced since the end of the last test period are presumed noncompliant and should be addressed in your proposed remedy. We may require you to apply the remedy to engines produced earlier if we determine that the cause of the failure is likely to have affected the earlier engines.
- (e) You may request to amend the application for certification to raise the FEL of the engine family before or after we suspend your certificate as described in §1045.225(f). We will approve your request if the failure is not caused by a defect and it is clear that you used good engineering judgment in establishing the original FEL.

§1045.330 May I sell engines from an engine family with a suspended certificate of conformity?

You may sell engines that you produce after we suspend the engine family's certificate of conformity under §1045.315 only if one of the following occurs:

- (a) You test each engine you produce and show it complies with emission standards that apply.
- (b) We conditionally reinstate the certificate for the engine family. We may do so if you agree to recall all the affected engines and remedy any noncompliance at no expense to the owner if later testing shows that the engine family still does not comply.

§1045.335 How do I ask EPA to reinstate my suspended certificate?

- (a) Send us a written report asking us to reinstate your suspended certificate. In your report, identify the reason for noncompliance, propose a remedy for the engine family, and commit to a date for carrying it out. In your proposed remedy include any quality control measures you propose to keep the problem from happening again.
- (b) Give us data from production-line testing that shows the remedied engine family complies with all the emission standards that apply.

§1045.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?

- (a) We may revoke your certificate for an engine family in the following cases:
 - (1) You do not meet the reporting requirements.
 - (2) Your engine family fails to comply with the requirements of this subpart and your proposed remedy to address a suspended certificate under §1045.335 is inadequate to solve the problem or requires you to change the engine's design or emission control system.
- (b) To sell engines from an engine family with a revoked certificate of conformity, you must modify the engine family and then show it complies with the requirements of this part.

- (1) If we determine your proposed design change may not control emissions for the engine's full useful life, we will tell you within five working days after receiving your report. In this case we will decide whether production-line testing will be enough for us to evaluate the change or whether you need to do more testing.
- (2) Unless we require more testing, you may show compliance by testing production-line engines as described in this subpart.
- (3) We will issue a new or updated certificate of conformity when you have met these requirements.

§1045.345 What production-line testing records must I send to EPA?

- (a) Within 45 days of the end of each test period, send us a report with the following information:
 - (1) Describe any facility used to test production-line engines and state its location.
 - (2) State the total U.S.-directed production volume and number of tests for each engine family.
 - (3) Describe how you randomly selected engines.
 - (4) Describe each test engine, including the engine family's identification and the engine's model year, build date, model number, identification number, and number of hours of operation before testing.
 - (5) Identify how you accumulated hours of operation on the engines and describe the procedure and schedule you used.
 - (6) Provide the test number; the date, time and duration of testing; test procedure; all initial test results; final test results; and final deteriorated test results for all tests. Provide the emission results for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.
 - (7) Describe completely and justify any nonroutine adjustment, modification, repair, preparation, maintenance, or test for the test engine if you did not report it separately under this subpart. Include the results of any emission measurements, regardless of the procedure or type of engine.
 - (8) Provide the CumSum analysis required in §1045.315 and the sample-size calculation required in §1045.310 for each engine family.
 - (9) Report on each failed engine as described in §1045.320.
 - (10) State the date the test period ended for each engine family.
- (b) We may ask you to add information to your written report so we can determine whether your new engines conform with the requirements of this subpart. We may also ask you to send less information.
- (c) An authorized representative of your company must sign the following statement:

We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1045. We have not changed production processes or quality-control procedures for test engines in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)
- (d) Send electronic reports of production-line testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
- (e) We will send copies of your reports to anyone from the public who asks for them. Section 1045.815 describes how we treat information you consider confidential.

§1045.350 What records must I keep?

- (a) Organize and maintain your records as described in this section. We may review your records at any time.
- (b) Keep paper or electronic records of your production-line testing for eight years after you complete all the testing required for an engine family in a model year.
- (c) Keep a copy of the written reports described in §1045.345.
- (d) Keep the following additional records:
 - (1) A description of all test equipment for each test cell that you can use to test production-line engines.

- (2) The names of supervisors involved in each test.
 - (3) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test engine and the names of all supervisors who oversee this work.
 - (4) If you shipped the engine for testing, the date you shipped it, the associated storage or port facility, and the date the engine arrived at the testing facility.
 - (5) Any records related to your production-line tests that are not in the written report.
 - (6) A brief description of any significant events during testing not otherwise described in the written report or in this section.
 - (7) Any information specified in §1045.345 that you do not include in your written reports.
- (e) If we ask, you must give us a more detailed description of projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce engines at more than one plant).
- (f) Keep records of the engine identification number for each engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.
- (g) We may ask you to keep or send other information necessary to implement this subpart.

Subpart E—In-use Testing

§1045.401 What testing requirements apply to my engines that have gone into service?

- (a) We may perform in-use testing of any engines subject to the standards of this part. If you produce outboard or personal watercraft engines that are subject to the requirements of this part, you must test them as described in this subpart. The testing requirements described in this subpart do not apply to sterndrive/inboard engines. This generally involves testing engines in the field or removing them for measurement in a laboratory.
- (b) We may approve an alternate plan for showing that in-use engines comply with the requirements of this part if one of the following is true:
- (1) You produce 200 or fewer engines per year in the selected engine family.
 - (2) You identify a unique aspect of your engine applications that keeps you from doing the required in-use testing.
- (c) We may void your certificate of conformity for an engine family if you do not meet your obligations under this part.
- (d) Independent of your responsibility to test in-use engines, we may choose at any time to do our own testing of your in-use engines.
- (e) If in-use testing shows that engines fail to meet emission standards or other requirements of this part, we may pursue a recall or other remedy as allowed by the Clean Air Act (see §1045.415).

§1045.405 How does this program work?

- (a) You must test in-use engines for exhaust emissions from the families we select. We may select up to 25 percent of your engine families in any model year—or one engine family if you have three or fewer families. When we select an engine family for testing, we may specify that you preferentially test engines based on the type of vessel. In addition, we may identify specific modes of operation or sampling times. You may choose to test additional engine families that we do not select.
- (b) The provisions of this paragraph (b) describe how test families are selected, depending on when we receive the application for certification.
- (1) If we receive the application by December 31 of a given calendar year for the following model year (for example, by December 31, 2009 for model year 2010), we would expect to select engine families for testing by February 28 of the model year. If we have not completed the selection of engine families by February 28, you may select your own engine families for in-use testing. In this case, you must make your selections and notify us which engine families you have selected by March 31. You should consider the following factors in selecting engine families, in priority order:

- (i) Select an engine family that has not recently been tested in an in-use testing regimen (and passed) under the provisions of this subpart. This should generally involve engine families that have not been selected in the previous two model years. If design changes have required new testing for certification, we would consider that this engine family has not been selected for in-use testing.
 - (ii) Select an engine family if we have approved an alternative approach to establishing a deterioration factor under §1045.245(b)(8).
 - (iii) Select the engine family with the highest projected U.S.-directed production volume.
- (2) If we receive an application for a given model year after December 31 of the previous calendar year, you must conduct in-use testing with that engine family without regard to the limitations specified in paragraph (a) of this section, unless we waive this requirement. We will generally waive testing under this paragraph (b)(2) only for small-volume engine manufacturers or in the case where similar testing was recently completed for a related engine family.
- (c) Send us an in-use testing plan for engine families selected for testing. Complete the testing within 24 calendar months after we approve your plan. Send us the in-use testing plan according to the following deadlines:
- (1) Within 12 calendar months after we direct you to test a particular engine family.
 - (2) By February 28 of the following year if you select engine families for testing under paragraph (b)(1) of this section.
 - (3) Within 12 calendar months after we approve certification for engine families subject to the requirements of paragraph (b)(2) of this section.
- (d) You may need to test engines from more than one model year at a given time.
- (e) In appropriate extreme and unusual circumstances that are clearly outside your control and could not have been avoided by the exercise of prudence, diligence, and due care, we may waive the in-use testing requirement for an engine family. For example, if your test fleet is destroyed by severe weather during service accumulation and we agree that completion of testing is not possible, we would generally waive testing requirements for that engine family.

§1045.410 How must I select, prepare, and test my in-use engines?

- (a) You may make arrangements to select representative test engines from your own fleet or from other independent sources.
- (b) For the selected engine families, select engines that you or your customers have—
 - (1) Operated for at least 50 percent of the engine family’s useful life (see §1045.103(e));
 - (2) Not maintained or used in an abnormal way; and
 - (3) Documented in terms of total hours of operation, maintenance, operating conditions, and storage.
- (c) Use the following methods to determine the number of engines you must test in each engine family:
 - (1) Test at least two engines if you produce 2,000 or fewer engines in the model year from all engine families, or if you produce 500 or fewer engines from the selected engine family. Otherwise, test at least four engines.
 - (2) If you successfully complete an in-use test program on an engine family and later certify an equivalent engine family with carryover emission data, as described in §1045.235(d)(1), then test at least one engine instead of the testing rates in paragraph (c)(1) of this section.
 - (3) If you test the minimum required number of engines and all comply fully with emission standards, you may stop testing.
 - (4) For each engine that fails any applicable emission standard, test two more. Regardless of measured emission levels, you do not have to test more than ten engines in an engine family. You may do more tests than we require.
 - (5) You may concede that the engine family does not comply before testing a total of ten engines.
 - (6) In appropriate extreme and unusual circumstances that could not have been avoided by the exercise of prudence, diligence, and due care, we may waive the in-use testing requirement for an engine family.

- (d) You may do minimal maintenance to set components of a test engine to specifications for anything we do not consider an adjustable parameter (see §1045.205(r)). Limit maintenance to what is in the owner's instructions for engines with that amount of service and age. Document all maintenance and adjustments.
- (e) You may do repeat measurements with a test engine; however, you must conduct the same number of tests on each engine.
- (f) For a test program on an engine family, choose one of the following methods to test your engines:
 - (1) Remove the selected engines for testing in a laboratory. Use the applicable procedures in subpart F of this part to show compliance with the duty-cycle standards in §1045.103(a) or §1045.105(a). We may direct you to measure emissions on the dynamometer using the test procedures in §1045.515 to show compliance with the not-to-exceed standards in §1045.107.
 - (2) Test the selected engines while they remain installed in the vessel. Use the procedures in §1045.515. Measure emissions during normal operation of the vessel to show compliance with the not-to-exceed standards in §1045.107. We may direct you to include specific areas of normal operation.
- (g) You may ask us to waive parts of the prescribed test procedures if they are not necessary to determine in-use compliance.
- (h) Calculate the average emission levels for an engine family from the results for the set of tested engines. Round them to the number of decimal places in the emission standards expressed to one more decimal place.

§1045.415 What happens if in-use engines do not meet requirements?

- (a) Determine the reason each in-use engine exceeds the emission standards.
- (b) If the average emission levels calculated in §1045.410(h) exceed any of the emission standards that apply, notify us within fifteen days of completing testing on this family. Otherwise follow the reporting instructions in §1045.420.
- (c) We will consider failure rates, average emission levels, and any defects— among other things— to decide on taking remedial action under this subpart (see 40 CFR 1068.505). We may consider the results from any voluntary additional testing you perform. We may also consider information related to testing from other engine families showing that you designed them to exceed the minimum requirements for controlling emissions. We may order a recall before or after you complete testing of an engine family if we determine a substantial number of engines do not conform to section 213 of the Clean Air Act or to this part. The scope of the recall may include other engine families in the same or different model years if the cause of the problem identified in paragraph (a) of this section applies more broadly than the tested engine family, as allowed by the Clean Air Act.
- (d) If in-use testing reveals a design or manufacturing defect that prevents engines from meeting the requirements of this part, you must correct the defect as soon as possible for any future production for engines in every family affected by the defect. See 40 CFR 1068.501 for additional requirements related to defect reporting.
- (e) You may voluntarily recall an engine family for emission failures, as described in 40 CFR 1068.535, unless we have ordered a recall for that family under 40 CFR 1068.505.
- (f) You have the right to a hearing before we order you to recall your engines or implement an alternative remedy (see §1045.820).

§1045.420 What in-use testing information must I report to EPA?

- (a) In a report to us within three months after you finish testing an engine family, do all the following:
 - (1) Identify the engine family, model, serial number, and date of manufacture.
 - (2) [Reserved]
 - (3) Describe the specific reasons for disqualifying any engines for not being properly maintained or used.
 - (4) For each engine selected for testing, include the following information:
 - (i) Estimate the hours each engine was used before testing.
 - (ii) Describe all maintenance, adjustments, modifications, and repairs to each test engine.

- (5) State the date and time of each test attempt.
- (6) Include the results of all emission testing, including incomplete or invalidated tests, if any.
- (b) Send electronic reports of in-use testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
- (c) We will send copies of your reports to anyone from the public who asks for them. See §1045.815 for information on how we treat information you consider confidential.
- (d) We may ask for more information.

§1045.425 What records must I keep?

- (a) Organize and maintain your records as described in this section. We may review your records at any time, so it is important to keep required information readily available.
- (b) Keep paper records of your in-use testing for one full year after you complete all the testing required for an engine family in a model year. You may use any additional storage formats or media if you like.
- (c) Keep a copy of the written reports described in §1045.420.
- (d) Keep any additional records related to the procurement process.

Subpart F—Test Procedures

§1045.501 How do I run a valid emission test?

- (a) Applicability. This subpart is addressed to you as a manufacturer but it applies equally to anyone who does testing for you, and to us when we perform testing to determine if your engines meet emission standards.
- (b) General requirements. Use the equipment and procedures for spark-ignition engines in 40 CFR part 1065 to determine whether engines meet the duty-cycle emission standards in §§1045.103 and 1045.105. Measure the emissions of all regulated pollutants as specified in 40 CFR part 1065. Use the applicable duty cycles specified in §1045.505. Section 1045.515 describes the supplemental procedures for evaluating whether engines meet the not-to-exceed emission standards in §1045.107.
- (c) Fuels. Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the testing we require in this part, except as specified in §1045.515. Use gasoline meeting the specifications described in 40 CFR 1065.710 for general testing. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use. You may alternatively use gasoline blended with ethanol as follows:
 - (1) You may use the ethanol-blended fuel for certifying engines under this part without our advance approval. If you use the blended fuel for certifying a given engine family, you may also use it for production-line testing or any other testing you perform for that engine family under this part. If you use the blended fuel for certifying a given engine family, we may use the blended fuel or the specified gasoline test fuel with that engine family.
 - (2) The blended fuel must consist of a mix of gasoline meeting the specifications described in 40 CFR 1065.710 for general testing and fuel-grade ethanol meeting the specifications described in 40 CFR 1060.501(c) such that the blended fuel has 10.0±1.0 percent ethanol by volume. You may also use ethanol with a higher or lower purity if you show us that it will not affect your ability to demonstrate compliance with the applicable emission standards. You do not need to measure the ethanol concentration of such blended fuels and may instead calculate the blended composition by assuming that the ethanol is pure and mixes perfectly with the base fuel.
- (d) Laboratory conditions. Ambient conditions for duty-cycle testing must be within ranges specified in 40 CFR 1065.520, subject to the provisions of §1045.115(d). Emissions may not be corrected for the effects of test temperature or pressure. Humidity levels must represent actual in-use humidity levels; however, you may correct emissions for humidity as specified in 40 CFR 1065.670.
- (e) Engine stabilization. Instead of the provisions of 40 CFR 1065.405, you may consider emission levels stable without measurement after 12 hours of engine operation.

(f) Maximum test speed. Instead of the provisions of 40 CFR 1065.510(f), you may declare a value of maximum test speed for laboratory testing that is within 500 rpm of the corresponding measured value for maximum test speed.

(g) Special and alternate procedures. If you are unable to run the duty cycle specified in this part for your engine (such as with constant-speed engines), use an alternate test cycle that will result in a cycle-weighted emission measurement equivalent to the expected average in-use emissions. This cycle must be approved under 40 CFR 1065.10. You may use other special or alternate procedures to the extent we allow them under 40 CFR 1065.10.

(h) Laboratory testing with portable analyzers. You may use field-grade equipment for any laboratory testing with high-performance engines, as specified in 40 CFR 1065.901(b), without requesting approval.

§1045.505 How do I test engines using discrete-mode or ramped-modal duty cycles?

(a) This section describes how to test engines under steady-state conditions. We allow you to perform tests with either discrete-mode or ramped-modal sampling. You must use the modal testing method for certification and all other testing you perform for an engine family. If we test your engines to confirm that they meet emission standards, we will use the modal testing method you select for your own testing. If you submit certification test data collected with both discrete-mode and ramped-modal testing (either in your original application or in an amendment to your application), either method may be used for subsequent testing. We may also perform other testing as allowed by the Clean Air Act. Conduct duty-cycle testing as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute. Calculate cycle statistics and compare with the established criteria as specified in 40 CFR 1065.514 to confirm that the test is valid.

(2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing as specified in 40 CFR part 1065.

(b) Measure emissions by testing the engine on a dynamometer to determine whether it meets the emission standards in §§1045.103(a) and 1045.105(a). Use the 5-mode duty cycle or the corresponding ramped-modal cycle described in Appendix I of this part.

(c) During idle mode, operate the engine at its warm idle speed as described in 40 CFR 1065.510; this may involve a nonzero torque setting if that represents in-use operation.

(d) For full-load operating modes, operate the engine at wide-open throttle.

(e) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

§1045.515 What are the test procedures related to not-to-exceed standards?

(a) This section describes the procedures to determine whether your engines meet the not-to-exceed emission standards in §1045.107. These procedures may include any normal engine operation and ambient conditions that the engines may experience in use. Paragraphs (b) and (c) of this section define the limits of what we will consider normal engine operation and ambient conditions. Use the test procedures we specify in §1045.501, except for the provisions we specify in this section. Measure emissions with one of the following procedures:

(1) Remove the selected engines for testing in a laboratory. You may use an engine dynamometer to simulate normal operation, as described in this section.

(2) Test the selected engines while they remain installed on a vessel. In 40 CFR part 1065, subpart J, we describe the equipment and sampling methods for testing engines in the field. Use fuel meeting the specifications of 40 CFR part 1065, subpart H, or a fuel typical of what you would expect the engine to use in service.

(b) Engine testing may occur under a range of ambient conditions as follows:

(1) Engine testing may occur under the following ranges of ambient conditions without correcting measured emission levels:

- (i) Barometric pressure must be between 94.0 and 103.325 kPa.
 - (ii) Ambient air temperature must be between 13 and 35°C.
 - (iii) Ambient water temperature must be between 5 and 27°C.
 - (iv) Any ambient humidity level.
- (2) Engine testing may occur outside the conditions described in paragraph (b)(1) of this section, as long as measured values are corrected to be equivalent to the nearest end of the specified range using good engineering practice.
- (c) An engine's emissions may not exceed the NTE standards in §1045.107 under the following ranges of engine operation:
- (1) The sampling period may not begin until the engine has reached stable operating temperatures. For example, this would exclude engine operation after starting until the thermostat starts modulating coolant temperature. The sampling period may also not include engine starting. For testing under paragraphs (c)(4) and (6) of this section, the NTE standards apply for any continuous sampling period of at least 30 seconds.
 - (2) Engine operation during the emission sampling period may include any nominally steady-state combination of speeds and loads within the applicable zone defined by segments on an engine's power vs. speed map specified in paragraphs (c)(3) through (6) of this section, except as follows:
 - (i) You may request that we specify a narrower zone, as long as the modified zone includes all points where your engines are expected to normally operate in use, but not including any points at which engine speed is below 40 percent of maximum test speed or engine load is below 25.3 percent of maximum torque at maximum test speed. However, we may perform valid tests at any speeds and loads within the zones specified in paragraphs (c)(3) through (6) of this section that we observe with in-use engines. The engine must comply with emission standards at all such speeds and loads unless we determine that one of following criteria are true:
 - (A) Such speeds and loads occur very infrequently. This determination may consider whether the operation would be expected to result in damage to the engine or vessel or be inherently unsafe.
 - (B) Such speeds and loads result from the engine being installed in a manner that is not consistent with your emission-related installation instructions.
 - (ii) You must notify us if you design your engines for normal in-use operation outside the specified zone. If we learn that normal in-use operation for your engines includes other speeds and loads, we may specify a broader zone, as long as the modified zone is limited to normal in-use operation for speeds greater than 40 percent of maximum test speed and loads greater than 25.3 percent of maximum torque at maximum test speed.
 - (3) The NTE zone for testing engines under this section is defined by the following segments on an engine's torque vs. speed map, as illustrated in Figures 1 through 3 of this section:
 - (i) Speed at or above 40 percent of maximum test speed.
 - (ii) Speeds and torques below the line defined by the following equation:

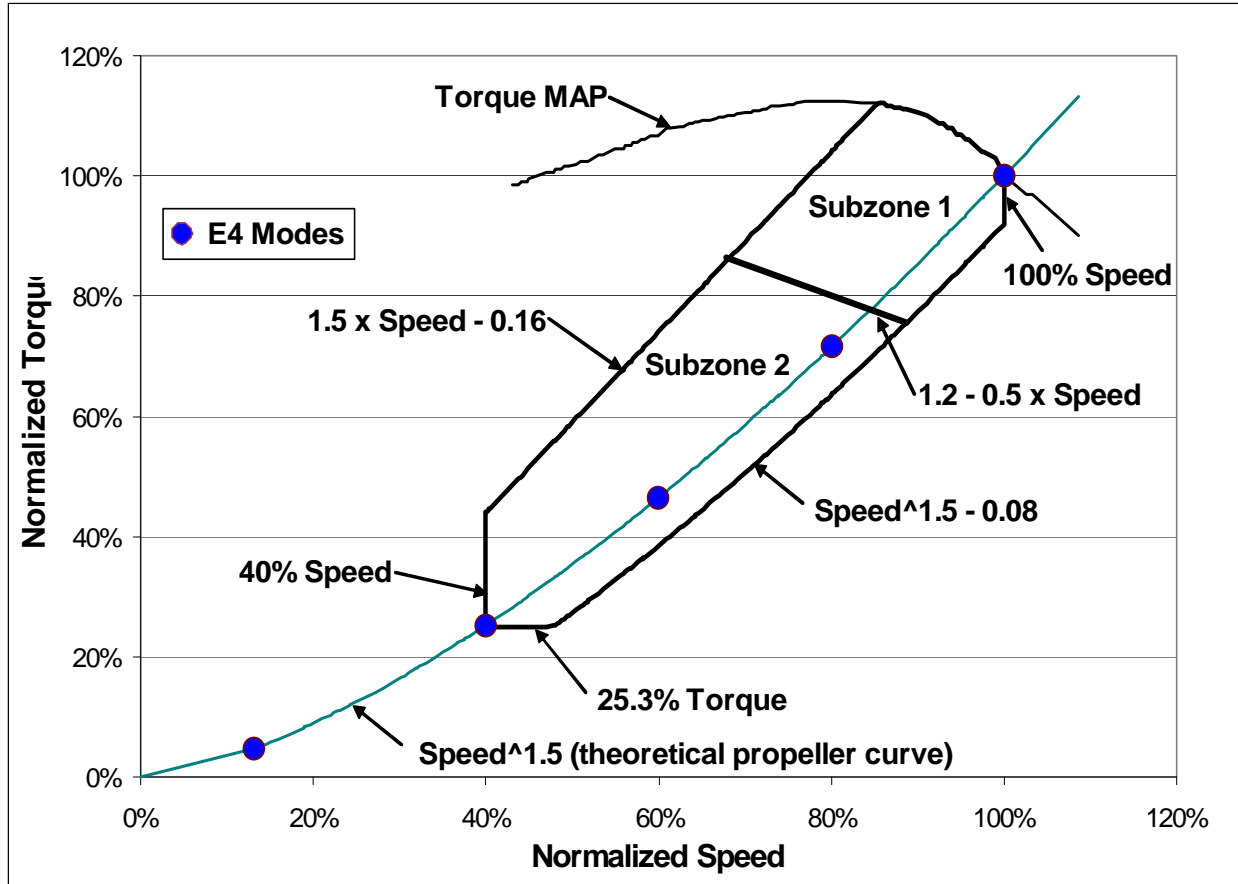
$$\text{Normalized torque} = 1.5 \times \text{normalized speed} - 0.16$$
 - (iii) Speeds and torques at or below the engine's mapped torque values.
 - (iv) Speeds at or below 100 percent of maximum test speed, except as specified in paragraph (c)(5) of this section.
 - (v) Speeds and torques above the line defined by the following equation:

$$\text{Normalized torque} = (\text{normalized speed})^{1.5} - 0.08$$
 - (vi) Torques at or above 25.3 percent of maximum torque at maximum test speed, except as specified in paragraph (c)(5) of this section.
 - (4) For engines equipped with a catalyst, the NTE zone described in paragraph (c)(3) of this section is divided into the following subzones for determining the applicable NTE standards, as illustrated in Figure 1 of this section:
 - (i) Subzone 1 includes all operation in the NTE zone characterized by speeds and torques above the line represented by the following equation:

$$(\text{percent torque}) = 1.2 - 0.5 \times (\text{percent speed})$$

(ii) Subzone 2 includes all operation in the NTE zone not included in Subzone 1.

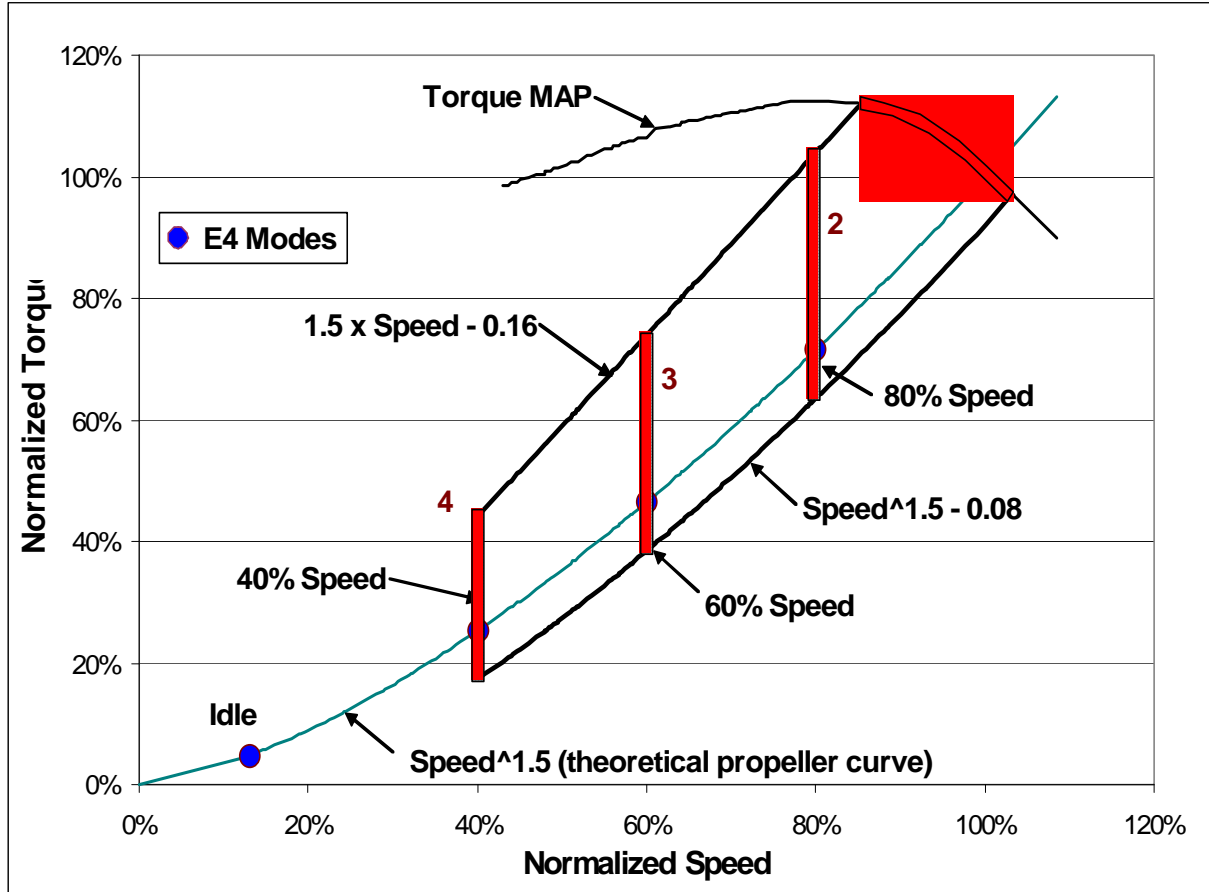
Figure 1 of §1045.515 — NTE Zone and Subzones for Catalyst-Equipped Engines



(5) For two-stroke engines not equipped with a catalyst, the NTE zone described in paragraph (c)(3) of this section is divided into subzones for testing to determine compliance with the applicable NTE standards. Measure emissions to get an NTE result by collecting emissions at five points as described in this paragraph (c)(5). Calculate a weighted test result for these emission measurements using the weighting factors from Appendix I of this part for the corresponding modal result (similar to discrete-mode testing for certification). Test engines over the following modes corresponding to the certification duty cycle:

- (i) Mode 1: Operate the engine at wide open throttle. For laboratory testing, this may involve any torque value between the boundaries specified in paragraph (c)(3) of this section.
- (ii) Mode 2: Operate the engine at a nominal speed that is 80 percent of maximum test speed at any torque value between the boundaries specified in paragraph (c)(3) of this section.
- (iii) Mode 3: Operate the engine at a nominal speed that is 60 percent of maximum test speed at any torque value between the boundaries specified in paragraph (c)(3) of this section.
- (iv) Mode 4: Operate the engine at a nominal speed that is 40 percent of maximum test speed at any torque value between the boundaries specified in paragraphs (c)(3)(ii) and (v) of this section.
- (v) Mode 5: Operate the engine at idle.

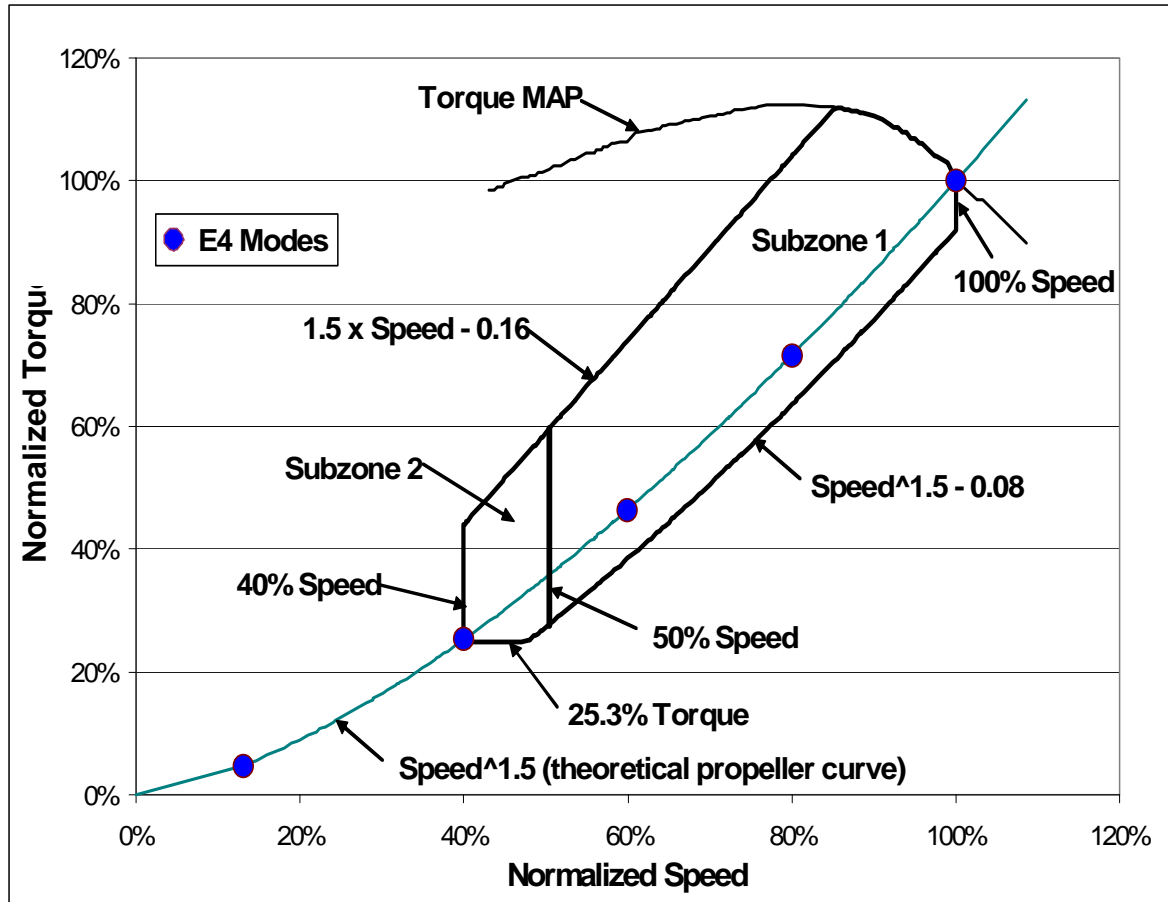
Figure 2 of §1045.515 — NTE Zone and Subzones for Two-Stroke Engines Without Catalysts



(6) For any engines not covered by paragraphs (c)(4) and (5) of this section, the NTE zone described in paragraph (c)(3) of this section is divided into the following subzones for determining the applicable NTE standards, as illustrated in Figure 2 of this section:

- (i) Subzone 1 includes all operation in the NTE zone at speeds above 50 percent of maximum test speed.
- (ii) Subzone 2 includes all operation in the NTE zone not included in Subzone 1.

Figure 3 of §1045.515 — NTE Zone and Subzones for Four-Stroke Engines Without Catalysts



§1045.520 What testing must I perform to establish deterioration factors?

Sections 1045.240 and 1045.245 describe the required methods for testing to establish deterioration factors for an engine family.

Subpart G—Special Compliance Provisions

§1045.601 What compliance provisions apply to these engines?

Engine and vessel manufacturers, as well as owners, operators, and rebuilders of engines subject to the requirements of this part, and all other persons, must observe the provisions of this part, the requirements and prohibitions in 40 CFR part 1068, and the provisions of the Clean Air Act.

§1045.605 What provisions apply to engines already certified under the motor vehicle or Large SI programs?

(a) General provisions. If you are an engine manufacturer, this section allows you to introduce new propulsion marine engines into U.S. commerce if they are already certified to the requirements that apply to spark-ignition engines under 40 CFR parts 85 and 86 or part 1048 for the appropriate model year. If you comply with all the provisions of this section, we consider the certificate issued under 40 CFR part 86 or 1048 for each engine to also be a valid certificate of conformity under this part 1045 for its model year, without a separate application for certification under the requirements of this part 1045.

(b) Vessel-manufacturer provisions. If you are not an engine manufacturer, you may produce vessels using motor vehicle engines or nonroad spark-ignition engines under this section as long as you meet all the requirements and conditions specified in paragraph (d) of this section. If you modify the engine in

any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new propulsion marine engine. Such engine modifications prevent you from using the provisions of this section.

(c) Liability. Engines for which you meet the requirements of this section are exempt from all the requirements and prohibitions of this part, except for those specified in this section. Engines exempted under this section must meet all the applicable requirements from 40 CFR parts 85 and 86, or part 1048. This applies to engine manufacturers, vessel manufacturers who use these engines, and all other persons as if these engines were used in applications other than for installation as propulsion marine engines. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new engines and vessels; however, we consider the certificate issued under 40 CFR part 86 or 1048 for each engine to also be a valid certificate of conformity under this part 1045 for its model year. If we make a determination that these engines do not conform to the regulations during their useful life, we may require you to recall them under 40 CFR part 86 or 1068.

(d) Specific requirements. If you are an engine or vessel manufacturer and meet all the following criteria and requirements regarding your new propulsion marine engine, the engine is eligible for an exemption under this section:

(1) Your engine must be covered by a valid certificate of conformity issued under 40 CFR part 86 or 1048.

(2) You must not make any changes to the certified engine that could reasonably be expected to increase its exhaust emissions for any pollutant, or its evaporative emissions. For example, if you make any of the following changes to one of these engines, you do not qualify for this exemption:

(i) Change any fuel-system or evaporative-system parameters from the certified configuration (this does not apply to refueling controls).

(ii) Change, remove, or fail to properly install any other component, element of design, or calibration specified in the engine manufacturer's application for certification. This includes aftertreatment devices and all related components.

(iii) Modify or design the marine engine cooling system so that temperatures or heat rejection rates are outside the original engine manufacturer's specified ranges.

(3) You must show that fewer than 10 percent of the engine family's total sales in the United States are used in marine applications. This includes engines used in any application without regard to which company manufactures the vessel or equipment. Show this as follows:

(i) If you are the original manufacturer of the engine, base this showing on your sales information.

(ii) In all other cases, you must get the original manufacturer of the engine to confirm this based on its sales information.

(4) You must ensure that the engine has the label we require under 40 CFR part 86 or 1048.

(5) You must add a permanent supplemental label to the engine in a position where it will remain clearly visible after installation in the vessel. In the supplemental label, do the following:

(i) Include the heading: "MARINE ENGINE EMISSION CONTROL INFORMATION".

(ii) Include your full corporate name and trademark. You may instead include the full corporate name and trademark of another company you choose to designate.

(iii) State: "THIS ENGINE WAS ADAPTED FOR MARINE USE WITHOUT AFFECTING ITS EMISSION CONTROLS."

(iv) If the modified engine is certified as a motor vehicle engine, also state: "THE EMISSION CONTROL SYSTEM DEPENDS ON THE USE OF FUEL MEETING SPECIFICATIONS THAT APPLY FOR MOTOR VEHICLE APPLICATIONS. OPERATING THE ENGINE ON OTHER FUELS MAY BE A VIOLATION OF FEDERAL LAW."

(v) State the date you finished modifying the engine (month and year), if applicable.

(6) The original and supplemental labels must be readily visible after the engine is installed in the vessel or, if the vessel obscures the engine's emission control information label, the vessel manufacturer must attach duplicate labels, as described in 40 CFR 1068.105.

(7) Send the Designated Compliance Officer a signed letter by the end of each calendar year (or less often if we tell you) with all the following information:

(i) Identify your full corporate name, address, and telephone number.

(ii) List the engine or vessel models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.

(iii) State: "We produce each listed [engine or vessel] model without making any changes that could increase its certified emission levels, as described in 40 CFR 1045.605."

(e) Failure to comply. If your engines do not meet the criteria listed in paragraph (d) of this section, they will be subject to the standards, requirements, and prohibitions of this part 1045 and the certificate issued under 40 CFR part 86 or 1048 will not be deemed to also be a certificate issued under this part 1045.

Introducing these engines into U.S. commerce without a valid exemption or certificate of conformity under this part violates the prohibitions in 40 CFR 1068.101(a)(1).

(f) Data submission. We may require you to send us emission test data on one of the duty cycles specified in subpart F of this part.

(g) Participation in averaging, banking and trading. Engines adapted for marine use under this section may not generate or use emission credits under this part 1045. These engines may generate credits under the ABT provisions in 40 CFR part 86. These engines must use emission credits under 40 CFR part 86 if they are certified to an FEL above a standard that applies under 40 CFR part 86.

§1045.610 What provisions apply to using engines already certified to Small SI emission standards?

This section applies to marine engines that are identical to land-based engines certified under 40 CFR part 90 or 1054. See §1045.605 for provisions that apply to marine engines that are certified under other programs.

(a) If an engine meets all the following criteria, it is exempt from the requirements of this part:

(1) The engine must be in an engine family that has a valid certificate of conformity showing that it meets emission standards for nonhandheld engines under 40 CFR part 90 or 1054 for the appropriate model year.

(2) You must show that fewer than 5 percent of the engine family's total sales in the United States are used in marine applications. This includes engines used in any application without regard to which company manufactures the vessel or equipment. Show this as follows:

(i) If you are the original manufacturer of the engine, base this showing on your sales information.

(ii) In all other cases, you must get the original manufacturer of the engine to confirm this based on its sales information.

(b) The only requirements or prohibitions from this part that apply to an engine that meets the criteria in paragraph (a) of this section are in this section.

(c) Engines exempted under this section are subject to all the requirements affecting engines under 40 CFR part 90 or 1054. The requirements and restrictions of 40 CFR part 90 or 1054 apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as if these engines were not used as propulsion marine engines.

(d) You may use the provisions of §1045.605 in addition to the provisions of this section for engines certified under 40 CFR part 1054. Where §1045.605 references 40 CFR parts 85, 86, and/or 1048, apply the applicable provisions of 40 CFR part 1054 instead. Include the engines you sell under this section in your demonstration that you meet the sales limit in §1045.605(d)(3).

§1045.620 What are the provisions for exempting engines used solely for competition?

The provisions of this section apply for new engines and vessels built on or after January 1, 2010.

(a) We may grant you an exemption from the standards and requirements of this part for a new engine on the grounds that it is to be used solely for competition. The requirements of this part, other than those in this section, do not apply to engines that we exempt for use solely for competition.

(b) We will exempt engines that we determine will be used solely for competition. The basis of our determination is described in paragraphs (c) and (d) of this section. Exemptions granted under this section are good for only one model year and you must request renewal for each subsequent model year. We will not approve your renewal request if we determine the engine will not be used solely for competition.

(c) Engines meeting all the following criteria are considered to be used solely for competition:

(1) Neither the engine nor any vessels containing the engine may be displayed for sale in any public dealership or otherwise offered for sale to the general public. Note that this does not preclude display of these engines as long as they are not available for sale to the general public.

(2) Sale of the vessel in which the engine is installed must be limited to professional racing teams, professional racers, or other qualified racers. For replacement engines, the sale of the engine itself must be limited to professional racing teams, professional racers, other qualified racers, or to the original vessel manufacturer.

(3) The engine and the vessel in which it is installed must have performance characteristics that are substantially superior to noncompetitive models.

(4) The engines are intended for use only as specified in paragraph (e) of this section.

(d) You may ask us to approve an exemption for engines not meeting the criteria listed in paragraph (c) of this section as long as you have clear and convincing evidence that the engines will be used solely for competition.

(e) Engines are considered to be used solely for competition only if their use is limited to competition events sanctioned by the U.S. Coast Guard or another public organization with authorizing permits for participating competitors. Operation of such engines may include only racing events, trials to qualify for racing events, and practice associated with racing events. Authorized attempts to set speed records are also considered racing events. Engines will not be considered to be used solely for competition if they are ever used for any recreational or other noncompetitive purpose. Use of exempt engines in any recreational events, such as poker runs and lobsterboat races, is a violation of 40 CFR 1068.101(b)(4).

(f) You must permanently label engines exempted under this section to clearly indicate that they are to be used only for competition. Failure to properly label an engine will void the exemption for that engine.

(g) If we request it, you must provide us any information we need to determine whether the engines are used solely for competition. This would include documentation regarding the number of engines and the ultimate purchaser of each engine as well as any documentation showing a vessel manufacturer's request for an exempted engine. Keep these records for five years.

§1045.625 What requirements apply under the Diurnal Transition Program?

The provisions of this section allow vessel manufacturers to produce a certain number of vessels with installed fuel tanks that do not meet the diurnal emission standards specified in §1045.112(d) and 40 CFR 1060.105. The provisions of this section do not apply for portable marine fuel tanks, personal watercraft, or outboard engines with under-cowl fuel tanks. Vessels you produce under this section are exempt from the prohibitions in 40 CFR 1068.101(a)(1) with respect to diurnal emissions, subject to the provisions of this section.

(a) General. If you are a vessel manufacturer, you may introduce into U.S. commerce limited numbers of exempted vessels under this section. You may use the exemptions in this section only if you have primary responsibility for designing and manufacturing vessels and your manufacturing procedures include installing some engines in these vessels. Consider all U.S.-directed vessel sales in showing that you meet the requirements of this section, including those from any parent or subsidiary companies and those from any other companies you license to produce vessels for you. These provisions are available for vessels you produce during the periods specified in paragraph (b) of this section.

(b) Allowances. You may choose one of the following options to produce exempted vessels under this section:

(1) Percent-of-production allowances. You may produce up to 50 percent of your vessels from July 31, 2011 through July 31, 2012 that are exempt from the diurnal emission standards. Calculate this percentage based on your total U.S.-directed production volume.

- (2) Small-volume allowances. Small-volume vessel manufacturers may produce up to 1200 vessels from July 31, 2011 through July 31, 2013 that are exempt from the diurnal emission standards.
- (c) Vessel labeling. You must add a permanent label, written legibly in English, to a readily visible part of each exempted vessel you produce under this section. You may combine this with the label required under 40 CFR 1060.135. This label must include at least the following items:
- (1) The label heading “EMISSION CONTROL INFORMATION”.
 - (2) Your corporate name and trademark.
 - (3) The vessel’s date of manufacture.
 - (4) The following statement: “THIS VESSEL IS EXEMPT FROM DIURNAL STANDARDS UNDER 40 CFR 1045.625.”
- (d) Notification and reporting. You must notify us of your intent to use the provisions of this section and send us an annual report to verify that you are not exceeding the allowances, as follows:
- (1) Before you produce vessels that are exempt under this section, send the Designated Compliance Officer a written notice of your intent with the following information:
 - (i) Identify your company’s name and address, and your parent company’s name and address, if applicable.
 - (ii) Identify the name, e-mail address, and phone number of a person to contact for further information.
 - (iii) Identify the name and address of the company you expect to produce the fuel tanks you will be using for the vessels exempted under this section.
 - (iv) If you qualify as a small-volume vessel manufacturer, state whether you will comply under paragraph (b)(1) or (b)(2) of this section.
 - (v) Include your production figures for the period from July 31, 2009 through July 31, 2010, including figures broken down by model.
 - (2) Send the Designated Compliance Officer a written report by December 31, 2012. If you are a small-volume manufacturer using the provisions of paragraph (b)(2) of this section to produce exempted vessels after July 31, 2012, send us a second report by December 31, 2013. These reports must include the total number of vessels and the number of exempted vessels you sold in the preceding year for each model, based on actual U.S.-directed production information. You may omit the count of compliant vessels if you include in the report a statement that you are not using the percent-of-production allowances in paragraph (b)(1) of this section. If you initially comply using the percent-of-production allowances in paragraph (b)(1) of this section, you may not use the small-volume allowances in paragraph (b)(2) of this section for later production.
 - (3) If you send your initial notification under paragraph (d)(1) of this section after the specified deadline, we may approve your use of allowances under this section. In your request, describe why you were unable to meet the deadline. We will not approve your request if the delay could have been avoided with reasonable care and discretion.
- (e) Recordkeeping. Keep the following records of all exempted vessels you produce under this section:
- (1) The model number, serial number, and the date of manufacture for each vessel.
 - (2) The total number or percentage of exempted vessels as described in paragraph (b) of this section and all documentation supporting your calculation.
 - (3) The notifications and reports we require under paragraph (d) of this section.
- (f) Provisions for fuel tank manufacturers. As a fuel tank manufacturer, you may produce fuel tanks as needed for vessel manufacturers under this section without our prior approval. These fuel tanks are exempt from the diurnal emission standards. Note that this diurnal exemption does not affect the requirements related to permeation emissions specified in §1045.112. You must have written assurance from vessel manufacturers that they need a certain number of exempted fuel tanks under this section. You must keep records of the number of exempted fuel tanks you sell to each vessel manufacturer.
- (g) Enforcement. Producing more exempted vessels than we allow under this section violates the prohibitions in 40 CFR 1068.101(a)(1). Vessel manufacturers and fuel tank manufacturers must keep the records we require under this section until at least December 31, 2017 and give them to us if we ask for them (see 40 CFR 1068.101(a)(2)).

§1045.630 What is the personal-use exemption.

This section applies to individuals who manufacture recreational vessels for personal use with used engines. If you and your vessel meet all the conditions of this section, the vessel and its engine are considered to be exempt from the standards and requirements of this part that apply to new engines, including standards and requirements related to evaporative emissions. For example, you are not required to use certified fuel system components or otherwise obtain certificates of conformity showing that the vessel meets evaporative emission standards, and you do not need to install a certified engine.

(a) The vessel may not be manufactured from a previously certified vessel, nor may it be manufactured from a partially complete vessel that is equivalent to a certified vessel. The vessel must be manufactured primarily from unassembled components, but may incorporate some preassembled components. For example, fully preassembled steering assemblies may be used. You may also power the vessel with an engine that was previously used in a highway or land-based nonroad application.

(b) The vessel may not be sold within five years after the date of final assembly.

(c) No individual may manufacture more than one vessel in any five-year period under this exemption.

(d) You may not use the vessel in any revenue-generating service or for any other commercial purpose. For example, this exemption does not apply for vessels used in commercial fishing or charter service.

(e) This exemption may not be used to circumvent the requirements of this part or the requirements of the Clean Air Act. For example, this exemption would not cover a case in which a person sells an almost completely assembled vessel to another person, who would then complete the assembly. This would be considered equivalent to the sale of the complete new vessel. This section also does not allow engine manufacturers to produce new engines that are exempt from emission standards and it does not provide an exemption from the prohibition against tampering with certified engines.

§1045.635 What special provisions apply for small-volume engine manufacturers?

This section describes how we apply the special provisions in this part for small-volume engine manufacturers.

(a) Special provisions apply for certain small-volume engine manufacturers, as illustrated by the following examples:

(1) Additional lead time and other provisions related to the transition to new emission standards. See §1045.145.

(2) More flexible arrangements for creating engine families for high-performance engines. See §1045.230.

(3) Assigned deterioration factors. See §1045.240.

(4) Waived requirements for production-line testing. See §1045.301.

(5) Additional special provisions apply for small-volume engine and vessel manufacturers. For example, see §1045.625 and 40 CFR 1068.250.

(b) If you use any of the provisions of this part that apply specifically to small-volume engine manufacturers and we find that you do not qualify to use these provisions, we may consider you to be in violation of the requirements that apply for companies that are not small-volume engine manufacturers. If your number of employees grows to the point that you no longer qualify as a small-volume engine manufacturer, we will work with you to determine a reasonable schedule for complying with additional requirements that apply. For example, if you no longer qualify as a small-volume engine manufacturer shortly before you certify your engines for the next model year, we might allow you to use assigned deterioration factors for one more model year.

§1045.640 What special provisions apply to branded engines?

The following provisions apply if you identify the name and trademark of another company instead of your own on your emission control information label, as provided by §1045.135(c)(2):

(a) You must have a contractual agreement with the other company that obligates that company to take the following steps:

- (1) Meet the emission warranty requirements that apply under §1045.120. This may involve a separate agreement involving reimbursement of warranty-related expenses.
- (2) Report all warranty-related information to the certificate holder.
- (b) In your application for certification, identify the company whose trademark you will use.
- (c) You remain responsible for meeting all the requirements of this chapter, including warranty and defect-reporting provisions.

§1045.645 What special provisions apply for converting an engine to use an alternate fuel?

A certificate of conformity is no longer valid for an engine if the engine is modified such that it is not in a configuration covered by the certificate. This section applies if such modifications are done to convert the engine to run on a different fuel type. Such engines may need to be recertified as specified in this section if the certificate is no longer valid for that engine.

- (a) Converting a certified new engine to run on a different fuel type violates 40 CFR 1068.101(a)(1) if the modified engine is not covered by a certificate of conformity.
- (b) Converting a certified engine that is not new to run on a different fuel type violates 40 CFR 1068.101(b)(1) if the modified engine is not covered by a certificate of conformity. We may specify alternate certification provisions consistent with the requirements of this part. For example, you may certify the modified engine for a partial useful life. For example, if the engine is modified halfway through its original useful life period, you may generally certify the engine based on completing the original useful life period; or if the engine is modified after the original useful life period is past, you may generally certify the engine based on testing that does not involve further durability demonstration.
- (c) Engines may be certified using the certification procedures for new engines as specified in this part or using the certification procedures for aftermarket parts as specified in 40 CFR part 85, subpart V. Unless the original engine manufacturer continues to be responsible for the engine as specified in paragraph (d) of this section, you must remove the original engine manufacturer's emission control information label if you recertify the engine.
- (d) The original manufacturer is not responsible for operation of modified engines in configurations resulting from modifications performed by others. In cases where the modification allows an engine to be operated in either its original configuration or a modified configuration, the original manufacturer remains responsible for operation of the modified engine in its original configuration.
- (e) Entities producing conversion kits may obtain certificates of conformity for the converted engines. Such entities are engine manufacturers for purposes of this part.

§1045.650 Do delegated-assembly provisions apply for marine engines?

The provisions of 40 CFR 1068.261 related to delegated final assembly do not apply for marine spark-ignition engines certified under this part 1045. This means that for engines requiring exhaust aftertreatment (such as catalyts), the engine manufacturers must either install the aftertreatment on the engine before introducing it into U.S. commerce or ship the aftertreatment along with the engine.

§1045.655 What special provisions apply for installing and removing altitude kits?

An action for the purpose of installing or modifying altitude kits and performing other changes to compensate for changing altitude is not considered a prohibited act under 40 CFR 1068.101(b) as long as as it is done consistent with the manufacturer's instructions.

§1045.660 How do I certify outboard or personal watercraft engines for use in jet boats?

- (a) This section describes how to certify outboard or personal watercraft engines for use in jet boats. To be certified under this section, the jet boat engines must be identical in all physical respects to the corresponding outboard or personal watercraft engines, but may differ slightly with respect to engine calibrations.
- (b) The outboard or personal watercraft engines must meet all the applicable requirements for outboard or personal watercraft engines. Jet boat engines certified under this section must meet all the applicable requirements for sterndrive/inboard engines.

- (c) The jet boat engines must be in an engine family separate from the corresponding outboard or personal watercraft engines.
- (d) Jet boat engine families may use emission credits from outboard or personal watercraft engine families, as described in §1045.701(d).
- (e) Jet-boat engines certified under the provisions of this section must meet emission standards over the same useful-life period that applies to the corresponding outboard or personal watercraft engine family, as described in §1045.103(e).

Subpart H—Averaging, Banking, and Trading for Certification

§1045.701 General provisions.

- (a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart to show compliance with the standards of this part. This applies for engines with respect to exhaust emissions and for vessels with respect to evaporative emissions. Participation in this program is voluntary.
- (b) The definitions of subpart I of this part apply to this subpart. The following definitions also apply:
 - (1) Actual emission credits means emission credits you have generated that we have verified by reviewing your final report.
 - (2) Averaging set means a set of engines (or vessels) in which emission credits may be exchanged only with other engines (or vessels) in the same averaging set.
 - (3) Broker means any entity that facilitates a trade of emission credits between a buyer and seller.
 - (4) Buyer means the entity that receives emission credits as a result of a trade.
 - (5) Family means engine family for exhaust credits or emission family for evaporative credits.
 - (6) Reserved emission credits means emission credits you have generated that we have not yet verified by reviewing your final report.
 - (7) Seller means the entity that provides emission credits during a trade.
 - (8) Standard means the emission standard that applies under subpart B of this part for engines or fuel-system components not participating in the ABT program of this subpart.
 - (9) Trade means to exchange emission credits, either as a buyer or seller.
- (c) You may not average or exchange banked or traded exhaust credits with evaporative credits, or vice versa. Evaporative credits generated by any vessels under this part may be used by any vessels under this part. Exhaust credits may be exchanged only within an averaging set. Except as specified in paragraph (d) of this section, the following criteria define the applicable exhaust averaging sets:
 - (1) Sterndrive/inboard engines.
 - (2) Outboard and personal watercraft engines.
- (d) Sterndrive/inboard engines certified under §1045.660 for jet boats may use HC+NO_x and CO exhaust credits generated from outboard and personal watercraft engines, as long as the credit-using engine is the same model as an engine model from an outboard or personal watercraft family. These emission credits may be used for averaging, but not for banking or trading. The FEL caps for such jet boat families are the HC+NO_x and CO standard for outboard and personal watercraft engines. U.S.-directed sales from jet boat engines using the provisions of this paragraph (d) may not be greater than the U.S.-directed sales of the same engine model for outboard or personal watercraft engines.
- (e) You may not generate evaporative credits based on permeation measurements from metal fuel tanks or portable marine fuel tanks.
- (f) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard. This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing. However, if exhaust emissions from an engine exceed an exhaust FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the family with a higher FEL that applies only to future production.
- (g) Emission credits may be used in the model year they are generated (averaging) and in future model years (banking), except that CO emission credits for outboard and personal watercraft engines may not be banked or traded.

- (h) You may increase or decrease an exhaust FEL during the model year by amending your application for certification under §1045.225.
- (i) Engine and vessel manufacturers certifying with respect to evaporative emissions may use emission credits to demonstrate compliance under this subpart. Component manufacturers may establish FELs for their certified products, but they may not generate or use emission credits under this subpart.
- (j) In your application for certification, base your showing of compliance on projected production volumes for engines or vessels intended for sale in the United States. As described in §1045.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for engines or vessels intended for sale in the United States. Do not include any of the following engines or vessels to calculate emission credits:
- (1) Engines or vessels exempted under subpart G of this part or under 40 CFR part 1068.
 - (2) Engines or vessels intended for export.
 - (3) Engines or vessels that are subject to state emission standards for that model year. However, this restriction does not apply if we determine that the state standards and requirements are equivalent to those of this part and that products sold in such a state will not generate credits under the state program. For example, you may not include engines or vessels certified for California if California has more stringent emission standards for these products or if your products generate or use emission credits under the California program.
 - (4) Engines or vessels not subject to the requirements of this part, such as those excluded under §1054.5.
 - (5) Any other engines or vessels where we indicate elsewhere in this part 1054 that they are not to be included in the calculations of this subpart.

§1045.705 How do I generate and calculate exhaust emission credits?

The provisions of this section apply for calculating exhaust emission credits for HC+NOx or CO. You may generate exhaust emission credits only if you are a certifying engine manufacturer.

- (a) For each participating family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family that has an FEL below the standard. Calculate negative emission credits for a family that has an FEL above the standard. Sum your positive and negative credits for the model year before rounding. Round the sum of emission credits to the nearest kilogram (kg) using consistent units throughout the following equation:

$$\text{Emission credits (kg)} = (\text{STD} - \text{FEL}) \times (\text{Volume}) \times (\text{Power}) \times (\text{UL}) \times (\text{LF}) \times (10^{-3})$$

Where:

STD = the emission standard, in g/kW-hr.

FEL = the family emission limit for the family, in g/kW-hr.

Volume = the number of engines eligible to participate in the averaging, banking, and trading program within the given family during the model year, as described in §1045.701(j).

Power = maximum engine power for the family, in kilowatts (see §1045.140).

UL = The useful life for the given family.

LF = load factor. Use 0.207. We may specify a different load factor if we approve the use of special test procedures for an family under 40 CFR 1065.10(c)(2), consistent with good engineering judgment.

- (b) [Reserved]

§1045.706 How do I generate and calculate evaporative emission credits?

The provisions of this section apply for calculating evaporative emission credits. This applies only for fuel tank permeation. You may generate credits only if you are a certifying vessel manufacturer. This may include outboard engine manufacturers if they install under-cowl fuel tanks.

- (a) For each participating vessel, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family that has an FEL below the

standard. Calculate negative emission credits for a family that has an FEL above the standard. Sum your positive and negative credits for the model year before rounding. Round the sum of emission credits to the nearest kilogram (kg) using consistent units throughout the following equation:

$$\text{Emission credits (kg)} = (\text{STD} - \text{FEL}) \times (\text{Total Area}) \times (\text{UL}) \times (\text{AF}) \times (365) \times (10^{-3})$$

Where:

STD = the emission standard, in g/m²/day.

FEL = the family emission limit for the family, in g/m²/day, as described in paragraph (b) of this section.

Total Area = The combined internal surface area of all fuel tanks in the family, in m².

UL = 5 years, which represents the useful life for the given family.

AF= adjustment factor. Use 1.0 for fuel tank testing performed at 28°C and 0.60 for testing performed at 40°C.

(b) For calculating credits under paragraph (a) of this section, the emission standard and FEL must both be based on test measurements at the same temperature (28° or 40°C). Determine the FEL for calculating emission credits (relative to testing at 28°C) as follows:

(1) To use an FEL below 5.0 g/m²/day, it must be based on emission measurements.

(2) The provisions of this paragraph (b)(2) apply for all emission families with FELs at or above 5.0 g/m²/day. To calculate emission credits for such emission families, you must choose from one of the following options and apply it to all your emission families with FELs at or above 5.0 g/m²/day:

(i) Option 1: Establish all your FELs based on emission measurements. This may include measurements from a certifying fuel tank manufacturer.

(ii) Option 2: Use an assigned FEL of 10.4 g/m²/day. This would apply without regard to whether any of these emission families have measured emission levels below 10.4 g/m²/day. If any of your fuel tanks were otherwise certified (by you or the fuel tank manufacturer) with an FEL between 5.0 and 10.4 g/m²/day, the assigned FEL of 10.4 g/m²/day applies only for emission credit calculations.

§1045.710 How do I average emission credits?

(a) Averaging is the exchange of emission credits among your families. You may average emission credits only within the same averaging set.

(b) You may certify one or more families to an FEL above the emission standard, subject to the FEL caps and other provisions in subpart B of this part, if you show in your application for certification that your projected balance of all emission-credit transactions in that model year is greater than or equal to zero.

(c) If you certify a family to an FEL that exceeds the otherwise applicable standard, you must obtain enough emission credits to offset the family's deficit by the due date for the final report required in §1045.730. The emission credits used to address the deficit may come from your other families that generate emission credits in the same model year, from emission credits you have banked, or from emission credits you obtain through trading.

§1045.715 How do I bank emission credits?

(a) Banking is the retention of emission credits by the manufacturer generating the emission credits for use in future model years for averaging or trading. You may use banked emission credits only within the averaging set in which they were generated, except as described in this subpart.

(b) You may designate any emission credits you plan to bank in the reports you submit under §1045.730. During the model year and before the due date for the final report, you may designate your reserved emission credits for averaging or trading.

(c) Reserved credits become actual emission credits when you submit your final report. However, we may revoke these emission credits if we are unable to verify them after reviewing your reports or auditing your records.

§1045.720 How do I trade emission credits?

- (a) Trading is the exchange of emission credits between manufacturers. You may use traded emission credits for averaging, banking, or further trading transactions. Traded emission credits may be used only within the averaging set in which they were generated, except as described in this subpart.
- (b) You may trade actual emission credits as described in this subpart. You may also trade reserved emission credits, but we may revoke these emission credits based on our review of your records or reports or those of the company with which you traded emission credits. You may trade banked credits within an averaging set to any certifying engine or vessel manufacturer.
- (c) If a negative emission credit balance results from a transaction, both the buyer and seller are liable, except in cases we deem to involve fraud. See §1045.255(e) for cases involving fraud. We may void the certificates of all families participating in a trade that results in a manufacturer having a negative balance of emission credits. See §1045.745.

§1045.725 What must I include in my application for certification?

- (a) You must declare in your application for certification your intent to use the provisions of this subpart for each family that will be certified using the ABT program. You must also declare the FELs you select for the family for each pollutant for which you are using the ABT program. Your FELs must comply with the specifications of subpart B of this part, including the FEL caps. FELs must be expressed to the same number of decimal places as the emission standard.
- (b) Include the following in your application for certification:
 - (1) A statement that, to the best of your belief, you will not have a negative balance of emission credits for any averaging set when all emission credits are calculated at the end of the year.
 - (2) Detailed calculations of projected emission credits (positive or negative) based on projected production volumes. We may require you to include similar calculations from your other engine families to demonstrate that you will be able to avoid a negative credit balance for the model year. If you project negative emission credits for a family, state the source of positive emission credits you expect to use to offset the negative emission credits.

§1045.730 What ABT reports must I send to EPA?

- (a) If any of your families are certified using the ABT provisions of this subpart, you must send an end-of-year report within 90 days after the end of the model year and a final report within 270 days after the end of the model year. We may waive the requirement to send the end-of year report as long as you send the final report on time.
- (b) Your end-of-year and final reports must include the following information for each family participating in the ABT program:
 - (1) Family designation.
 - (2) The emission standards that would otherwise apply to the family.
 - (3) The FEL for each pollutant. If you change the FEL after the start of production, identify the date that you started using the new FEL and/or give the engine identification number for the first engine covered by the new FEL. In this case, identify each applicable FEL and calculate the positive or negative emission credits under each FEL.
 - (4) The projected and actual production volumes for the model year with a point of retail sale in the United States, as described in §1045.701(j). For fuel tanks, state the production volume in terms of total surface area and production volume for each tank configuration and state the total surface area for the emission family. If you changed an FEL during the model year, identify the actual production volume associated with each FEL.
 - (5) Maximum engine power for each engine configuration, and your declared value of maximum engine power for the engine family (see §1045.140).
 - (6) Useful life.
 - (7) Calculated positive or negative emission credits for the whole family. Identify any emission credits that you traded, as described in paragraph (d)(1) of this section.
- (c) Your end-of-year and final reports must include the following additional information:

- (1) Show that your net balance of emission credits from all your participating families in each averaging set in the applicable model year is not negative.
 - (2) State whether you will retain any emission credits for banking.
 - (3) State that the report's contents are accurate.
- (d) If you trade emission credits, you must send us a report within 90 days after the transaction, as follows:
- (1) As the seller, you must include the following information in your report:
 - (i) The corporate names of the buyer and any brokers.
 - (ii) A copy of any contracts related to the trade.
 - (iii) The families that generated emission credits for the trade, including the number of emission credits from each family.
 - (2) As the buyer, you must include the following information in your report:
 - (i) The corporate names of the seller and any brokers.
 - (ii) A copy of any contracts related to the trade.
 - (iii) How you intend to use the emission credits, including the number of emission credits you intend to apply to each family (if known).
- (e) Send your reports electronically to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
- (f) Correct errors in your end-of-year report or final report as follows:
- (1) You may correct any errors in your end-of-year report when you prepare the final report as long as you send us the final report by the time it is due.
 - (2) If you or we determine within 270 days after the end of the model year that errors mistakenly decreased your balance of emission credits, you may correct the errors and recalculate the balance of emission credits. You may not make these corrections for errors that are determined more than 270 days after the end of the model year. If you report a negative balance of emission credits, we may disallow corrections under this paragraph (f)(2).
 - (3) If you or we determine anytime that errors mistakenly increased your balance of emission credits, you must correct the errors and recalculate the balance of emission credits.

§1045.735 What records must I keep?

- (a) You must organize and maintain your records as described in this section. We may review your records at any time.
- (b) Keep the records required by this section for at least eight years after the due date for the end-of-year report. You may not use emission credits for any engines or vessel if you do not keep all the records required under this section. You must therefore keep these records to continue to bank valid credits. Store these records in any format and on any media as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.
- (c) Keep a copy of the reports we require in §§1045.725 and 1045.730.
- (d) Keep records of the engine identification number for each engine or vessel you produce that generates or uses emission credits under the ABT program. You may identify these numbers as a range.
- (e) We may require you to keep additional records or to send us relevant information not required by this section in accordance with the Clean Air Act.

§1045.745 What can happen if I do not comply with the provisions of this subpart?

- (a) For each family participating in the ABT program, the certificate of conformity is conditional upon full compliance with the provisions of this subpart during and after the model year. You are responsible to establish to our satisfaction that you fully comply with applicable requirements. We may void the certificate of conformity for a family if you fail to comply with any provisions of this subpart.
- (b) You may certify your family to an FEL above an emission standard based on a projection that you will have enough emission credits to offset the deficit for the family. However, we may void the

certificate of conformity if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in a family.

(c) We may void the certificate of conformity for a family if you fail to keep records, send reports, or give us information we request.

(d) You may ask for a hearing if we void your certificate under this section (see §1045.820).

Subpart I—Definitions and Other Reference Information

§1045.801 What definitions apply to this part?

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Clean Air Act gives to them. The definitions follow:

Adjustable parameter means any device, system, or element of design that someone can adjust (including those which are difficult to access) and that, if adjusted, may affect emissions or engine performance during emission testing or normal in-use operation. This includes, but is not limited to, parameters related to injection timing and fueling rate. You may ask us to exclude a parameter that is difficult to access if it cannot be adjusted to affect emissions without significantly degrading engine performance, or if you otherwise show us that it will not be adjusted in a way that affects emissions during in-use operation.

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR), turbochargers, and oxygen sensors are not aftertreatment.

Alcohol-fueled engine means an engine that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

Amphibious vehicle means a vehicle with wheels or tracks that is designed primarily for operation on land and secondarily for operation in water.

Applicable emission standard or applicable standard means an emission standard to which an engine (or vessel) is subject. Additionally, if an engine (or vessel) has been or is being certified to another standard or FEL, applicable emission standard means the FEL or other standard to which the engine (or vessel) has been or is being certified. This definition does not apply to subpart H of this part.

Auxiliary emission control device means any element of design that senses temperature, motive speed, engine RPM, transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

Brake power means the usable power output of the engine, not including power required to fuel, lubricate, or heat the engine, circulate coolant to the engine, or to operate aftertreatment devices.

Calibration means the set of specifications and tolerances specific to a particular design, version, or application of a component or assembly capable of functionally describing its operation over its working range.

Carryover means relating to certification based on emission data generated from an earlier model year, as described in §1045.235(d).

Certification means relating to the process of obtaining a certificate of conformity for an engine family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in an engine family for a given pollutant from either transient or steady-state testing.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401-7671q.

Conventional sterndrive/inboard engine means a sterndrive/inboard engine that is not a high-performance engine.

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the engine crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

Critical emission-related component means any of the following components:

- (1) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, and all sensors and actuators associated with any of these components.
- (2) Any other component whose primary purpose is to reduce emissions.

Date of manufacture has the meaning given in 40 CFR 1068.30.

Days means calendar days unless otherwise specified. For example, when we specify working days we mean calendar days, excluding weekends and U.S. national holidays.

Designated Compliance Officer means the Manager, Heavy-Duty and Nonroad Engine Group (6405-J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Designated Enforcement Officer means the Director, Air Enforcement Division (2242A), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Deteriorated emission level means the emission level that results from applying the appropriate deterioration factor to the official emission result of the emission-data engine.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point (see §§1045.240 and 1045.245), expressed in one of the following ways:

- (1) For multiplicative deterioration factors, the ratio of emissions at the end of useful life to emissions at the low-hour test point.
- (2) For additive deterioration factors, the difference between emissions at the end of useful life and emissions at the low-hour test point.

Discrete-mode means relating to the discrete-mode type of steady-state test described in §1045.505.

Dual fuel means relating to an engine designed for operation on two different fuels but not on a continuous mixture of those fuels.

Emission control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from an engine.

Emission-data engine means an engine that is tested for certification. This includes engines tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine has the meaning given in 40 CFR 1068.30. This includes complete and partially complete engines.

Engine configuration means a unique combination of engine hardware and calibration within an engine family. Engines within a single engine configuration differ only with respect to normal production variability.

Engine family has the meaning given in §1045.230.

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this section.

Evaporative means relating to fuel emissions controlled by 40 CFR part 1060. This generally includes emissions that result from permeation of fuel through the fuel-system materials or from ventilation of the fuel system.

Excluded means relating to an engine that either:

- (1) Has been determined not to be a nonroad engine, as specified in 40 CFR 1068.30; or
- (2) Is a nonroad engine that, according to §1045.5, is not subject to this part 1045.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation (EGR) means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the engine to be mixed with incoming air before or during combustion. The use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion is not considered exhaust-gas recirculation for the purposes of this part.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of the emission standards specified in subpart B of this part under the ABT program in subpart H of this part. The family emission limit must be expressed to the same number of decimal places as the emission

standard it replaces. The family emission limit serves as the emission standard for the engine family (exhaust) or emission family (evaporative) with respect to all required testing.

Flexible-fuel means relating to an engine designed for operation on any mixture of two or more different fuels.

Fuel line means hose, tubing, and primer bulbs containing or exposed to liquid fuel, including hose or tubing that delivers fuel to or from the engine, as follows:

(1) This includes flexible molded sections for transporting liquid fuel to or from the engine, but does not include inflexible components for connecting hose or tubing.

(2) This includes hose or tubing for the vent line or filler neck if fuel systems are designed such that any portion of the vent-line or filler-neck material continues to be exposed to liquid fuel after completion of a refueling event in which an operator fills the fuel tank using typical methods. For example, we would not consider a filler neck to be a fuel line if an operator stops refueling after an initial automatic shutoff that signals the fuel tank is full, where any liquid fuel in the filler neck during the refueling procedure drains into the fuel tank.

(3) This does not include primer bulbs that contain liquid fuel only for priming the engine before starting.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to the combustion chamber(s), including the fuel tank, fuel tank cap, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents.

Fuel type means a general category of fuels such as gasoline or natural gas. There can be multiple grades within a single fuel type, such as low-temperature or all-season gasoline.

Good engineering judgment has the meaning given in 40 CFR 1068.30. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

High-performance means relating to a sterndrive/inboard engine with maximum engine power above 373 kW that has design features to enhance power output such that the expected operating time until rebuild is substantially shorter than 480 hours.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type, as described in subpart B of this part.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular engine from other similar engines.

Jet boat means a vessel that uses an installed internal combustion engine powering a water jet pump as its primary source of propulsion and is designed with open area for carrying passengers. Jet boat engines qualify as sterndrive/inboard engines.

Low-hour means relating to an engine that has stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 30 hours of operation.

Manufacture means the physical and engineering process of designing, constructing, and assembling an engine or vessel.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act (42 U.S.C. 7550(1)). In general, this term includes any person who manufactures an engine, or vessel for sale in the United States or otherwise introduces a new marine engine into U.S. commerce. This includes importers who import engines or vessels for resale, but not dealers. All manufacturing entities under the control of the same person are considered to be a single manufacturer.

Marine engine means a nonroad engine that is installed or intended to be installed on a vessel. This includes a portable auxiliary marine engine only if its fueling, cooling, or exhaust system is an integral part of the vessel. There are two kinds of marine engines:

(1) Propulsion marine engine means a marine engine that moves a vessel through the water or directs the vessel's movement.

(2) Auxiliary marine engine means a marine engine not used for propulsion.

Marine vessel has the meaning given in 1 U.S.C. 3, except that it does not include amphibious vehicles. The definition in 1 U.S.C. 3 very broadly includes every craft capable of being used as a means of transportation on water.

Maximum engine power has the meaning given in §1045.140.

Maximum test speed has one of the following meanings:

(1) For all testing with two-stroke engines and for testing four-stroke engines on an engine dynamometer, maximum test speed has the meaning given in 40 CFR 1065.1001 and §1045.501.

(2) For testing a four-stroke engine that remains installed in a vessel, maximum test speed means the engine speed during sustained operation with maximum operator demand.

Model year means one of the following things:

(1) For freshly manufactured vessels and engines (see definition of “new propulsion marine engine,” paragraph (1)), model year means one of the following:

(i) Calendar year.

(ii) Your annual new model production period if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For seasonal production periods not including January 1, model year means the calendar year in which the production occurs, unless you choose to certify the applicable engine family with the following model year. For example, if your production period is June 1, 2010 through November 30, 2010, your model year would be 2010 unless you choose to certify the engine family for model year 2011.

(2) For an engine that is converted to a propulsion marine engine after being certified and placed into service as a motor vehicle engine, a nonroad engine that is not a propulsion marine engine, or a stationary engine, model year means the model year in which the engine was originally produced. For an engine that is converted to a nonroad engine after being placed into service as a motor vehicle engine, a nonroad engine that is not a propulsion marine engine, or a stationary engine without having been certified, model year means the calendar year in which the engine becomes a new nonroad engine. (See definition of “new propulsion marine engine,” paragraph (2).)

(3) [Reserved]

(4) For engines that are not freshly manufactured but are installed in new vessels, model year means the calendar year in which the engine is installed in the new vessel (see definition of “new propulsion marine engine,” paragraph (4)).

(5) For imported engines:

(i) For imported engines described in paragraph (5)(i) of the definition of “new propulsion marine engine,” model year has the meaning given in paragraphs (1) through (4) of this definition.

(ii) For imported engines described in paragraph (5)(ii) of the definition of “new propulsion marine engine,” model year means the calendar year in which the engine is modified.

(iii) For imported engines described in paragraph (5)(iii) of the definition of “new nonroad engine,” model year means the calendar year in which the engine is assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

New portable marine fuel tanks and fuel lines means portable marine fuel tanks and fuel lines that have not yet been placed into service, or which are otherwise offered for sales as new products.

New propulsion marine engine or new engine means any of the following things:

(1) A freshly manufactured propulsion marine engine for which the ultimate purchaser has never received the equitable or legal title. This kind of engine might commonly be thought of as "brand new." In the case of this paragraph (1), the engine is new from the time it is produced until the ultimate purchaser receives the title or the product is placed into service, whichever comes first.

(2) An engine originally manufactured as a motor vehicle engine, a nonroad engine that is not a propulsion marine engine, or a stationary engine that is later used or intended to be used as a propulsion marine engine. In this case, the engine is no longer a motor vehicle, nonpropulsion, or stationary engine and becomes a "new propulsion marine engine." The engine is no longer new when it is placed into service as a marine propulsion engine. This paragraph (2) applies for engines we exclude under §1045.5, where that engine is later installed as a propulsion engine in a vessel that is covered by this part 1045.

(3) [Reserved]

(4) An engine not covered by paragraphs (1) through (3) of this definition that is intended to be installed in a new vessel. This generally includes installation of used engines in new vessels. The engine is no

longer new when the ultimate purchaser receives a title for the vessel or the product is placed into service, whichever comes first.

(5) An imported marine engine, subject to the following provisions:

(i) An imported marine engine covered by a certificate of conformity issued under this part that meets the criteria of one or more of paragraphs (1) through (4) of this definition, where the original engine manufacturer holds the certificate, is new as defined by those applicable paragraphs.

(ii) An imported engine that will be covered by a certificate of conformity issued under this part, where someone other than the original engine manufacturer holds the certificate (such as when the engine is modified after its initial assembly), is a new propulsion marine engine when it is imported. It is no longer new when the ultimate purchaser receives a title for the engine or it is placed into service, whichever comes first.

(iii) An imported propulsion marine engine that is not covered by a certificate of conformity issued under this part at the time of importation is new. This addresses uncertified engines and vessels initially placed into service that someone seeks to import into the United States. Importation of this kind of engine (or vessel containing such an engine) is generally prohibited by 40 CFR part 1068. However, the importation of such an engine is not prohibited if the engine has an earlier model year than that identified in the following table, since it is not subject to standards:

Applicability of Emission Standards for Propulsion Marine Engines

Engine Type	Initial Model Year of Emission Standards
Outboard	1998
Personal watercraft	1999
Sterndrive/inboard	2010

New vessel means either of the following things:

(1) A vessel for which the ultimate purchaser has never received the equitable or legal title. The product is no longer new when the ultimate purchaser receives this title or it is placed into service, whichever comes first.

(2) An imported vessel that has already been placed into service, where it has an engine not covered by a certificate of conformity issued under this part at the time of importation that was manufactured after the requirements of this part start to apply (see §1045.1).

Noncompliant engine means an engine that was originally covered by a certificate of conformity but is not in the certified configuration or otherwise does not comply with the conditions of the certificate.

Nonconforming engine means an engine not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonmethane hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the difference between the emitted mass of total hydrocarbons and the emitted mass of methane.

Nonroad means relating to nonroad engines, or vessels, or equipment that include nonroad engines.

Nonroad engine has the meaning given in 40 CFR 1068.30. In general, this means all internal-combustion engines except motor vehicle engines, stationary engines, engines used solely for competition, or engines used in aircraft.

Official emission result means the measured emission rate for an emission-data engine on a given duty cycle before the application of any deterioration factor.

Outboard engine means an assembly of a spark-ignition engine and drive unit used to propel a vessel from a properly mounted position external to the hull of the vessel. An outboard drive unit is partially submerged during operation and can be tilted out of the water when not in use.

Owners manual means a document or collection of documents prepared by the engine manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any

other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

Oxides of nitrogen has the meaning given in 40 CFR part 1065.1001.

Personal watercraft means a vessel less than 4.0 meters (13 feet) in length that uses an installed spark-ignition engine powering a water jet pump as its primary source of propulsion and is designed with no open load carrying area that would retain water. The vessel is designed to be operated by a person or persons positioned on, rather than within the confines of the hull. A vessel using an outboard engine as its primary source of propulsion is not a personal watercraft.

Personal watercraft engine means a spark-ignition engine used to propel a personal watercraft.

Placed into service means put into initial use for its intended purpose.

Point of first retail sale means the location at which the initial retail sale occurs. This generally means an equipment dealership, but may also include an engine seller or distributor in cases where loose engines are sold to the general public for uses such as replacement engines.

Portable marine fuel tank has the meaning given in 40 CFR 1060.801.

Ramped-modal means relating to the ramped-modal type of steady-state test described in §1045.505.

Revoke has the meaning given in 40 CFR 1068.30. In general this means to terminate the certificate or an exemption for an engine family.

Round has the meaning given in 40 CFR 1065.1001.

Scheduled maintenance means adjusting, repairing, removing, disassembling, cleaning, or replacing components or systems periodically to keep a part or system from failing, malfunctioning, or wearing prematurely. It also may mean actions you expect are necessary to correct an overt indication of failure or malfunction for which periodic maintenance is not appropriate.

Small-volume engine manufacturer means an engine manufacturer with 250 or fewer employees. This includes any employees working for a parent company and all its subsidiaries.

Small-volume vessel manufacturer means a vessel manufacturer with 500 or fewer employees. This includes any employees working for a parent company and all its subsidiaries.

Spark-ignition means relating to a gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark-ignition engines usually use a throttle to regulate intake air flow to control power during normal operation.

Steady-state means relating to emission tests in which engine speed and load are held at a finite set of essentially constant values. Steady-state tests are either discrete-mode tests or ramped-modal tests.

Sterndrive/inboard engine means a spark-ignition engine that is used to propel a vessel, but is not an outboard engine or a personal watercraft engine. A sterndrive/inboard engine may be either a conventional sterndrive/inboard engine or a high-performance engine. Engines on propeller-driven vessels, jet boats, air boats, and hovercraft are all sterndrive/inboard engines.

Stoichiometric means relating to the particular ratio of air and fuel such that if the fuel were fully oxidized, there would be no remaining fuel or oxygen. For example, stoichiometric combustion in a gasoline-fueled engine typically occurs at an air-to-fuel mass ratio of about 14.7:1.

Suspend has the meaning given in 40 CFR 1068.30. In general this means to temporarily discontinue the certificate or an exemption for an engine family.

Test engine means an engine in a test sample.

Test sample means the collection of engines selected from the population of an engine family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001. This generally means the sum of the carbon mass contributions of non-oxygenated hydrocarbons, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled engines. The hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Ultimate purchaser means, with respect to any new vessel or new marine propulsion engine, the first person who in good faith purchases such new vessel or new engine for purposes other than resale.

Under-cowl fuel line means a fuel line that is entirely contained within the cowl of an outboard engine. This does not include a fuel line that crosses through the cowl housing.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year for an engine family means the model year after the one currently in production.

U.S.-directed production volume means the number of engine units, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

Useful life means the period during which a vehicle is required to comply with all applicable emission standards, specified as a given number of hours of operation or calendar years, whichever comes first. It is the period during which an engine is required to comply with all applicable emission standards. See §§1045.103(e), 1045.105(e), and 1045.112. If an engine has no hour meter, the specified number of hours does not limit the period during which an in-use engine is required to comply with emission standards unless the degree of service accumulation can be verified separately.

Variable-speed engine means an engine that is not a constant-speed engine.

Vessel means marine vessel.

Void has the meaning given in 40 CFR 1068.30. In general this means to invalidate a certificate or an exemption both retroactively and prospectively.

Volatile liquid fuel means any fuel other than diesel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

Wide-open throttle means maximum throttle opening. Unless this is specified at a given speed, it refers to maximum throttle opening at maximum speed. For electronically controlled or other engines with multiple possible fueling rates, wide-open throttle also means the maximum fueling rate at maximum throttle opening under test conditions.

§1045.805 What symbols, acronyms, and abbreviations does this part use?

The following symbols, acronyms, and abbreviations apply to this part:

ABT	Averaging, banking, and trading.
AECD	Auxiliary emission control device.
CFR	Code of Federal Regulations.
CH ₄	methane.
CO	carbon monoxide.
CO ₂	carbon dioxide.
EPA	Environmental Protection Agency.
FEL	Family Emission Limit.
g	gram.
HC	hydrocarbon.
hr	hour.
kPa	kilopascals.
kW	kilowatt.
m	meter.
N ₂ O	nitrous oxide.
NARA	National Archives and Records Administration.
NMHC	nonmethane hydrocarbons.
NO _x	oxides of nitrogen (NO and NO ₂).
NTE	not-to-exceed
psig	pounds per square inch of gauge pressure.
RPM	revolutions per minute.
SAE	Society of Automotive Engineers.
THC	total hydrocarbon.

THCE total hydrocarbon equivalent.
U.S.C. United States Code.

§1045.810 What materials does this part reference?

Documents listed in this section have been incorporated by reference into this part. The Director of the Federal Register approved the incorporation by reference as prescribed in 5 U.S.C. 552(a) and 1 CFR part 51. Anyone may inspect copies at the U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(a) SAE material. Table 1 to this section lists material from the Society of Automotive Engineers that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096 or www.sae.org. Table 1 follows:

Table 1 to §1045.810—SAE Materials

Document number and name	Part 1045 reference
SAE J1939-05, Marine Stern Drive and Inboard Spark-Ignition Engine On-Board Diagnostics Implementation Guide, February 2008.	1045.110

(b) [Reserved]

§1045.815 What provisions apply to confidential information?

(a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.

(b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.

(c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.

(d) If you send us information without claiming it is confidential, we may make it available to the public without further notice to you, as described in 40 CFR 2.204.

§1045.820 How do I request a hearing?

(a) You may request a hearing under certain circumstances as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.

(b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.

(c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

§1045.825 What reporting and recordkeeping requirements apply under this part?

Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for engines and vessels regulated under this part:

- (a) We specify the following requirements related to engine and vessel certification in this part 1045:
- (1) In §1045.20 we require vessel manufacturers to label their vessels if they are relying on component certification.
 - (2) In §1045.135 we require engine manufacturers to keep certain records related to duplicate labels sent to vessel manufacturers.
 - (3) In §1045.145 we include various reporting and recordkeeping requirements related to interim provisions.
 - (4) In subpart C of this part we identify a wide range of information required to certify engines.
 - (5) In §§1045.345 and 1045.350 we specify certain records related to production-line testing.
 - (6) In §§1045.420 and 1045.425 we specify certain records related to in-use testing.
 - (7) In subpart G of this part we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various special compliance provisions.
 - (8) In §§1045.725, 1045.730, and 1045.735 we specify certain records related to averaging, banking, and trading.
- (b) We specify the following requirements related to vessel or component certification in 40 CFR part 1060:
- (1) In 40 CFR 1060.20 we give an overview of principles for reporting information.
 - (2) In 40 CFR part 1060, subpart C, we identify a wide range of information required to certify products.
 - (3) In 40 CFR 1060.301 we require manufacturers to make engines or vessels available for our testing if we make such a request.
 - (4) In 40 CFR 1060.505 we specify information needs for establishing various changes to published test procedures.
- (c) We specify the following requirements related to testing in 40 CFR part 1065:
- (1) In 40 CFR 1065.2 we give an overview of principles for reporting information.
 - (2) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published test procedures.
 - (3) In 40 CFR 1065.25 we establish basic guidelines for storing test information.
 - (4) In 40 CFR 1065.695 we identify data that may be appropriate for collecting during testing of in-use engines using portable analyzers.
- (d) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:
- (1) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.
 - (2) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information
 - (3) In 40 CFR 1068.27 we require manufacturers to make engines available for our testing or inspection if we make such a request.
 - (4) In 40 CFR 1068.105 we require vessel manufacturers to keep certain records related to duplicate labels from engine manufacturers.
 - (5) In 40 CFR 1068.120 we specify recordkeeping related to rebuilding engines.
 - (6) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.
 - (7) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing engines.
 - (8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.
 - (9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.
 - (10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming engines.

Appendix I to Part 1045— Summary of Previous Emission Standards

(a) The following standards apply to outboard and personal watercraft engines produced before the model years specified in §1045.1 (since the end of the phase-in period specified in 40 CFR 91.104):

(1) For engines at or below 4.3 kW, the HC+NOx standard is 81.00 g/kW-hr.

(2) For engines above 4.3 kW, the following HC+NOx standard applies:

$$STD = 6.00 + 0.250 \cdot (151 + 557/P^{0.9})$$

Where:

STD = The HC+NOx emission standard, in g/kW-hr.

P = The average power of an engine family, in kW.

(b) See 40 CFR 91.104 for standards that applied to outboard and personal watercraft engines during the phase-in period.

Appendix II to Part 1045— Duty Cycles for Propulsion Marine Engines

(a) The following duty cycle applies for discrete-mode testing:

E4 Mode Number	Engine Speed ¹	Torque (percent) ²	Weighting Factors
1	Maximum test speed	100	0.06
2	80 %	71.6	0.14
3	60 %	46.5	0.15
4	40 %	25.3	0.25
5	Warm idle	0	0.40

¹ Speed terms are defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

² Except as noted in §1045.505, the percent torque is relative to maximum torque at maximum test speed.

(b) The following duty cycle applies for ramped-modal testing:

RMC Mode	Time in mode (seconds)	Engine Speed ^{1,2}	Torque (percent) ^{2,3}
1a Steady-state	225	Idle	0
1b Transition	20	Linear transition	Linear transition
2a Steady-state	63	Maximum test speed	100
2b Transition	20	Linear transition	Linear transition
*3a Steady-state	271	40 %	25.3 %
3b Transition	20	Linear transition	Linear transition
4a Steady-state	151	80 %	71.6 %
4b Transition	20	Linear transition	Linear transition
5a Steady-state	161	60 %	46.5 %
5b Transition	20	Linear transition	Linear transition
6 Steady-state	229	Warm idle	0

¹ Speed terms are defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command linear progressions of speed and torque from the speed setting and torque setting of the current mode to the speed setting and torque setting of the next mode.

³ Except as noted in §1045.505, the percent torque is relative to maximum torque at maximum test speed.

PART 1048—CONTROL OF EMISSIONS FROM NEW, LARGE NONROAD SPARK-IGNITION ENGINES

99. The authority citation for part 1048 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart A – [Amended]

100. Section 1048.1 is amended by revising paragraph (d) to read as follows:

§1048.1 Does this part apply to me?

* * * * *

(d) In certain cases, the regulations in this part 1048 apply to engines with maximum engine power at or below 19 kW that would otherwise be covered by 40 CFR part 90 or 1054. See 40 CFR 90.913 or 1054.615 for provisions related to this allowance.

101. A new §1048.2 is added to read as follows:

§1048.2 Who is responsible for compliance?

The regulations in this part 1048 contain provisions that affect both engine manufacturers and others. However, the requirements of this part are generally addressed to the engine manufacturer. The term "you" generally means the engine manufacturer, as defined in §1048.801, especially for issues related to certification (including production-line testing, reporting, etc.).

102. Section 1048.5 is amended by revising paragraph (b) and adding paragraph (c) to read as follows:

§1048.5 Which engines are excluded from this part’s requirements?

* * * * *

(b) Propulsion marine engines. See 40 CFR parts 91 and 1045. This part applies with respect to auxiliary marine engines.

(c) Engines that are certified to meet the requirements of 40 CFR parts 92 or 1033 (locomotive engines), or are otherwise subject to 40 CFR parts 92 or 1033.

103. Section 1048.10 is amended by revising the introductory text to read as follows:

§1048.10 How is this part organized?

This part 1048 is divided into the following subparts:

* * * * *

104. Section 1048.15 is amended as follows:

a. By revising the section heading.

b. By redesignating paragraphs (a) through (c) as paragraphs (b) through (d), respectively.

c. By adding a new paragraph (a).

§1048.15 Do any other regulation parts apply to me?

(a) Part 1060 of this chapter describes standards and procedures for controlling evaporative emissions from engines fueled by gasoline or other volatile liquid fuels and the associated fuel systems. These requirements apply to engine manufacturers as specified in this part 1048. Part 1060 applies optionally for equipment manufacturers and fuel-tank manufacturers for certifying their products.

* * * * *

Subpart B – [Amended]

105. Section 1048.101 is amended to read as follows:

- a. By adding paragraph (a)(2)(iv).
- b. By removing paragraph (a)(4).
- c. By revising paragraphs (e)(1), (e)(2), and (e)(3).
- d. By revising paragraphs (f) and (h) to read as follows:

§1048.101 What exhaust emission standards must my engines meet?

* * * * *

(a) * * *

(2) * * *

(iv) Constant-speed engines and severe-duty engines.

* * * * *

(e) * * *

(1) Natural gas-fueled engines: NMHC emissions.

(2) Alcohol-fueled engines: THCE emissions.

(3) Other engines: THC emissions.

(f) Small engines. Certain engines with total displacement at or below 1000 cc may comply with the requirements of 40 CFR part 90 or 1054 instead of complying with the requirements of this part, as described in §1048.615.

* * * * *

(h) Applicability for testing. The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in §§1048.505 and 1048.510, including certification, production-line, and in-use testing. The field-testing standards apply for all testing performed according to the procedures of subpart F of this part.

106. Section 1048.105 is revised to read as follows:

§1048.105 What evaporative emission standards and requirements apply?

Starting in the 2007 model year, new engines that run on a volatile liquid fuel (such as gasoline) must meet the emission standards of this section over a useful life of five years, except as specified in paragraph (f) of this section. Note that §1048.245 allows you to use design-based certification instead of generating new emission data.

(a) Fuel line permeation. For nonmetallic fuel lines, you must specify and use products that meet the Category 1 specifications for permeation in SAE J2260 (incorporated by reference in §1048.810).

(b) [Reserved]

(c) Diurnal emissions. Evaporative hydrocarbon emissions may not exceed 0.2 grams per gallon of fuel tank capacity when measured using the test procedures specified in §1048.501. Diurnal emission controls must continue to function during engine operation.

(d) Running loss. Liquid fuel in the fuel tank may not reach boiling during continuous engine operation in the final installation at an ambient temperature of 30° C. Note that gasoline with a Reid vapor pressure of 62 kPa (9 psi) begins to boil at about 53° C at atmospheric pressure, and at about 60° C for fuel tanks that hold pressure as described in §1048.245(e)(1)(i).

(e) Installation. If other companies install your engines in their equipment, you may introduce your engines into U.S. commerce without meeting all the requirements in this section. However, you must give equipment manufacturers any appropriate instructions so that fully assembled equipment will meet all the requirements in this section, as described in §1048.130. Your instructions may specify that equipment manufacturers may alternatively use other fuel-system components that have been certified under 40 CFR part 1060. Introducing equipment into U.S. commerce without meeting all the requirements of this section violates 40 CFR 1068.101(a)(1).

(f) Motor vehicles and marine vessels. Motor vehicles and marine vessels may contain engines subject to the exhaust emission standards in this part 1048. Evaporative emission standards apply to these products as follows:

(1) Marine vessels using spark-ignition engines are subject to the requirements of 40 CFR part 1045. The vessels are not required to comply with the evaporative emission standards and related requirements of this part 1048.

(2) Motor vehicles are subject to the requirements of 40 CFR part 86. They are not required to comply with the evaporative emission standards and related requirements of this part 1048.

107. Section 1048.110 is amended by adding introductory text and revising paragraphs (b) introductory text, (c), (d), and (g) introductory text to read as follows:

§1048.110 How must my engines diagnose malfunctions?

The following engine-diagnostic requirements apply for engines equipped with three-way catalysts and closed-loop control of air-fuel ratios:

* * * * *

(b) Use a malfunction-indicator light (MIL). The MIL must be readily visible to the operator; it may be any color except red. When the MIL goes on, it must display “Check Engine,” “Service Engine Soon,” or a similar message that we approve. You may use sound in addition to the light signal. The MIL must go on under each of the following circumstances:

* * * * *

(c) Control when the MIL can go out. If the MIL goes on to show a malfunction or system error, it must remain on during all later engine operation until servicing corrects the malfunction. If the engine is not serviced, but the malfunction or system error does not recur for three consecutive engine starts during which the malfunctioning system is evaluated and found to be working properly, the MIL may stay off during later engine operation.

(d) Store trouble codes in computer memory. Record and store in computer memory any diagnostic trouble codes showing a malfunction that should illuminate the MIL. The stored codes must identify the malfunctioning system or component as uniquely as possible. Make these codes available through the data link connector as described in paragraph (g) of this section. You may store codes for conditions that do not turn on the MIL. The system must store a separate code to show when the diagnostic system is disabled.

* * * * *

(g) Follow standard references for formats, codes, and connections. Follow conventions defined in 40 CFR 1045.110 or in the following documents (incorporated by reference in §1048.810) or ask us to approve using updated versions of (or variations from) these documents:

* * * * *

108. Section 1048.115 is amended by revising the section heading, introductory text, and paragraph (e) to read as follows:

§1048.115 What other requirements apply?

Engines that are required to meet the emission standards of this part must meet the following requirements:

* * * * *

(e) Adjustable parameters. Engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. We may require that you set adjustable parameters to any specification within the adjustable range during any testing, including certification testing, production-line testing, or in-use testing.

* * * * *

109. Section 1048.120 is amended by revising paragraph (c) to read as follows:

§1048.120 What emission-related warranty requirements apply to me?

* * * * *

(c) Components covered. The emission-related warranty covers all your components whose failure would increase an engine's emissions of any regulated pollutant, including components listed in 40 CFR part 1068, Appendix I, and components from any other system you develop to control emissions. The emission-related warranty covers these components even if another company produces the component for you. Your emission-related warranty does not cover components whose failure would not increase an engine's emissions of any regulated pollutant.

* * * * *

110. Section 1048.125 is amended by revising paragraphs (a)(1)(iii) and (d) to read as follows:

§1048.125 What maintenance instructions must I give to buyers?

* * * * *

(a) * * *

(1) * * *

(iii) You provide the maintenance free of charge and clearly say so in your maintenance instructions.

* * * * *

(d) Noncritical emission-related maintenance. Subject to the provisions of this paragraph (d), you may schedule any amount of emission-related inspection or maintenance that is not covered by paragraph (a) of this section (i.e., maintenance that is neither explicitly identified as critical emission-related maintenance, nor that we approve as critical emission-related maintenance). Noncritical emission-related maintenance generally includes changing spark plugs, re-seating valves, or any other emission-related maintenance on the components we specify in 40 CFR part 1068, Appendix I that is not covered in paragraph (a) of this section. You must state in the owners manual that these steps are not necessary to keep the emission-related warranty valid. If operators fail to do this maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these inspection or maintenance steps during service accumulation on your emission-data engines.

* * * * *

111. Section 1048.135 is amended by revising paragraphs (c) and (f) to read as follows:

§1048.135 How must I label and identify the engines I produce?

* * * * *

(c) The label must—

- (1) Include the heading "EMISSION CONTROL INFORMATION".
- (2) Include your full corporate name and trademark. You may identify another company and use its trademark instead of yours if you comply with the provisions of §1048.635.
- (3) Include EPA's standardized designation for the engine family (and subfamily, where applicable).
- (4) State the engine's displacement (in liters); however, you may omit this from the label if all the engines in the engine family have the same per-cylinder displacement and total displacement.
- (5) State the date of manufacture [DAY (optional), MONTH, and YEAR]; however, you may omit this from the label if you stamp, engrave, or otherwise permanently identify it elsewhere on the engine, in which case you must also describe in your application for certification where you will identify the date on the engine.
- (6) Identify the emission control system. Use terms and abbreviations as described in 40 CFR 1068.45. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.
- (7) State: "THIS ENGINE IS CERTIFIED TO OPERATE ON [specify operating fuel or fuels]."

(8) Identify any requirements for fuel and lubricants. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

(9) List specifications and adjustments for engine tuneups; show the proper position for the transmission during tuneup and state which accessories should be operating. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

(10) State the useful life for your engine family if it has a longer useful life under §1048.101(g)(1) or a shortened useful life under §1048.101(g)(2).

(11) Identify the emission standards to which you have certified the engine (in g/kW-hr).

(12) Include one of the following compliance statements:

(i) For engines that may be used in nonroad or stationary equipment, state: "THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR] NONROAD AND STATIONARY ENGINES."

(ii) For engines that will be used only in nonroad equipment, state: "THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR] NONROAD ENGINES."

(iii) For engines that will be used only in stationary equipment, state: "THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR] STATIONARY ENGINES."

(13) Include any of the following additional statements for special situations if they apply to your engines:

(i) If your engines are certified only for constant-speed operation, state: "USE IN CONSTANT-SPEED APPLICATIONS ONLY".

(ii) If your engines are certified only for variable-speed operation, state: "USE IN VARIABLE-SPEED APPLICATIONS ONLY".

(iii) If your engines are certified only for high-load engines, state: "THIS ENGINE IS NOT INTENDED FOR OPERATION AT LESS THAN 75 PERCENT OF FULL LOAD."

(iv) If you certify your engines under §1048.101(d), and show in your application for certification that in-use engines will experience infrequent high-load operation, state: "THIS ENGINE IS NOT INTENDED FOR OPERATION AT MORE THAN __ PERCENT OF FULL LOAD.". Specify the appropriate percentage of full load based on the nature of the engine protection. You may add other statements to discourage operation in engine-protection modes.

(v) If your engines are certified to the voluntary standards in §1048.140, state: "BLUE SKY SERIES" and identify the standard to which you certify the engines.

* * * * *

(f) If you obscure the engine label while installing the engine in the equipment such that the label cannot be read during normal maintenance, you must place a duplicate label on the equipment. If others install your engine in their equipment in a way that obscures the engine label, we require them to add a duplicate label on the equipment (see 40 CFR 1068.105); in that case, give them the number of duplicate labels they request and keep the following records for at least five years:

(1) Written documentation of the request from the equipment manufacturer.

(2) The number of duplicate labels you send for each engine family and the date you sent them.

112. Section 1048.140 is revised to read as follows:

§1048.140 What are the provisions for certifying Blue Sky Series engines?

This section defines voluntary standards for a recognized level of superior emission control for engines designated as "Blue Sky Series" engines. If you certify an engine family under this section, it is subject to all the requirements of this part as if these voluntary standards were mandatory. To receive a certificate of conformity as "Blue Sky Series," you must certify to one of the sets of exhaust emission standards in the following table:

Table 1 of §1048.140—
Standards for Blue Sky Series Engines (g/kW-hr)

Standards for steady-state and transient test procedures		Standards for field-testing procedures	
HC+NO _x	CO	HC+NO _x	CO
0.80	4.4	1.10	6.6
0.60	4.4	0.84	6.6
0.40	4.4	0.56	6.6
0.20	4.4	0.28	6.6
0.10	4.4	0.14	6.6

113. Section 1048.145 is amended by adding paragraphs (j) and (k) to read as follows:

§1048.145 What provisions apply only for a limited time?

* * * * *

(j) Delayed compliance with labeling requirements. Before the 2010 model year, you may omit the dates of manufacture from the emission control information label as specified in §1048.135(c)(5) if you keep those records and provide them to us upon request.

(k) Delayed compliance with fuel tank permeation requirements. Before the 2010 model year, you may omit the permeation-related requirements related to plastic fuel tanks in §1048.245(e)(1)(i) and §1048.501(e).

Subpart C – [Amended]

114. Section 1048.201 is amended by revising paragraph (a) to read as follows:

§1048.201 What are the general requirements for obtaining a certificate of conformity?

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid starting with the indicated effective date, but it is not valid for any production after December 31 of the model year for which it is issued. No certificate will be issued after December 31 of the model year.

* * * * *

115. Section 1048.205 is amended as follows:

- a. By revising paragraph (p)(1).
- b. By revising paragraph (q).
- c. By revising paragraph (r) introductory text.
- d. By revising paragraph (s).
- d. By revising paragraph (y).
- e. By revising paragraph (aa).

§1048.205 What must I include in my application?

* * * * *

(p) * * *

(1) Present exhaust emission data for HC, NO_x, and CO on an emission-data engine to show your engines meet the applicable duty-cycle emission standards we specify in §1048.101. Show emission figures before and after applying deterioration factors for each engine. Include emission results for each mode if you do discrete-mode testing under §1048.505. Include test data for each type of fuel from 40 CFR part 1065, subpart H, on which you intend for engines in the engine family to operate

(for example, gasoline, liquefied petroleum gas, methanol, or natural gas). If we specify more than one grade of any fuel type (for example, a summer grade and winter grade of gasoline), you need to submit test data only for one grade unless the regulations of this part specify otherwise for your engine. Note that §1048.235 allows you to submit an application in certain cases without new emission data.

* * * * *

(q) State that all the engines in the engine family comply with the field-testing emission standards we specify in §1048.101(c) for all normal operation and use when tested as specified in §1048.515. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement.

(r) For engines not subject to transient testing requirements in §148.101(a), include information showing how your emission controls will function during normal in-use transient operation. For example, this might include the following:

* * * * *

(s) Report all test results, including those from invalid tests or from any other tests, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO₂, report those emission levels (in g/kW-hr). We may ask you to send other information to confirm that your tests were valid under the requirements of this part and 40 CFR part 1065.

* * * * *

(y) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models.

* * * * *

(aa) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

116. Section 1048.220 is amended by revising the introductory text and paragraph (a) to read as follows:

§1048.220 How do I amend the maintenance instructions in my application?

You may amend your emission-related maintenance instructions after you submit your application for certification as long as the amended instructions remain consistent with the provisions of §1048.125. You must send the Designated Compliance Officer a written request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. If operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim.

(a) If you are decreasing, replacing, or eliminating any specified maintenance, you may distribute the new maintenance instructions to your customers 30 days after we receive your request, unless we disapprove your request. This would generally include replacing one maintenance step with another. We may approve a shorter time or waive this requirement.

* * * * *

117. Section 1048.225 is revised to read as follows:

§1048.225 How do I amend my application for certification to include new or modified engine configurations?

Before we issue you a certificate of conformity, you may amend your application to include new or modified engine configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or

modified engine configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information included in your application.

(a) You must amend your application before you take any of the following actions:

(1) Add an engine configuration to an engine family. In this case, the engine configuration added must be consistent with other engine configurations in the engine family with respect to the criteria listed in §1048.230.

(2) Change an engine configuration already included in an engine family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the engine's lifetime.

(b) To amend your application for certification, send the Designated Compliance Officer the following information:

(1) Describe in detail the addition or change in the engine model or configuration you intend to make.

(2) Include engineering evaluations or data showing that the amended engine family complies with all applicable requirements. You may do this by showing that the original emission-data engine is still appropriate for showing that the amended family complies with all applicable requirements.

(3) If the original emission-data engine for the engine family is not appropriate to show compliance for the new or modified engine configuration, include new test data showing that the new or modified engine configuration meets the requirements of this part.

(c) We may ask for more test data or engineering evaluations. You must give us these within 30 days after we request them.

(d) For engine families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your newly added or modified engine. You may ask for a hearing if we deny your request (see §1048.820).

(e) For engine families already covered by a certificate of conformity, you may start producing the new or modified engine configuration anytime after you send us your amended application and before we make a decision under paragraph (d) of this section. However, if we determine that the affected engines do not meet applicable requirements, we will notify you to cease production of the engines and may require you to recall the engines at no expense to the owner. Choosing to produce engines under this paragraph (e) is deemed to be consent to recall all engines that we determine do not meet applicable emission standards or other requirements and to remedy the nonconformity at no expense to the owner. If you do not provide information required under paragraph (c) of this section within 30 days after we request it, you must stop producing the new or modified engines.

118. Section 1048.230 is amended by revising paragraphs (a), (b)(3), and (d) and removing paragraph (b)(7) to read as follows:

§1048.230 How do I select engine families?

(a) For purposes of certification, divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life as described in this section. Your engine family is limited to a single model year.

(b) * * *

(3) Configuration of the fuel system (for example, fuel-injected vs. carbureted gasoline engines).

* * * * *

(d) In unusual circumstances, you may group engines that are not identical with respect to the things listed in paragraph (b) of this section in the same engine family if you show that their emission characteristics during the useful life will be similar.

* * * * *

119. Section 1048.235 is amended by revising paragraphs (a), (c)(4), (d) introductory text, (d)(1), and (e) to read as follows:

§1048.235 What emission testing must I perform for my application for a certificate of conformity?

* * * * *

(a) Test your emission-data engines using the procedures and equipment specified in subpart F of this part.

* * * * *

(c) * * *

(4) Before we test one of your engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter. For example, this would apply where we determine that an engine parameter is not an adjustable parameter (as defined in §1048.801) but that it is subject to production variability.

(d) You may ask to use carryover emission data from a previous model year instead of doing new tests, but only if all the following are true:

(1) The engine family from the previous model year differs from the current engine family only with respect to model year or other characteristics unrelated to emissions. You may also ask to add a configuration subject to §1048.225.

* * * * *

(e) We may require you to test another engine of the same or different configuration in addition to the engine tested under paragraph (b) of this section.

* * * * *

120. Section 1048.240 is amended by revising paragraphs (a), (b), and (c) to read as follows:

§1048.240 How do I demonstrate that my engine family complies with exhaust emission standards?

(a) For purposes of certification, your engine family is considered in compliance with the applicable numerical emission standards in §1048.101(a) and (b) if all emission-data engines representing that family have test results showing deteriorated emission levels at or below these standards. This includes all test points over the course of the durability demonstration.

(b) Your engine family is deemed not to comply if any emission-data engine representing that family has test results showing a deteriorated emission level for any pollutant that is above an applicable emission standard from §1048.101. This includes all test points over the course of the durability demonstration.

(c) To compare emission levels from the emission-data engine with the applicable emission standards, apply deterioration factors to the measured emission levels for each pollutant. Specify the deterioration factors based on emission measurements using four significant figures, consistent with good engineering judgment. For example, your deterioration factors must take into account any available data from in-use testing with similar engines (see subpart E of this part). Small-volume engine manufacturers may use assigned deterioration factors that we establish. In addition, anyone may use assigned deterioration factors for engine families with a projected U.S.-directed production volume at or below 300 engines.

Apply deterioration factors as follows:

(1) Multiplicative deterioration factor. Except as specified in paragraph (c)(2) of this section, use a multiplicative deterioration factor for exhaust emissions. A multiplicative deterioration factor is the ratio of exhaust emissions at the end of useful life to exhaust emissions at the low-hour test point. Adjust the official emission results for each tested engine at the selected test point by multiplying the measured emissions by the deterioration factor. If the factor is less than one, use one.

(2) Additive deterioration factor. Use an additive deterioration factor for exhaust emissions if engines do not use aftertreatment technology. Also, you may use an additive deterioration factor for exhaust emissions for a particular pollutant if all the emission-data engines in the engine family have low-hour emission levels at or below 0.3 g/kW-hr for HC+NOx or 0.5 g/kW-hr for CO, unless a multiplicative deterioration factor is more appropriate. For example, you should use a multiplicative deterioration factor if emission increases are best represented by the ratio of exhaust emissions at the end of the useful life to exhaust emissions at the low-hour test point. An additive deterioration factor

is the difference between exhaust emissions at the end of useful life and exhaust emissions at the low-hour test point. Adjust the official emission results for each tested engine at the selected test point by adding the factor to the measured emissions. If the factor is less than zero, use zero.

* * * * *

121. Section 1048.245 is amended by revising paragraphs (c) and (e) to read as follows:

§1048.245 How do I demonstrate that my engine family complies with evaporative emission standards?

* * * * *

(c) Use good engineering judgment to develop a test plan to establish deterioration factors to show how much emissions increase at the end of the useful life.

* * * * *

(e) You may demonstrate that your engine family complies with the evaporative emission standards by demonstrating that you use the following control technologies:

(1) For certification to the standards specified in §1048.105(a)(1), with the following technologies:

(i) Use a tethered or self-closing gas cap on a fuel tank that stays sealed up to a positive pressure of 24.5 kPa (3.5 psig); however, they may contain air inlets that open when there is a vacuum pressure inside the tank. Nonmetal fuel tanks must also use one of the qualifying designs for controlling permeation emissions specified in 40 CFR 1060.240.

(ii) [Reserved]

(2) For certification to the standards specified in §1048.105(a)(3), demonstrating that you use design features to prevent fuel boiling under all normal operation. If you install engines in equipment, you may do this using fuel temperature data measured during normal operation. Otherwise, you may do this by including appropriate information in your emission-related installation instructions.

(3) We may establish additional options for design-based certification where we find that new test data demonstrate that a technology will ensure compliance with the emission standards in this section

122. Section 1048.250 is amended as follows:

a. By removing paragraph (d).

b. By redesignating paragraphs (a) through (c) as paragraphs (b) through (d), respectively.

c. By adding a new paragraph (a).

d. By revising the redesignated paragraph (c).

§1048.250 What records must I keep and make available to EPA?

(a) Send the Designated Compliance Officer information related to your U.S.-directed production volumes as described in §1048.345. In addition, within 45 days after the end of the model year, you must send us a report describing information about engines you produced during the model year as follows:

(1) State the total production volume for each engine family that is not subject to reporting under §1048.345.

(2) State the total production volume for any engine family for which you produce engines after completing the reports required in §1048.345.

(3) For production volumes you report under this paragraph (a), identify whether or not the figures include California sales. Include a separate count of production volumes for California sales if those figures are available.

* * * * *

(c) Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in this section for eight years after we issue your certificate.

* * * * *

123. Section 1048.255 is amended by revising the section heading and paragraph (d) to read as follows:

§1048.255 What decisions may EPA make regarding my certificate of conformity?

* * * * *

(d) We may void your certificate if you do not keep the records we require or do not give us information as required under this part or the Act.

* * * * *

Subpart D – [Amended]

124. Section 1048.301 is revised to read as follows:

§1048.301 When must I test my production-line engines?

(a) If you produce engines that are subject to the requirements of this part, you must test them as described in this subpart, except as follows:

(1) [Reserved]

(2) We may exempt engine families with a projected U.S.-directed production volume below 150 units from routine testing under this subpart. Request this exemption in your application for certification and include your basis for projecting a production volume below 150 units. We will approve your request if we agree that you have made good-faith estimates of your production volumes. Your exemption is approved when we grant your certificate. You must promptly notify us if your actual production exceeds 150 units during the model year. If you exceed the production limit or if there is evidence of a nonconformity, we may require you to test production-line engines under this subpart, or under 40 CFR part 1068, subpart E, even if we have approved an exemption under this paragraph (a)(2).

(b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§1048.325 and 1048.340).

(c) Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families, without regard to whether they have passed these production-line testing requirements. The requirements of this subpart do not affect our ability to do selective enforcement audits, as described in part 1068 of this chapter. Individual engines in families that pass these production-line testing requirements must also conform to all applicable regulations of this part and part 1068 of this chapter.

(d) You may use alternate programs for testing production-line engines in the following circumstances:

(1) You may use analyzers and sampling systems that meet the field-testing requirements of 40 CFR part 1065, subpart J, but not the otherwise applicable requirements in 40 CFR part 1065 for laboratory testing, to demonstrate compliance with duty-cycle emission standards if you double the minimum sampling rate specified in §1048.310(b). Use measured test results to determine whether engines comply with applicable standards without applying a measurement allowance. This alternate program does not require prior approval but we may disallow use of this option where we determine that use of field-grade equipment would prevent you from being able to demonstrate that your engines are being produced to conform to the specifications in your application for certification.

(2) You may ask to use another alternate program for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your products meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate approach. For example, in certain circumstances you may be able to give us equal assurance that your products meet the requirements of this part by using less rigorous measurement methods if you offset that by increasing the number of test engines.

(e) If you certify an engine family with carryover emission data, as described in §1048.235(d), and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family.

The minimum testing rate is one engine per engine family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of engines that have failed the emission tests.

(f) We may ask you to make a reasonable number of production-line engines available for a reasonable time so we can test or inspect them for compliance with the requirements of this part.

125. Section 1048.305 is amended by adding introductory text and revising paragraphs (a), (d), and (g) to read as follows:

§1048.305 How must I prepare and test my production-line engines?

This section describes how to prepare and test production-line engines. You must assemble the test engine in a way that represents the assembly procedures for other engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production engines in the engine family.

(a) Test procedures. Test your production-line engines using either the steady-state or transient testing procedures specified in subpart F of this part to show you meet the duty-cycle emission standards in subpart B of this part. The field-testing standards apply for this testing, but you need not do additional testing to show that production-line engines meet the field-testing standards.

* * * * *

(d) Setting adjustable parameters. Before any test, we may require you to adjust any adjustable parameter to any setting within its physically adjustable range.

(1) We may require you to adjust idle speed outside the physically adjustable range as needed, but only until the engine has stabilized emission levels (see paragraph (e) of this section). We may ask you for information needed to establish an alternate minimum idle speed.

(2) We may specify adjustments within the physically adjustable range by considering their effect on emission levels. We may also consider how likely it is that someone will make such an adjustment with in-use equipment.

* * * * *

(g) Retesting after invalid tests. You may retest an engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If we determine that you improperly invalidated a test, we may require you to ask for our approval for future testing before substituting results of the new tests for invalid ones.

126. Section 1048.310 is amended as follows:

- a. By revising paragraph (a).
- b. By revising paragraph (c) introductory text.
- c. By revising paragraph (c)(2).
- d. By revising paragraph (f).
- e. By revising paragraph (g).
- f. By revising paragraph (h).

§1048.310 How must I select engines for production-line testing?

(a) Use test results from two engines each quarter to calculate the required sample size for the model year for each engine family.

* * * * *

(c) Calculate the required sample size for each engine family. Separately calculate this figure for HC+NO_x and CO. The required sample size is the greater of these calculated values. Use the following equation:

$$N = \left[\frac{(t_{95} \times \sigma)}{(x - STD)} \right]^2 + 1$$

Where:

- N = Required sample size for the model year.
- t_{95} = 95% confidence coefficient, which depends on the number of tests completed, n, as specified in the table in paragraph (c)(1) of this section. It defines 95% confidence intervals for a one-tail distribution.
- σ = Test sample standard deviation (see paragraph (c)(2) of this section).
- x = Mean of emission test results of the sample.
- STD = Emission standard.

* * *

(2) Calculate the standard deviation, σ , for the test sample using the following formula:

$$\sigma = \sqrt{\frac{\sum (X_i - x)^2}{n - 1}}$$

Where:

- X_i = Emission test result for an individual engine.
- n = The number of tests completed in an engine family.

* * * * *

(f) Distribute the remaining tests evenly throughout the rest of the year. You may need to adjust your schedule for selecting engines if the required sample size changes. If your scheduled quarterly testing for the remainder of the model year is sufficient to meet the calculated sample size, you may wait until the next quarter to do additional testing. Continue to randomly select engines from each engine family.

(g) Continue testing until one of the following things happens:

- (1) After completing the minimum number of tests required in paragraph (b) of this section, the number of tests completed in an engine family, n, is greater than the required sample size, N, and the sample mean, x, is less than or equal to the emission standard. For example, if N = 5.1 after the fifth test, the sample-size calculation does not allow you to stop testing.
- (2) The engine family does not comply according to §1048.315.
- (3) You test 30 engines from the engine family.
- (4) You test one percent of your projected annual U.S.-directed production volume for the engine family, rounded to the nearest whole number. Do not count an engine under this paragraph (g)(4) if it fails to meet an applicable emission standard. You may stop testing after you test one percent of your production volume even if you have not tested the number of engines specified in paragraph (b) of this section. For example, if projected volume is 475 engines, test two engines in each of the first two quarters and one engine in the third quarter to fulfill your testing requirements under this section for that engine family.
- (5) You choose to declare that the engine family does not comply with the requirements of this subpart.

(h) If the sample-size calculation allows you to stop testing for one pollutant but not another, you must continue measuring emission levels of all pollutants for any additional tests required under this section. However, you need not continue making the calculations specified in this subpart for the pollutant for which testing is not required. This paragraph (h) does not affect the number of tests required under this section, the required calculations in §1048.315, or the remedial steps required under §1048.320.

* * * * *

127. Section 1048.315 is amended by revising paragraphs (a) and (b) to read as follows:

§1048.315 How do I know when my engine family fails the production-line testing requirements?

* * * * *

- (a) Calculate your test results as follows:
- (1) Initial and final test results. Calculate and round the test results for each engine. If you do several tests on an engine, calculate the initial results for each test, then add all the test results together and divide by the number of tests. Round this final calculated value for the final test results on that engine.
 - (2) Final deteriorated test results. Apply the deterioration factor for the engine family to the final test results (see §1048.240(c)).
 - (3) Round deteriorated test results. Round the results to the number of decimal places in the emission standard expressed to one more decimal place.
- (b) Construct the following CumSum Equation for each engine family for HC+NOx and CO emissions:

$$C_i = \text{Max}[0 \text{ or } C_{i-1} + X_i - (\text{STD} + 0.25 \times \sigma)]$$

Where:

- C_i = The current CumSum statistic.
 - C_{i-1} = The previous CumSum statistic. For the first test, the CumSum statistic is 0 (i.e., $C_1 = 0$).
 - X_i = The current emission test result for an individual engine.
 - STD = Emission standard.
- * * * * *

128. Section 1048.320 is amended by revising paragraph (b) to read as follows:

§1048.320 What happens if one of my production-line engines fails to meet emission standards?

* * * * *

- (b) Include the test results and describe the remedy for each engine in the written report required under §1048.345.

129. Section 1048.325 is amended by revising the section heading and paragraph (c) to read as follows:

§1048.325 What happens if an engine family fails the production-line testing requirements?

* * * * *

- (c) Up to 15 days after we suspend the certificate for an engine family, you may ask for a hearing (see §1048.820). If we agree before a hearing occurs that we used erroneous information in deciding to suspend the certificate, we will reinstate the certificate.

* * * * *

130. Section 1048.345 is amended as follows:

- a. By removing the introductory text.
- b. By revising paragraphs (a)(4), (a)(5), (a)(6), and (a)(8).
- c. By revising paragraphs (b) and (c).

§1048.345 What production-line testing records must I send to EPA?

- (a) * * *

- (4) Describe each test engine, including the engine family's identification and the engine's model year, build date, model number, identification number, and number of hours of operation before testing.
- (5) Identify how you accumulated hours of operation on the engines and describe the procedure and schedule you used.

(6) Provide the test number; the date, time and duration of testing; test procedure; all initial test results; final test results; and final deteriorated test results for all tests. Provide the emission results for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.

* * * * *

(8) Provide the CumSum analysis required in §1048.315 and the sample-size calculation required in §1048.310 for each engine family.

* * * * *

(b) We may ask you to add information to your written report, so we can determine whether your new engines conform with the requirements of this subpart. We may also ask you to send less information.

(c) An authorized representative of your company must sign the following statement:

We submit this report under Sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1048. We have not changed production processes or quality-control procedures for test engines in a way that might affect emission controls. All the information in this report is true and accurate, to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

* * * * *

131. Section 1048.350 is amended by revising paragraphs (b), (e), and (f) to read as follows:

§1048.350 What records must I keep?

* * * * *

(b) Keep paper or electronic records of your production-line testing for eight years after you complete all the testing required for an engine family in a model year.

* * * * *

(e) If we ask, you must give us projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce engines at more than one plant).

(f) Keep records of the engine identification number for each engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.

* * * * *

Subpart E – [Amended]

132. Section 1048.405 is amended by adding paragraph (d) to read as follows:

§1048.405 How does this program work?

* * * * *

(d) In appropriate extreme and unusual circumstances that are clearly outside your control and could not have been avoided by the exercise of prudence, diligence, and due care, we may waive the in-use testing requirement for an engine family. For example, if your test fleet is destroyed by severe weather during service accumulation and we agree that completion of testing is not possible, we would generally waive testing requirements for that engine family.

133. Section 1048.410 is amended by revising paragraph (e) to read as follows:

§1048.410 How must I select, prepare, and test my in-use engines?

* * * * *

(e) You may do repeat measurements with a test engine; however, you must conduct the same number of tests on each engine.

* * * * *

134. Section 1048.415 is amended by revising paragraphs (c) and (d) to read as follows:

§1048.415 What happens if in-use engines do not meet requirements?

* * * * *

(c) We will consider failure rates, average emission levels, and any defects— among other things— to decide on taking remedial action under this subpart (see 40 CFR 1068.505). We may consider the results from any voluntary additional testing you perform. We may also consider information related to testing from other engine families showing that you designed them to exceed the minimum requirements for controlling emissions. We may order a recall before or after you complete testing of an engine family if we determine a substantial number of engines do not conform to section 213 of the Act or to this part. The scope of the recall may include other engine families in the same or different model years if the cause of the problem identified in paragraph (a) of this section applies more broadly than the tested engine family, as allowed by the Act.

(d) If in-use testing reveals a design or manufacturing defect that prevents engines from meeting the requirements of this part, you must correct the defect as soon as possible for any future production for engines in every family affected by the defect. See 40 CFR 1068.501 for additional requirements related to defect reporting.

* * * * *

Subpart F – [Amended]

135. Section 1048.501 is amended by revising paragraphs (c) and (e) and removing paragraph (h) to read as follows:

§1048.501 How do I run a valid emission test?

* * * * *

(c) Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, to perform valid tests for all the testing we require in this part, except as noted in §1048.515. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use.

* * * * *

(e) To test engines for evaporative emissions, use the equipment and procedures specified for testing diurnal emissions as described in 40 CFR 1060.525, subject to the following provisions:

- (1) Precondition nonmetal fuel tanks as specified in 40 CFR 1060.520(a) and (b).
- (2) For engines equipped with carbon canisters that store fuel vapors that will be purged for combustion in the engine, precondition the canister as specified in 40 CFR 86.132-96(h) and then operate the engine for 60 minutes over repeat runs of the duty cycle specified in Appendix I of this part.
- (3) Start the diurnal emission test after the engine is stabilized at room temperatures, but within 36 hours after the engine operation specified in paragraph (e)(2) of this section.
- (4) You may not separately measure permeation emissions from nonmetal fuel tanks for subtracting from the diurnal emission measurement.
- (5) Note that you may omit testing for evaporative emissions during certification if you certify by design, as specified in §1048.245.

* * * * *

136. Section 1048.505 is revised to read as follows:

§1048.505 What transient duty cycles apply for laboratory testing?

This section describes how to test engines under steady-state conditions. In some cases, we allow you to choose the appropriate steady-state duty cycle for an engine. In these cases, you must use the duty cycle you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will use the duty cycles you select for your own testing. We may also perform other testing as allowed by the Clean Air Act.

(a) You may perform steady-state testing with either discrete-mode or ramped-modal cycles, as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. Calculate cycle statistics and compare with the established criteria as specified in 40 CFR 1065.514 to confirm that the test is valid. Operate the engine and sampling system as follows:

(i) Engines with lean NOx aftertreatment. For lean-burn engines that depend on aftertreatment to meet the NOx emission standard, operate the engine for 5-6 minutes, then sample emissions for 1-3 minutes in each mode.

(ii) Engines without lean NOx aftertreatment. For other engines, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute in each mode.

(2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing as specified in 40 CFR part 1065, subpart G.

(b) Measure emissions by testing the engine on a dynamometer with one or more of the following sets of duty cycles to determine whether it meets the steady-state emission standards in §1048.101(b):

(1) For engines from an engine family that will be used only in variable-speed applications, use one of the following duty cycles:

(i) The following duty cycle applies for discrete-mode testing:

Table 1 of §1048.505

C2 Mode Number	Engine Speed ¹	Torque (percent) ²	Weighting Factors
1	Maximum test speed	25	0.06
2	Intermediate test	100	0.02
3	Intermediate test	75	0.05
4	Intermediate test	50	0.32
5	Intermediate test	25	0.30
6	Intermediate test	10	0.10
7	Warm idle	0	0.15

¹ Speed terms are defined in 40 CFR part 1065.

² The percent torque is relative to the maximum torque at the given engine speed.

(ii) The following duty cycle applies for ramped-modal testing:

Table 2 of §1048.505

RMC Mode	Time in Mode (seconds)	Engine Speed ^{1,2}	Torque (percent) ^{2,3}
1a Steady-state	119	Warm idle	0
1b Transition	20	Linear transition	Linear transition
2a Steady-state	29	Intermediate speed	100
2b Transition	20	Intermediate speed	Linear transition
3a Steady-state	150	Intermediate speed	10
3b Transition	20	Intermediate speed	Linear transition
4a Steady-state	80	Intermediate speed	75
4b Transition	20	Intermediate speed	Linear transition
5a Steady-state	513	Intermediate speed	25
5b Transition	20	Intermediate speed	Linear transition
6a Steady-state	549	Intermediate speed	50
6b Transition	20	Linear transition	Linear transition
7a Steady-state	96	Maximum test speed	25
7b Transition	20	Linear transition	Linear transition
8 Steady-state	124	Warm idle	0

¹ Speed terms are defined in 40 CFR part 1065.

² Advance from one mode to the next within a 20-second transition phase.

During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

³ The percent torque is relative to maximum torque at the commanded engine speed.

(2) For engines from an engine family that will be used only at a single, rated speed, use the 5-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR part 1039, Appendix II, paragraph (a).

(3) Use a duty cycle from both paragraphs (b)(1) and (b)(2) of this section if you will not restrict an engine family to constant-speed or variable-speed applications.

(4) Use a duty cycle specified in paragraph (b)(2) of this section for all severe-duty engines.

(5) For high-load engines, use one of the following duty cycles:

(i) The following duty cycle applies for discrete-mode testing:

Table 3 of §1048.505

D1 Mode Number	Engine Speed	Torque (percent) ¹	Minimum Time in mode (minutes)	Weighting Factors
1	Maximum test	100	3.0	0.50
2	Maximum test	75	3.0	0.50

¹The percent torque is relative to the maximum torque at maximum test speed.

(ii) The following duty cycle applies for discrete-mode testing:

Table 4 of §1048.505

RMC Modes	Time in Mode (seconds)	Engine Speed (percent)	Torque (percent) ^{1,2}
1a Steady-state	290	Engine governed	100
1b Transition	20	Engine governed	Linear transition
2 Steady-state	290	Engine governed	75

¹ The percent torque is relative to maximum test torque.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

- (c) If we test an engine to confirm that it meets the duty-cycle emission standards, we will use the steady-state duty cycles that apply for that engine family.
- (d) During idle mode, operate the engine at its warm idle speed as described in 40 CFR 1065.510.
- (e) For full-load operating modes, operate the engine at wide-open throttle.
- (f) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.
- (g) For those cases where steady-state testing does not directly follow a transient test, perform the steady-state test according to this section after an appropriate warm-up period, consistent with 40 CFR part 1065, subpart F.

137. Section 1048.510 is amended to read as follows:

- a. By revising paragraph (a).
- b. By removing and reserving paragraph (b).
- c. By revising paragraph (c) introductory text and (c)(1).

§1048.510 What transient duty cycles apply for laboratory testing?

(a) Starting with the 2007 model year, measure emissions by testing the engine on a dynamometer with the duty cycle described in Appendix II to determine whether it meets the transient emission standards in §1048.101(a).

(b) [Reserved]

(c) Warm up the test engine as follows before running a transient test:

- (1) Operate the engine for the first 180 seconds of the appropriate duty cycle, then allow it to idle without load for 30 seconds. At the end of the 30-second idling period, start measuring emissions as the engine operates over the prescribed duty cycle. For severe-duty engines, this engine warm-up procedure may include up to 15 minutes of operation over the appropriate duty cycle.

* * * * *

138. Section 1048.515 is amended by revising paragraph (b)(1)(i) to read as follows:

§1048.515 What are the field-testing procedures?

* * * * *

(b) * * *

(1) * * *

(i) Average power must be at least 5 percent of maximum brake power.

* * * * *

Subpart G – [Amended]

139. Section 1048.601 is revised to read as follows:

§1048.601 What compliance provisions apply to these engines?

(a) Engine and equipment manufacturers, as well as owners, operators, and rebuilders of engines subject to the requirements of this part, and all other persons, must observe the provisions of this part, the requirements and prohibitions in 40 CFR part 1068, and the provisions of the Act.

(b) This paragraph (b) describes how the replacement-engine provisions of 40 CFR 1068.240 apply for engines subject to the requirements of this part in conjunction with the secondary engine manufacturer provisions in 40 CFR 1068.262. For cases in which the secondary engine manufacturer completes assembly of the engine, these provisions apply as written. If the secondary engine manufacturer arranges for a third party to complete engine assembly, the following additional provisions apply:

(1) The ultimate purchaser must purchase (or otherwise order) the replacement engine from the secondary engine manufacturer. The secondary engine manufacturer must provide assembly instructions to the engine assembler (unless the engine being replaced was not subject to emission standards). The secondary engine manufacturer may arrange for the original engine manufacturer to ship the engine directly to the engine assembler. However, if the secondary engine manufacturer does not take possession of the engine, it must supply the engine label specified in 40 CFR 1068.240 to the engine assembler and the engine assembler must apply the label before shipping the engine.

(2) The secondary engine manufacturer and engine assembler are both responsible if the engine is installed in new equipment or otherwise violates the circumvention provisions of 40 CFR 1068.240.

(3) Consider the following example. A secondary engine manufacturer receiving a valid request for a replacement engine for which it does not already have an engine available in inventory may order a partially complete engine from an original engine manufacturer and have it shipped directly to an independent engine assembler. In this case, the secondary engine manufacturer must state in its order that the partially complete engine should be labeled as being exempt under 40 CFR 1068.240 and identify the engine assembler's address; the secondary engine manufacture must also provide instructions to the engine assembler. The original engine manufacturer would label the engine as described in 40 CFR 1068.262, identifying the replacement-engine exemption as the basis for shipping an uncertified engine, and ship the engine directly to the assembler. The engine assembler would complete the assembly by applying the label and otherwise following the instructions provided by the secondary engine manufacturer.

140. Section 1048.605 is amended by revising the section heading and paragraph (d)(7)(ii) to read as follows:

§1048.605 What provisions apply to engines certified under the motor vehicle program?

* * * * *

(d) * * *

(7) * * *

(ii) List the engine or equipment models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.

* * * * *

141. Section 1048.610 is amended by revising the section heading and paragraphs (d)(7)(ii) and (g) to read as follows:

§1048.610 What provisions apply to vehicles certified under the motor vehicle program?

* * * * *

(d) * * *

(7) * * *

(ii) List the equipment models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.

* * * * *

(g) Participation in averaging, banking and trading. Vehicles adapted for nonroad use under this section may generate credits under the ABT provisions in 40 CFR part 86. These vehicles must be included in the calculation of the applicable fleet average in 40 CFR part 86.

142. A new §1048.612 is added to subpart G to read as follows:

§1048.612 What is the exemption for delegated final assembly?

The provisions of 40 CFR 1068.261 related to delegated final assembly apply for engines certified under this part 1048, with the following exceptions and clarifications:

- (a) The provisions related to reduced auditing rates in 40 CFR 1068.261(d)(3)(iii) apply starting with the 2014 model year.
- (b) [Reserved]

143. Section 1048.615 is revised to read as follows:

§1048.615 What are the provisions for exempting engines designed for lawn and garden applications?

This section is intended for engines designed for lawn and garden applications, but it applies to any engines meeting the criteria in paragraph (a) of this section.

- (a) If an engine meets all the following criteria, it is exempt from the requirements of this part:
 - (1) The engine must have a nominal displacement of 1000 cc or less.
 - (2) The engine must have a maximum engine power at or below 30 kW.
 - (3) The engine must be in an engine family that has a valid certificate of conformity showing that it meets emission standards for Class II engines under 40 CFR part 90 or 1054 for the appropriate model year.
- (b) The only requirements or prohibitions from this part that apply to an engine that meets the criteria in paragraph (a) of this section are in this section.
- (c) If your engines do not meet the criteria listed in paragraph (a) of this section, they will be subject to the provisions of this part. Introducing these engines into commerce without a valid exemption or certificate of conformity violates the prohibitions in 40 CFR 1068.101.
- (d) Engines exempted under this section are subject to all the requirements affecting engines under 40 CFR part 90 or 1054. The requirements and restrictions of 40 CFR part 90 or 1054 apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as if these engines had a total maximum engine power at or below 19 kW.

144. Section 1048.620 is amended by revising the section heading to read as follows:

§1048.620 What are the provisions for exempting large engines fueled by natural gas or liquefied petroleum gas?

* * * * *

145. Section 1048.630 is revised to read as follows:

§1048.630 What are the provisions for exempting engines used solely for competition?

We may grant you an exemption from the standards and requirements of this part for a new engine on the grounds that it is to be used solely for competition under the provisions of 40 CFR 1054.620. The requirements of this part do not apply to engines that we exempt for use solely for competition.

146. Section 1048.635 is amended by revising paragraph (b) to read as follows:

§1048.635 What special provisions apply to branded engines?

* * * * *

- (b) In your application for certification, identify the company whose trademark you will use.

* * * * *

147. A new §1048.640 is added to subpart G to read as follows:

§1048.640 What special provisions apply for small-volume engine manufacturers?

This section describes how we apply the special provisions in this part for small-volume engine manufacturers.

(a) Special provisions apply for small-volume engine manufacturers, as illustrated by the following examples:

- (1) Waived requirements related to torque broadcasting. See §1048.115.
- (2) Assigned deterioration factors to reduce testing burden. See §1048.240.
- (3) Additional special provisions apply for small-volume engine and equipment manufacturers under 40 CFR part 1068. For example, see 40 CFR 1068.250.

(b) If you use any of the provisions of this part that apply specifically to small-volume engine manufacturers and we find that you do not qualify to use these provisions, we may consider you to be in violation of the requirements that apply for companies that are not small-volume engine manufacturers. If you no longer qualify as a small-volume engine manufacturer (based on increased production volumes or other factors), we will work with you to determine a reasonable schedule for complying with additional requirements that apply. For example, if you no longer qualify as a small-volume engine manufacturer shortly before you certify your engines for the next model year, we might allow you to use assigned deterioration factors for one more model year.

Subpart I – [Amended]

148. Section 1048.801 is amended as follows:

a. By revising the definitions for “Aftertreatment”, “Constant-speed operation”, “Designated Compliance Officer”, “Emission-control system”, “Engine configuration”, “Low-hour” “Maximum engine power”, “Model year”, “New nonroad engine”, “Noncommercial fuel”, “Nonmethane hydrocarbon”, “Official emission result”, “Owners manual”, “Oxides of nitrogen”, “Small-volume engine manufacturer”, “Steady-state”, “Total hydrocarbon”, “Total hydrocarbon equivalent”, and “Useful life”.

b. By adding definitions for “Alcohol-fueled engine”, “Days”, “Engine”, and “Sealed” in alphabetical order.

§1048.801 What definitions apply to this part?

* * * * *

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR), turbochargers, and oxygen sensors are not aftertreatment.

Alcohol-fueled engine means an engine that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

* * * * *

Constant-speed operation has the meaning given in 40 CFR 1065.1001.

* * * * *

Days means calendar days unless otherwise specified. For example, where we specify working days, we mean calendar days excluding weekends and U.S. national holidays.

Designated Compliance Officer means the Manager, Heavy-Duty and Nonroad Engine Group (6405-J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

* * * * *

Emission-control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from an engine.

* * * * *

Engine has the meaning given in 40 CFR 1068.30. This includes complete and partially complete engines.

Engine configuration means a unique combination of engine hardware and calibration within an engine family. Engines within a single engine configuration differ only with respect to normal production variability or factors unrelated to emissions.

* * * * *

Low-hour means relating to an engine with stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 125 hours of operation.

* * * * *

Maximum engine power has one of the following meanings:

(1) For engines at or below 100 kW, maximum engine power has the meaning given in 40 CFR 90.3 for 2010 and earlier model years and in 40 CFR 1054.140 for 2011 and later model years.

(2) For engines above 100 kW, maximum engine power has the meaning given in 40 CFR 1039.140.

* * * * *

Model year means one of the following things:

(1) For freshly manufactured equipment and engines (see definition of “new nonroad engine,” paragraph (1)), model year means one of the following:

(i) Calendar year.

(ii) Your annual new model production period if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a nonroad engine after being placed into service as a stationary engine, or being certified and placed into service as a motor vehicle engine, model year means the calendar year in which the engine was originally produced. For a motor vehicle engine that is converted to be a nonroad engine without having been certified, model year means the calendar year in which the engine becomes a new nonroad engine. (See definition of “new nonroad engine,” paragraph (2).)

(3) For a nonroad engine excluded under §1048.5 that is later converted to operate in an application that is not excluded, model year means the calendar year in which the engine was originally produced (see definition of “new nonroad engine,” paragraph (3)).

(4) For engines that are not freshly manufactured but are installed in new nonroad equipment, model year means the calendar year in which the engine is installed in the new nonroad equipment (see definition of “new nonroad engine,” paragraph (4)).

(5) For imported engines:

(i) For imported engines described in paragraph (5)(i) of the definition of “new nonroad engine,” model year has the meaning given in paragraphs (1) through (4) of this definition.

(ii) For imported engines described in paragraph (5)(ii) of the definition of “new nonroad engine,” model year means the calendar year in which the engine is modified.

(iii) For imported engines described in paragraph (5)(iii) of the definition of “new nonroad engine,” model year means the calendar year in which the engine is assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

* * * * *

New nonroad engine means any of the following things:

(1) A freshly manufactured nonroad engine for which the ultimate purchaser has never received the equitable or legal title. This kind of engine might commonly be thought of as “brand new.” In the case of this paragraph (1), the engine is new from the time it is produced until the ultimate purchaser receives the title or the product is placed into service, whichever comes first.

(2) An engine originally manufactured as a motor vehicle engine or a stationary engine that is later used or intended to be used in a piece of nonroad equipment. In this case, the engine is no longer a motor vehicle or stationary engine and becomes a “new nonroad engine.” The engine is no longer new when it is placed into nonroad service. This paragraph (2) applies if a motor vehicle engine or a stationary

engine is installed in nonroad equipment, or if a motor vehicle or a piece of stationary equipment is modified (or moved) to become nonroad equipment.

(3) A nonroad engine that has been previously placed into service in an application we exclude under §1048.5, when that engine is installed in a piece of equipment that is covered by this part 1048. The engine is no longer new when it is placed into nonroad service covered by this part 1048. For example, this would apply to a marine-propulsion engine that is no longer used in a marine vessel but is instead installed in a piece of nonroad equipment subject to the provisions of this part.

(4) An engine not covered by paragraphs (1) through (3) of this definition that is intended to be installed in new nonroad equipment. This generally includes installation of used engines in new equipment. The engine is no longer new when the ultimate purchaser receives a title for the equipment or the product is placed into service, whichever comes first.

(5) An imported nonroad engine, subject to the following provisions:

(i) An imported nonroad engine covered by a certificate of conformity issued under this part that meets the criteria of one or more of paragraphs (1) through (4) of this definition, where the original engine manufacturer holds the certificate, is new as defined by those applicable paragraphs.

(ii) An imported engine covered by a certificate of conformity issued under this part, where someone other than the original engine manufacturer holds the certificate (such as when the engine is modified after its initial assembly), is a new nonroad engine when it is imported. It is no longer new when the ultimate purchaser receives a title for the engine or it is placed into service, whichever comes first.

(iii) An imported nonroad engine that is not covered by a certificate of conformity issued under this part at the time of importation is new. This addresses uncertified engines and equipment initially placed into service that someone seeks to import into the United States. Importation of this kind of engine (or equipment containing such an engine) is generally prohibited by 40 CFR part 1068.

However, the importation of such an engine is not prohibited if the engine has a model year before 2004, since it is not subject to standards.

* * * * *

Noncommercial fuel means a combustible product that is not marketed as a commercial fuel, but is used as a fuel for nonroad engines. For example, this includes methane that is produced and released from landfills or oil wells, or similar unprocessed fuels that are not intended to meet any otherwise applicable fuel specifications. See §1048.625 for provisions related to engines designed to burn noncommercial fuels.

* * * * *

Nonmethane hydrocarbon has the meaning given in 40 CFR 1065.1001.

* * * * *

Official emission result means the measured emission rate for an emission-data engine on a given duty cycle before the application of any deterioration factor.

Owners manual means a document or collection of documents prepared by the engine manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

* * * * *

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

* * * * *

Sealed has the meaning given in 40 CFR 1060.801.

* * * * *

Small-volume engine manufacturer means a company meeting either of the following characteristics:

(1) An engine manufacturer with U.S.-directed production volumes of engines subject to the requirements of this part totaling no more than 2,000 units in any year. This includes engines produced by parent or subsidiary companies.

(2) An engine manufacturer with fewer than 200 employees. This includes any employees working for parent or subsidiary companies.

* * * * *

Steady-state has the meaning given in 40 CFR 1065.1001.

* * * * *

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001.

* * * * *

Useful life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. It is the period during which a nonroad engine is required to comply with all applicable emission standards. See §1048.101(g). If an engine has no hour meter, the specified number of hours does not limit the period during which an in-use engine is required to comply with emission standards unless the degree of service accumulation can be verified separately.

* * * * *

149. Section 1048.810 is revised to read as follows:

§1048.810 What materials does this part reference?

Documents listed in this section have been incorporated by reference into this part. The Director of the Federal Register approved the incorporation by reference as prescribed in 5 U.S.C. 552(a) and 1 CFR part 51. Anyone may inspect copies at the U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(a) SAE material. Table 1 of this section lists material from the Society of Automotive Engineers that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096 or www.sae.org. Table 1 follows:

Table 1 of §1048.810—SAE Materials

Document number and name	Part 1048 reference
SAE J2260, Nonmetallic Fuel System Tubing with One or More Layers, November 2004.	1048.105

(b) ISO material. Table 2 of this section lists material from the International Organization for Standardization that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the section of this part where we reference it. Anyone may purchase copies of these materials from the International Organization for Standardization, Case Postale 56, CH-1211 Geneva 20, Switzerland or www.iso.org. Table 2 follows:

Table 2 of §1048.810—ISO Materials

Document number and name	Part 1048 reference
ISO 9141-2 Road vehicles—Diagnostic systems— Part 2: CARB requirements for interchange of digital information, February 1994.	1048.110
.....
ISO 14230-4 Road vehicles—Diagnostic systems—Keyword Protocol 2000— Part 4: Requirements for emission-related systems, June 2000.	1048.110

150. A new §1048.825 is added to read as follows:

§1048.825 What reporting and recordkeeping requirements apply under this part?

Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for engines and equipment regulated under this part:

- (a) We specify the following requirements related to engine certification in this part 1048:
 - (1) In §1048.20 we require manufacturers of stationary engines to label their engines in certain cases.
 - (2) In §1048.135 we require engine manufacturers to keep certain records related to duplicate labels sent to equipment manufacturers.
 - (3) In §1048.145 we include various reporting and recordkeeping requirements related to interim provisions.
 - (4) In subpart C of this part we identify a wide range of information required to certify engines.
 - (5) In §§1048.345 and 1048.350 we specify certain records related to production-line testing.
 - (6) In §§1048.420 and 1048.425 we specify certain records related to in-use testing.
 - (7) In subpart G of this part we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various special compliance provisions.
- (b) [Reserved]
- (c) We specify the following requirements related to testing in 40 CFR part 1065:
 - (1) In 40 CFR 1065.2 we give an overview of principles for reporting information.
 - (2) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published test procedures.
 - (3) In 40 CFR 1065.25 we establish basic guidelines for storing test information.
 - (4) In 40 CFR 1065.695 we identify data that may be appropriate for collecting during testing of in-use engines using portable analyzers.
- (d) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:
 - (1) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.
 - (2) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information
 - (3) In 40 CFR 1068.27 we require manufacturers to make engines available for our testing or inspection if we make such a request.
 - (4) In 40 CFR 1068.105 we require equipment manufacturers to keep certain records related to duplicate labels from engine manufacturers.
 - (5) In 40 CFR 1068.120 we specify recordkeeping related to rebuilding engines.
 - (6) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.
 - (7) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing engines.
 - (8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.
 - (9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.
 - (10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming engines.

Appendix I – [Reserved]

151. Appendix I to part 1048 is removed and reserved.

PART 1051—CONTROL OF EMISSIONS FROM RECREATIONAL ENGINES AND VEHICLES

152. The authority citation for part 1051 continues to read as follows:
Authority: 42 U.S.C. 7401-7671q.

Subpart A – [Amended]

153. Section 1051.1 is amended by revising paragraph (a)(4) to read as follows:

§1051.1 Does this part apply for my vehicles or engines?

(a) * * *

(4) Offroad utility vehicles with engines with displacement less than or equal to 1000 cc, maximum engine power less than or equal to 30 kW, and maximum vehicle speed higher than 25 miles per hour. Offroad utility vehicles that are subject to this part are subject to the same requirements as ATVs. This means that any requirement that applies to ATVs also applies to these offroad utility vehicles, without regard to whether the regulatory language mentions offroad utility vehicles.

* * * * *

154. A new §1051.2 is added to read as follows:

§1051.2 Who is responsible for compliance?

The regulations in this part 1051 contain provisions that affect both vehicle manufacturers and others. However, the requirements of this part are generally addressed to the vehicle manufacturer. The term "you" generally means the vehicle manufacturer, as defined in §1051.801, especially for issues related to certification (including production-line testing, reporting, etc.).

155. Section 1051.5 is amended by revising paragraph (a) to read as follows:

§1051.5 Which engines are excluded from this part’s requirements?

(a)(1) You may exclude vehicles with compression-ignition engines. See 40 CFR parts 89 and 1039 for regulations that cover these engines.

(2) Vehicles with a combined total vehicle dry weight under 20.0 kilograms are excluded from this part. Spark-ignition engines in these vehicles must instead meet emission standards specified in 40 CFR parts 90 and 1054. See 40 CFR 90.103(a) and the definition of handheld in 40 CFR 1054.801.

* * * * *

156. Section 1051.10 is amended by revising the introductory text to read as follows:

§1051.10 How is this part organized?

This part 1051 is divided into the following subparts:

* * * * *

157. Section 1051.15 is amended by redesignating paragraphs (b) and (c) as paragraphs (c) and (d) and adding a new paragraph (b) to read as follows:

§1051.15 Do any other regulation parts apply to me?

* * * * *

(b) Part 1060 of this chapter describes standards and procedures that optionally apply for controlling evaporative emissions from engines fueled by gasoline or other volatile liquid fuels and the associated fuel systems.

* * * * *

158. Section 1051.25 is amended by revising paragraphs (a) and (c) to read as follows:

§1051.25 What requirements apply when installing certified engines in recreational vehicles?

(a) If you manufacture recreational vehicles with engines certified under §1051.20, you must certify your vehicle with respect to the evaporative emission standards in §1051.110, but you need not certify the vehicle with respect to exhaust emissions under this part. The vehicle must nevertheless meet all emission standards with the engine installed. You must also label fuel tanks and fuel lines as specified in §1051.135(d).

* * * * *

(c) If you obscure the engine label while installing the engine in the vehicle such that the label cannot be read during normal maintenance, you must place a duplicate label on the vehicle as described in 40 CFR 1068.105.

Subpart B – [Amended]

159. Section 1051.103 is amended by revising paragraphs (b)(1), (b)(2), and (b)(3) to read as follows:

§1051.103 What are the exhaust emission standards for snowmobiles?

* * * * *

(b) * * *

- (1) Natural gas-fueled snowmobiles: NMHC emissions.
- (2) Alcohol-fueled snowmobiles: THCE emissions.
- (3) Other snowmobiles: THC emissions.

* * * * *

160. Section 1051.105 is amended by revising paragraphs (b)(1), (b)(2), and (b)(3) to read as follows:

§1051.105 What are the exhaust emission standards for off-highway motorcycles?

* * * * *

(b) * * *

- (1) Natural gas-fueled off-highway motorcycles: NMHC emissions.
- (2) Alcohol-fueled off-highway motorcycles: THCE emissions.
- (3) Other off-highway motorcycles: THC emissions.

* * * * *

161. Section 1051.107 is amended by revising paragraphs (b)(1), (b)(2), and (b)(3) to read as follows:

§1051.107 What are the exhaust emission standards for all-terrain vehicles (ATVs) and offroad utility vehicles?

* * * * *

(b) * * *

- (1) Natural gas-fueled ATVs: NMHC emissions.
- (2) Alcohol-fueled ATVs: THCE emissions.
- (3) Other ATVs: THC emissions.

* * * * *

162. Section 1051.110 is amended by revising the introductory text and adding paragraph (c) to read as follows:

§1051.110 What evaporative emission standards must my vehicles meet?

Your new vehicles that run on a volatile liquid fuel (such as gasoline) must meet the emission standards of this section over their full useful life. Note that §1051.245 allows you to use design-based certification instead of generating new emission data.

* * * * *

(c) You may certify your fuel tanks and fuel lines under the provisions of 40 CFR part 1060. You may also specify in your application for certification that you are using components that have been certified by the component manufacturer.

163. Section 1051.115 is amended by revising the section heading and introductory text to read as follows:

§1051.115 What other requirements apply?

Vehicles that are required to meet the emission standards of this part must meet the following requirements:

* * * * *

164. Section 1051.120 is amended by revising paragraph (c) to read as follows:

§1051.120 What emission-related warranty requirements apply to me?

* * * * *

(c) Components covered. The emission-related warranty covers all components whose failure would increase an engine's emissions of any regulated pollutant, including components listed in 40 CFR part 1068, Appendix I, and components from any other system you develop to control emissions. The emission-related warranty covers these components even if another company produces the component. Your emission-related warranty does not cover components whose failure would not increase an engine's emissions of any regulated pollutant.

* * * * *

165. Section 1051.125 is amended by revising paragraphs (a)(1)(iii) and (d) to read as follows:

§1051.125 What maintenance instructions must I give to buyers?

* * * * *

(a) * * *

(1) * * *

(iii) You provide the maintenance free of charge and clearly say so in your maintenance instructions.

* * * * *

(d) Noncritical emission-related maintenance. Subject to the provisions of this paragraph (d), you may schedule any amount of emission-related inspection or maintenance that is not covered by paragraph (a) of this section (i.e., maintenance that is neither explicitly identified as critical emission-related maintenance, nor that we approve as critical emission-related maintenance). Noncritical emission-related maintenance generally includes changing spark plugs, re-seating valves, or any other emission-related maintenance on the components we specify in 40 CFR part 1068, Appendix I that is not covered in paragraph (a) of this section. You must state in the owners manual that these steps are not necessary to keep the emission-related warranty valid. If operators fail to do this maintenance, this does not allow you to disqualify those vehicles from in-use testing or deny a warranty claim. Do not take these inspection or maintenance steps during service accumulation on your emission-data vehicles.

* * * * *

166. Section 1051.135 is amended to read as follows:

a. By revising paragraphs (c)(6), (c)(7), and (c)(8).

- b. By adding a new paragraph (c)(13).
- d. By removing and reserving paragraph (f).

§1051.135 How must I label and identify the vehicles I produce?

* * * * *

(c) * * *

(6) State the date of manufacture [DAY (optional), MONTH, and YEAR]; however, you may omit this from the label if you stamp, engrave, or otherwise permanently identify it elsewhere on the vehicle or engine, in which case you must also describe in your application for certification where you will identify the date on the vehicle or engine.

(7) State the exhaust emission standards or FELs to which the vehicles are certified (in g/km or g/kW-hr). Also, state the FEL that applies for the fuel tank if it is different than the otherwise applicable standard.

(8) Identify the emission-control system. Use terms and abbreviations as described in 40 CFR 1068.45. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

* * * * *

(13) Identify evaporative emission controls as specified in 40 CFR 1060.135.

* * * * *

167. Section 1051.137 is amended by revising the introductory text read as follows:

§1051.137 What are the consumer labeling requirements?

Label every vehicle certified under this part with a removable hang-tag showing its emission characteristics relative to other models. The label should be attached securely to the vehicle before it is offered for sale in such a manner that it would not be accidentally removed prior to sale. Use the applicable equations of this section to determine the normalized emission rate (NER) from the FEL for your vehicle. If the vehicle is certified without a family emission limit that is different than the otherwise applicable standard, use the final deteriorated emission level. Round the resulting normalized emission rate for your vehicle to one decimal place. If the calculated NER value is less than zero, consider NER to be zero for that vehicle. We may specify a standardized format for labels. At a minimum, the tag should include: the manufacturer's name, vehicle model name, engine description (500 cc two-stroke with DFI), the NER, and a brief explanation of the scale (for example, note that 0 is the cleanest and 10 is the least clean).

* * * * *

168. A new §1051.140 is added to read as follows:

§1051.140 What is my vehicle's maximum engine power and displacement?

This section describes how to quantify your vehicle's maximum engine power and displacement for the purposes of this part.

(a) An engine configuration's maximum engine power is the maximum brake power point on the nominal power curve for the engine configuration, as defined in this section. Round the power value to the nearest 0.5 kilowatts. The nominal power curve of an engine configuration is the relationship between maximum available engine brake power and engine speed for an engine, using the mapping procedures of 40 CFR part 1065, based on the manufacturer's design and production specifications for the engine. This information may also be expressed by a torque curve that relates maximum available engine torque with engine speed.

(b) An engine configuration's displacement is the intended swept volume of the engine rounded to the nearest cubic centimeter. The swept volume of the engine is the product of the internal cross-section area of the cylinders, the stroke length, and the number of cylinders. For example, for a one-cylinder engine with a circular cylinder having an internal diameter of 6.00 cm and a 6.25 cm stroke length, the rounded displacement would be: $(1) \times (6.00/2)^2 \times (\pi) \times (6.25) = 177$ cc. Calculate the engine's intended swept

volume from the design specifications for the cylinders using enough significant figures allow determination of the displacement to the nearest 0.1 cc.

(c) The nominal power curve and intended swept volume must be within the range of the actual power curves and swept volumes of production engines considering normal production variability. If after production begins it is determined that either your nominal power curve or your intended swept volume does not represent production engines, we may require you to amend your application for certification under §1051.225.

169. Section 1051.145 is amended by revising paragraphs (b) and (e)(1) and adding paragraphs (i) and (j) to read as follows:

§1051.145 What provisions apply only for a limited time?

* * * * *

(b) Optional emission standards for ATVs . To meet ATV standards for model years before 2014, you may apply the exhaust emission standards by model year in paragraph (b)(1) of this section while measuring emissions using the engine-based test procedures in 40 CFR part 1065 instead of the chassis-based test procedures in 40 CFR part 86. In model year 2014 you may apply this provision for exhaust emission engine families representing up to 50 percent of your U.S.-directed production volume. This provision is not available in the 2015 or later-model years. If you certify only one ATV exhaust emission engine family in the 2014 model year this provision is available for that family in the 2014 model year.

(1) Follow Table 1 of this section for exhaust emission standards, while meeting all the other requirements of §1051.107. You may use emission credits to show compliance with these standards (see subpart H of this part). You may not exchange emission credits with engine families meeting the standards in §1051.107(a). You may also not exchange credits between engine families certified to the standards for engines above 225 cc and engine families certified to the standards for engines below 225 cc. The phase-in percentages in the table specify the percentage of your total U.S.-directed production that must comply with the emission standards for those model years (i.e., the percentage requirement does not apply separately for engine families above and below 225 cc). Table 1 follows:

Table 1 of §1051.145—
Optional Exhaust Emission Standards for ATVs (g/kW-hr)

Engine Displacement	Model Year	Phase-in	Emission standards		Maximum allowable Family Emission Limits
			HC+NO _x	CO	HC+NO _x
<225 cc	2006	50%	16.1	400	32.2
	2007 and later	100%	16.1	400	32.2
≥225 cc	2006	50%	13.4	400	26.8
	2007 and later	100%	13.4	400	26.8

(2) Measure emissions by testing the engine on a dynamometer with the steady-state duty cycle described in Table 2 of this section.

- (i) During idle mode, hold the speed within your specifications, keep the throttle fully closed, and keep engine torque under 5 percent of the peak torque value at maximum test speed.
- (ii) For the full-load operating mode, operate the engine at its maximum fueling rate.
- (iii) See part 1065 of this chapter for detailed specifications of tolerances and calculations.

(iv) Table 2 follows:

Table 2 of §1051.145—
6-Mode Duty Cycle for Recreational Engines

Mode Number	Engine Speed (percent of maximum test speed)	Torque (percent of maximum torque at test speed)	Minimum Time in mode (minutes)	Weighting Factors
1	85	100	5.0	0.09
2	85	75	5.0	0.20
3	85	50	5.0	0.29
4	85	25	5.0	0.30
5	85	10	5.0	0.07
6	Idle	0	5.0	0.05

(3) For ATVs certified to the standards in this paragraph (b), use the following equations to determine the normalized emission rate required by §1051.137:

(i) For engines at or above 225 cc, use the following equation:

$$\text{NER} = 9.898 \times \log (\text{HC} + \text{NOx}) - 4.898$$

Where:

HC +NOx is the sum of the cycle-weighted emission rates for hydrocarbons and oxides of nitrogen in g/kW-hr.

(ii) For engines below 225 cc, use the following equation:

$$\text{NER} = 9.898 \times \log [(\text{HC}+\text{NOx}) \times 0.83] - 4.898$$

Where:

HC +NOx is the sum of the cycle-weighted emission rates for hydrocarbons and oxides of nitrogen in g/kW-hr.

* * * * *

(e) * * *

(1) Snowmobile. You may use the raw sampling procedures described in 40 CFR part 90 or 91 for snowmobiles subject to Phase 1 or Phase 2 standards.

* * * * *

(i) Delayed compliance with labeling requirements. Before the 2010 model year, you may omit the date of manufacture from the emission control information label if you keep those records and provide them to us upon request. Before the 2010 model year, you may also omit the label information specified for evaporative emission controls.

(j) Use of certified Small SI engines. You may use the provisions of §1051.605 for a limited number of engines certified under 40 CFR part 90 or part 1054 through the 2014 model year for installation in all-terrain vehicles meeting the criteria in paragraph (2) but not paragraph (1) of the definition of “all-terrain vehicle” in §1051.801. Where §1051.605 references 40 CFR parts 85, 86, and/or 1048, apply the applicable provisions of 40 CFR parts 90 and 1054 instead. Up to 5 percent of the engine family’s total sales may be for use in all-terrain vehicles under this paragraph (j), rather than the sales limit specified in §1051.605(d)(3).

Subpart C – [Amended]

170. Section 1051.201 is amended by revising paragraph (a) to read as follows:

§1051.201 What are the general requirements for obtaining a certificate of conformity?

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid starting with the indicated effective date, but it is not valid for any production after December 31 of the model year for which it is issued. No certificate will be issued after December 31 of the model year.

* * * * *

171. Section 1051.205 is amended by revising paragraphs (b), (o)(1), (p), (t), and (w) to read as follows:

§1051.205 What must I include in my application?

* * * * *

(b) Explain how the emission control systems operate. Describe the evaporative emission controls. Also describe in detail all system components for controlling exhaust emissions, including all auxiliary emission control devices (AECs) and all fuel-system components you will install on any production or test vehicle or engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECs any devices that modulate or activate differently from each other. Include sufficient detail to allow us to evaluate whether the AECs are consistent with the defeat device prohibition of §1051.115.

* * * * *

(o) * * *

(1) Present exhaust emission data for hydrocarbons (such as NMHC or THCE, as applicable), NO_x, and CO on an emission-data vehicle to show your vehicles meet the exhaust emission standards as specified in subpart B of this part. Show emission figures before and after applying deterioration factors for each vehicle or engine. If we specify more than one grade of any fuel type (for example, a summer grade and winter grade of gasoline), you need to submit test data only for one grade unless the regulations of this part specify otherwise for your engine.

* * * * *

(p) Report all test results, including those from invalid tests or from any other tests, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO₂, report those emission levels (in g/kW-hr or g/km, as appropriate). We may ask you to send other information to confirm that your tests were valid under the requirements of this part and 40 CFR part 1065.

* * * * *

(t) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models.

* * * * *

(w) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

172. Section 1051.220 is amended by revising the introductory text and paragraph (a) to read as follows:

§1051.220 How do I amend the maintenance instructions in my application?

You may amend your emission-related maintenance instructions after you submit your application for certification as long as the amended instructions remain consistent with the provisions of §1051.125. You must send the Designated Compliance Officer a request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. If operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim.

(a) If you are decreasing, replacing, or eliminating any specified maintenance, you may distribute the new maintenance instructions to your customers 30 days after we receive your request, unless we disapprove your request. This would generally include replacing one maintenance step with another. We may approve a shorter time or waive this requirement.

* * * * *

173. Section 1051.225 is revised to read as follows:

§1051.225 How do I amend my application for certification to include new or modified vehicle configurations or to change an FEL?

Before we issue you a certificate of conformity, you may amend your application to include new or modified vehicle configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or modified vehicle configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information included in your application.

(a) You must amend your application before you take any of the following actions:

(1) Add a vehicle configuration to an engine family. In this case, the vehicle configuration added must be consistent with other vehicle configurations in the engine family with respect to the criteria listed in §1051.230.

(2) Change a vehicle configuration already included in an engine family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the engine's lifetime.

(3) Modify an FEL for an engine family, as described in paragraph (f) of this section.

(b) To amend your application for certification, send the Designated Compliance Officer the following information:

(1) Describe in detail the addition or change in the vehicle model or configuration you intend to make.

(2) Include engineering evaluations or data showing that the amended engine family complies with all applicable requirements. You may do this by showing that the original emission-data vehicle is still appropriate for showing that the amended family complies with all applicable requirements.

(3) If the original emission-data vehicle for the engine family is not appropriate to show compliance for the new or modified vehicle configuration, include new test data showing that the new or modified vehicle configuration meets the requirements of this part.

(c) We may ask for more test data or engineering evaluations. You must give us these within 30 days after we request them.

(d) For engine families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your new or modified vehicle configuration. You may ask for a hearing if we deny your request (see §1051.820).

(e) For engine families already covered by a certificate of conformity, you may start producing the new or modified vehicle configuration anytime after you send us your amended application, before we make a decision under paragraph (d) of this section. However, if we determine that the affected vehicles do not meet applicable requirements, we will notify you to cease production of the vehicles and may require you to recall the vehicles at no expense to the owner. Choosing to produce vehicles under this paragraph (e) is deemed to be consent to recall all vehicles that we determine do not meet applicable emission standards or other requirements and to remedy the nonconformity at no expense to the owner. If you do not provide information required under paragraph (c) of this section within 30 days after we request it, you must stop producing the new or modified vehicle configuration.

(f) You may ask us to approve a change to your FEL in certain cases after the start of production. The changed FEL may not apply to vehicles you have already introduced into commerce, except as described in this paragraph (f). If we approve a changed FEL after the start of production, you must include the new

FEL on the emission control information label for all vehicles produced after the change. You may ask us to approve a change to your FEL in the following cases:

- (1) You may ask to raise your FEL for your engine family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. If you amend your application by submitting new test data to include a newly added or modified vehicle, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding production volumes to calculate your average emission level for the model year, as described in subpart H of this part. In all other circumstances, you must use the higher FEL for the entire family to calculate your average emission level under subpart H of this part.
- (2) You may ask to lower the FEL for your engine family only if you have test data from production engines showing that the engines have emissions below the proposed lower FEL. The lower FEL applies only to engines you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate your average emission level for the model year, as described in subpart H of this part.

174. Section 1051.230 is amended by revising the paragraphs (a), (b)(8), and (e)(1) to read as follows:

§1051.230 How do I select engine families?

(a) For purposes of certification, divide your product line into families of vehicles as described in this section. Except as specified in paragraph (f) of this section, you must have separate engine families for meeting exhaust and evaporative emissions. Your engine family is limited to a single model year.

(b) * * *

(8) Numerical level of the emission standards that apply to the vehicle. For example, an engine family may not include vehicles certified to different family emission limits, though you may change family emission limits without recertifying as specified in §1051.225.

* * * * *

(e) * * *

(1) In unusual circumstances, you may group such vehicles in the same engine family if you show that their emission characteristics during the useful life will be similar.

* * * * *

175. Section 1051.235 is amended by revising paragraphs (c)(4), (d)(1) introductory text, and (d)(1)(i) to read as follows:

§1051.235 What emission testing must I perform for my application for a certificate of conformity?

* * * * *

(c) * * *

(4) Before we test one of your vehicles or engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter. For example, this would apply where we determine that an engine parameter is not an adjustable parameter (as defined in §1051.801) but that it is subject to production variability.

(d) * * *

(1) You may ask to use carryover emission data from a previous model year instead of doing new tests, but only if all the following are true:

(i) The engine family from the previous model year differs from the current engine family only with respect to model year or other characteristics unrelated to emissions. You may also ask to add a configuration subject to §1051.225.

* * * * *

176. Section 1051.240 is amended by revising paragraphs (a), (b), and (c)(1) to read as follows:

§1051.240 How do I demonstrate that my engine family complies with exhaust emission standards?

- (a) For purposes of certification, your engine family is considered in compliance with the applicable numerical exhaust emission standards in subpart B of this part if all emission-data vehicles representing that family have test results showing deteriorated emission levels at or below these standards. This includes all test points over the course of the durability demonstration. (Note: if you participate in the ABT program in subpart H of this part, your FELs are considered to be the applicable emission standards with which you must comply.)
- (b) Your engine family is deemed not to comply if any emission-data vehicle representing that family has test results showing a deteriorated emission level for any pollutant that is above an applicable FEL or emission standard. This includes all test points over the course of the durability demonstration.
- (c) * * *
 - (1) For vehicles that use aftertreatment technology, such as catalytic converters, use a multiplicative deterioration factor for exhaust emissions. A multiplicative deterioration factor is the ratio of exhaust emissions at the end of the useful life and exhaust emissions at the low-hour test point. In these cases, adjust the official emission results for each tested vehicle or engine at the selected test point by multiplying the measured emissions by the deterioration factor. If the factor is less than one, use one. Multiplicative deterioration factors must be specified to three significant figures.

177. Section 1051.243 is amended by revising the introductory text and paragraphs (b)(6) and (c)(1) to read as follows:

§1051.243 How do I determine deterioration factors from exhaust durability testing?

This section describes how to determine deterioration factors, either with pre-existing test data or with new emission measurements.

- * * * * *
- (b) * * *
 - (6) You may use other testing methods to determine deterioration factors, consistent with good engineering judgment, as long as we approve those methods in advance.
- (c) * * *
 - (1) If you determine your deterioration factors based on test data from a different engine family, explain why this is appropriate and include all the emission measurements on which you base the deterioration factor.

178. Section 1051.245 is amended by revising paragraph (e) to read as follows:

§1051.245 How do I demonstrate that my engine family complies with evaporative emission standards?

- * * * * *
- (e) You may demonstrate for certification that your engine family complies with the evaporative emission standards by demonstrating that you use the following control technologies:
 - (1) For certification to the standards specified in §1051.110(a) with the control technologies shown in the following table:

Table 1 of §1051.245—
Design-certification Technologies for Controlling Tank Permeation

If the tank permeability control technology is...	Then you may design-certify with a tank emission level of . . .
(i) A metal fuel tank with no non-metal gaskets or with gaskets made from a low-permeability material.	1.5 g/m ² /day
(ii) A metal fuel tank with non-metal gaskets with an exposed surface area of 1000 mm ² or less.	1.5 g/m ² /day

(2) For certification to the standards specified in §1051.110(b) with the control technologies shown in the following table:

Table 2 of §1051.245—
Design-certification Technologies for Controlling Fuel-line Permeation

If the fuel-line permeability control technology is...	Then you may design-certify with a fuel line permeation emission level of . . .
(i) Hose meeting the specifications for Low Emission Fuel Lines as described in 40 CFR 1048.105.	15 g/m ² /day
(ii) Hose meeting the R11-A or R12 permeation specifications in SAE J30 as described in 40 CFR 1060.810.	15 g/m ² /day

179. Section 1051.250 is amended as follows:

- a. By removing paragraph (d).
- b. By redesignating paragraphs (a) through (c) as paragraphs (b) through (d), respectively.
- c. By adding a new paragraph (a).
- d. By revising the redesignated paragraph (c).

§1051.250 What records must I keep and make available to EPA?

(a) Send the Designated Compliance Officer information related to your U.S.-directed production volumes as described in §1051.345. In addition, within 45 days after the end of the model year, you must send us a report describing information about vehicles you produced during the model year as follows:

- (1) State the total production volume for each engine family that is not subject to reporting under §1051.345.
- (2) State the total production volume for any engine family for which you produce vehicles after completing the reports required in §1051.345.
- (3) For production volumes you report under this paragraph (a), identify whether or not the figures include California sales. Include a separate count of production volumes for California sales if those figures are available.

* * * * *

(c) Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in this section for eight years after we issue your certificate.

* * * * *

Subpart D – [Amended]

180. Section 1051.301 is amended by revising paragraphs (a), (c), (d), (e), and (h) introductory text to read as follows:

§1051.301 When must I test my production-line vehicles or engines?

(a) If you produce vehicles that are subject to the requirements of this part, you must test them as described in this subpart, except as follows:

(1) Small-volume manufacturers may omit testing under this subpart.

(2) We may exempt engine families with a projected U.S.-directed production volume below 150 units from routine testing under this subpart. Request this exemption in your application for certification and include your basis for projecting a production volume below 150 units. We will approve your request if we agree that you have made good-faith estimates of your production volumes. Your exemption is approved when we grant your certificate. You must promptly notify us if your actual production exceeds 150 units during the model year. If you exceed the production limit or if there is evidence of a nonconformity, we may require you to test production-line engines under this subpart, or under 40 CFR part 1068, subpart E, even if we have approved an exemption under this paragraph (a)(2).

* * * * *

(c) Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families, without regard to whether they have passed these production-line testing requirements. The requirements of this subpart do not affect our ability to do selective enforcement audits, as described in part 1068 of this chapter. Individual vehicles and engines in families that pass these production-line testing requirements must also conform to all applicable regulations of this part and part 1068 of this chapter.

(d) You may use alternate programs for testing production-line vehicles or engines in the following circumstances:

(1) You may use analyzers and sampling systems that meet the field-testing requirements of 40 CFR part 1065, subpart J, but not the otherwise applicable requirements in 40 CFR part 1065 for laboratory testing, to demonstrate compliance with emission standards if you double the minimum sampling rate specified in §1054.310(b). Use measured test results to determine whether vehicles or engines comply with applicable standards without applying a measurement allowance. This alternate program does not require prior approval but we may disallow use of this option where we determine that use of field-grade equipment would prevent you from being able to demonstrate that your vehicles or engines are being produced to conform to the specifications in your application for certification.

(2) You may ask to use another alternate program for testing production-line vehicles or engines. In your request, you must show us that the alternate program gives equal assurance that your products meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate approach. For example, in certain circumstances you may be able to give us equal assurance that your products meet the requirements of this part by using less rigorous measurement methods if you offset that by increasing the number of test vehicles or engines.

(e) If you certify an engine family with carryover emission data, as described in §1051.235(d), and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family. The minimum testing rate is one vehicle or engine per engine family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of vehicles or engines that have failed the emission tests.

* * * * *

(h) Vehicles certified to the following standards are exempt from the production-line testing requirements of this subpart if no engine families in the averaging set have family emission limits that are different than the otherwise applicable standard:

* * * * *

181. Section 1051.305 is amended by adding introductory text and revising paragraphs (d) and (g) to read as follows:

§1051.305 How must I prepare and test my production-line vehicles or engines?

This section describes how to prepare and test production-line vehicles or engines. Test the engine if your vehicle is certified to g/kW-hr standards; otherwise test the vehicle. You must assemble the test vehicle or engine in a way that represents the assembly procedures for other vehicles or engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production vehicles or engines in the engine family.

* * * * *

(d) Setting adjustable parameters. Before any test, we may require you to adjust any adjustable parameter to any setting within its physically adjustable range.

(1) We may require you to adjust idle speed outside the physically adjustable range as needed, but only until the vehicle or engine has stabilized emission levels (see paragraph (e) of this section). We may ask you for information needed to establish an alternate minimum idle speed.

(2) We may specify adjustments within the physically adjustable range by considering their effect on emission levels. We may also consider how likely it is that someone will make such an adjustment with in-use vehicles.

(3) We may specify an air-fuel ratio within the adjustable range specified in §1051.115(d).

* * * * *

(g) Retesting after invalid tests. You may retest a vehicle or engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If we determine that you improperly invalidated a test, we may require you to ask for our approval for future testing before substituting results of the new tests for invalid ones.

182. Section 1051.310 is amended by revising paragraphs (a), (b), (c) introductory text, (c)(2), (f), (g), and (h) to read as follows:

§1051.310 How must I select vehicles or engines for production-line testing?

(a) Test engines from each engine family as described in this section based on test periods, as follows:

(1) For engine families with projected U.S.-directed production volume of at least 1,600, the test periods are consecutive quarters (3 months). However, if your annual production period is less than 12 months long, you may take the following alternative approach to define quarterly test periods:

(i) If your annual production period is 120 days or less, the whole model year constitutes a single test period.

(ii) If your annual production period is 121 to 210 days, divide the annual production period evenly into two test periods.

(iii) If your annual production period is 211 to 300 days, divide the annual production period evenly into three test periods.

(iv) If your annual production period is 301 days or longer, divide the annual production period evenly into four test periods.

(2) For engine families with projected U.S.-directed production volume below 1,600, the whole model year constitutes a single test period.

(b) Early in each test period, randomly select and test an engine from the end of the assembly line for each engine family.

(1) In the first test period for newly certified engines, randomly select and test one more engine. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.

(2) In later test periods of the same model year, combine the new test result with all previous testing in the model year. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.

(3) In the first test period for engine families relying on previously submitted test data, combine the new test result with the last test result from the previous model year. Then, calculate the required

sample size for the model year as described in paragraph (c) of this section. Use the last test result from the previous model year only for this first calculation. For all subsequent calculations, use only results from the current model year.

(c) Calculate the required sample size for each engine family. Separately calculate this figure for HC, NO_x (or HC+NO_x), and CO. The required sample size is the greater of these calculated values. Use the following equation:

$$N = \left[\frac{(t_{95} \times \sigma)}{(x - STD)} \right]^2 + 1$$

Where:

N = Required sample size for the model year.

t₉₅ = 95% confidence coefficient, which depends on the number of tests completed, n, as specified in the table in paragraph (c)(1) of this section. It defines 95% confidence intervals for a one-tail distribution.

σ = Test sample standard deviation (see paragraph (c)(2) of this section).

x = Mean of emission test results of the sample.

STD = Emission standard (or family emission limit, if applicable).

* * * * *

(2) Calculate the standard deviation, σ, for the test sample using the following formula:

$$\sigma = \sqrt{\frac{\sum (X_i - x)^2}{n - 1}}$$

Where:

X_i = Emission test result for an individual vehicle or engine.

n = The number of tests completed in an engine family.

* * * * *

(f) Distribute the remaining tests evenly throughout the rest of the year. You may need to adjust your schedule for selecting vehicles or engines if the required sample size changes. If your scheduled quarterly testing for the remainder of the model year is sufficient to meet the calculated sample size, you may wait until the next quarter to do additional testing. Continue to randomly select vehicles or engines from each engine family.

(g) Continue testing until one of the following things happens:

(1) After completing the minimum number of tests required in paragraph (b) of this section, the number of tests completed in an engine family, n, is greater than the required sample size, N, and the sample mean, x, is less than or equal to the emission standard. For example, if N = 5.1 after the fifth test, the sample-size calculation does not allow you to stop testing.

(2) The engine family does not comply according to §1051.315.

(3) You test 30 vehicles or engines from the engine family.

(4) You test one percent of your projected annual U.S.-directed production volume for the engine family, rounded to the nearest whole number. Do not count a vehicle or engine under this paragraph (g)(4) if it fails to meet an applicable emission standard.

(5) You choose to declare that the engine family does not comply with the requirements of this subpart.

(h) If the sample-size calculation allows you to stop testing for one pollutant but not another, you must continue measuring emission levels of all pollutants for any additional tests required under this section. However, you need not continue making the calculations specified in this subpart for the pollutant for

which testing is not required. This paragraph (h) does not affect the number of tests required under this section, the required calculations in §1051.315, or the remedial steps required under §1051.320.

* * * * *

183. Section 1051.315 is amended by revising paragraphs (a), (b), and (g) to read as follows:

§1051.315 How do I know when my engine family fails the production-line testing requirements?

* * * * *

(a) Calculate your test results as follows:

(1) Initial and final test results. Calculate and round the test results for each vehicle or engine. If you do several tests on a vehicle or engine, calculate the initial results for each test, then add all the test results together and divide by the number of tests. Round this final calculated value for the final test results on that vehicle or engine.

(2) Final deteriorated test results. Apply the deterioration factor for the engine family to the final test results (see §1051.240(c)).

(3) Round deteriorated test results. Round the results to the number of decimal places in the emission standard expressed to one more decimal place.

(b) Construct the following CumSum Equation for each engine family for HC, NO_x (HC+NO_x), and CO emissions:

$$C_i = \text{Max}[0 \text{ or } C_{i-1} + X_i - (\text{STD} + 0.25 \times \sigma)]$$

Where:

C_i = The current CumSum statistic.

C_{i-1} = The previous CumSum statistic. For the first test, the CumSum statistic is 0 (i.e., $C_1 = 0$).

X_i = The current emission test result for an individual vehicle or engine.

STD = Emission standard (or family emission limit, if applicable).

* * * * *

(g) If the CumSum statistic exceeds the Action Limit in two consecutive tests, the engine family fails the production-line testing requirements of this subpart. Tell us within ten working days if this happens. You may request to amend the application for certification to raise the FEL of the engine family as described in §1051.225(f).

* * * * *

184. Section 1051.320 is amended by revising paragraph (a)(2) to read as follows:

§1051.320 What happens if one of my production-line vehicles or engines fails to meet emission standards?

(a) * * *

(2) Include the test results and describe the remedy for each engine in the written report required under §1051.345.

* * * * *

185. Section 1051.325 is amended by revising the section heading and paragraphs (c) and (e) to read as follows:

§1051.325 What happens if an engine family fails the production-line testing requirements?

* * * * *

(c) Up to 15 days after we suspend the certificate for an engine family, you may ask for a hearing (see §1051.820). If we agree before a hearing occurs that we used erroneous information in deciding to suspend the certificate, we will reinstate the certificate.

* * * * *

(e) You may request to amend the application for certification to raise the FEL of the engine family before or after we suspend your certificate as described in §1051.225(f). We will approve your request if it is clear that you used good engineering judgment in establishing the original FEL.

186. Section 1051.345 is amended as follows:

a. By removing the introductory text.

b. By revising paragraphs (a)(4), (a)(6), and (a)(8).

c. By revising paragraphs (b) and (c).

§1051.345 What production-line testing records must I send to EPA?

(a) * * *

(4) Describe each test vehicle or engine, including the engine family's identification and the vehicle's model year, build date, model number, identification number, and number of hours of operation before testing.

* * * * *

(6) Provide the test number; the date, time and duration of testing; test procedure; all initial test results; final test results; and final deteriorated test results for all tests. Provide the emission results for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.

* * * * *

(8) Provide the CumSum analysis required in §1051.315 and the sample-size calculation required in §1051.310 for each engine family.

* * * * *

(b) We may ask you to add information to your written report, so we can determine whether your new vehicles conform with the requirements of this subpart. We may also ask you to send less information.

(c) An authorized representative of your company must sign the following statement:

We submit this report under Sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1051. We have not changed production processes or quality-control procedures for test engines (or vehicles) in a way that might affect emission controls. All the information in this report is true and accurate, to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

* * * * *

187. Section 1051.350 is amended by revising paragraphs (b), (e), and (f) to read as follows:

§1051.350 What records must I keep?

* * * * *

(b) Keep paper or electronic records of your production-line testing for eight years after you complete all the testing required for an engine family in a model year.

* * * * *

(e) If we ask, you must give us projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce vehicles or engines at more than one plant).

(f) Keep records of the vehicle or engine identification number for each vehicle or engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.

* * * * *

Subpart F – [Amended]

188. Section 1051.501 is amended as follows:

- a. By revising paragraphs (c)(2) and (d).
- b. By redesignating paragraphs (e) and (f) as paragraphs (g) and (h).
- c. By adding a new paragraph (e).
- d. By reserving paragraph (f).

§1051.501 What procedures must I use to test my vehicles or engines?

* * * * *

(c) * * *

(2) Prior to permeation testing of fuel hose, the hose must be preconditioned by filling the hose with the fuel specified in paragraph (d)(3) of this section, sealing the openings, and soaking the hose for 4 weeks at 23±5° C. To measure fuel-line permeation emissions, use the equipment and procedures specified in SAE J30 as described in 40 CFR 1060.810. The measurements must be performed at 23±2°C using the fuel specified in paragraph (d)(3) of this section.

(d) Fuels. Use the fuels meeting the following specifications:

(1) Exhaust. Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the exhaust testing we require in this part. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use. The following provisions apply for using specific fuel types:

- (i) For gasoline-fueled engines, use the grade of gasoline specified for general testing.
- (ii) For diesel-fueled engines, use either low-sulfur diesel fuel or ultra low-sulfur diesel fuel meeting the specifications in 40 CFR 1065.703. If you use sulfur-sensitive technology as defined in 40 CFR 1039.801 and you measure emissions using ultra low-sulfur diesel fuel, you must add a permanent label near the fuel inlet with the following statement: “ULTRA LOW SULFUR FUEL ONLY”.

(2) Fuel Tank Permeation. (i) For the preconditioning soak described in §1051.515(a)(1) and fuel slosh durability test described in §1051.515(d)(3), use the fuel specified in Table 1 of 40 CFR 1065.710 blended with 10 percent ethanol by volume. As an alternative, you may use Fuel CE10, which is Fuel C as specified in ASTM D 471-98 (see 40 CFR 1060.810) blended with 10 percent ethanol by volume.

(ii) For the permeation measurement test in §1051.515(b), use the fuel specified in Table 1 of 40 CFR 1065.710. As an alternative, you may use the fuel specified in paragraph (d)(2)(i) of this section.

(3) Fuel Hose Permeation. Use the fuel specified in Table 1 of 40 CFR 1065.710 blended with 10 percent ethanol by volume for permeation testing of fuel lines. As an alternative, you may use Fuel CE10, which is Fuel C as specified in ASTM D 471-98 (see 40 CFR 1060.810) blended with 10 percent ethanol by volume.

(e) Engine stabilization. Instead of the provisions of 40 CFR 1065.405, you may consider emission levels stable without measurement after 12 hours of engine operation.

(f) [Reserved]

* * * * *

189. Section 1051.505 is amended by revising paragraphs (a) and (b) to read as follows:

§1051.505 What special provisions apply for testing snowmobiles?

* * * * *

(a) You may perform steady-state testing with either discrete-mode or ramped-modal cycles. You must use the type of testing you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will do testing the same way. If you submit certification test data collected with both discrete-mode and ramped-modal testing (either in your original application or in an amendment to your application), either method may be

used for subsequent testing. We may also perform other testing as allowed by the Clean Air Act. Measure steady-state emissions as follows:

- (1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute. Calculate cycle statistics and compare with the established criteria as specified in 40 CFR 1065.514 to confirm that the test is valid.
- (2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing as specified in 40 CFR part 1065, subpart G.
- (3) Measure emissions by testing the engine on a dynamometer with one or more of the following sets of duty cycles to determine whether it meets the steady-state emission standards in §1051.103:
 - (i) The following duty cycle applies for discrete-mode testing:

Table 1 of §1051.505—
5-mode Duty Cycle for Snowmobiles

Mode Number	Speed (percent) ¹	Torque (percent) ²	Minimum Time in mode (minutes)	Weighting Factors
1	100	100	3.0	0.12
2	85	51	3.0	0.27
3	75	33	3.0	0.25
4	65	19	3.0	0.31
5	Idle	0	3.0	0.05

¹ Percent speed is percent of maximum test speed.

² Percent torque is percent of maximum torque at maximum test speed.

- (ii) The following duty cycle applies for ramped-modal testing:

Table 2 of §1051.505—
Ramped-modal Cycle for Testing Snowmobiles

RMC Mode	Time in Mode	Speed (percent) ¹	Torque (percent) ^{2,3}
1a Steady-state	27	Warm Idle	0
1b Transition	20	Linear Transition	Linear Transition
2a Steady-state	121	100	100
2b Transition	20	Linear Transition	Linear Transition
3a Steady-state	347	65	19
3b Transition	20	Linear Transition	Linear Transition
4a Steady-state	305	85	51
4b Transition	20	Linear Transition	Linear Transition
5a Steady-state	272	75	33
5b Transition	20	Linear Transition	Linear Transition
6 Steady-state	28	Warm Idle	0

¹ Percent speed is percent of maximum test speed.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

³ Percent torque is percent of maximum torque at maximum test speed.

(b) During idle mode, operate the engine at its warm idle speed as described in 40 CFR 1065.510.

* * * * *

Subpart G – [Amended]

190. Section 1051.605 is amended by revising the section heading and paragraph (d)(7)(ii) to read as follows:

§1051.605 What provisions apply to engines already certified under the motor vehicle program or the Large Spark-ignition program?

* * * * *

(d) * * *

(7) * * *

(ii) List the engine or vehicle models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.

* * * * *

191. Section 1051.610 is amended by revising the section heading and paragraphs (d)(7)(ii) and (g) to read as follows:

§1051.610 What provisions apply to vehicles already certified under the motor vehicle program?

* * * * *

(d) * * *

(7) * * *

(ii) List the vehicle models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.

* * * * *

(g) Participation in averaging, banking and trading. Vehicles adapted for recreational use under this section may not generate or use emission credits under this part 1051. These vehicles may generate credits under the ABT provisions in 40 CFR part 86. These vehicles must use emission credits under 40 CFR part 86 if they are certified to an FEL that exceeds an emission standard that applies.

192. Section 1051.615 is amended by revising paragraphs (d) introductory text, (d)(3), and (d)(4) to read as follows:

§1051.615 What are the special provisions for certifying small recreational engines?

* * * * *

(d) Measure steady-state emissions by testing the engine on an engine dynamometer using the equipment and procedures of 40 CFR part 1065 with either discrete-mode or ramped-modal cycles. You must use the type of testing you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will do testing the same way. If you submit certification test data collected with both discrete-mode and ramped-modal testing (either in your original application or in an amendment to your application), either method may be used for subsequent testing. We may also perform other testing as allowed by the Clean Air Act. Measure steady-state emissions as follows:

* * * * *

(3) Measure emissions by testing the engine on a dynamometer with one or more of the following sets of duty cycles to determine whether it meets applicable emission standards:

(i) The following duty cycle applies for discrete-mode testing:

Table 1 of §1051.615—
6-Mode Duty Cycle for Recreational Engines

Mode Number	Engine Speed (percent) ¹	Torque (percent) ²	Minimum Time in Mode (minutes)	Weighting Factors
1	85	100	5.0	0.09
2	85	75	5.0	0.20
3	85	50	5.0	0.29
4	85	25	5.0	0.30
5	85	10	5.0	0.07
6	Idle	0	5.0	0.05

¹ Percent speed is percent of maximum test speed.

² Percent torque is percent of maximum torque at the commanded test speed.

(ii) The following duty cycle applies for ramped-modal testing:

Table 2 of §1051.615—
Ramped-modal Cycle for Testing Recreational Engines

RMC Mode	Time	Speed (percent) ^{1,2}	Torque (percent) ^{2,3}
1a Steady-state	41	Warm Idle	0
1b Transition	20	Linear Transition	Linear Transition
2a Steady-state	135	85	100
2b Transition	20	85	Linear Transition
3a Steady-state	112	85	10
3b Transition	20	85	Linear Transition
4a Steady-state	337	85	75
4b Transition	20	85	Linear Transition
5a Steady-state	518	85	25
5b Transition	20	85	Linear Transition
6a Steady-state	494	85	50
6b Transition	20	Linear Transition	Linear Transition
7 Steady-state	43	Warm Idle	0

¹ Percent speed is percent of maximum test speed.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

³ Percent torque is percent of maximum torque at the commanded test speed.

(4) During idle mode, operate the engine at its warm idle speed as described in 40 CFR 1065.510.

* * * * *

193. Section 1051.635 is amended by revising paragraph (a) to read as follows:

§1051.635 What provisions apply to new manufacturers that are small businesses?

(a) If you are a small business (as defined by the Small Business Administration at 13 CFR 121.201) that manufactures recreational vehicles, but does not otherwise qualify for the small-volume manufacturer provisions of this part, you may ask us to designate you to be a small-volume manufacturer. You may do this whether you began manufacturing recreational vehicles before, during, or after 2002.

* * * * *

194. Section 1051.640 is amended by revising paragraph (b) to read as follows:

§1051.640 What special provisions apply to branded engines?

* * * * *

(b) In your application for certification, identify the company whose trademark you will use.

* * * * *

195. A new §1051.650 is added to subpart G to read as follows:

§1051.650 What special provisions apply for converting a vehicle to use an alternate fuel?

A certificate of conformity is no longer valid for a vehicle if the vehicle is modified such that it is not in a configuration covered by the certificate. This section applies if such modifications are done to convert the vehicle to run on a different fuel type. Such vehicles may be recertified as specified in this section if the original certificate is no longer valid for that vehicle.

(a) Converting a certified new vehicle to run on a different fuel type violates 40 CFR 1068.101(a)(1) if the modified vehicle is not covered by a certificate of conformity.

(b) Converting a certified vehicle that is not new to run on a different fuel type violates 40 CFR 1068.101(b)(1) if the modified vehicle is not covered by a certificate of conformity. We may specify alternate certification provisions consistent with the requirements of this part. For example, you may certify the modified vehicle for a partial useful life. For example, if the vehicle is modified halfway through its original useful life period, you may generally certify the vehicle based on completing the original useful life period; or if the vehicle is modified after the original useful life period is past, you may generally certify the vehicle based on testing that does not involve further durability demonstration.

(c) Vehicles (or engines) may be certified using the certification procedures for new vehicles (or engines) as specified in this part or using the certification procedures for aftermarket parts as specified in 40 CFR part 85, subpart V. Unless the original vehicle manufacturer continues to be responsible for the vehicle as specified in paragraph (d) of this section, you must remove the original manufacturer's emission control information label if you recertify the vehicle.

(d) The original vehicle manufacturer is not responsible for operation of modified vehicles in configurations resulting from modifications performed by others. In cases where the modification allows a vehicle to be operated in either its original configuration or a modified configuration, the original vehicle manufacturer remains responsible for operation of the modified vehicle in its original configuration.

(e) Entities producing conversion kits may obtain certificates of conformity for the converted vehicles. Such entities are vehicle manufacturers for purposes of this part.

Subpart H – [Amended]

196. Section 1051.701 is amended by revising paragraph (a) to read as follows:

§1051.701 General provisions.

(a) You may average, bank, and trade emission credits for purposes of certification as described in this subpart to show compliance with the standards of this part. To do this you must certify your engines to Family Emission Limits (FELs) and show that your average emission levels for all your engine families together are below the emission standards in subpart B of this part, or that you have sufficient credits to offset a credit deficit for the model year (as calculated in §1051.720).

* * * * *

197. Section 1051.710 is amended by revising paragraphs (d) and (e) and removing paragraph (f) to read as follows:

§1051.710 How do I generate and bank emission credits?

* * * * *

(d) You may designate any emission credits you plan to bank in the reports you submit under §1051.730. During the model year and before the due date for the final report, you may designate your reserved emission credits for averaging or trading.

(e) Reserved credits become actual emission credits when you submit your final report. However, we may revoke these emission credits if we are unable to verify them after reviewing your reports or auditing your records.

198. Section 1051.715 is amended by revising paragraph (b) and removing and reserving paragraph (c) to read as follows:

§1051.715 How do I trade emission credits?

* * * * *

(b) You may trade actual emission credits as described in this subpart. You may also trade reserved emission credits, but we may revoke these emission credits based on our review of your records or reports or those of the company with which you traded emission credits. You may trade banked credits within an averaging set to any certifying manufacturer.

* * * * *

199. Section 1051.720 is amended by revising paragraph (a)(2) to read as follows:

§1051.720 How do I calculate my average emission level or emission credits?

(a) * * *

(2) For vehicles that have standards expressed as g/kW-hr and a useful life in kilometers, convert the useful life to kW-hr based on the maximum engine power and an assumed vehicle speed of 30 km/hr as follows: $UL (kW-hr) = UL (km) \times \text{Maximum Engine Power (kW)} \div 30 \text{ km/hr}$. (Note: It is not necessary to include a load factor, since credit exchange is not allowed between vehicles certified to g/kW-hr standards and vehicles certified to g/km standards.)

* * * * *

200. Section 1051.725 is amended by revising paragraph (b)(2) to read as follows:

§1051.725 What must I include in my applications for certification?

* * * * *

(b) * * *

(2) Detailed calculations of projected emission credits (positive or negative) based on projected production volumes. We may require you to include similar calculations from your other engine families to demonstrate that you will be able to avoid a negative credit balance for the model year. If you project negative emission credits for an engine family, state the source of positive emission credits you expect to use to offset the negative emission credits.

201. Section 1051.730 is amended by revising paragraphs (b)(3), (b)(4), (b)(5), (c)(2), and (f) to read as follows:

§1051.730 What ABT reports must I send to EPA?

* * * * *

(b) * * *

(3) The FEL for each pollutant. If you change the FEL after the start of production, identify the date that you started using the new FEL and/or give the vehicle identification number for the first vehicle covered by the new FEL. In this case, identify each applicable FEL and calculate the positive or negative emission credits under each FEL.

(4) The projected and actual production volumes for the model year with a point of retail sale in the United States, as described in §1051.701(d). For fuel tanks, state the production volume in terms of surface area and production volume for each tank configuration and state the total surface area for the emission family. If you changed an FEL during the model year, identify the actual production volume associated with each FEL.

(5) For vehicles that have standards expressed as g/kW-hr, maximum engine power for each vehicle configuration, and the average engine power weighted by U.S.-directed production volumes for the engine family.

* * * * *

(c) * * *

(2) State whether you will retain any emission credits for banking.

* * * * *

(f) Correct errors in your end-of-year report or final report as follows:

(1) You may correct any errors in your end-of-year report when you prepare the final report as long as you send us the final report by the time it is due.

(2) If you or we determine within 270 days after the end of the model year that errors mistakenly decreased your balance of emission credits, you may correct the errors and recalculate the balance of emission credits. You may not make these corrections for errors that are determined more than 270 days after the end of the model year. If you report a negative balance of emission credits, we may disallow corrections under this paragraph (f)(2).

(3) If you or we determine anytime that errors mistakenly increased your balance of emission credits, you must correct the errors and recalculate the balance of emission credits.

202. Section 1051.735 is amended by revising paragraphs (b), (d), and (e) to read as follows:

§1051.735 What records must I keep?

* * * * *

(b) Keep the records required by this section for at least eight years after the due date for the end-of-year report. You may not use emission credits on any engines if you do not keep all the records required under this section. You must therefore keep these records to continue to bank valid credits. Store these records in any format and on any media as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

* * * * *

(d) Keep records of the identification number for each vehicle or engine or piece of equipment you produce that generates or uses emission credits under the ABT program. You may identify these numbers as a range.

(e) We may require you to keep additional records or to send us relevant information not required by this section in accordance with the Clean Air Act.

203. Section 1051.740 is amended by revising paragraph (b)(4)(ii) to read as follows:

§1051.740 Are there special averaging provisions for snowmobiles?

* * * * *

(b) * * *

(4) * * *

(ii) HC and CO credits for Phase 3 are calculated relative to 75 g/kW-hr and 200 g/kW-hr values, respectively.

* * * * *

Subpart I – [Amended]

204. Section 1051.801 is amended as follows:

- a. By removing the definitions for “Maximum test power” and “Maximum test torque”.
- b. By revising the definitions for “Aftertreatment”, “Designated Compliance Officer”, “Emission-control system”, “Engine configuration”, “Maximum engine power”, “Model year”, “New”, “Nonmethane hydrocarbon”, “Official emission result”, “Owners manual,” “Recreational”, “Total hydrocarbon”, and “Total hydrocarbon equivalent”.
- c. By adding definitions for “Alcohol-fueled”, “Days”, “Low-permeability material”, and “Volatile liquid fuel” in alphabetical order.

§1051.801 What definitions apply to this part?

* * * * *

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR), turbochargers, and oxygen sensors are not aftertreatment.

Alcohol-fueled means relating to a vehicle with an engine that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

* * * * *

Days means calendar days unless otherwise specified. For example, where we specify working days, we mean calendar days excluding weekends and U.S. national holidays.

Designated Compliance Officer means the Manager, Light-Duty Engine Group, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105.

* * * * *

Emission-control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from an engine.

* * * * *

Engine configuration means a unique combination of engine hardware and calibration within an engine family. Engines within a single engine configuration differ only with respect to normal production variability or factors unrelated to emissions.

* * * * *

Low-permeability material has the meaning given in 40 CFR 1060.801.

* * * * *

Maximum engine power has the meaning given in 40 CFR 90.3 for 2010 and earlier model years and in §1051.140 for 2011 and later model years. Note that maximum engine power is based on the engine alone, without regard to any governing or other restrictions from the vehicle installation.

* * * * *

Model year means one of the following things:

(1) For freshly manufactured vehicles (see definition of “new,” paragraph (1)), model year means one of the following:

(i) Calendar year.

(ii) Your annual new model production period if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For seasonal production periods not including January 1, model year means the calendar year in which the production occurs, unless you choose to certify the applicable emission family with the following model year. For example, if your production period is June 1, 2010 through November 30, 2010, your model year would be 2010 unless you choose to certify the emission family for model year 2011.

(2) For an engine originally certified and manufactured as a motor vehicle engine or a stationary engine that is later used or intended to be used in a vehicle subject to the standards and requirements of this part 1051, model year means the calendar year in which the engine was originally produced. For an engine

originally manufactured as a motor vehicle engine or a stationary engine without having been certified that is later used or intended to be used in a vehicle subject to the standards and requirements of this part 1051, model year means the calendar year in which the engine becomes subject to this part 1051. (See definition of “new,” paragraph (2)).

(3) For a nonroad engine that has been previously placed into service in an application covered by 40 CFR part 90, 91, 1048, or 1054, where that engine is installed in a piece of equipment that is covered by this part 1051, model year means the calendar year in which the engine was originally produced (see definition of “new,” paragraph (3)).

(4) For engines that are not freshly manufactured but are installed in new recreational vehicles, model year means the calendar year in which the engine is installed in the recreational vehicle (see definition of “new,” paragraph (4)).

(5) For imported engines:

(i) For imported engines described in paragraph (5)(i) of the definition of “new,” model year has the meaning given in paragraphs (1) through (4) of this definition.

(ii) For imported engines described in paragraph (5)(ii) of the definition of “new,” model year means the calendar year in which the vehicle is modified.

(iii) For imported engines described in paragraph (5)(iii) of the definition of “new” model year means the calendar year in which the engine is assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

* * * * *

New means relating to any of the following things:

(1) A freshly manufactured vehicle for which the ultimate purchaser has never received the equitable or legal title. This kind of vehicle might commonly be thought of as "brand new."

In the case of this paragraph (1), the vehicle is new from the time it is produced until the ultimate purchaser receives the title or the product is placed into service, whichever comes first.

(2) An engine originally manufactured as a motor vehicle engine or a stationary engine that is later used or intended to be used in a vehicle subject to the standards and requirements of this part 1051. In this case, the engine is no longer a motor vehicle or stationary engine and becomes new. The engine is no longer new when it is placed into service as a recreational vehicle covered by this part 1051.

(3) A nonroad engine that has been previously placed into service in an application covered by 40 CFR part 90, 91, 1048, or 1054, when that engine is installed in a piece of equipment that is covered by this part 1051. The engine is no longer new when it is placed into service in a recreational vehicle covered by this part 1051. For example, this would apply to a marine propulsion engine that is no longer used in a marine vessel.

(4) An engine not covered by paragraphs (1) through (3) of this definition that is intended to be installed in a new vehicle covered by this part 1051. This generally includes installation of used engines in new recreational vehicles. The engine is no longer new when the ultimate purchaser receives a title for the vehicle or it is placed into service, whichever comes first.

(5) An imported vehicle or engine, subject to the following provisions:

(i) An imported recreational vehicle or recreational-vehicle engine covered by a certificate of conformity issued under this part that meets the criteria of one or more of paragraphs (1) through (4) of this definition, where the original manufacturer holds the certificate, is new as defined by those applicable paragraphs.

(ii) An imported vehicle or engine covered by a certificate of conformity issued under this part, where someone other than the original manufacturer holds the certificate (such as when the engine is modified after its initial assembly), is new when it is imported. It is no longer new when the ultimate purchaser receives a title for the vehicle or engine or it is placed into service, whichever comes first.

(iii) An imported recreational vehicle or recreational-vehicle engine that is not covered by a certificate of conformity issued under this part at the time of importation is new. This addresses uncertified vehicles and engines initially placed into service that someone seeks to import into the United States. Importation of this kind of vehicle or engine is generally prohibited by 40 CFR part

1068. However, the importation of such a vehicle or engine is not prohibited if it has a model year before 2006, since it is not subject to standards.

* * * * *

Nonmethane hydrocarbon has the meaning given in 40 CFR 1065.1001.

* * * * *

Official emission result means the measured emission rate for an emission-data vehicle on a given duty cycle before the application of any deterioration factor.

* * * * *

Owners manual means a document or collection of documents prepared by the engine manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

* * * * *

Recreational means, for purposes of this part, relating to snowmobiles, all-terrain vehicles, off-highway motorcycles, and other vehicles that we regulate under this part. Note that 40 CFR parts 90 and 1054 apply to engines used in other recreational vehicles.

* * * * *

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001.

* * * * *

Volatile liquid fuel means any fuel other than diesel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

* * * * *

§1051.810–[Removed]

205. Section 1051.810 is removed.

206. A new §1051.825 is added to subpart I to read as follows:

§1051.825 What reporting and recordkeeping requirements apply under this part?

Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for vehicles regulated under this part:

(a) We specify the following requirements related to certification in this part 1051:

(1) In §§1051.20 and 1051.25 we describe special provisions for manufacturers to certify recreational engines instead of vehicles.

(2) [Reserved]

(3) In §1051.145 we include various reporting and recordkeeping requirements related to interim provisions.

(4) In subpart C of this part we identify a wide range of information required to certify vehicles.

(5) In §§1051.345 and 1051.350 we specify certain records related to production-line testing.

(6) [Reserved]

(7) In §1051.501 we specify information needs for establishing various changes to published vehicle-based test procedures.

(8) In subpart G of this part we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various special compliance provisions.

(9) In §§1051.725, 1051.730, and 1051.735 we specify certain records related to averaging, banking, and trading.

(b) [Reserved]

- (c) We specify the following requirements related to testing in 40 CFR part 1065:
 - (1) In 40 CFR 1065.2 we give an overview of principles for reporting information.
 - (2) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published engine-based test procedures.
 - (3) In 40 CFR 1065.25 we establish basic guidelines for storing test information.
 - (4) In 40 CFR 1065.695 we identify data that may be appropriate for collecting during testing of in-use engines or vehicles using portable analyzers.
- (d) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:
 - (1) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.
 - (2) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information
 - (3) In 40 CFR 1068.27 we require manufacturers to make engines or vehicles available for our testing or inspection if we make such a request.
 - (4) In 40 CFR 1068.105 we require manufacturers to keep certain records related to duplicate labels from engine manufacturers.
 - (5) In 40 CFR 1068.120 we specify recordkeeping related to rebuilding engines.
 - (6) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.
 - (7) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing engines or vehicles.
 - (8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.
 - (9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.
 - (10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming vehicles.

207. A new part 1054 is added to subchapter U of chapter I to read as follows:

PART 1054—CONTROL OF EMISSIONS FROM NEW, SMALL NONROAD SPARK-IGNITION ENGINES AND EQUIPMENT

Subpart A—Overview and Applicability

- 1054.1 Does this part apply for my engines and equipment?
- 1054.2 Who is responsible for compliance?
- 1054.5 Which nonroad engines are excluded from this part's requirements?
- 1054.10 How is this part organized?
- 1054.15 Do any other CFR parts apply to me?
- 1054.20 What requirements apply to my equipment?
- 1054.30 Submission of information.

Subpart B—Emission Standards and Related Requirements

- 1054.101 What emission standards and requirements must my engines meet?
- 1054.103 What exhaust emission standards must my handheld engines meet?
- 1054.105 What exhaust emission standards must my nonhandheld engines meet?
- 1054.107 What is the useful life period for meeting exhaust emission standards?
- 1054.110 What evaporative emission standards must my handheld equipment meet?
- 1054.112 What evaporative emission standards must my nonhandheld equipment meet?
- 1054.115 What other requirements apply?
- 1054.120 What emission-related warranty requirements apply to me?
- 1054.125 What maintenance instructions must I give to buyers?
- 1054.130 What installation instructions must I give to equipment manufacturers?
- 1054.135 How must I label and identify the engines I produce?
- 1054.140 What is my engine's maximum engine power and displacement?
- 1054.145 Are there interim provisions that apply only for a limited time?

Subpart C—Certifying Emission Families

- 1054.201 What are the general requirements for obtaining a certificate of conformity?
- 1054.205 What must I include in my application?
- 1054.210 May I get preliminary approval before I complete my application?
- 1054.220 How do I amend the maintenance instructions in my application?
- 1054.225 How do I amend my application for certification to include new or modified engines or fuel systems or change an FEL?
- 1054.230 How do I select emission families?
- 1054.235 What exhaust emission testing must I perform for my application for a certificate of conformity?
- 1054.240 How do I demonstrate that my emission family complies with exhaust emission standards?
- 1054.245 How do I determine deterioration factors from exhaust durability testing?
- 1054.250 What records must I keep and what reports must I send to EPA?
- 1054.255 What decisions may EPA make regarding my certificate of conformity?

Subpart D—Production-line Testing

- 1054.300 Applicability.
- 1054.301 When must I test my production-line engines?
- 1054.305 How must I prepare and test my production-line engines?
- 1054.310 How must I select engines for production-line testing?
- 1054.315 How do I know when my engine family fails the production-line testing requirements?
- 1054.320 What happens if one of my production-line engines fails to meet emission standards?

- 1054.325 What happens if an engine family fails the production-line testing requirements?
1054.330 May I sell engines from an engine family with a suspended certificate of conformity?
1054.335 How do I ask EPA to reinstate my suspended certificate?
1054.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?
1054.345 What production-line testing records must I send to EPA?
1054.350 What records must I keep?

Subpart E—In-use Testing

- 1054.401 General provisions.

Subpart F—Test Procedures

- 1054.501 How do I run a valid emission test?
1054.505 How do I test engines?
1054.520 What testing must I perform to establish deterioration factors?

Subpart G—Special Compliance Provisions

- 1054.601 What compliance provisions apply to these engines?
1054.610 What is the exemption for delegated final assembly?
1054.612 What special provisions apply for equipment manufacturers modifying certified nonhandheld engines?
1054.615 What is the exemption for engines certified to standards for Large SI engines?
1054.620 What are the provisions for exempting engines used solely for competition?
1054.625 What requirements apply under the Transition Program for Equipment Manufacturers?
1054.626 What special provisions apply to equipment imported under the Transition Program for Equipment Manufacturers?
1054.630 What provisions apply for importation of individual items for personal use?
1054.635 What special provisions apply for small-volume engine and equipment manufacturers?
1054.640 What special provisions apply to branded engines?
1054.645 What special provisions apply for converting an engine to use an alternate fuel?
1054.650 What special provisions apply for adding or changing governors?
1054.655 What special provisions apply for installing and removing altitude kits?
1054.660 What are the provisions for exempting emergency rescue equipment?
1054.690 What bond requirements apply for certified engines?

Subpart H—Averaging, Banking, and Trading for Certification

- 1054.701 General provisions.
1054.705 How do I generate and calculate exhaust emission credits?
1054.706 How do I generate and calculate evaporative emission credits?
1054.710 How do I average emission credits?
1054.715 How do I bank emission credits?
1054.720 How do I trade emission credits?
1054.725 What must I include in my application for certification?
1054.730 What ABT reports must I send to EPA?
1054.735 What records must I keep?
1054.740 What special provisions apply for generating and using emission credits?
1054.745 What can happen if I do not comply with the provisions of this subpart?

Subpart I—Definitions and Other Reference Information

- 1054.801 What definitions apply to this part?
1054.805 What symbols, acronyms, and abbreviations does this part use?
1054.815 What provisions apply to confidential information?

1054.820 How do I request a hearing?

1054.825 What reporting and recordkeeping requirements apply under this part?

Appendix I to Part 1054— Summary of Previous Emission Standards

Appendix II to Part 1054— Duty Cycles for Laboratory Testing

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

Subpart A—Overview and Applicability

§1054.1 Does this part apply for my engines and equipment?

(a) Except as provided in §1054.5, the regulations in this part 1054 apply as follows:

(1) The requirements of this part related to exhaust emissions apply to new, spark-ignition engines with maximum engine power at or below 19 kW. This includes auxiliary marine spark-ignition engines.

(2) The requirements of this part related to evaporative emissions apply as specified in §§1054.110 and 1054.112 to fuel systems used with engines subject to exhaust emission standards in this part if the engines use a volatile liquid fuel (such as gasoline).

(3) This part 1054 applies starting with the model years noted in the following table:

Table 1 to §1054.1— Part 1054 Applicability by Model Year

Engine Type	Engine Displacement	Model Year
Handheld	all	2010
Nonhandheld	displacement < 225 cc	2012
Nonhandheld	displacement ≥ 225 cc	2011

(4) This part 1054 applies for other spark-ignition engines as follows:

(i) The provisions of §§1054.620 and 1054.801 apply for engines used solely for competition beginning January 1, 2010.

(ii) The provisions of §§1054.660 and 1054.801 apply for engines used in emergency rescue equipment beginning January 1, 2010.

(5) We specify provisions in §1054.145(e) and (f) and in §1054.740 that allow for meeting the requirements of this part before the dates shown in Table 1 to this section. Engines, fuel-system components, or equipment certified to these standards are subject to all the requirements of this part as if these optional standards were mandatory.

(b) Although the definition of nonroad engine in 40 CFR 1068.30 excludes certain engines used in stationary applications, stationary engines are required under 40 CFR part 60, subpart JJJJ, to comply with this part starting with the model years shown in Table 1 to this section.

(c) See 40 CFR part 90 for requirements that apply to engines not yet subject to the requirements of this part 1054.

(d) In certain cases, the regulations in this part 1054 apply to engines with maximum engine power above 19 kW that would otherwise be covered by 40 CFR part 1048 or 1051. See 40 CFR 1048.615 and 1051.145(a)(3) for provisions related to these allowances.

(e) In certain cases, the regulations in this part 1054 apply to propulsion marine engines that would otherwise be covered by 40 CFR part 1045. See 40 CFR 1045.610 for provisions related to these allowances.

§1054.2 Who is responsible for compliance?

The requirements and prohibitions of this part apply to manufacturers of engines and equipment, as described in §1054.1. The requirements of this part are generally addressed to manufacturers subject to this part's requirements. The term "you" generally means the certifying manufacturer. For provisions related to exhaust emissions, this generally means the engine manufacturer, especially for issues related to certification (including production-line testing, reporting, etc.). For provisions related to certification with respect to evaporative emissions, this generally means the equipment manufacturer. Equipment manufacturers must meet applicable requirements as described in §1054.20. Engine manufacturers that assemble an engine's complete fuel system are considered to be the equipment manufacturer with respect to evaporative emissions (see 40 CFR 1060.5). Note that certification requirements for component manufacturers are described in 40 CFR part 1060.

§1054.5 Which nonroad engines are excluded from this part's requirements?

This part does not apply to the following nonroad engines:

- (a) Engines that are certified to meet the requirements of 40 CFR part 1051 (for example, engines used in snowmobiles and all-terrain vehicles). Engines that are otherwise subject to 40 CFR part 1051 but not required to be certified (such as engines exempted under 40 CFR part 1051) are also excluded from this part 1054, unless the regulations in 40 CFR part 1051 specifically require them to comply with the requirements of this part 1054.
- (b) Engines that are certified to meet the requirements of 40 CFR part 1048, subject to the provisions of §1054.615.
- (c) Propulsion marine engines. See 40 CFR parts 91 and 1045. Note that the evaporative emission standards of this part also do not apply with respect to auxiliary marine engines as described in §1054.20.
- (d) Engines used in reduced-scale models of vehicles that are not capable of transporting a person.

§1054.10 How is this part organized?

This part 1054 is divided into the following subparts:

- (a) Subpart A of this part defines the applicability of this part 1054 and gives an overview of regulatory requirements.
- (b) Subpart B of this part describes the emission standards and other requirements that must be met to certify engines under this part. Note that §1054.145 discusses certain interim requirements and compliance provisions that apply only for a limited time.
- (c) Subpart C of this part describes how to apply for a certificate of conformity.
- (d) Subpart D of this part describes general provisions for testing production-line engines.
- (e) Subpart E of this part describes general provisions for testing in-use engines.
- (f) Subpart F of this part describes how to test your engines (including references to other parts of the Code of Federal Regulations).
- (g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to engine manufacturers, equipment manufacturers, owners, operators, rebuilders, and all others.
- (h) Subpart H of this part describes how you may generate and use exhaust and evaporative emission credits to certify your engines and equipment.
- (i) Subpart I of this part contains definitions and other reference information.

§1054.15 Do any other CFR parts apply to me?

- (a) Part 1060 of this chapter describes standards and procedures that apply for controlling evaporative emissions from engines fueled by gasoline or other volatile liquid fuels and the associated fuel systems. See §§1054.110 and 1054.112 for information about how that part applies.
- (b) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1054 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the exhaust emission standards in this part.

(c) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, imports, installs, owns, operates, or rebuilds any of the engines subject to this part 1054, or equipment containing these engines. Part 1068 of this chapter describes general provisions, including these seven areas:

- (1) Prohibited acts and penalties for engine manufacturers, equipment manufacturers, and others.
- (2) Rebuilding and other aftermarket changes.
- (3) Exclusions and exemptions for certain engines.
- (4) Importing engines.
- (5) Selective enforcement audits of your production.
- (6) Defect reporting and recall.
- (7) Procedures for hearings.

(d) Other parts of this chapter apply if referenced in this part.

§1054.20 What requirements apply to my equipment?

(a) If you manufacture equipment using engines certified under this part, your equipment must meet all applicable emission standards with the engine and fuel system installed.

(b) Except as specified in paragraph (f) of this section, all equipment subject to the exhaust standards of this part must meet the evaporative emission standards of 40 CFR part 1060, as described in §§1054.110 and 1054.112.

(c) Except as specified in paragraph (f) of this section, you must identify and label equipment you produce under this section consistent with the requirements of 40 CFR 1060.135.

(d) You may need to certify your equipment or fuel systems as described in 40 CFR 1060.1 and 1060.601.

(e) You must follow all emission-related installation instructions from the certifying manufacturers as described in §1054.130, 40 CFR 1060.130, and 40 CFR 1068.105. Failure to follow these instructions subjects you to civil penalties as described in 40 CFR part 1068, subpart B.

(f) Motor vehicles and marine vessels may contain engines subject to the exhaust emission standards in this part 1054. Evaporative emission standards apply to these products as follows:

- (1) Marine vessels using spark-ignition engines are subject to the requirements of 40 CFR part 1045. The vessels are not required to comply with the evaporative emission standards and related requirements of this part 1054.
- (2) Motor vehicles are subject to the requirements of 40 CFR part 86. They are not required to comply with the evaporative emission standards and related requirements of this part 1054.

§1054.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to §1054.825 and 40 CFR 1068.25 regarding recordkeeping requirements. If recordkeeping requirements are not specified, store these records in any format and on any media and keep them readily available for one year after you send an associated application for certification, or one year after you generate the data if they do not support an application for certification. You must promptly send us organized, written records in English if we ask for them. We may review them at any time.

(b) The regulations in §1054.255 and 40 CFR 1068.101 describe your obligation to report truthful and complete information and the consequences of failing to meet this obligation. This includes information not related to certification.

(c) Send all reports and requests for approval to the Designated Compliance Officer (see §1054.801).

(d) Any written information we require you to send to or receive from another company is deemed to be a required record under this section. Such records are also deemed to be submissions to EPA. We may require you to send us these records whether or not you are a certificate holder.

Subpart B—Emission Standards and Related Requirements

§1054.101 What emission standards and requirements must my engines meet?

(a) Exhaust emissions. You must show that your engines meet the following exhaust emission standards, except as specified in paragraphs (b) through (d) of this section:

- (1) Handheld engines must meet the exhaust emission standards in §1054.103.
- (2) Nonhandheld engines must meet the exhaust emission standards in §1054.105.
- (3) All engines must meet the requirements in §1054.115.

(b) Evaporative emissions. Except as specified in §1054.20, new equipment using engines that run on a volatile liquid fuel (such as gasoline) must meet the evaporative emission requirements of 40 CFR part 1060. The requirements of 40 CFR part 1060 that apply are considered also to be requirements of this part 1054. Marine vessels using auxiliary marine engines subject to this part must meet the evaporative emission requirements in 40 CFR 1045.112 instead of the evaporative emission requirements in this part. We specify evaporative emission requirements for handheld and nonhandheld equipment separately in §§1054.110 and 1054.112.

(c) Wintertime engines. Emission standards regulating HC and NO_x exhaust emissions are optional for wintertime engines. However, if you certify an emission family to such standards, those engines are subject to all the requirements of this part as if these optional standards were mandatory.

(d) Two-stroke snowthrower engines. Two-stroke snowthrower engines may meet exhaust emission standards that apply to handheld engines with the same engine displacement instead of the nonhandheld standards that would otherwise apply.

(e) Relationship between handheld and nonhandheld engines. Any engines certified to the nonhandheld emission standards in §1054.105 may be used in either handheld or nonhandheld equipment. Engines above 80 cc certified to the handheld emission standards in §1054.103 may not be used in nonhandheld equipment. For purposes of the requirements of this part, engines at or below 80 cc are considered handheld engines, but may be installed in either handheld or nonhandheld equipment. These engines are subject to handheld exhaust emission standards; the equipment in which they are installed are subject to handheld evaporative emission standards starting with the model years specified in this part 1054. See §1054.701(c) for special provisions related to emission credits for engine families with displacement at or below 80 cc where those engines are installed in nonhandheld equipment.

(f) Interim provisions. It is important that you read §1054.145 to determine if there are other interim requirements or interim compliance provisions that apply for a limited time.

§1054.103 What exhaust emission standards must my handheld engines meet?

(a) Emission standards. Exhaust emissions from your handheld engines may not exceed the emission standards in Table 1 to this section. Measure emissions using the applicable steady-state test procedures described in subpart F of this part.

Table 1 to §1054.103—Phase 3 Emission Standards for Handheld Engines (g/kW-hr)

Engine displacement class	HC+NO _x	CO
Class III	50	805
Class IV	50	805
Class V	72	603

(b) Averaging, banking, and trading. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC+NO_x emissions as described in subpart H of this part. You may not generate or use emission credits for CO emissions. To generate or use emission credits, you must specify a family emission limit for each engine family you include in the ABT program. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of

applicable engine families meets the emission standards using emission credits and the engines within the family meet the family emission limit. The following FEL caps are the maximum values you may specify for family emission limits:

- (1) 336 g/kW-hr for Class III engines.
- (2) 275 g/kW-hr for Class IV engines.
- (3) 186 g/kW-hr for Class V engines.

(c) Fuel types. The exhaust emission standards in this section apply for engines using the fuel type on which the engines in the emission family are designed to operate. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

- (1) Alcohol-fueled engines: THCE emissions.
- (2) Natural gas-fueled engines: NMHC emissions.
- (3) Other engines: THC emissions.

(d) Useful life. Your engines must meet the exhaust emission standards in paragraph (a) of this section over their full useful life as described in §1054.107.

(e) Applicability for testing. The emission standards in this subpart apply to all testing, including certification, production-line, and in-use testing.

§1054.105 What exhaust emission standards must my nonhandheld engines meet?

(a) Emission standards. Exhaust emissions from your engines may not exceed the emission standards in Table 1 to this section. Measure emissions using the applicable steady-state test procedures described in subpart F of this part.

Table 1 to §1054.105—Phase 3 Emission Standards for Nonhandheld Engines (g/kW-hr)

Engine displacement class	HC+NOx	Primary CO standard	CO standard for marine generator engines
Class I	10.0	610	5.0
Class II	8.0	610	5.0

(b) Averaging, banking, and trading. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC+NOx emissions as described in subpart H of this part. You may not generate or use emission credits for CO emissions. To generate or use emission credits, you must specify a family emission limit for each engine family you include in the ABT program. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meets the emission standards using emission credits, and the engines within the family meet the family emission limit. The following FEL caps are the maximum values you may specify for family emission limits:

- (1) 40.0 g/kW-hr for Class I engines with displacement below 100 cc.
- (2) 16.1 g/kW-hr for Class I engines with displacement at or above 100 cc.
- (3) 12.1 for Class II engines.

(c) Fuel types. The exhaust emission standards in this section apply for engines using the fuel type on which the engines in the emission family are designed to operate. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

- (1) Alcohol-fueled engines: THCE emissions.
- (2) Natural gas-fueled engines: NMHC emissions.
- (3) Other engines: THC emissions.

(d) Useful life. Your engines must meet the exhaust emission standards in paragraph (a) of this section over their full useful life as described in §1054.107.

(e) Applicability for testing. The emission standards in this subpart apply to all testing, including certification, production-line, and in-use testing.

§1054.107 What is the useful life period for meeting exhaust emission standards?

This section describes an engine family’s useful life, which is the period during which engines are required to comply with all emission standards that apply. The useful life period is five years or a number of hours of operation, whichever comes first, as described in this section.

(a) Determine the useful life period for exhaust requirements as follows:

(1) Except as specified in paragraphs (a)(2) and (3) of this section, the useful life period for exhaust requirements is the number of engine operating hours from Table 1 to this section that most closely matches the expected median in-use life of your engines. The median in-use life of your engine is the shorter of the following values:

(i) The median in-use life of equipment into which the engine is expected to be installed.

(ii) The median in-use life of the engine without being scrapped or rebuilt.

Table 1 to §1054.107—Nominal Useful Life Periods

Nonhandheld			
	Residential	Extended Life Residential ¹	Commercial
Class I	125	250	500
Class II	250	500	1,000
Handheld			
	Light Use	Medium Use	Heavy Use
Class III - V	50	125	300

¹Or “General Purpose”

(2) You may select a longer useful life for nonhandheld engines than that specified in paragraph (a)(1) of this section in 100-hour increments not to exceed 3,000 hours for Class I engines or 5,000 hours for Class II engines. For engine families generating emission credits, you may do this only with our approval. These are considered "Heavy Commercial" engines.

(3) The minimum useful life period for engines with maximum engine power above 19 kW is 1,000 hours (see §1054.1(d)).

(b) Keep any available information to support your selection and make it available to us if we ask for it. We may require you to certify to a different useful life value from the table if we determine that the selected useful life value is not justified by the data. We may consider any relevant information, including your product warranty statements and marketing materials regarding engine life, in making this determination. We may void your certificate if we determine that you intentionally selected an incorrect value. Support your selection based on any of the following information:

(1) Surveys of the life spans of the equipment in which the subject engines are installed.

(2) Engineering evaluations of field aged engines to ascertain when engine performance deteriorates to the point where usefulness and/or reliability is impacted to a degree sufficient to necessitate overhaul or replacement.

(3) Failure reports from engine customers.

(4) Engineering evaluations of the durability, in hours, of specific engine technologies, engine materials, or engine designs.

§1054.110 What evaporative emission standards must my handheld equipment meet?

The following evaporative emission requirements apply for handheld equipment over a useful life of five years:

- (a) Fuel line permeation. Nonmetal fuel lines must meet the permeation requirements for EPA Nonroad Fuel Lines or EPA Cold-Weather Fuel Lines as specified in 40 CFR 1060.102. These requirements apply starting in the 2012 model year, except that they apply starting in the 2013 model year for emission families involving small-volume emission families that are not used in cold-weather equipment. For fuel lines used in cold-weather equipment, you may generate or use emission credits to show compliance with these permeation standards through 2015 as described in §1054.145(h).
- (b) Tank permeation. Fuel tanks must meet the permeation requirements specified in 40 CFR 1060.103. These requirements apply for handheld equipment starting in the 2010 model year, except that they apply starting in the 2011 model year for structurally integrated nylon fuel tanks, in the 2012 model year for handheld equipment using nonhandheld engines, and in the 2013 model year for all small-volume emission families. For nonhandheld equipment using engines at or below 80 cc, the requirements of this paragraph (b) apply starting in the 2012 model year. (Note: 40 CFR 90.129 specifies emission standards for certain 2009 model year engines and equipment.) You may generate or use emission credits to show compliance with the requirements of this paragraph (b) under the averaging, banking, and trading program as described in subpart H of this part. FEL caps apply as specified in §1054.112(b)(1) through (3) starting in the 2015 model year.
- (c) Running loss. The running loss requirements specified in 40 CFR part 1060 do not apply for handheld equipment.
- (d) Other requirements. The provisions of 40 CFR 1060.101(e) and (f) include general requirements that apply to all nonroad equipment subject to evaporative emission standards.
- (e) Engine manufacturers. To the extent that engine manufacturers produce engines with fuel lines or fuel tanks, those fuel-system components must meet the requirements specified in this section. The timing of new standards is based on the date of manufacture of the engine.

§1054.112 What evaporative emission standards must my nonhandheld equipment meet?

The evaporative emission requirements of this section apply starting in the 2011 model year for equipment using Class II engines and in the 2012 model year for equipment using Class I engines over a useful life of five years. See §1054.110 for requirements that apply for nonhandheld equipment using engines at or below 80 cc.

- (a) Fuel line permeation. Nonmetal fuel lines must meet the permeation requirements for EPA Nonroad Fuel Lines as specified in 40 CFR 1060.102.
- (b) Tank permeation. Fuel tanks must meet the permeation requirements specified in 40 CFR 1060.103. Equipment manufacturers may generate or use emission credits to show compliance with the requirements of this paragraph (b) under the averaging, banking, and trading program as described in subpart H of this part. Starting in the 2014 model year for Class II equipment and in the 2015 model year for Class I equipment, the following FEL caps represent the maximum values for family emission limits that you may use for your fuel tanks:
 - (1) Except as specified in paragraphs (b)(2) of this section, you may not use fuel tanks with a family emission limit that exceeds 5.0 g/m²/day for testing at a nominal temperature of 28°C, or 8.3 g/m²/day for testing at a nominal temperature of 40°C.
 - (2) For small-volume emission families, you may not use fuel tanks with a family emission limit that exceeds 8.0 g/m²/day for testing at a nominal temperature of 28°C, or 13.3 g/m²/day for testing at a nominal temperature of 40°C.
 - (3) FEL caps do not apply to fuel caps that are certified separately to meet permeation standards.
- (c) Running loss. Running loss requirements apply as specified in 40 CFR 1060.104.
- (d) Diurnal emissions. Nonhandheld equipment may optionally be certified to the diurnal emission standards specified in 40 CFR 1060.105, in which case the permeation standards specified in paragraphs (a) and (b) of this section do not apply.

(e) Other requirements. The provisions of 40 CFR 1060.101(e) and (f) include general requirements that apply to all nonroad equipment subject to evaporative emission standards.

(f) Engine manufacturers. To the extent that engine manufacturers produce engines with fuel lines or fuel tanks, those fuel-system components must meet the requirements specified in this section. The timing of new standards is based on the date of manufacture of the engine.

§1054.115 What other requirements apply?

The following requirements apply with respect to engines that are required to meet the emission standards of this part:

(a) Crankcase emissions. Crankcase emissions may not be discharged directly into the ambient atmosphere from any engine throughout its useful life, except as follows:

(1) Snowthrower engines may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. If you take advantage of this exception, you must do the following things:

(i) Manufacture the engines so that all crankcase emissions can be routed into the applicable sampling systems specified in 40 CFR part 1065.

(ii) Account for deterioration in crankcase emissions when determining exhaust deterioration factors.

(2) For purposes of this paragraph (a), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be discharged directly into the ambient atmosphere.

(b) Adjustable parameters. Engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. We may require that you set adjustable parameters to any specification within the adjustable range during any testing, including certification testing, production-line testing, or in-use testing. You may ask us to limit idle-speed or carburetor adjustments to a smaller range than the physically adjustable range if you show us that the engine will not be adjusted outside of this smaller range during in-use operation without significantly degrading engine performance.

(c) Altitude adjustments. Engines must meet applicable emission standards for valid tests conducted under the ambient conditions specified in 40 CFR 1065.520. Except as specified in §1054.145(c), engines must meet applicable emission standards at all specified atmospheric pressures, except that for atmospheric pressures below 94.0 kPa you may rely on an altitude kit for all testing if you meet the requirements specified in §1054.205(r). If you rely on an altitude kit for certification, you must identify in the owners manual the altitude range for which you expect proper engine performance and emission control with and without the altitude kit; you must also state in the owners manual that operating the engine with the wrong engine configuration at a given altitude may increase its emissions and decrease fuel efficiency and performance. See §1054.145(c) for special provisions that apply for handheld engines.

(d) Prohibited controls. You may not design your engines with emission-control devices, systems, or elements of design that cause or contribute to an unreasonable risk to public health, welfare, or safety while operating. For example, this would apply if the engine emits a noxious or toxic substance it would otherwise not emit that contributes to such an unreasonable risk.

(e) Defeat devices. You may not equip your engines with a defeat device. A defeat device is an auxiliary emission control device that reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use. This does not apply for altitude kits installed or removed consistent with §1054.655. This also does not apply to auxiliary emission control devices you identify in your application for certification if any of the following is true:

(1) The conditions of concern were substantially included in the applicable duty-cycle test procedures described in subpart F of this part.

(2) You show your design is necessary to prevent engine (or equipment) damage or accidents.

(3) The reduced effectiveness applies only to starting the engine.

§1054.120 What emission-related warranty requirements apply to me?

The requirements of this section apply to the manufacturer certifying with respect to exhaust emissions. See 40 CFR part 1060 for the warranty requirements related to evaporative emissions.

(a) **General requirements.** You must warrant to the ultimate purchaser and each subsequent purchaser that the new engine, including all parts of its emission control system, meets two conditions:

- (1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.
- (2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.

(b) **Warranty period.** Your emission-related warranty must be valid during the periods specified in this paragraph (b). You may offer an emission-related warranty more generous than we require. The emission-related warranty for the engine may not be shorter than any published warranty you offer without charge for the engine. Similarly, the emission-related warranty for any component may not be shorter than any published warranty you offer without charge for that component. If an engine has no hour meter, we base the warranty periods in this paragraph (b) only on the engine's age (in years). The warranty period begins on the date of sale to the ultimate purchaser. The minimum warranty periods are as follows:

- (1) The minimum warranty period is two years except as allowed under paragraph (b)(2) or (3) of this section.
- (2) We may establish a shorter warranty period for handheld engines subject to severe service in seasonal equipment if we determine that these engines are likely to operate for a number of hours greater than the applicable useful life within 24 months. You must request this shorter warranty period in your application for certification or in an earlier submission.
- (3) For engines equipped with hour meters, you may deny warranty claims for engines that have accumulated a number of hours greater than 50 percent of the applicable useful life.

(c) **Components covered.** The emission-related warranty covers all components whose failure would increase an engine's emissions of any regulated pollutant, including components listed in 40 CFR part 1068, Appendix I, and components from any other system you develop to control emissions. The emission-related warranty covers these components even if another company produces the component. Your emission-related warranty does not cover components whose failure would not increase an engine's emissions of any regulated pollutant.

(d) **Limited applicability.** You may deny warranty claims under this section if the operator caused the problem through improper maintenance or use, as described in 40 CFR 1068.115.

(e) **Owners manual.** Describe in the owners manual the emission-related warranty provisions from this section that apply to the engine. Include instructions for obtaining warranty service consistent with the requirements of paragraph (f) of this section.

(f) **Requirements related to warranty claims.** You are required at a minimum to meet the following conditions to ensure that owners will be able to promptly obtain warranty repairs:

- (1) You must provide and monitor a toll-free telephone number and an e-mail address for owners to receive information about how to make a warranty claim, and how to make arrangements for authorized repairs.
- (2) You must provide a source of replacement parts within the United States. For parts that you import, this requires you to have at least one distributor within the United States.
- (3) You must use one of the following methods to show that you will generally be able to honor warranty claims:
 - (i) If you have authorized service centers in all U.S. population centers with a population of 100,000 or more based on the 2000 census, you may limit warranty repairs to these service providers.
 - (ii) You may limit warranty repairs to authorized service centers for owners located within 100 miles of an authorized service center. For owners located more than 100 miles from an authorized service center, you must state in your warranty that you will either pay for shipping costs to and from an authorized service center, provide for a service technician to come to the

owner to make the warranty repair, or pay for the repair to be made at a local nonauthorized service center. The provisions of this paragraph (f)(3)(ii) apply only for the contiguous states, excluding the states with high-altitude areas identified in 40 CFR part 1068, Appendix III.

(iii) You may use the approach described in paragraphs (f)(3)(i) of this section for some states and the approach described in paragraph (f)(3)(ii) of this section for other states. However, you must have at least one authorized service center in each state unless the whole state is within 100 miles of authorized service centers in other states.

(4) If your plan for meeting the requirements of this paragraph (f) does not include at least 100 authorized repair facilities in the United States or at least one such facility for each 5,000 engines you sell in the United States, you must also post a bond as described in §1054.690 to ensure that you will fulfill your warranty-repair responsibilities even if you are not obligated to post a bond under that section. Note that you may post a single bond to meet the requirements of this section and §1054.690.

§1054.125 What maintenance instructions must I give to buyers?

Give the ultimate purchaser of each new engine written instructions for properly maintaining and using the engine, including the emission control system as described in this section. The maintenance instructions also apply to service accumulation on your emission-data engines as described in §1054.245 and in 40 CFR part 1065. Note that for handheld engines subject to Phase 3 standards you may perform maintenance on emission-data engines during service accumulation as described in 40 CFR part 90.

(a) Critical emission-related maintenance. Critical emission-related maintenance includes any adjustment, cleaning, repair, or replacement of critical emission-related components. This may also include additional emission-related maintenance that you determine is critical if we approve it in advance. You may schedule critical emission-related maintenance on these components if you meet the following conditions:

(1) You demonstrate that the maintenance is reasonably likely to be done at the recommended intervals on in-use engines. We will accept scheduled maintenance as reasonably likely to occur if you satisfy any of the following conditions:

(i) You present data showing that any lack of maintenance that increases emissions also unacceptably degrades the engine's performance.

(ii) You present survey data showing that at least 80 percent of engines in the field get the maintenance you specify at the recommended intervals. If the survey data show that 60 to 80 percent of engines in the field get the maintenance you specify at the recommended intervals, you may ask us to consider additional factors such as the effect on performance and emissions. For example, we may allow you to schedule fuel-injector replacement as critical emission-related maintenance if you have survey data showing this is done at the recommended interval for 65 percent of engines and you demonstrate that performance degradation is roughly proportional to the degradation in emission control for engines that do not have their fuel injectors replaced.

(iii) You provide the maintenance free of charge and clearly say so in your maintenance instructions.

(iv) You otherwise show us that the maintenance is reasonably likely to be done at the recommended intervals.

(2) You may schedule cleaning or changing air filters or changing spark plugs at the least frequent interval described in the owners manual. See §1054.245 for testing requirements related to these maintenance steps.

(3) You may not schedule critical emission-related maintenance within the useful life period for aftertreatment devices, pulse-air valves, fuel injectors, oxygen sensors, electronic control units, superchargers, or turbochargers, except as specified in paragraph (b) or (c) of this section.

(b) Recommended additional maintenance. You may recommend any additional amount of maintenance on the components listed in paragraph (a) of this section, as long as you state clearly that these maintenance steps are not necessary to keep the emission-related warranty valid. If operators do the maintenance specified in paragraph (a) of this section, but not the recommended additional maintenance,

this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these maintenance steps during service accumulation on your emission-data engines.

(c) Special maintenance. You may specify more frequent maintenance to address problems related to special situations, such as atypical engine operation. You must clearly state that this additional maintenance is associated with the special situation you are addressing.

(d) Noncritical emission-related maintenance. Subject to the provisions of this paragraph (d), you may schedule any amount of emission-related inspection or maintenance that is not covered by paragraph (a) of this section (i.e., maintenance that is neither explicitly identified as critical emission-related maintenance, nor that we approve as critical emission-related maintenance). Noncritical emission-related maintenance generally includes re-seating valves, removing combustion chamber deposits, or any other emission-related maintenance on the components we specify in 40 CFR part 1068, Appendix I that is not covered in paragraph (a) of this section. You must state in the owners manual that these steps are not necessary to keep the emission-related warranty valid. If operators fail to do this maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these inspection or maintenance steps during service accumulation on your emission-data engines.

(e) Maintenance that is not emission-related. For maintenance unrelated to emission controls, you may schedule any amount of inspection or maintenance. You may also take these inspection or maintenance steps during service accumulation on your emission-data engines, as long as they are reasonable and technologically necessary. This might include adding engine oil, changing fuel or oil filters, servicing engine-cooling systems, and adjusting idle speed, governor, engine bolt torque, valve lash, or injector lash. You may perform this nonemission-related maintenance on emission-data engines at the least frequent intervals that you recommend to the ultimate purchaser (but not the intervals recommended for severe service).

(f) Source of parts and repairs. State clearly on the first page of your written maintenance instructions that a repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems. Your instructions may not require components or service identified by brand, trade, or corporate name. Also, do not directly or indirectly condition your warranty on a requirement that the engine be serviced by your franchised dealers or any other service establishments with which you have a commercial relationship. You may disregard the requirements in this paragraph (f) if you do one of two things:

- (1) Provide a component or service without charge under the purchase agreement.
- (2) Get us to waive this prohibition in the public's interest by convincing us the engine will work properly only with the identified component or service.

(g) Payment for scheduled maintenance. Owners are responsible for properly maintaining their engines. This generally includes paying for scheduled maintenance. However, manufacturers must pay for scheduled maintenance during the useful life if it meets all the following criteria:

- (1) Each affected component was not in general use on similar engines before 1997.
- (2) The primary function of each affected component is to reduce emissions.
- (3) Failure to perform the maintenance would not cause clear problems that would significantly degrade the engine's performance.

(h) Owners manual. Explain the owner's responsibility for proper maintenance in the owners manual.

§1054.130 What installation instructions must I give to equipment manufacturers?

(a) If you sell an engine for someone else to install in a piece of equipment, give the engine installer instructions for installing it consistent with the requirements of this part. Include all information necessary to ensure that an engine will be installed in its certified configuration.

(b) Make sure the instructions have the following information:

- (1) Include the heading: "Emission-related installation instructions".
- (2) State: "Failing to follow these instructions when installing a certified engine in nonroad equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act."

(3) Describe the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of §1054.655 related to altitude kits.

(4) Describe the steps needed to control evaporative emissions in accordance with certificates of conformity that you hold. Include instructions for connecting fuel lines as needed to prevent running loss emissions, if applicable. Such instructions must include sufficient detail to ensure that running loss control will not cause the engine to exceed exhaust emission standards. For example, you may specify a maximum vapor flow rate under normal operating conditions. Also include notification that the installer must meet the requirements of §1054.112 and 40 CFR part 1060.

(5) Describe any limits on the range of applications needed to ensure that the engine remains in its certified configuration after installation. For example, if you certify engines only for rated-speed applications tell equipment manufacturers that the engine must not be installed in equipment involving intermediate-speed operation. Also, if your wintertime engines are not certified to the otherwise applicable HC+NO_x standards, tell equipment manufacturers that the engines must be installed in equipment that is used only in wintertime.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. For example, this may include specified limits for catalyst systems, such as exhaust backpressure, catalyst location, and temperature profiles during engine operation.

(7) State: "If you install the engine in a way that makes the engine's emission control information label hard to read during normal engine maintenance, you must place a duplicate label on the equipment, as described in 40 CFR 1068.105."

(c) You do not need installation instructions for engines you install in your own equipment.

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available website for downloading or printing. If you do not provide the instructions in writing, explain in your application for certification how you will ensure that each installer is informed of the installation requirements.

§1054.135 How must I label and identify the engines I produce?

The provisions of this section apply to engine manufacturers.

(a) Assign each engine a unique identification number and permanently affix, engrave, or stamp it on the engine in a legible way.

(b) At the time of manufacture, affix a permanent and legible label identifying each engine. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.

(2) Secured to a part of the engine needed for normal operation and not normally requiring replacement.

(3) Durable and readable for the engine's entire life.

(4) Written in English.

(c) The label must conform to the following specifications without exception:

(1) Include the heading "EMISSION CONTROL INFORMATION".

(2) Include your full corporate name and trademark. You may identify another company and use its trademark instead of yours if you comply with the provisions of §1054.640.

(3) Include EPA's standardized designation for the emission family (and subfamily, where applicable).

(4) State the following based on the useful life requirements in §1054.107: "EMISSION COMPLIANCE PERIOD= [identify applicable useful life period] HOURS". In addition to specifying the hours, you may optionally add the descriptive terms specified in §1054.107(a) to characterize the useful life. You may use the term Heavy Commercial for nonhandheld engines if you establish a longer useful life under §1054.107(a)(2).

(5) State the engine's displacement (in cubic centimeters); however, you may omit this from the label if all the engines in the emission family have the same per-cylinder displacement and total displacement.

- (6) State the date of manufacture [DAY (optional), MONTH, and YEAR]; however, you may omit this from the label if you stamp, engrave, or otherwise permanently identify it elsewhere on the engine, in which case you must also describe in your application for certification where you will identify the date on the engine.
- (7) Identify the emission control system. Use terms and abbreviations as described in 40 CFR 1068.45. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.
- (8) Include one of the following statements:
- (i) If you certify the engine only with respect to exhaust emissions, state—
"THIS ENGINE MEETS U.S. EPA EXH REGS FOR [MODEL YEAR]."
 - (ii) If you certify the engine with respect to exhaust emissions and the equipment with respect to evaporative emissions, state—
"THIS ENGINE MEETS U.S. EPA EXH/EVP REGS FOR [MODEL YEAR]."
- (d) The following information may be included on the label or in the owners manual:
- (1) List specifications and adjustments for engine tuneups.
 - (2) Identify the altitude at which an altitude kit should be installed if you specify an altitude kit under §1054.115(c).
 - (3) Identify the fuel type and any requirements for fuel and lubricants.
 - (4) If your nonhandheld engines are certified for use only at rated speed or only at intermediate speed, add the statement: "CERTIFIED FOR [rated-speed or intermediate-speed] APPLICATIONS ONLY" or "CERTIFIED FOR [identify nominal engine speed or range of speeds for testing] OPERATION ONLY".
- (e) You may add information to the emission control information label as follows:
- (1) You may identify other emission standards that the engine meets or does not meet (such as California standards). You may include this information by adding it to the statement we specify or by including a separate statement.
 - (2) You may add other information to ensure that the engine will be properly maintained and used.
 - (3) You may add appropriate features to prevent counterfeit labels. For example, you may include the engine's unique identification number on the label.
- (f) Except for the labeling requirements specified in paragraph (c) of this section, you may ask us to approve modified labeling requirements in this part 1054 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the requirements of this part.
- (g) If others install your engine in their equipment in a way that obscures the engine label such that the label cannot be read during normal maintenance, we require them to add a duplicate label on the equipment (see 40 CFR 1068.105). If equipment manufacturers request it, send them labels that include all the information from the original label and that are clearly identified as duplicate labels. You may omit the date of manufacture from the duplicate label. Keep a written record of each request for five years after it is no longer needed for ongoing production.
- (h) Integrated equipment manufacturers certifying their engines and equipment with respect to both exhaust and evaporative emission standards may meet labeling requirements with a single label that has all the required information specified in this section and in 40 CFR 1060.135.

§1054.140 What is my engine's maximum engine power and displacement?

This section describes how to quantify your engine's maximum engine power and displacement for the purposes of this part.

- (a) An engine configuration's maximum engine power is the maximum brake power point on the nominal power curve for the engine configuration, as defined in this section. Round the power value to the nearest 0.1 kilowatts for nonhandheld engines and to the nearest 0.01 kilowatts for handheld engines. The nominal power curve of an engine configuration is the relationship between maximum available engine brake power and engine speed for an engine, using the mapping procedures of 40 CFR part 1065, based on the manufacturer's design and production specifications for the engine. For handheld engines, we may allow manufacturers to base the nominal power curve on other mapping procedures, consistent with good

engineering judgment. This information may also be expressed by a torque curve that relates maximum available engine torque with engine speed. Note that maximum engine power is based on engines and installed engine governors; equipment designs that further limit engine operation do not change maximum engine power.

(b) An engine configuration's displacement is the intended swept volume of all the engine's cylinders. The swept volume of the engine is the product of the internal cross-section area of the cylinders, the stroke length, and the number of cylinders. Calculate the engine's intended swept volume from the design specifications for the cylinders using enough significant figures to allow determination of the displacement to the nearest 0.1 cc. Determine the final value by rounding to the nearest cubic centimeter. For example, for a one-cylinder engine with circular cylinders having an internal diameter of 6.00 cm and a 6.25 cm stroke length, the rounded displacement would be: $(1) \times (6.00/2)^2 \times (\pi) \times (6.25) = 177$ cc.

(c) The nominal power curve and intended swept volume must be within the range of the actual power curves and swept volumes of production engines considering normal production variability. If after production begins it is determined that either your nominal power curve or your intended swept volume does not represent production engines, we may require you to amend your application for certification under §1054.225.

§1054.145 Are there interim provisions that apply only for a limited time?

The provisions in this section apply instead of other provisions in this part. This section describes how and when these interim provisions apply.

(a) Delayed Phase 3 implementation for engine manufacturers. Small-volume engine manufacturers may delay complying with the Phase 3 exhaust emission standards and requirements that would otherwise apply, subject to the following conditions:

(1) You may delay meeting the Phase 3 exhaust emission standards until 2013 for Class II engines and until 2014 for Class I engines. The running loss standards in §1054.112 also do not apply to engines exempted under this paragraph (a), or to equipment using these engines.

(2) You must certify your engines exempted under this section to the Phase 2 standards and requirements specified in 40 CFR 90.103 and summarized in Appendix I of this part. You must meet the labeling requirements in 40 CFR 90.114, but use the following compliance statement instead of the compliance statement in 40 CFR 90.114(c)(7): "THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [CURRENT MODEL YEAR] NONROAD ENGINES UNDER 40 CFR 1054.145(a)."

(3) After the delays indicated in paragraph (a)(1) of this section, you must comply with the same standards and requirements as all other manufacturers except as noted elsewhere in this section.

(4) The provisions of this paragraph (a) may not be used to circumvent the requirements of this part.

(5) You may continue to generate early credits during this two-year period as described under §1054.740 as if the Phase 3 emission standards applied starting in the 2013 model year for Class II engines and in the 2014 model year for Class I engines.

(b) Delayed Phase 3 implementation for equipment manufacturers. The provisions of §1054.625 describe how manufacturers may produce certain numbers of equipment using Class II engines that meet Phase 2 standards during the first four years that the Phase 3 standards apply.

(c) Special provisions for handheld engines. The following provisions apply for handheld engines:

(1) You may use the provisions in 40 CFR 90.104(g) to rely on assigned deterioration factors for small-volume engine manufacturers and for small-volume engine families.

(2) You may perform maintenance on emission-data engines during service accumulation as described in 40 CFR part 90. If your scheduled emission-related maintenance falls within 10 hours of a test point, delay the maintenance until the engine reaches the test point. Measure emissions before and after performing the maintenance. Use the average values from these two measurements to calculate deterioration factors. The emission-data engine must meet applicable emission standards before and after maintenance to be considered in compliance, as described in §1054.240(a) and (b).

(3) Engines subject to Phase 3 emission standards must meet the standards at or above barometric pressures of 96.0 kPa in the standard configuration and are not required to meet emission standards at

lower barometric pressures. This is intended to allow testing under most weather conditions at all altitudes up to 1,100 feet above sea level. In your application for certification, identify the altitude above which you rely on an altitude kit to meet emission standards and describe your plan for making information and parts available such that you would reasonably expect that altitude kits would be widely used at all such altitudes.

(d) Alignment of model years for exhaust and evaporative standards. Evaporative emission standards generally apply based on the model year of the equipment, which is determined by the equipment's date of final assembly. However, in the first year of new emission standards, equipment manufacturers may apply evaporative emission standards based on the model year of the engine as shown on the engine's emission control information label. For example, for the fuel line permeation standards starting in 2012, equipment manufacturers may order a batch of 2011 model year engines for installation in 2012 model year equipment, subject to the anti-stockpiling provisions of 40 CFR 1068.105(a). The equipment with the 2011 model year engines would not need to meet fuel line permeation standards, as long as the equipment is fully assembled by December 31, 2012.

(e) Early compliance with evaporative emission standards—nonhandheld equipment manufacturers. You may produce nonhandheld equipment that does not meet the otherwise applicable evaporative emission standards without violating the prohibition in 40 CFR 1068.101(a)(1) if you earn evaporative emission allowances, as follows:

(1) You may earn an evaporative emission allowance from each piece of equipment certified to California's evaporative emission standards by producing it before the requirements of this part start to apply and selling it outside of California. You may use an evaporative emission allowance by selling one piece of equipment that does not meet any EPA evaporative emission standards even though it is subject to the EPA standards. The early-compliant equipment must be covered by an EPA certificate of conformity (see 40 CFR 1060.105(e)).

(2) You may earn an evaporative emission allowance with respect to fuel tank permeation from each piece of equipment certified to EPA's evaporative emission standards by selling it outside of California or in an application that is preempted from California's standards before EPA's fuel tank permeation standards start to apply. The early-compliant fuel tanks must be covered by an EPA certificate of conformity, though you may demonstrate compliance based on the specifications and procedures adopted by the California Air Resources Board. You may use an evaporative emission allowance by selling one piece of equipment with a fuel tank that does not meet the EPA emission standards that would otherwise apply. For example, you can earn an evaporative emission allowance by selling a low-permeation fuel tank for Class II equipment before the 2011 model year, in which case you could sell a piece of Class II equipment in 2011 with a high-permeation fuel tank. You may not generate allowances under this paragraph (e)(2) based on your sales of metal fuel tanks.

(3) Evaporative emission allowances you earn under this paragraph (e) from equipment with Class I engines may be used only for other equipment with Class I engines. Similarly, evaporative emission allowances you earn under this paragraph (e) from equipment with Class II engines may be used only for other equipment with Class II engines.

(4) You must label any equipment using allowances under this paragraph (e) with the following statement: "EXEMPT FROM EVAPORATIVE STANDARDS UNDER 40 CFR 1054.145(e)".

(5) You may not use the allowances you generate under this paragraph (e) for 2014 and later model year equipment with Class II engines or for 2015 and later model year equipment with Class I engines.

(6) Send the Designated Compliance Officer the following information for each year in which you use the provisions of this paragraph (e):

(i) Send us a report within 45 days after the end of the model year describing how many pieces of equipment you produced in the preceding model year that generate allowances. You may combine this with the reports specified in §1054.250(a) if applicable.

(ii) Describe the number of equipment using allowances under this paragraph (e) in your end-of-year reports and final reports after the end of the model year as described in §1054.730(a). If you

do not participate in the averaging, banking, and trading program, send this information separately within 90 days after the end of the model year.

(f) Early banking for evaporative emission standards—handheld equipment manufacturers. You may earn emission credits for handheld equipment you produce before the evaporative emission standards of §1054.110 apply. To do this, your equipment must use fuel tanks with a family emission limit below 1.5 g/m²/day (or 2.5 g/m²/day for testing at 40°C). Calculate your credits as described in §1054.706 based on the difference between the family emission limit and 1.5 g/m²/day (or 2.5 g/m²/day for testing at 40°C).

(g) Useful life for evaporative emission standards. (1) A useful life period of two years applies for fuel tanks or fuel caps certified to meet permeation emission standards in 2013 and earlier model years. However, for fuel tanks with a family emission limit above or below the specified emission standard, calculate emission credits under §1054.706 based on a useful life of five years.

(2) A useful life period of two years applies for cold-weather fuel lines certified to meet permeation emission standards in 2012 and 2013. However, for fuel lines with a family emission limit above or below the specified emission standard, calculate emission credits under §1054.706 based on a useful life of five years.

(h) Emission credit program for cold-weather fuel lines. In the 2012 through 2015 model years, certifying equipment manufacturers may generate or use emission credits for averaging to show compliance with the permeation standards for cold-weather fuel lines, but not for banking or trading, as follows:

(1) To generate or use emission credits, apply the provisions of subpart H of this part as they apply for fuel tanks except as specified in this paragraph (h). For example, calculate emission credits based on the internal surface area of the fuel lines and a five-year useful life, even if the standards apply temporarily over a shorter useful life.

(2) Establish an FEL for each emission family based on emission measurements as specified in 40 CFR 1060.515. The FEL may not exceed 400 g/m²/day for any emission family.

(3) Use an adjustment factor (AF) of 1.0 for calculating credits.

(4) Cold-weather fuel lines are in a separate averaging set, which means you may not exchange emission credits between fuel tanks and fuel lines.

(i) Use of California data for handheld fuel tank permeation. If you certified handheld fuel tanks to the permeation standards in 40 CFR 90.129 based on emission measurements for demonstrating compliance with emission standards for California, you may continue to comply with the provisions of 40 CFR 90.129 instead of the provisions of §1054.110(b) for the 2010 and 2011 model years, provided that we allow you to use carryover emission data under 40 CFR 1060.235(e) for your emission family.

(j) Continued use of 40 CFR part 90 test procedures. You may use the test procedures for measuring exhaust emissions in 40 CFR part 90 instead of those in subpart F of this part for 2010 through 2012 model years. This applies for certification, production-line, and in-use testing. You may continue to use data based on the test procedures in 40 CFR part 90 for engine families in 2013 and later model years, provided that we allow you to use carryover emission data under 40 CFR 1054.235(d) for your emission family. You may also use the test procedures for measuring exhaust emissions in 40 CFR part 90 for production-line testing with any engine family whose certification is based on testing with those procedures.

(k) Carryover of exhaust emission data from California ARB procedures. You may certify your engines through the 2012 model year based on exhaust emission data you previously submitted to California ARB. This applies for certification and production-line testing. This paragraph (k) no longer applies starting with the 2013 model year. Note that other regulatory provisions may allow you to use data from California ARB for EPA certification in certain circumstances.

(l) [Reserved]

(m) Delayed compliance for rotation-molded fuel tanks. (1) You may produce limited numbers of 2011 and 2012 model year equipment with rotation-molded fuel tanks that do not meet permeation emission standards specified in §1054.112(b) and 40 CFR 1060.103, subject to the following provisions:

(i) You may use allowances under this paragraph (m) only for Class II equipment models using identical fuel tanks such that the production volumes of the fuel tank design used in such equipment is no more than 5,000 units in the 2011 and 2012 model years, with a total corporate

allowance of 10,000 units in 2012. If production volumes are greater than 5,000 for a given fuel tank design (or greater than 10,000 corporate-wide in the 2012 model year), all those tanks must comply with emission standards. Tanks are generally considered identical if they are produced under a single part number to conform to a single design or blueprint. Tanks should be considered identical if they differ only with respect to production variability, post-production changes (such as different fittings or grommets), supplier, color, or other extraneous design variables. The limit of 5,000 units for a given fuel tank design applies together for the total production from any parent or subsidiary companies.

(ii) Include the following statement on the emission label specified in 40 CFR 1060.135: “EXEMPT FROM TANK PERMEATION STANDARDS UNDER 40 CFR 1054.145”.

(iii) You must keep records to demonstrate that you do not exceed the specified production volumes. Identify the number of exempted equipment you produced from each model and from each production facility.

(iv) You may not apply the provisions of this paragraph (m) for fuel tanks that are not rotation-molded or for equipment that is not powered by a Class II engine.

(2) Fuel tank manufacturers may produce exempted fuel tanks as needed for equipment manufacturers under this paragraph (m) without our prior approval. Fuel tank manufacturers must keep records of the number of exempted fuel tanks sold to each equipment manufacturer.

(3) Equipment you produce under this paragraph (m) are exempt from the prohibitions in 40 CFR 1068.101(a)(1) with respect to fuel tank permeation emissions, subject to the provisions of this paragraph (m). However, producing more exempted equipment than we allow under this paragraph (m) violates the prohibitions in 40 CFR 1068.101(a)(1). Equipment manufacturers and fuel tank manufacturers must keep the records we require under this paragraph (m) until at least December 31, 2016 and give them to us if we ask for them (see 40 CFR 1068.101(a)(2)).

(n) Ethanol-blended test fuel for nonhandheld engines. During the first two years of the Phase 3 standards, if you use an ethanol-blended test fuel for certifying a given engine family as described in §1054.501(b)(2), we will also use the blended fuel for testing engines from that engine family, whether or not you use the blended fuel for certifying all your Class I (or Class II) engine families in that model year.

Subpart C—Certifying Emission Families

§1054.201 What are the general requirements for obtaining a certificate of conformity?

Engine manufacturers must certify their engines with respect to the exhaust emission standards in this part. Manufacturers of engines, equipment, or fuel-system components may need to certify their products with respect to evaporative emission standards as described in 40 CFR 1060.1 and 1060.601. The following general requirements apply for obtaining a certificate of conformity:

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid starting with the indicated effective date but it is not valid for any production after December 31 of the model year for which it is issued. No certificate will be issued after December 31 of the model year. If you certify with respect to both exhaust and evaporative emissions, you must submit separate applications.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see §1054.255).

(c) We may ask you to include less information than we specify in this subpart as long as you maintain all the information required by §1054.250.

(d) You must use good engineering judgment for all decisions related to your application (see 40 CFR 1068.5).

(e) An authorized representative of your company must approve and sign the application.

(f) See §1054.255 for provisions describing how we will process your application.

(g) We may require you to deliver your test engines to a facility we designate for our testing (see §1054.235(c)).

§1054.205 What must I include in my application?

This section specifies the information that must be in your application, unless we ask you to include less information under §1054.201(c). We may require you to provide additional information to evaluate your application. The provisions of this section apply to integrated equipment manufacturers and engine manufacturers selling loose engines. Nonintegrated equipment manufacturers must follow the requirements of 40 CFR part 1060.

(a) Describe the emission family's specifications and other basic parameters of the engine's design and emission controls. List the fuel type on which your engines are designed to operate (for example, all-season gasoline). List each distinguishable engine configuration in the emission family. For each engine configuration in which the maximum modal power of the emission-data engine is at or above 25 kW (or power at or above 15 kW if displacement is above 1000 cc), list the maximum engine power and the range of values for maximum engine power resulting from production tolerances, as described in §1054.140.

(b) Explain how the emission control systems operate. Describe the evaporative emission controls and show how your design will prevent running loss emissions, if applicable. Also describe in detail all system components for controlling exhaust emissions, including all auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production or test engine. Identify the part number of each component you describe (or the alphanumeric designation for catalysts described in §1054.610, if applicable). For this paragraph (b), treat as separate AECDs any devices that modulate or activate differently from each other. Include sufficient detail to allow us to evaluate whether the AECDs are consistent with the defeat device prohibition of §1054.115. For example, if your engines will routinely experience in-use operation that differs from the specified duty cycle for certification, describe how the fuel-metering system responds to varying speeds and loads not represented by the duty cycle. If you test an emission-data engine by disabling the governor for full-load operation such that the engine operates at an air-fuel ratio significantly different than under full-load operation with an installed governor, explain why these differences are necessary or appropriate. For conventional carbureted engines without electronic fuel controls, it is sufficient to state that there is no significant difference in air-fuel ratios.

(c) [Reserved]

(d) Describe the engines, equipment, and fuel system components you selected for testing and the reasons for selecting them.

(e) Describe the test equipment and procedures that you used, including any special or alternate test procedures you used. For handheld engines, describe how you selected the value for rated speed.

(f) Describe how you operated the emission-data engine before testing, including the duty cycle and the number of engine operating hours used to stabilize emission levels. Explain why you selected the method of service accumulation. Describe any scheduled maintenance you did.

(g) List the specifications of the test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065.

(h) Identify the emission family's useful life. Describe the basis for selecting useful life values with respect to exhaust emissions (see §1054.107).

(i) Include the maintenance and warranty instructions you will give to the ultimate purchaser of each new engine (see §§1054.120 and 1054.125). Describe your basis for meeting the warranty-assurance provisions in §1054.120(f). Describe your recall repair network if it is different than your warranty repair network. State that you will post a bond as specified in §1054.120(f) and 1054.690 or describe why those requirements do not apply.

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in nonroad equipment (see §1054.130).

(k) Describe your emission control information label (see §1054.135).

(l) Identify the emission standards or FELs for the emission family.

(m) Identify the emission family's deterioration factors and describe how you developed them (see §1054.245). Present any emission test data you used for this.

- (n) State that you operated your emission-data engines as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.
- (o) Present emission data to show that you meet exhaust emission standards, as follows:
- (1) Present emission data for hydrocarbons (such as THC, THCE, or NMHC, as applicable), NO_x, and CO on an emission-data engine to show your engines meet the applicable exhaust emission standards as specified in §1054.101. Show emission figures before and after applying deterioration factors for each engine. Include test data from each applicable duty cycle specified in §1054.505(b). If we specify more than one grade of any fuel type (for example, low-temperature and all-season gasoline), you need to submit test data only for one grade, unless the regulations of this part specify otherwise for your engine.
 - (2) Note that §§1054.235 and 1054.245 allow you to submit an application in certain cases without new emission data.
- (p) Report all test results, including those from invalid tests, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO₂, report those emission levels (in g/kW-hr). We may ask you to send other information to confirm that your tests were valid under the requirements of this part and 40 CFR parts 1060 and 1065.
- (q) Describe all adjustable operating parameters (see §1054.115(b)), including production tolerances. Include the following in your description of each parameter:
- (1) The nominal or recommended setting.
 - (2) The intended physically adjustable range.
 - (3) The limits or stops used to establish adjustable ranges.
 - (4) Information showing why the limits, stops, or other means of inhibiting adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your intended physically adjustable ranges.
- (r) Describe how your nonhandheld engines comply with emission standards at varying atmospheric pressures. Include a description of altitude kits you design to comply with the requirements of §1054.115(c). Identify the part number of each component you describe. Identify the altitude range for which you expect proper engine performance and emission control with and without the altitude kit. State that your engines will comply with applicable emission standards throughout the useful life with the altitude kit installed according to your instructions. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement. In addition, describe your plan for making information and parts available such that you would reasonably expect that altitude kits would be widely used in the high-altitude counties specified in 40 CFR part 1068, Appendix III. For example, engine owners should have ready access to information describing when an altitude kit is needed and how to obtain this service. Similarly, parts and service information should be available to qualified service facilities in addition to authorized service centers if that is needed for owners to have such altitude kits installed locally.
- (s) If your engines are subject to handheld emission standards on the basis of meeting weight limitations described in the definition of “handheld” in §1054.801, describe your analysis showing that you meet the applicable weight-related restrictions.
- (t) State whether your certification is limited for certain engines. If this is the case, describe how you will prevent use of these engines in applications for which they are not certified. This applies for engines such as the following:
- (1) Wintertime engines not certified to the specified HC+NO_x standard.
 - (2) Two-stroke snowthrower engines using the provisions of §1054.101(d).
- (u) Unconditionally certify that all the engines in the emission family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.
- (v) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models. Also indicate whether you expect the engine family to contain only nonroad engines, only stationary engines, or both.

- (w) State that you will post a bond as specified in §1054.690 or describe why those requirements do not apply.
- (x) Include the information required by other subparts of this part. For example, include the information required by §1054.725 if you participate in the ABT program.
- (y) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.
- (z) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.
- (aa) For imported engines or equipment, identify the following:
 - (1) The port(s) at which you have imported your engines (or equipment containing your engines) over the previous 12 months.
 - (2) The names and addresses of the agents you have authorized to import your engines or equipment.
 - (3) The location of a test facility in the United States where you can test your engines if we select them for testing under a selective enforcement audit, as specified in 40 CFR part 1068, subpart E.

§1054.210 May I get preliminary approval before I complete my application?

If you send us information before you finish the application, we will review it and make any appropriate determinations, especially for questions related to emission family definitions, auxiliary emission control devices, deterioration factors, useful life, testing for service accumulation, maintenance, and delegated final assembly. Decisions made under this section are considered to be preliminary approval, subject to final review and approval. We will generally not reverse a decision where we have given you preliminary approval, unless we find new information supporting a different decision. If you request preliminary approval related to the upcoming model year or the model year after that, we will make the appropriate determinations as soon as practicable. We will generally not provide preliminary approval related to a future model year more than two years ahead of time.

§1054.220 How do I amend the maintenance instructions in my application?

You may amend your emission-related maintenance instructions after you submit your application for certification as long as the amended instructions remain consistent with the provisions of §1054.125. You must send the Designated Compliance Officer a written request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. If operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim.

- (a) If you are decreasing, replacing, or eliminating any specified maintenance, you may distribute the new maintenance instructions to your customers 30 days after we receive your request, unless we disapprove your request. This would generally include replacing one maintenance step with another. We may approve a shorter time or waive this requirement.
- (b) If your requested change would not decrease the specified maintenance, you may distribute the new maintenance instructions anytime after you send your request. For example, this paragraph (b) would cover adding instructions to increase the frequency of filter changes for engines in severe-duty applications.
- (c) You need not request approval if you are making only minor corrections (such as correcting typographical mistakes), clarifying your maintenance instructions, or changing instructions for maintenance unrelated to emission control. We may ask you to send us copies of maintenance instructions revised under this paragraph (c).

§1054.225 How do I amend my application for certification to include new or modified engines or fuel systems or change an FEL?

Before we issue you a certificate of conformity, you may amend your application to include new or modified engine or fuel-system configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or modified configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information included in your application.

(a) You must amend your application before you take any of the following actions:

(1) Add an engine or fuel-system configuration to an emission family. In this case, the configuration added must be consistent with other configurations in the emission family with respect to the criteria listed in §1054.230.

(2) Change a configuration already included in an emission family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the engine's lifetime.

(3) Modify an FEL for an emission family with respect to exhaust emissions as described in paragraph (f) of this section.

(b) To amend your application for certification, send the Designated Compliance Officer the following information:

(1) Describe in detail the addition or change in the model or configuration you intend to make.

(2) Include engineering evaluations or data showing that the amended emission family complies with all applicable requirements. You may do this by showing that the original emission-data engine or emission-data equipment is still appropriate for showing that the amended family complies with all applicable requirements.

(3) If the original emission-data engine for the engine family is not appropriate to show compliance for the new or modified engine configuration, include new test data showing that the new or modified engine configuration meets the requirements of this part.

(c) We may ask for more test data or engineering evaluations. You must give us these within 30 days after we request them.

(d) For emission families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your new or modified configuration. You may ask for a hearing if we deny your request (see §1054.820).

(e) For emission families already covered by a certificate of conformity, you may start producing the new or modified configuration anytime after you send us your amended application and before we make a decision under paragraph (d) of this section. However, if we determine that the affected configurations do not meet applicable requirements, we will notify you to cease production of the configurations and may require you to recall the engine or equipment at no expense to the owner. Choosing to produce engine under this paragraph (e) is deemed to be consent to recall all engines or equipment that we determine do not meet applicable emission standards or other requirements and to remedy the nonconformity at no expense to the owner. If you do not provide information required under paragraph (c) of this section within 30 days after we request it, you must stop producing the new or modified engine or equipment.

(f) You may ask us to approve a change to your FEL with respect to exhaust emissions in certain cases after the start of production. The changed FEL may not apply to engines you have already introduced into U.S. commerce, except as described in this paragraph (f). If we approve a changed FEL after the start of production, you must identify the date or serial number for applying the new FEL. If you identify this by month and year, we will consider that a lowered FEL applies on the last day of the month and a raised FEL applies on the first day of the month. You may ask us to approve a change to your FEL in the following cases:

(1) You may ask to raise your FEL for your emission family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. If you amend your application by submitting new test data to include a newly added or modified engine, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding

production volumes to calculate emission credits for the model year, as described in subpart H of this part. In all other circumstances, you must use the higher FEL for the entire family to calculate emission credits under subpart H of this part.

(2) You may ask to lower the FEL for your emission family only if you have test data from production engines showing that emissions are below the proposed lower FEL. The lower FEL does not apply to engines you produce before the new FEL starts to apply, as specified in this paragraph

(f). Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

§1054.230 How do I select emission families?

(a) For purposes of certification, divide your product line into families of engines that are expected to have similar emission characteristics throughout their useful life as described in this section. Your emission family is limited to a single model year. For evaporative emissions, group engines into emission families as described in 40 CFR 1060.230.

(b) Group engines into the same emission family for exhaust emissions if they are the same in all the following aspects:

(1) The combustion cycle and fuel. See paragraph (g) of this section for special provisions that apply for dual-fuel engines.

(2) The cooling system (liquid-cooled vs. air-cooled).

(3) Valve configuration (for example, side-valve vs. overhead valve).

(4) Method of air aspiration (for example, turbocharged vs. naturally aspirated).

(5) The number, location, volume, and composition of catalytic converters.

(6) The number and arrangement of cylinders and approximate total displacement.

(7) Engine class, as defined in §1054.801.

(8) Method of control for engine operation, other than governing (mechanical or electronic).

(9) The numerical level of the applicable emission standards. For example, an engine family may not include engines certified to different family emission limits, though you may change family emission limits without recertifying as specified in §1054.225.

(10) Useful life.

(c) You may subdivide a group that is identical under paragraph (b) of this section into different emission families if you show the expected emission characteristics are different during the useful life.

(d) You may group engines that are not identical with respect to the things listed in paragraph (b) of this section into the same emission family, as follows:

(1) In unusual circumstances, you may group such engines into the same emission family if you show that their emission characteristics during the useful life will be similar.

(2) If you are a small-volume engine manufacturer, you may group any nonhandheld engines with the same useful life that are subject to the same emission standards into a single emission family.

(3) The provisions of this paragraph (d) do not exempt any engines from meeting all the applicable standards and requirements in subpart B of this part.

(e) Select test engines from the emission family as described in 40 CFR 1065.401.

(f) You may combine engines from different classes into a single emission family under paragraph (d)(1) of this section if you certify the emission family to the more stringent set of standards from the two classes in that model year.

(g) You may certify dual-fuel or flexible-fuel engines in a single engine family. You may include dedicated-fuel versions of this same engine model in the same engine family, as long as they are identical to the engine configuration with respect to that fuel type for the dual-fuel or flexible-fuel version of the engine. For example, if you produce an engine that can alternately run on gasoline and natural gas, you can include the gasoline-only and natural gas-only versions of the engine in the same engine family as the dual-fuel engine if engine operation on each fuel type is identical with or without installation of components for operating on the other fuel.

§1054.235 What exhaust emission testing must I perform for my application for a certificate of conformity?

This section describes the exhaust emission testing you must perform to show compliance with the emission standards in §§1054.103 and 1054.105. See §§1054.240 and 1054.245 and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing.

(a) Select an emission-data engine from each engine family for testing as described in 40 CFR 1065.401. Select a configuration that is most likely to exceed the HC+NO_x standard, using good engineering judgment. Configurations must be tested as they will be produced, including installed governors, if applicable.

(b) Test your emission-data engines using the procedures and equipment specified in subpart F of this part. In the case of dual-fuel engines, measure emissions when operating with each type of fuel for which you intend to certify the engine. In the case of flexible-fuel engines, measure emissions when operating with the fuel mixture that is most likely to cause the engine to exceed the applicable HC+NO_x emission standard, though you may ask us to exclude fuel mixtures that you can show are not likely to occur in use.

(c) We may measure emissions from any of your emission-data engines or other engines from the emission family, as follows:

(1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the engine to a test facility we designate. The engine you provide must include appropriate manifolds, aftertreatment devices, electronic control units, and other emission-related components not normally attached directly to the engine block. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need.

(2) If we measure emissions on one of your engines, the results of that testing become the official emission results for the engine.

(3) We may set the adjustable parameters of your engine to any point within the physically adjustable ranges (see §1054.115(b)).

(4) We may calibrate your engine within normal production tolerances for anything we do not consider an adjustable parameter. For example, this would apply where we determine that an engine parameter is not an adjustable parameter (as defined in §1054.801) but that it is subject to production variability.

(d) You may ask to use carryover emission data from a previous model year instead of doing new tests, but only if all the following are true:

(1) The emission family from the previous model year differs from the current emission family only with respect to model year or other characteristics unrelated to emissions. You may also ask to add a configuration subject to §1054.225.

(2) The emission-data engine from the previous model year remains the appropriate emission-data engine under paragraph (b) of this section.

(3) The data show that the emission-data engine would meet all the requirements that apply to the emission family covered by the application for certification. For engines originally tested under the provisions of 40 CFR part 90, you may consider those test procedures to be equivalent to the procedures we specify in subpart F of this part.

(e) We may require you to test another engine of the same or different configuration in addition to the engine(s) tested under paragraph (b) of this section.

(f) If you use an alternate test procedure under 40 CFR 1065.10 and later testing shows that such testing does not produce results that are equivalent to the procedures specified in subpart F of this part, we may reject data you generated using the alternate procedure.

§1054.240 How do I demonstrate that my emission family complies with exhaust emission standards?

(a) For purposes of certification, your emission family is considered in compliance with the emission standards in §1054.101(a) if all emission-data engines representing that family have test results showing deteriorated emission levels at or below these standards. This includes all test points over the course of

the durability demonstration. Note that your FELs are considered to be the applicable emission standards with which you must comply if you participate in the ABT program in subpart H of this part.

(b) Your engine family is deemed not to comply if any emission-data engine representing that family has test results showing a deteriorated emission level for any pollutant that is above an applicable emission standard. This includes all test points over the course of the durability demonstration.

(c) Determine a deterioration factor to compare emission levels from the emission-data engine with the applicable emission standards. Section 1054.245 specifies how to test engines to develop deterioration factors that represent the expected deterioration in emissions over your engines' full useful life. Calculate a multiplicative deterioration factor as described in §1054.245(b). If the deterioration factor is less than one, use one. Specify the deterioration factor to one more significant figure than the emission standard. You may use assigned deterioration factors that we establish for up to 10,000 nonhandheld engines from small-volume emission families in each model year, except that small-volume engine manufacturers may use assigned deterioration factors for any or all of their engine families.

(d) Adjust the official emission results for each tested engine at the low-hour test point by multiplying the measured emissions by the deterioration factor, then rounding the adjusted figure to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each emission-data engine. In the case of HC+NO_x standards, add the official emission results and apply the deterioration factor to the sum of the pollutants before rounding. However, if your deterioration factors are based on emission measurements that do not cover the engine's full useful life, apply deterioration factors to each pollutant and then add the results before rounding.

(e) The provisions of this paragraph (e) apply only for engine families with a useful life at or below 300 hours. To apply the deterioration factor to engines other than the original emission-data engine, they must be operated for the same number of hours before starting emission measurements that you used for the original emission-data engine, within one hour. For example, if the original emission-data engine operated for 8 hours before the low-hour emission test, operate the other test engines for 7 to 9 hours before starting emission measurements.

§1054.245 How do I determine deterioration factors from exhaust durability testing?

This section describes how to determine deterioration factors, either with pre-existing test data or with new emission measurements.

(a) You may ask us to approve deterioration factors for an emission family based on emission measurements from similar engines if you have already given us these data for certifying other engines in the same or earlier model years. Use good engineering judgment to decide whether the two engines are similar.

(b) If you are unable to determine deterioration factors for an emission family under paragraph (a) of this section, select engines, subsystems, or components for testing. Determine deterioration factors based on service accumulation and related testing. Include consideration of wear and other causes of deterioration expected under typical consumer use. Determine deterioration factors as follows:

(1) Measure emissions from the emission-data engine at a low-hour test point, at the midpoint of the useful life, and at the end of the useful life, except as specifically allowed by this paragraph (b). You may test at additional evenly spaced intermediate points. Collect emission data using measurements to one more decimal place than the emission standard.

(2) Operate the engine over a representative duty cycle for a period at least as long as the useful life (in hours). You may operate the engine continuously. You may also use an engine installed in nonroad equipment to accumulate service hours instead of running the engine only in the laboratory.

(3) In the case of dual-fuel or flexible-fuel engines, you may accumulate service hours on a single emission-data engine using the type or mixture of fuel expected to have the highest combustion and exhaust temperatures. For dual-fuel engines, you must measure emissions on each fuel type at each test point.

(4) You may perform maintenance on emission-data engines as described in §1054.125 and 40 CFR part 1065, subpart E. If you change one or more spark plugs on an emission-data engine as allowed under §1054.125, you must measure emissions before and after this maintenance. If you clean or

change an air filter on an emission-data engine as allowed under §1054.125, you must measure emissions before and after every second time you perform this maintenance. Use the average values from these two measurements to calculate deterioration factors. The emission-data engine must meet applicable emission standards before and after maintenance to be considered in compliance, as described in §1054.240(a) and (b).

(5) Calculate your deterioration factor using a linear least-squares fit of your test data, but treat the low-hour test point as occurring at hour zero. Your deterioration factor is the ratio of the calculated emission level at the point representing the full useful life to the calculated emission level at zero hours.

(6) If you test more than one engine to establish deterioration factors, average the deterioration factors from all the engines before rounding.

(7) If your durability engine fails between 80 percent and 100 percent of useful life, you may use the last emission measurement as the test point representing the full useful life, provided it occurred after at least 80 percent of the useful life.

(8) If your useful life is 1,000 hours or longer, and your durability engine fails between 50 percent and 100 percent of useful life, you may extrapolate your emission results to determine the emission level representing the full useful life, provided emissions were measured at least once after 50 percent of the useful life.

(9) Use good engineering judgment for all aspects of the effort to establish deterioration factors under this paragraph (b).

(10) You may use other testing methods to determine deterioration factors, consistent with good engineering judgment, as long as we approve those methods in advance.

(c) Include the following information in your application for certification:

(1) If you determine your deterioration factors based on test data from a different emission family, explain why this is appropriate and include all the emission measurements on which you base the deterioration factor.

(2) If you do testing to determine deterioration factors, describe the form and extent of service accumulation, including the method you use to accumulate hours.

§1054.250 What records must I keep and what reports must I send to EPA?

(a) Send the Designated Compliance Officer information related to your U.S.-directed production volumes as described in §1054.345. In addition, within 45 days after the end of the model year, you must send us a report describing information about engines you produced during the model year as follows:

(1) State the total production volume for each engine family that is not subject to reporting under §1054.345.

(2) State the total production volume for any engine family for which you produce engines after completing the reports required in §1054.345.

(3) If you produced exempted engines under the provisions of §1054.625(j)(1), report the number of exempted engines you produced for each engine model and identify the buyer or shipping destination for each exempted engine.

(4) For production volumes you report under this paragraph (a), identify whether or not the figures include California sales. Include a separate count of production volumes for California sales if those figures are available.

(b) Organize and maintain the following records:

(1) A copy of all applications and any summary information you send us.

(2) Any of the information we specify in §1054.205 that you were not required to include in your application.

(3) A detailed history of all emission-data engines. For each engine, describe all of the following:

(i) The emission-data engine's construction, including its origin and buildup, steps you took to ensure that it represents production engines, any components you built specially for it, and all the components you include in your application for certification.

- (ii) How you accumulated engine operating hours (service accumulation), including the dates and the number of hours accumulated.
 - (iii) All maintenance, including modifications, parts changes, and other service, and the dates and reasons for the maintenance.
 - (iv) All your emission tests, including documentation on routine and standard tests, as specified in part 40 CFR part 1065, and the date and purpose of each test.
 - (v) All tests to diagnose engine or emission control performance, giving the date and time of each and the reasons for the test.
 - (vi) Any other significant events.
- (4) Production figures for each emission family divided by assembly plant.
 - (5) Keep a list of engine identification numbers for all the engines you produce under each certificate of conformity.
- (c) Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in this section for eight years after we issue your certificate.
- (d) Store these records in any format and on any media as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

§1054.255 What decisions may EPA make regarding my certificate of conformity?

- (a) If we determine your application is complete and shows that the emission family meets all the requirements of this part and the Clean Air Act, we will issue a certificate of conformity for your emission family for that model year. We may make the approval subject to additional conditions.
- (b) We may deny your application for certification if we determine that your emission family fails to comply with emission standards or other requirements of this part or the Clean Air Act. We will base our decision on all available information. If we deny your application, we will explain why in writing.
- (c) In addition, we may deny your application or suspend or revoke your certificate if you do any of the following:
 - (1) Refuse to comply with any testing, reporting, or bonding requirements.
 - (2) Submit false or incomplete information (paragraph (e) of this section applies if this is fraudulent).
 - (3) Render inaccurate any test data.
 - (4) Deny us from completing authorized activities (see 40 CFR 1068.20). This includes a failure to provide reasonable assistance.
 - (5) Produce engines or equipment for importation into the United States at a location where local law prohibits us from carrying out authorized activities.
 - (6) Fail to supply requested information or amend your application to include all engines or equipment being produced.
 - (7) Take any action that otherwise circumvents the intent of the Clean Air Act or this part.
- (d) We may void your certificate if you do not keep the records we require or do not give us information as required under this part or the Clean Air Act.
- (e) We may void your certificate if we find that you intentionally submitted false or incomplete information.
- (f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see §1054.820).

Subpart D—Production-line Testing

§1054.300 Applicability.

This subpart specifies requirements for engine manufacturers to test their production engines for exhaust emissions to ensure that the engines are being produced as described in the application for certification. The production-line verification described in 40 CFR part 1060, subpart D, applies for equipment and components for evaporative emissions.

§1054.301 When must I test my production-line engines?

(a) If you produce engines that are subject to the requirements of this part, you must test them as described in this subpart, except as follows:

(1) Small-volume engine manufacturers may omit testing under this subpart.

(2) We may exempt small-volume emission families from routine testing under this subpart. Request this exemption in your application for certification and include your basis for projecting a production volume below 5,000 units. We will approve your request if we agree that you have made good-faith estimates of your production volumes. Your exemption is approved when we grant your certificate. You must promptly notify us if your actual production exceeds 5,000 units during the model year. If you exceed the production limit or if there is evidence of a nonconformity, we may require you to test production-line engines under this subpart, or under 40 CFR part 1068, subpart E, even if we have approved an exemption under this paragraph (a)(2).

(b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§1054.325 and 1054.340).

(c) Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families, without regard to whether they have passed these production-line testing requirements. The requirements of this subpart do not affect our ability to do selective enforcement audits, as described in 40 CFR part 1068. Individual engines in families that pass these production-line testing requirements must also conform to all applicable regulations of this part and 40 CFR part 1068.

(d) You may use alternate programs for testing production-line engines in the following circumstances:

(1) You may use analyzers and sampling systems that meet the field-testing requirements of 40 CFR part 1065, subpart J, but not the otherwise applicable requirements in 40 CFR part 1065 for laboratory testing, to demonstrate compliance with emission standards if you double the minimum sampling rate specified in §1054.310(b). Use measured test results to determine whether engines comply with applicable standards without applying a measurement allowance. This alternate program does not require prior approval but we may disallow use of this option where we determine that use of field-grade equipment would prevent you from being able to demonstrate that your engines are being produced to conform to the specifications in your application for certification.

(2) You may ask to use another alternate program for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your products meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate approach. For example, in certain circumstances you may be able to give us equal assurance that your products meet the requirements of this part by using less rigorous measurement methods if you offset that by increasing the number of test engines.

(e) If you certify an engine family with carryover emission data, as described in §1054.235(d), and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family. The minimum testing rate is one engine per engine family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of engines that have failed the emission tests.

(f) We may ask you to make a reasonable number of production-line engines available for a reasonable time so we can test or inspect them for compliance with the requirements of this part.

§1054.305 How must I prepare and test my production-line engines?

This section describes how to prepare and test production-line engines. You must assemble the test engine in a way that represents the assembly procedures for other engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production engines in the engine family.

(a) Test procedures. Test your production-line engines using the applicable testing procedures in subpart F of this part to show you meet the emission standards in subpart B of this part.

- (b) Modifying a test engine. Once an engine is selected for testing (see §1054.310), you may adjust, repair, prepare, or modify it or check its emissions only if one of the following is true:
- (1) You document the need for doing so in your procedures for assembling and inspecting all your production engines and make the action routine for all the engines in the engine family.
 - (2) This subpart otherwise specifically allows your action.
 - (3) We approve your action in advance.
- (c) Engine malfunction. If an engine malfunction prevents further emission testing, ask us to approve your decision to either repair the engine or delete it from the test sequence.
- (d) Setting adjustable parameters. Before any test, we may require you to adjust any adjustable parameter to any setting within its physically adjustable range.
- (1) [Reserved]
 - (2) We may specify adjustments within the physically adjustable range by considering their effect on emission levels. We may also consider how likely it is that someone will make such an adjustment with in-use equipment.
 - (3) We may specify an air-fuel ratio within the adjustable range specified in §1054.115(b).
- (e) Stabilizing emission levels. Use good engineering judgment to operate your engines before testing such that deterioration factors can be applied appropriately. Determine the stabilization period as follows:
- (1) For engine families with a useful life at or below 300 hours, operate the engine for the same number of hours before starting emission measurements that you used for the emission-data engine, within one hour. For example, if the emission-data engine operated for 8 hours before the low-hour emission test, operate the test engines for 7 to 9 hours before starting emission measurements.
 - (2) For engine families with a useful life above 300 hours, operate each engine for no more than the greater of two periods:
 - (i) 12 hours.
 - (ii) The number of hours you operated your emission-data engine for certifying the engine family (see 40 CFR part 1065, subpart E, or the applicable regulations governing how you should prepare your test engine).
- (f) Damage during shipment. If shipping an engine to a remote facility for production-line testing makes necessary an adjustment or repair, you must wait until after the initial emission test to do this work. We may waive this requirement if the test would be impossible or unsafe or if it would permanently damage the engine. Report to us, in your written report under §1054.345, all adjustments or repairs you make on test engines before each test.
- (g) Retesting after invalid tests. You may retest an engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If we determine that you improperly invalidated a test, we may require you to ask for our approval for future testing before substituting results of the new tests for invalid ones.

§1054.310 How must I select engines for production-line testing?

- (a) Test engines from each engine family as described in this section based on test periods, as follows:
- (1) For engine families with projected U.S.-directed production volume of at least 1,600, the test periods are consecutive quarters (3 months). However, if your annual production period is less than 12 months long, you may take the following alternative approach to define quarterly test periods:
 - (i) If your annual production period is 120 days or less, the whole model year constitutes a single test period.
 - (ii) If your annual production period is 121 to 210 days, divide the annual production period evenly into two test periods.
 - (iii) If your annual production period is 211 to 300 days, divide the annual production period evenly into three test periods.
 - (iv) If your annual production period is 301 days or longer, divide the annual production period evenly into four test periods.
 - (2) For engine families with projected U.S.-directed production volume below 1,600, the whole model year constitutes a single test period.

(b) Early in each test period, randomly select and test an engine from the end of the assembly line for each engine family.

(1) In the first test period for newly certified engines, randomly select and test one more engine. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.

(2) In later test periods of the same model year, combine the new test result with all previous testing in the model year. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.

(3) In the first test period for engine families relying on previously submitted test data, combine the new test result with the last test result from the previous model year. Then, calculate the required sample size for the model year as described in paragraph (c) of this section. Use the last test result from the previous model year only for this first calculation. For all subsequent calculations, use only results from the current model year.

(c) Calculate the required sample size for each engine family. Separately calculate this figure for HC+NO_x and CO. The required sample size is the greater of these calculated values. Use the following equation:

$$N = \left[\frac{(t_{95} \times \sigma)}{(x - STD)} \right]^2 + 1$$

Where:

N = Required sample size for the model year.

t₉₅ = 95% confidence coefficient, which depends on the number of tests completed, n, as specified in the table in paragraph (c)(1) of this section. It defines 95% confidence intervals for a one-tail distribution.

σ = Test sample standard deviation (see paragraph (c)(2) of this section).

x = Mean of emission test results of the sample.

STD = Emission standard (or family emission limit, if applicable).

(1) Determine the 95% confidence coefficient, t₉₅, from the following table:

n	t ₉₅	n	t ₉₅	n	t ₉₅
2	6.31	12	1.80	22	1.72
3	2.92	13	1.78	23	1.72
4	2.35	14	1.77	24	1.71
5	2.13	15	1.76	25	1.71
6	2.02	16	1.75	26	1.71
7	1.94	17	1.75	27	1.71
8	1.90	18	1.74	28	1.70
9	1.86	19	1.73	29	1.70
10	1.83	20	1.73	30	1.70
11	1.81	21	1.72	31+	1.65

(2) Calculate the standard deviation, σ, for the test sample using the following formula:

$$\sigma = \sqrt{\frac{\sum (X_i - x)^2}{n - 1}}$$

Where:

- X_i = Emission test result for an individual engine.
- n = The number of tests completed in an engine family.

- (d) Use final deteriorated test results to calculate the variables in the equations in paragraph (c) of this section (see §1054.315(a)(2)).
- (e) After each new test, recalculate the required sample size using the updated mean values, standard deviations, and the appropriate 95-percent confidence coefficient.
- (f) Distribute the remaining engine tests evenly throughout the rest of the year. You may need to adjust your schedule for selecting engines if the required sample size changes. If your scheduled quarterly testing for the remainder of the model year is sufficient to meet the calculated sample size, you may wait until the next quarter to do additional testing. Continue to randomly select engines from each engine family.
- (g) Continue testing until one of the following things happens:
 - (1) After completing the minimum number of tests required in paragraph (b) of this section, the number of tests completed in an engine family, n , is greater than the required sample size, N , and the sample mean, x , is less than or equal to the emission standard. For example, if $N = 5.1$ after the fifth test, the sample-size calculation does not allow you to stop testing.
 - (2) The engine family does not comply according to §1054.315.
 - (3) You test 30 engines from the engine family.
 - (4) You test one percent of your projected annual U.S.-directed production volume for the engine family, rounded to the nearest whole number. Do not count an engine under this paragraph (g)(4) if it fails to meet an applicable emission standard.
 - (5) You choose to declare that the engine family does not comply with the requirements of this subpart.
- (h) If the sample-size calculation allows you to stop testing for one pollutant but not another, you must continue measuring emission levels of all pollutants for any additional tests required under this section. However, you need not continue making the calculations specified in this subpart for the pollutant for which testing is not required. This paragraph (h) does not affect the number of tests required under this section, the required calculations in §1054.315, or the remedial steps required under §1054.320.
- (i) You may elect to test more randomly chosen engines than we require under this section. Include these engines in the sample-size calculations.

§1054.315 How do I know when my engine family fails the production-line testing requirements?

This section describes the pass-fail criteria for the production-line testing requirements. We apply these criteria on an emission-family basis. See §1054.320 for the requirements that apply to individual engines that fail a production-line test.

- (a) Calculate your test results as follows:
 - (1) Initial and final test results. Calculate and round the test results for each engine. If you do several tests on an engine, calculate the initial results for each test, then add all the test results together and divide by the number of tests. Round this final calculated value for the final test results on that engine.
 - (2) Final deteriorated test results. Apply the deterioration factor for the engine family to the final test results (see §1054.240(c)).
 - (3) Round deteriorated test results. Round the results to the number of decimal places in the emission standard expressed to one more decimal place.

(b) Construct the following CumSum Equation for each engine family for HC+NOx and CO emissions:

$$C_i = \text{Max}[0 \text{ or } C_{i-1} + X_i - (\text{STD} + 0.25 \times \sigma)]$$

Where:

- C_i = The current CumSum statistic.
- C_{i-1} = The previous CumSum statistic. For the first test, the CumSum statistic is 0 (i.e., $C_1 = 0$).
- X_i = The current emission test result for an individual engine.
- STD = Emission standard (or family emission limit, if applicable).

- (c) Use final deteriorated test results to calculate the variables in the equation in paragraph (b) of this section (see §1054.315(a)).
- (d) After each new test, recalculate the CumSum statistic.
- (e) If you test more than the required number of engines, include the results from these additional tests in the CumSum Equation.
- (f) After each test, compare the current CumSum statistic, C_i , to the recalculated Action Limit, H, defined as $H = 5.0 \times \sigma$.
- (g) If the CumSum statistic exceeds the Action Limit in two consecutive tests, the engine family fails the production-line testing requirements of this subpart. Tell us within ten working days if this happens. You may request to amend the application for certification to raise the FEL of the entire engine family as described in §1054.225(f).
- (h) If you amend the application for certification for an engine family under §1054.225, do not change any previous calculations of sample size or CumSum statistics for the model year.

§1054.320 What happens if one of my production-line engines fails to meet emission standards?

- (a) If you have a production-line engine with final deteriorated test results exceeding one or more emission standards (see §1054.315(a)), the certificate of conformity is automatically suspended for that failing engine. You must take the following actions before your certificate of conformity can cover that engine:
 - (1) Correct the problem and retest the engine to show it complies with all emission standards.
 - (2) Include the test results and describe the remedy for each engine in the written report required under §1054.345.
- (b) You may request to amend the application for certification to raise the FEL of the entire engine family at this point (see §1054.225).

§1054.325 What happens if an engine family fails the production-line testing requirements?

- (a) We may suspend your certificate of conformity for an engine family if it fails under §1054.315. The suspension may apply to all facilities producing engines from an engine family even if you find noncompliant engines only at one facility.
- (b) We will tell you in writing if we suspend your certificate in whole or in part. We will not suspend a certificate until at least 15 days after the engine family fails. The suspension is effective when you receive our notice.
- (c) Up to 15 days after we suspend the certificate for an engine family, you may ask for a hearing (see §1054.820). If we agree before a hearing occurs that we used erroneous information in deciding to suspend the certificate, we will reinstate the certificate.
- (d) Section 1054.335 specifies steps you must take to remedy the cause of the engine family's production-line failure. All the engines you have produced since the end of the last test period are presumed noncompliant and should be addressed in your proposed remedy. We may require you to apply the remedy to engines produced earlier if we determine that the cause of the failure is likely to have affected the earlier engines.

(e) You may request to amend the application for certification to raise the FEL of the engine family before or after we suspend your certificate as described in §1054.225(f). We will approve your request if the failure is not caused by a defect and it is clear that you used good engineering judgment in establishing the original FEL.

§1054.330 May I sell engines from an engine family with a suspended certificate of conformity?

You may sell engines that you produce after we suspend the engine family's certificate of conformity under §1054.315 only if one of the following occurs:

- (a) You test each engine you produce and show it complies with emission standards that apply.
- (b) We conditionally reinstate the certificate for the engine family. We may do so if you agree to recall all the affected engines and remedy any noncompliance at no expense to the owner if later testing shows that the engine family still does not comply.

§1054.335 How do I ask EPA to reinstate my suspended certificate?

- (a) Send us a written report asking us to reinstate your suspended certificate. In your report, identify the reason for noncompliance, propose a remedy for the engine family, and commit to a date for carrying it out. In your proposed remedy include any quality control measures you propose to keep the problem from happening again.
- (b) Give us data from production-line testing that shows the remedied engine family complies with all the emission standards that apply.

§1054.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?

- (a) We may revoke your certificate for an engine family in the following cases:
 - (1) You do not meet the reporting requirements.
 - (2) Your engine family fails to comply with the requirements of this subpart and your proposed remedy to address a suspended certificate under §1054.335 is inadequate to solve the problem or requires you to change the engine's design or emission control system.
- (b) To sell engines from an engine family with a revoked certificate of conformity, you must modify the engine family and then show it complies with the requirements of this part.
 - (1) If we determine your proposed design change may not control emissions for the engine's full useful life, we will tell you within five working days after receiving your report. In this case we will decide whether production-line testing will be enough for us to evaluate the change or whether you need to do more testing.
 - (2) Unless we require more testing, you may show compliance by testing production-line engines as described in this subpart.
 - (3) We will issue a new or updated certificate of conformity when you have met these requirements.

§1054.345 What production-line testing records must I send to EPA?

- (a) Within 45 days of the end of each test period, send us a report with the following information:
 - (1) Describe any facility used to test production-line engines and state its location.
 - (2) State the total U.S.-directed production volume and number of tests for each engine family.
 - (3) Describe how you randomly selected engines.
 - (4) Describe each test engine, including the engine family's identification and the engine's model year, build date, model number, identification number, and number of hours of operation before testing.
 - (5) Identify how you accumulated hours of operation on the engines and describe the procedure and schedule you used.
 - (6) Provide the test number; the date, time and duration of testing; test procedure; all initial test results; final test results; and final deteriorated test results for all tests. Provide the emission results for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.

- (7) Describe completely and justify any nonroutine adjustment, modification, repair, preparation, maintenance, or test for the test engine if you did not report it separately under this subpart. Include the results of any emission measurements, regardless of the procedure or type of engine.
 - (8) Provide the CumSum analysis required in §1054.315 and the sample-size calculation required in §1054.310 for each engine family.
 - (9) Report on each failed engine as described in §1054.320.
 - (10) State the date the test period ended for each engine family.
- (b) We may ask you to add information to your written report so we can determine whether your new engines conform with the requirements of this subpart. We may also ask you to send less information.
 - (c) An authorized representative of your company must sign the following statement:
We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1054. We have not changed production processes or quality-control procedures for test engines in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)
 - (d) Send electronic reports of production-line testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
 - (e) We will send copies of your reports to anyone from the public who asks for them. Section 1054.815 describes how we treat information you consider confidential.

§1054.350 What records must I keep?

- (a) Organize and maintain your records as described in this section. We may review your records at any time.
- (b) Keep paper or electronic records of your production-line testing for eight years after you complete all the testing required for an engine family in a model year.
- (c) Keep a copy of the written reports described in §1054.345.
- (d) Keep the following additional records:
 - (1) A description of all test equipment for each test cell that you can use to test production-line engines.
 - (2) The names of supervisors involved in each test.
 - (3) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test engine and the names of all supervisors who oversee this work.
 - (4) If you shipped the engine for testing, the date you shipped it, the associated storage or port facility, and the date the engine arrived at the testing facility.
 - (5) Any records related to your production-line tests that are not in the written report.
 - (6) A brief description of any significant events during testing not otherwise described in the written report or in this section.
 - (7) Any information specified in §1054.345 that you do not include in your written reports.
- (e) If we ask, you must give us a more detailed description of projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce engines at more than one plant).
- (f) Keep records of the engine identification number for each engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.
- (g) We may ask you to keep or send other information necessary to implement this subpart.

Subpart E—In-use Testing

§1054.401 General provisions.

We may perform in-use testing of any engines or equipment subject to the standards of this part. We will consult with you as needed for information or special equipment related to testing your engines.

Subpart F—Test Procedures

§1054.501 How do I run a valid emission test?

(a) Applicability. This subpart is addressed to you as a manufacturer but it applies equally to anyone who does testing for you, and to us when we perform testing to determine if your engines or equipment meet emission standards.

(b) General requirements. Use the equipment and procedures for spark-ignition engines in 40 CFR part 1065 to determine whether engines meet the exhaust emission standards, as follows:

(1) Measure the emissions of all regulated pollutants as specified in §1054.505 and 40 CFR part 1065. See §1054.650 for special provisions that apply for variable-speed engines (including engines shipped without governors).

(2) Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the testing we require in this part. Except as specified in paragraph (d) of this section, use gasoline meeting the specifications described in 40 CFR 1065.710 for general testing. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use. You may alternatively use gasoline blended with ethanol as follows:

(i) For handheld engines, you may use the ethanol-blended fuel for certifying engines under this part without our advance approval. If you use the blended fuel for certifying a given engine family, you may also use it for production-line testing or any other testing you perform for that engine family under this part. If you use the blended fuel for certifying a given engine family, you may use the blended fuel or the specified gasoline test fuel with that engine family.

(ii) For nonhandheld engines, you may use the blended fuel for certifying engines under this part without our advance approval. If you use the blended fuel for certifying a given engine family, you must also use it for production-line testing or any other testing you perform for that engine family under this part. If the certification of all your Class I (or Class II) engine families in a given model year is based on test data collected using the blended fuel, we will also use the blended fuel for testing your Class I (or Class II) engines. If the certification of some but not all of your Class I (or Class II) engine families in a given model year is based on test data collected using the blended fuel, we may use the blended fuel or the specified gasoline test fuel for testing any of your Class I (or Class II) engines.

(iii) The blended fuel must consist of a mix of gasoline meeting the specifications described in 40 CFR 1065.710 for general testing and fuel-grade ethanol meeting the specifications described in 40 CFR 1060.501(c) such that the blended fuel has 10.0 \pm 1.0 percent ethanol by volume. You may also use ethanol with a higher or lower purity if you show us that it will not affect your ability to demonstrate compliance with the applicable emission standards. You do not need to measure the ethanol concentration of such blended fuels and may instead calculate the blended composition by assuming that the ethanol is pure and mixes perfectly with the base fuel.

(iv) You may ask to use the provisions of this paragraph (b)(2) for a blended test fuel containing less than 10 percent ethanol if your engine is subject to emission standards from other organizations that specify testing with that fuel. If we approve testing with such a fuel, we may test your engines with that test fuel, with gasoline, or with a 10-percent ethanol blend.

(3) Ambient conditions for duty-cycle testing must be within ranges specified in 40 CFR 1065.520, subject to the provisions of §1054.115(c).

(i) Corrections. Emissions may not be corrected for the effects of test temperature or pressure. You may correct emissions for humidity as specified in 40 CFR 1065.670.

(ii) Intake air temperature. Measure engine intake air temperature as described in 40 CFR 1065.125, and control it if necessary, consistent with good engineering judgment. For example,

since the purpose of this requirement is to ensure that the measured air temperature is consistent with the intake air temperature that would occur during in-use operation at the same ambient temperature, do not cool the intake air and do not measure air temperature at a point where engine heat affects the temperature measurement.

(4) The provisions of 40 CFR 1065.405 describes how to prepare an engine for testing. However, you may consider emission levels stable without measurement after 12 hours of engine operation, except for the following special provisions that apply for engine families with a useful life of 300 hours or less:

(i) We will not approve a stabilization period longer than 12 hours even if you show that emissions are not yet stabilized.

(ii) Identify the number of hours you use to stabilize engines for low-hour emission measurements. You may consider emissions stable at any point less than 12 hours. For example, you may choose a point at which emission levels reach a low value before the effects of deterioration are established.

(5) Prepare your engines for testing by installing a governor that you normally use on production engines, consistent with §§1054.235(b) and 1054.505.

(6) During testing, supply the engine with fuel in a manner consistent with how it will be supplied with fuel in use. If you sell engines with complete fuel systems and your production engines will be equipped with a vapor line that routes running loss vapors into the engine's intake system, measure exhaust emissions using a complete fuel system representing a production configuration that sends fuel vapors to the test engine's intake system in a way that represents the expected in-use operation. You may alternatively demonstrate by engineering analysis that your engines will continue to meet emission standards for any amount of running loss vapor that can reasonably be expected during in-use operation.

(7) Determine the carbon mass fraction of fuel, w_c , using a calculation based on measured fuel properties as described in 40 CFR 1065.655(d)(1). You may not use the default values specified in 40 CFR 1065.655(d)(2).

(c) Special and alternate procedures. You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10. The following additional provisions apply:

(1) If you are unable to run the test cycle specified in this part for your engine, use an alternate test cycle that will result in a cycle-weighted emission measurement equivalent to the expected average in-use emissions. This cycle must be approved under 40 CFR 1065.10.

(2) Describe in your application for certification any specially designed fixtures or other hardware if they are needed for proper testing of your engines. (Note: You do not need to specify the size or performance characteristics of engine dynamometers.) You must send us these fixtures or other hardware if we ask for them. We may waive the requirement of §1054.205(aa) to identify a test facility in the United States for such engine families as long as the projected U.S.-directed production volume of all your engine families using the provisions of this paragraph (c)(2) is less than 5 percent of your total production volume from all engine families certified under this part 1054.

(d) Wintertime engines. You may test wintertime engines at the ambient temperatures specified in 40 CFR 1065.520, even though this does not represent in-use operation for these engines (40 CFR 1065.10(c)(1)). In this case, you may use good engineering judgment to modify the test engine as needed to achieve intake temperatures that are analogous to in-use conditions. You may also test wintertime engines at reduced ambient temperatures as specified in 40 CFR 1051.505. Use the gasoline specified for low-temperature testing only if you test your engines at ambient temperatures below 20°C.

§1054.505 How do I test engines?

(a) This section describes how to test engines under steady-state conditions. For handheld engines you must perform tests with discrete-mode sampling. For nonhandheld engines we allow you to perform tests with either discrete-mode or ramped-modal testing methods. You must use the same modal testing method for certification and all other testing you perform for an engine family. If we test your engines to confirm that they meet emission standards, we will use the modal testing method you select for your own

testing. If you submit certification test data collected with both discrete-mode and ramped-modal testing (either in your original application or in an amendment to your application), either method may be used for subsequent testing. We may also perform other testing as allowed by the Clean Air Act. Conduct duty-cycle testing as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute. Control engine speed as specified in this section. Use one of the following methods for confirming torque values for nonhandheld engines:

(i) Calculate torque-related cycle statistics and compare with the established criteria as specified in 40 CFR 1065.514 to confirm that the test is valid.

(ii) Evaluate each mode separately to validate the duty cycle. All torque feedback values recorded during non-idle sampling periods must be within ± 2 percent of the reference value or within ± 0.27 N·m of the reference value, whichever is greater. Also, the mean torque value during non-idle sampling periods must be within ± 1 percent of the reference value or ± 0.12 N·m of the reference value, whichever is greater. Control torque during idle as specified in paragraph (c) of this section.

(2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing as specified in 40 CFR part 1065. Unless we specify otherwise, you may simulate the governor for ramped-modal testing consistent with good engineering judgment.

(b) Measure emissions by testing the engine on a dynamometer with the test procedures for constant-speed engines in 40 CFR part 1065 while using one of the steady-state duty cycles identified in this paragraph (b) to determine whether it meets the exhaust emission standards specified in §1054.101(a). This requirement applies for all engines, including those not meeting the definition of “constant-speed engine” in 40 CFR 1065.1001.

(1) For handheld engines, use the two-mode duty cycle described in paragraph (a) of Appendix II of this part. Establish an engine’s rated speed as follows:

(i) For ungoverned handheld engines used in fixed-speed applications all having approximately the same nominal in-use operating speed, hold engine speed within 350 rpm of the nominal speed for testing. We may allow you to include in your engine family without additional testing a small number engines that will be installed such that they have a different nominal speed. If your engine family includes a majority of engines with approximately the same nominal in-use operating speed and a substantial number of engines with different nominal speeds, you must test engines as specified in this paragraph (b)(1)(i) and paragraph (b)(1)(ii) of this section.

(ii) For ungoverned handheld engines for which there is not a dominant value for nominal in-use operating speeds, hold engine speed within 350 rpm of the point at which the engine generates maximum power.

(iii) For governed handheld engines, hold engine speed at maximum test speed, as defined in 40 CFR 1065.1001.

(2) For nonhandheld engines, use the six-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (b) of Appendix II of this part. Control engine speeds and torques during idle mode as specified in paragraph (c) of this section and during full-load operating modes as specified in paragraph (d) of this section. For all other modes, control torque as needed to meet the cycle-validation criteria in 40 CFR 1065.514; control the engine speed to within 5 percent of the nominal speed specified in paragraph (d) of this section or let the installed governor (in the production configuration) control engine speed. The governor may be adjusted before emission sampling to target the nominal speed identified in paragraph (d) of this section, but the installed governor must control engine speed throughout the emission-sampling period whether the governor is adjusted or not. Note that ramped-modal testing involves continuous sampling, so governor adjustments may not occur during such a test. Note also that our testing may involve running the engine with the governor

in the standard configuration even if you adjust the governor as described in this paragraph (a)(2) for certification or production-line testing.

- (c) During idle mode for nonhandheld engines, operate the engine with the following parameters:
 - (1) Allow the engine to operate at the idle speed determined by the installed governor. If any production engines from the engine family have a user-selectable idle speed, operate the engine with an installed governor that controls engine speed to the lowest available speed setting.
 - (2) Keep engine torque under 5 percent of the nominal torque value for Mode 1.
 - (3) You must conduct testing at the idle mode even if the allowable torque values overlap with those for another specified mode.
- (d) During full-load operation for nonhandheld engines, operate the engine with the following parameters:
 - (1) In normal circumstances, select a test speed of either 3060 rpm or 3600 rpm that is most appropriate for the engine family. If all the engines in the engine family are used in intermediate-speed equipment, select a test speed of 3060 rpm. The test associated with intermediate-speed operation is referred to as the A Cycle. If all the engines in the engine family are used in rated-speed equipment, select a test speed of 3600 rpm. The test associated with rated-speed operation is referred to as the B Cycle. If an engine family includes engines used in both intermediate-speed equipment and rated-speed equipment, select the test speed for emission-data engines that will result in worst-case emissions. In unusual circumstances, you may ask to use a test speed different than that specified in this paragraph (d)(1) if it better represents in-use operation.
 - (2) Operate the engine ungoverned at wide-open throttle at the test speed established in paragraph (d)(1) of this section until the engine reaches thermal stability as described in 40 CFR 1065.530(a)(2)(ii). Record the torque value after stabilization. Use this value for the full-load torque setting and for denormalizing the rest of the duty cycle.
 - (3) Control engine speed during emission sampling to stay within 5 percent of the nominal speed identified in paragraph (d)(1) of this section.
 - (4) The provisions of this paragraph (d) apply instead of the engine mapping procedures in 40 CFR 1065.510.
- (e) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

§1054.520 What testing must I perform to establish deterioration factors?

Sections 1054.240 and 1054.245 describe the required methods for testing to establish deterioration factors for an emission family.

Subpart G—Special Compliance Provisions

§1054.601 What compliance provisions apply to these engines?

- (a) Engine and equipment manufacturers, as well as owners, operators, and rebuilders of engines subject to the requirements of this part, and all other persons, must observe the provisions of this part, the requirements and prohibitions in 40 CFR part 1068, and the provisions of the Clean Air Act.
- (b) Note that the provisions of 40 CFR 1068.103(f) prohibit engine manufacturers from deviating from normal production and inventory practices to stockpile engines with a date of manufacture before new or changed emission standards take effect. If your normal practice for producing engines subject to this part 1054 includes maintaining engines in inventory for some engine families for more than 12 months, you must get our prior approval to continue this practice for model years in which emission standards change. Include in your request information showing that this is necessary and it is consistent with your normal business practice. Unless we specify otherwise, include relevant inventory and production records from the preceding eight years. Note that 40 CFR 1068.103(f) applies to any engines inventoried beyond your normal practice and authorizes us to review your records to verify your normal practices, whether or not you maintain the engines in inventory for more than 12 months.

§1054.610 What is the exemption for delegated final assembly?

The provisions of 40 CFR 1068.261 related to delegated final assembly do not apply for handheld engines certified under this part 1054. The provisions of 40 CFR 1068.261 apply for nonhandheld engines, with the following exceptions and clarifications:

(a) Through the 2014 model year, you may use the provisions of this section for engines you sell to a distributor, where you establish a contractual arrangement in which you designate the distributor to be your agent in all matters related to compliance with the requirements of this section. Identify each of the distributors you intend to designate as your agent under this paragraph (a) in your application for certification. You may continue to use the provisions of this paragraph (a) this for later model years for specific distributors if we approve it based on your clear and convincing demonstration that each distributor can be expected to comply fully with the requirements of this section and 40 CFR 1068.261. We may set additional conditions beyond the provisions specified in this section to ensure that all engines will be in a certified configuration when installed by the equipment manufacturer.

(b) If you identify distributors as your agents under paragraph (a) of this section, you must perform or arrange for audits of all participating distributors and equipment manufacturers based on the following auditing rate instead of the provisions specified in 40 CFR 1068.261(d)(3)(i) and (ii):

(1) If you sell engines to 48 or more equipment manufacturers under the provisions of this section, you must annually perform or arrange for audits of twelve equipment manufacturers to whom you sell engines under this section. To select individual equipment manufacturers, divide all the affected equipment manufacturers into quartiles based on the number of engines they buy from you; select equal numbers of equipment manufacturers from each quartile each model year as much as possible. Vary the equipment manufacturers selected for auditing from year to year, though audits may be repeated in later model years if you find or suspect that a particular equipment manufacturer is not properly installing aftertreatment devices.

(2) If you sell engines to fewer than 48 equipment manufacturers under the provisions of this section, set up a plan to perform or arrange for audits of each equipment manufacturer on average once every four model years.

§1054.612 What special provisions apply for equipment manufacturers modifying certified nonhandheld engines?

The provisions of this section apply for all emission families through the 2014 model year; starting with the 2015 model year, these provisions are limited to small-volume emission families.

(a) General provisions. If you buy certified nonhandheld engines for installation in equipment you produce, but you install the engines such that they use intake or exhaust systems that are not part of the originally certified configuration, you become the engine manufacturer for those engines and must certify that they will meet emission standards. We will allow you to utilize the provisions for simplified certification specified in paragraph (b) of this section, as long as your design stays within the overall specifications from the original engine manufacturer (such as exhaust backpressure) and you use a catalyst as described in the original engine manufacturer's application for certification.

(b) Simplified certification. You must perform testing with an emission-data engine to show that you meet exhaust emission standards; however, you may use the deterioration factor from the original engine manufacturer. The production-line testing requirements in subpart D of this part do not apply for engines certified under this section. You must meet all the other requirements that apply to engine manufacturers for engines subject to standards under this part. The engine family must have the same useful life value specified by the original engine manufacturer for that engine. In your application for certification describe any differences between the original engine manufacturer's design and yours and explain why the deterioration data generated by the original engine manufacturer is appropriate for your configuration.

(c) Engine exemption. As an engine manufacturer, you may produce nonconforming engines for equipment manufacturers as allowed under this section. You do not have to request this exemption for your engines, but you must have written assurance from equipment manufacturers that they need a certain number of exempted engines under this section. Add a removable label to the engines as described in 40 CFR 1068.262.

§1054.615 What is the exemption for engines certified to standards for Large SI engines?

- (a) An engine is exempt from the requirements of this part if it is in an emission family that has a valid certificate of conformity showing that it meets emission standards and other requirements under 40 CFR part 1048 for the appropriate model year.
- (b) The only requirements or prohibitions from this part that apply to an engine that is exempt under this section are in this section.
- (c) If your engines do not have the certificate required in paragraph (a) of this section, they will be subject to the provisions of this part. Introducing these engines into U.S. commerce without a valid exemption or certificate of conformity violates the prohibitions in 40 CFR 1068.101(a).
- (d) Engines exempted under this section are subject to all the requirements affecting engines under 40 CFR part 1048, including evaporative emission standards. The requirements and restrictions of 40 CFR part 1048 apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as if these were nonroad spark-ignition engines above 19 kW.
- (e) Engines exempted under this section may not generate or use emission credits under this part 1054.

§1054.620 What are the provisions for exempting engines used solely for competition?

The provisions of this section apply for new engines and equipment built on or after January 1, 2010.

- (a) We may grant you an exemption from the standards and requirements of this part for a new engine on the grounds that it is to be used solely for competition. The requirements of this part, other than those in this section, do not apply to engines that we exempt for use solely for competition.
- (b) We will exempt engines that we determine will be used solely for competition. The basis of our determination is described in paragraphs (c) and (d) of this section. Exemptions granted under this section are good for only one model year and you must request renewal for each subsequent model year. We will not approve your renewal request if we determine the engine will not be used solely for competition.
- (c) Engines meeting all the following criteria are considered to be used solely for competition:
 - (1) Neither the engine nor any equipment containing the engine may be displayed for sale in any public dealership or otherwise offered for sale to the general public. Note that this does not preclude display of these engines as long as they are not available for sale to the general public.
 - (2) Sale of the equipment in which the engine is installed must be limited to professional competition teams, professional competitors, or other qualified competitors. For replacement engines, the sale of the engine itself must be limited to professional racing teams, professional racers, other qualified racers, or to the original equipment manufacturer.
 - (3) The engine and the equipment in which it is installed must have performance characteristics that are substantially superior to noncompetitive models.
 - (4) The engines are intended for use only as specified in paragraph (e) of this section.
- (d) You may ask us to approve an exemption for engines not meeting the criteria listed in paragraph (c) of this section as long as you have clear and convincing evidence that the engines will be used solely for competition.
- (e) Engines are considered to be used solely for competition only if their use is limited to competition events sanctioned by a state or federal government agency or another widely recognized public organization with authorizing permits for participating competitors. Operation of such engines may include only racing events, trials to qualify for racing events, and practice associated with racing events. Authorized attempts to set speed records are also considered racing events. Engines will not be considered to be used solely for competition if they are ever used for any recreational or other noncompetitive purpose. Any use of exempt engines in recreational events is a violation of 40 CFR 1068.101(b)(4).
- (f) You must permanently label engines exempted under this section to clearly indicate that they are to be used only for competition. Failure to properly label an engine will void the exemption for that engine.

(g) If we request it, you must provide us any information we need to determine whether the engines are used solely for competition. This would generally include documentation regarding the number of engines and the ultimate purchaser of each engine as well as any documentation showing an equipment manufacturer's request for an exempted engine. Keep these records for five years.

§1054.625 What requirements apply under the Transition Program for Equipment Manufacturers?

The provisions of this section allow equipment manufacturers to produce equipment with Class II engines that are subject to less stringent exhaust emission standards after the Phase 3 emission standards begin to apply. To be eligible to use these provisions, you must follow all the instructions in this section. See §1054.626 for requirements that apply specifically to companies that manufacture equipment outside the United States and to companies that import such equipment without manufacturing it. Engines and equipment you produce under this section are exempt from the prohibitions in 40 CFR 1068.101(a)(1) with respect to exhaust emissions, subject to the provisions of this section. Except as specified in paragraph (e) of this section, equipment exempted under this section must meet all applicable requirements related to evaporative emissions.

(a) General. If you are an equipment manufacturer, you may introduce into U.S. commerce limited numbers of nonroad equipment with Class II engines exempted under this section. You may use the exemptions in this section only if you have primary responsibility for designing and manufacturing equipment and your manufacturing procedures include installing some engines in this equipment. Consider all U.S.-directed equipment production in showing that you meet the requirements of this section, including those from any parent or subsidiary companies and those from any other companies you license to produce equipment for you. If you produce a type of equipment that has more than one engine, count each engine separately. These provisions are available during the first four model years that the Phase 3 exhaust emission standards apply.

(b) Allowances. Calculate how many pieces of equipment with exempted engines you may produce under this section by determining your U.S.-directed production volume of equipment with Class II engines from January 1, 2007 through December 31, 2009, calculating your annual average production for this period, and multiplying the average value by 0.3. The same calculation applies for small-volume equipment manufacturers, except that average annual production is multiplied by 2.0. For companies with no eligible production in a given year, calculate annual average production based only on those years in which you produce equipment during the specified period with Class II engines for sale in the United States. Use these allowances for equipment using model year 2011 and later Class II engines. You may use these allowances for equipment you produce before December 31, 2014.

(c) Access to exempted engines. You may use one of the following approaches to get exempted engines under this section:

(1) Request a certain number of exempted Class II engines from the engine manufacturer as described in paragraph (j)(1) of this section.

(2) You may make arrangements with the engine manufacturer to receive an engine without an exhaust system and install exhaust systems without aftertreatment that would otherwise be required to meet Phase 3 standards, as described in paragraph (j)(2) of this section. You must follow the engine manufacturer's instructions for installing noncatalyzed mufflers. You must keep records to show which engines you modify as described in this paragraph (c)(2) and make them available to the engine manufacturer for any auditing under the provisions of §1054.610. If you do not place the label we specify in paragraph (f) of this section adjacent to the engine manufacturer's emission control information label, you must place an additional permanent label as close as possible to the engine's emission control information label where it will be readily visible in the final installation with at least the following items:

(i) Your corporate name and trademark.

(ii) The following statement: "THIS ENGINE MEETS PHASE 2 STANDARDS UNDER §1054.625(c)(2)."

(d) Inclusion of engines not subject to Phase 3 standards. The following provisions apply to engines that are not subject to Phase 3 standards:

(1) If you use the provisions of 40 CFR 1068.105(a) to use up your inventories of engines not certified to new emission standards, do not include these units in your count of equipment with exempted engines under paragraph (g)(2) of this section.

(2) If you install engines that are exempted from the Phase 3 standards for any reason, other than for equipment-manufacturer allowances under this section, do not include these units in your count of equipment with exempted engines under paragraph (g)(2) of this section. For example, if we grant a hardship exemption for the engine manufacturer, you may count these as compliant engines under this section. This paragraph (d)(2) applies only if the engine has a permanent label describing why it is exempted from the Phase 3 standards.

(e) Standards. If you produce equipment with exempted engines under this section, the engines must meet the Phase 2 emission standards specified in 40 CFR part 90. Any equipment using exempted engines under this section is also exempt from the running loss standard specified in §1054.112.

(f) Equipment labeling. You must add a permanent label, written legibly in English, to the engine or another readily visible part of each piece of equipment with exempted engines you produce under this section. This label, which supplements the engine manufacturer's emission control information label, must include at least the following items:

(1) The label heading "EMISSION CONTROL INFORMATION".

(2) Your corporate name and trademark.

(3) The calendar year in which the equipment is manufactured.

(4) An e-mail address and phone number to contact for further information, or a website that includes this contact information.

(5) The following statement:

THIS EQUIPMENT [or identify the type of equipment] HAS AN ENGINE THAT MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1054.625.

(g) Notification and reporting. You must notify us of your intent to produce equipment under the provisions of this section and send us an annual report to verify that you are not exceeding the production limits for equipment with exempted engines, as follows:

(1) Send the Designated Compliance Officer a written notice of your intent before you use the provisions of this section including all the following:

(i) Your company's name and address, and your parent company's name and address, if applicable. Also identify the names of any other companies operating under the same parent company.

(ii) The name, phone number and e-mail address of a person to contact for more information.

(iii) The calendar years in which you expect to use the exemption provisions of this section.

(iv) The name and address of each company you expect to produce engines for the equipment you manufacture under this section.

(v) How many pieces of equipment with exempted engines you may sell under this section, as described in paragraph (b) of this section. Include your production figures for the period from January 1, 2007 through December 31, 2009, including figures broken down by equipment model and calendar year. You may send corrected figures with lower production volumes anytime after your initial notification. To make a correction for higher production volumes, send us the corrected figures by September 30, 2010. We may ask you to give us additional information to confirm your production figures.

(2) For each year that you use the provisions of this section, send the Designated Compliance Officer a written report by March 31 of the following year. Identify the following things in your report:

(i) The total count of equipment with exempted engines you sold in the preceding year, based on actual U.S.-directed production information. If you produce equipment in the 2010 calendar year with exempted engines from the 2011 model year, include these units in your March 31, 2012 report.

- (ii) Cumulative figures describing how many pieces of equipment with exempted engines you have produced for all the years you used the provisions of this section.
- (iii) The manufacturer of the engine installed in the equipment you produce under this section, if this is different than you specified under paragraph (g)(1)(iv) of this section.
- (3) If you send your initial notification under paragraph (g)(1) of this section after the specified deadline, we may approve your use of allowances under this section. In your request, describe why you were unable to meet the deadline.
- (h) Recordkeeping. Keep the following records of all equipment with exempted engines you produce under this section until at least December 31, 2019:
 - (1) The model number for each piece of equipment.
 - (2) Detailed figures for determining how many pieces of equipment with exempted engines you may produce under this section, as described in paragraph (b) of this section.
 - (3) The notifications and reports we require under paragraph (g) of this section.
- (i) Enforcement. Producing more exempted engines or equipment than we allow under this section or installing engines that do not meet the emission standards of paragraph (e) of this section violates the prohibitions in 40 CFR 1068.101(a)(1). You must give us the records we require under this section if we ask for them (see 40 CFR 1068.101(a)(2)).
- (j) Provisions for engine manufacturers. As an engine manufacturer, use one of the following approaches to produce exempted engines under this section:
 - (1) The provisions of this paragraph (j)(1) apply if you do not use the delegated-assembly provisions of §1054.610 for any of the engines in an engine family. You must have written assurance from equipment manufacturers or your authorized distributors that they need a certain number of exempted engines under this section. Keep these records for at least five years after you stop producing engines under this section. You must also send us an annual report of the engines you produce under this section, as described under §1054.250(a). The engines must meet the emission standards in paragraph (e) of this section and you must meet all the requirements of 40 CFR 1068.265. You must meet the labeling requirements in 40 CFR 90.114, but add the following statement instead of the compliance statement in 40 CFR 90.114(b)(7): **THIS ENGINE MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1054.625 AND MUST BE USED ONLY UNDER THOSE FLEXIBILITY PROVISIONS.**
 - (2) The following provisions apply if you notify us that you plan to use the delegated-assembly provisions of §1054.610 for one or more equipment manufacturers for an engine family:
 - (i) Include test data in your application for certification showing that your engines will meet the standards specified in paragraph (e) of this section if they have a noncatalyzed muffler in place of the aftertreatment that is part of the certified configuration. Use good engineering judgment for these measurements, which may involve sampling exhaust upstream of the catalyst or operating the engine with a noncatalyzed muffler. This may be based on emission measurements from previous model years if the data is still appropriate for the current engine configuration.
 - (ii) Produce all your engines with the emission control information label we specify in §1054.135. The engines must also be labeled as specified in 40 CFR 1068.261.
 - (iii) Include in the installation instructions required under §1054.610 any appropriate instructions or limitations on installing noncatalyzed mufflers to ensure that the fully assembled engine will meet the emission standards specified in paragraph (e) of this section. You may identify an appropriate range of backpressures, but this may not involve any instructions related to changing the fuel system for different fueling rates.
 - (iv) Use one of the following approaches to properly account for emission credits if your engine family generates exhaust emission credits under subpart H of this part:
 - (A) Multiply the credits calculated under §1054.705 by 0.9. This is based on the expectation that equipment manufacturers will modify 10 percent of the engines to no longer meet Phase 3 standards.
 - (B) Include in your emission-credit calculations only those engines for which you can establish that the equipment manufacturer did not use the provisions of this section. This

would involve an evaluation for each affected equipment manufacturer. For example, under this provision you may count emission credits for engines that you sell to equipment manufacturers with which you have no contract for delegated assembly. You may also count emission credits for engines that you sell to equipment manufacturers with which you have a delegated-assembly relationship if you confirm that the equipment manufacturer did not use the provisions of this section for those engines.

(k) Additional exemptions for mid-sized companies. If your annual production of equipment with Class II engines in 2007, 2008, and 2009 is between 5,000 and 50,000 units, you may request additional engine allowances under this section. To do this, notify us by January 31, 2010 if you believe the provisions of this section will not allow you to sell certain equipment models starting in the 2011 model year. In your notification, show us that you will be able to produce a number of Class II equipment models representing at least half your total U.S.-directed production volume in the 2011 model year that will be compliant with all Phase 3 exhaust and evaporative emission standards. Also describe why you need more allowances under this section to accommodate anticipated changes in engine designs resulting from engine manufacturers' compliance with changing exhaust emission standards. Include a proposal for the number of additional allowances you would need, with supporting rationale. We may approve allowances up to a total of 100 percent of the average annual U.S.-directed production volume you report under paragraph (b) of this section (in place of the 30 percent that is otherwise allowed).

§1054.626 What special provisions apply to equipment imported under the Transition Program for Equipment Manufacturers?

This section describes requirements that apply to equipment manufacturers using the provisions of §1054.625 for equipment produced outside the United States. Note that §1054.625 limits these provisions to equipment manufacturers that install some engines and have primary responsibility for designing and manufacturing equipment. Companies that import equipment into the United States without meeting these criteria are not eligible for allowances under §1054.625. Such importers may import equipment with exempted engines only as described in paragraph (b) of this section.

(a) You or someone else may import your equipment with exempted engines under this section if you comply with the provisions in §1054.625 and commit to the following:

(1) Give any EPA inspector or auditor complete and immediate access to inspect and audit, as follows:

(i) Inspections and audits may be announced or unannounced.

(ii) Inspections and audits may be performed by EPA employees or EPA contractors.

(iii) You must provide access to any location where—

(A) Any nonroad engine, equipment, or vehicle is produced or stored.

(B) Documents related to manufacturer operations are kept.

(C) Equipment, engines, or vehicles are tested or stored for testing.

(iv) You must provide any documents requested by an EPA inspector or auditor that are related to matters covered by the inspections or audit.

(v) EPA inspections and audits may include review and copying of any documents related to demonstrating compliance with the exemptions in §1054.625.

(vi) EPA inspections and audits may include inspection and evaluation of complete or incomplete equipment, engines, or vehicles, and interviewing employees.

(vii) You must make any of your employees available for interview by the EPA inspector or auditor, on request, within a reasonable time period.

(viii) You must provide English language translations of any documents to an EPA inspector or auditor, on request, within 10 working days.

(ix) You must provide English-language interpreters to accompany EPA inspectors and auditors, on request.

(2) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

(3) The forum for any civil or criminal enforcement action related to the provisions of this section for violations of the Clean Air Act or regulations promulgated thereunder shall be governed by the Clean Air Act.

(4) The substantive and procedural laws of the United States shall apply to any civil or criminal enforcement action against you or any of your officers or employees related to the provisions of this section.

(5) Provide the notification required by §1054.625(g). Include in the notice of intent in §1054.625(g)(1) a commitment to comply with the requirements and obligations of §1054.625 and this section. This commitment must be signed by the owner or president.

(6) You, your agents, officers, and employees must not seek to detain or to impose civil or criminal remedies against EPA inspectors or auditors, whether EPA employees or EPA contractors, for actions performed within the scope of EPA employment related to the provisions of this section.

(7) By submitting notification of your intent to use the provisions of §1054.625, producing and exporting for resale to the United States nonroad equipment under this section, or taking other actions to comply with the requirements of this part, you, your agents, officers, and employees, without exception, become subject to the full operation of the administrative and judicial enforcement powers and provisions of the United States as described in 28 U.S.C. 1605(a)(2), without limitation based on sovereign immunity, for conduct that violates the requirements applicable to you under this part 1054—including such conduct that violates 18 U.S.C. 1001, 42 U.S.C. 7413(c)(2), or other applicable provisions of the Clean Air Act—with respect to actions instituted against you and your agents, officers, and employees in any court or other tribunal in the United States.

(8) Any report or other document you submit to us must be in the English language or include a complete translation in English.

(9) You may be required to post a bond to cover any potential enforcement actions under the Clean Air Act before you or anyone else imports your equipment with exempted engines under this section, as specified in §1054.690. Use the bond amount specified in §1054.690 without adjusting for inflation. Note that you may post a single bond to meet the requirements of this section and §1054.690 together.

(b) The provisions of this paragraph (b) apply to importers that do not install engines into equipment and do not have primary responsibility for designing and manufacturing equipment. Such importers may import equipment with engines exempted under §1054.625 only if each engine is exempted under an allowance provided to an equipment manufacturer meeting the requirements of §1054.625 and this section. You must notify us of your intent to use the provisions of this section and send us an annual report, as follows:

(1) Notify the Designated Compliance Officer in writing before you use the provisions of §1054.625. Include the following information:

(i) Your company's name and address, and your parent company's name and address, if applicable.

(ii) The name and address of the companies that produce the equipment and engines you will be importing under this section.

(iii) Your best estimate of the number of units you will import under this section in the upcoming calendar year, broken down by equipment manufacturer.

(2) For each year that you use the provisions of this section, send the Designated Compliance Officer a written report by March 31 of the following year. Include in your report the total number of engines you imported under this section in the preceding calendar year, broken down by engine manufacturer and by equipment manufacturer.

§1054.630 What provisions apply for importation of individual items for personal use?

(a) Any individual may import previously used nonconforming engines for purposes other than resale, but no more than once in any five-year period. This may include up to three nonconforming engines imported at the same time. To import engines under this section, provide to the Customs official the following information:

- (1) Identify your name, address, and telephone number.
 - (2) If you are importing engines under this section on behalf of another person, identify the ultimate engine owner's name, address, and telephone number.
 - (3) Identify the total number of engines you are importing and specify the make, model, identification number, and original production year of each engine.
 - (4) State: "I am importing these previously used engines for personal use. I have not imported any engines under the provisions of 40 CFR 1054.630 within the previous five years. I am not importing these engines for purpose of resale. I authorize EPA enforcement officers to inspect my engines and my facilities as permitted by the Clean Air Act."
- (b) We may require you to send us additional information but you do not need written approval from us to import engines under this section. We will also not require a U.S. Customs Service bond for engines you import under this section.
- (c) The provisions of this section may not be used to circumvent emission standards that apply to new engines under this part. For example, you may not purchase new engines and use them in a trivial manner outside of the United States to qualify for importation under this section.
- (d) If you violate the provisions of this section, or submit false information to obtain this exemption, you will be subject to civil penalties as specified in 40 CFR 1068.101(a)(2) and (b)(5).

§1054.635 What special provisions apply for small-volume engine and equipment manufacturers?

This section describes how we apply the special provisions in this part for small-volume engine and equipment manufacturers.

- (a) If you qualify under paragraph (1) or (2) of the definition of small-volume engine manufacturer or under paragraph (1) or (2) of the definition of small-volume equipment manufacturer in §1054.801, the small-volume provisions apply as specified in this part.
- (b) If you are a small business (as defined by the Small Business Administration at 13 CFR 121.201) that manufactures nonroad spark-ignition engines or equipment, but you do not qualify under paragraph (1) or (2) of the definition of small-volume engine manufacturer or under paragraph (1) or (2) of the definition of small-volume equipment manufacturer in §1054.801, you may ask us to designate you to be a small-volume engine or equipment manufacturer. You may do this whether you began manufacturing engines before, during, or after 2007. We may set other reasonable conditions that are consistent with the intent of this section and the Clean Air Act.
- (c) Special provisions apply for small-volume engine and equipment manufacturers, as illustrated by the following examples:
 - (1) Additional lead time and other provisions related to the transition to new emission standards. See §1054.145.
 - (2) More flexible arrangements for creating engine families. See §1054.230.
 - (3) Assigned deterioration factors. See §1054.240.
 - (4) Waived requirements for production-line testing. See §1054.301.
 - (5) Streamlined certification provisions for equipment manufacturers relying on engine manufacturer's design parameters. See §1054.612.
 - (6) Additional allowances under the Transition Program for Equipment Manufacturers. See §1054.625.
 - (7) Additional special provisions apply for small-volume engine and equipment manufacturers under 40 CFR part 1068. For example, see 40 CFR 1068.250.
- (d) Small-volume engine and equipment manufacturers may ask us to waive or modify the requirements of §1054.690 if this would cause a serious economic hardship, as long as you demonstrate to us in some other way that you will meet any potential compliance- or enforcement-related obligations. In evaluating such a request, we would consider the extent to which there is a risk of noncompliance or nonconformity and the extent to which the manufacturer could be expected to fulfill future regulatory obligations and administrative judgments. We may also consider how many years the manufacturer has certified engines without a violation or a finding of noncompliance to determine whether to adjust applicable asset

thresholds or to reduce the minimum bond value. We may set other reasonable conditions to ensure that the manufacturer will meet applicable requirements.

(e) If you use any of the provisions of this part that apply specifically to small-volume manufacturers and we find that you exceed the production limits or otherwise do not qualify as a small-volume manufacturer, we may consider you to be in violation of the requirements that apply for companies that are not small-volume manufacturers for those engines produced in excess of the specified production limits. If you no longer qualify as a small-volume engine manufacturer (based on increased production volumes or other factors), we will work with you to determine a reasonable schedule for complying with additional requirements that apply. For example, if you no longer qualify as a small-volume engine manufacturer shortly before you certify your engines for the next model year, we might allow you to use assigned deterioration factors for one more model year.

§1054.640 What special provisions apply to branded engines?

The following provisions apply if you identify the name and trademark of another company instead of your own on your emission control information label, as provided by §1054.135(c)(2):

(a) You must have a contractual agreement with the other company that obligates that company to take the following steps:

(1) Meet the emission warranty requirements that apply under §1054.120. This may involve a separate agreement involving reimbursement of warranty-related expenses.

(2) Report all warranty-related information to the certificate holder.

(b) In your application for certification, identify the company whose trademark you will use.

(c) You remain responsible for meeting all the requirements of this chapter, including warranty and defect-reporting provisions.

§1054.645 What special provisions apply for converting an engine to use an alternate fuel?

A certificate of conformity is no longer valid for an engine if the engine is modified such that it is not in a configuration covered by the certificate. This section applies if such modifications are done to convert the engine to run on a different fuel type. Such engines may need to be recertified as specified in this section if the certificate is no longer valid for that engine.

(a) Converting a certified new engine to run on a different fuel type violates 40 CFR 1068.101(a)(1) if the modified engine is not covered by a certificate of conformity.

(b) Converting a certified engine that is not new to run on a different fuel type violates 40 CFR 1068.101(b)(1) if the modified engine is not covered by a certificate of conformity. We may specify alternate certification provisions consistent with the requirements of this part. For example, you may certify the modified engine for a partial useful life. For example, if the engine is modified halfway through its original useful life period, you may generally certify the engine based on completing the original useful life period; or if the engine is modified after the original useful life period is past, you may generally certify the engine based on testing that does not involve further durability demonstration.

(c) Engines may be certified using the certification procedures for new engines as specified in this part or using the certification procedures for aftermarket parts as specified in 40 CFR part 85, subpart V. Unless the original engine manufacturer continues to be responsible for the engine as specified in paragraph (d) of this section, you must remove the original engine manufacturer's emission control information label if you recertify the engine.

(d) The original engine manufacturer is not responsible for operation of modified engines in configurations resulting from modifications performed by others. In cases where the modification allows an engine to be operated in either its original configuration or a modified configuration, the original engine manufacturer remains responsible for operation of the modified engine in its original configuration.

(e) Entities producing conversion kits may obtain certificates of conformity for the converted engines. Such entities are engine manufacturers for purposes of this part.

§1054.650 What special provisions apply for adding or changing governors?

The special provisions in this section apply for engines that will not be governed to control engine speeds consistent with the constant-speed operation reflected by the duty cycles specified in §1054.505. We refer to these as constant-speed governors in this section. Paragraph (a) of this section also applies for any engines shipped without installed governors.

(a) The representative-testing requirements of 40 CFR 1065.10(c)(1) related to in-use duty cycles do not apply to engines you produce and ship without constant-speed governors if you comply with all the following requirements:

(1) You must have test data showing that the effectiveness of the engine's emission controls over the expected range of in-use operation will be similar to that measured over the specified duty cycle.

Alternatively, if your emission controls depend on maintaining a consistent air-fuel ratio, you may demonstrate that the engine is calibrated to maintain a consistent air-fuel ratio over the expected range of in-use operation.

(2) Describe in your application for certification the data and analysis that supports your conclusion.

(b) It is a violation of the tampering provisions in 40 CFR 1068.101(b)(1) to remove a governor from a certified engine unless you recertify the engine in the modified configuration.

§1054.655 What special provisions apply for installing and removing altitude kits?

An action for the purpose of installing or modifying altitude kits and performing other changes to compensate for changing altitude is not considered a prohibited act under 40 CFR 1068.101(b) as long as as it is done consistent with the manufacturer's instructions.

§1054.660 What are the provisions for exempting emergency rescue equipment?

The provisions of this section apply for new equipment built on or after January 1, 2010.

(a) Equipment manufacturers may introduce into U.S. commerce equipment that is not certified to current emission standards under the following conditions if the equipment will be used solely in emergency rescue situations:

(1) You must determine annually that no engines certified to current emission standards are available to power the equipment safely and practically. We may review your records supporting this determination at any time.

(2) You may not use exempted engines for the following equipment used to provide remote power to a rescue tool: generators, alternators, compressors, or pumps.

(3) If engines that meet less stringent emission standards are capable of powering your equipment safely and practically, you must use them as a condition of this exemption. You must use available engines meeting the most stringent standards feasible.

(4) You must send the engine manufacturer a written request for each exempted equipment model.

(5) You must notify the Designated Compliance Officer of your intent to use the provisions of this section. We may require you to notify us annually or to send us annual reports describing how you meet the conditions of this section.

(b) For the purposes of this section, "emergency rescue situations" means firefighting or other situations in which a person is retrieved from imminent danger.

(c) As an engine manufacturer, you may produce exempt engines under this section without our prior approval if you have a written request for an exempted engine for use in emergency rescue equipment from the equipment manufacturer. You must permanently label engines with the following statement: "EMERGENCY RESCUE EQUIPMENT –EXEMPT FROM EMISSION STANDARDS UNDER 40 CFR 1054.660." Failure to properly label an engine will void the exemption.

(d) We may discontinue an exemption under this section if we find that engines are not used solely for emergency rescue equipment or if we find that a certified engine is available to power the equipment safely and practically.

§1054.690 What bond requirements apply for certified engines?

(a) Before introducing certified engines into U.S. commerce, you must post a bond to cover any potential compliance or enforcement actions under the Clean Air Act unless you demonstrate to us in your application for certification that you are able to meet any potential compliance- or enforcement-related obligations, as described in this section. See paragraph (i) of this section for the requirements related to importing engines that have been certified by someone else. Note that you might also post bond under this section to meet your obligations under §1054.120.

(b) The bonding requirements apply if you do not have long-term assets in the United States meeting any of the following thresholds:

(1) A threshold of \$3 million applies if you have been a certificate holder in each of the preceding ten years without failing a test conducted by EPA officials or having been found by EPA to be noncompliant under applicable regulations.

(2) A threshold of \$6 million applies if you are a secondary engine manufacturer.

(3) A threshold of \$10 million applies if you do not qualify for the smaller bond thresholds in paragraph (b)(1) or (2) of this section.

(c) For the purpose of establishing your level of long-term assets under paragraph (b) of this section, include the values from your most recent balance sheet for buildings, land, and fixed equipment, but subtract depreciation and related long-term liabilities (such as a mortgage). If you have sufficient long-term assets to avoid bond payments under this section, you must identify the location of these assets in your application for certification.

(d) The minimum value of the bond is \$500,000. A higher bond value may apply based on the per-engine bond values shown in Table 1 to this section and on the U.S.-directed production volume from each displacement grouping for the calendar year. For example, if you have projected U.S.-directed production volumes of 10,000 engines with 180 cc displacement and 10,000 engines with 400 cc displacement in 2013, the appropriate bond amount is \$750,000. Adjust the value of the bond as follows:

(1) If your estimated or actual U.S.-directed production volume in any later calendar year increases beyond the level appropriate for your current bond payment, you must post additional bond to reflect the increased volume within 90 days after you change your estimate or determine the actual production volume. You may not decrease your bond.

(2) If you sell engines without aftertreatment components under the provisions of §1054.610, you must increase the per-engine bond values for the current year by 20 percent. Round calculated values to the nearest dollar.

Table 1 to §1054.690—Per-engine bond values

For engines with displacement falling in the following ranges...	The per-engine bond value is...
Disp. < 225 cc	\$25
225 ≤ Disp. < 740 cc	\$50
740 ≤ Disp. ≤ 1,000 cc	\$100
Disp. > 1,000 cc	\$200

(e) The threshold identified in paragraph (b) of this section and the bond values identified in paragraph (d) of this section are in 2008 dollars. Adjust these values in 2010 and later calendar years by comparing the Consumer Price Index values published by the Bureau of Labor Statistics for the preceding June and June 2008 (see <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiat.txt>). Round calculated values for the thresholds and for total bond obligations to the nearest thousand dollars.

(f) You may meet the bond requirements of this section by obtaining a bond from a third-party surety that is cited in the U.S. Department of Treasury Circular 570, “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies”

(<http://www.fms.treas.gov/c570/c570.html#certified>). You must maintain this bond for every year in which you sell certified engines and for five years after you no longer hold a certificate of conformity.

(g) If you forfeit some or all of your bond in an enforcement action, you must post any appropriate bond for continuing sale within 90 days after you forfeit the bond amount.

(h) You will forfeit the proceeds of the bond posted under this section if you need to satisfy any United States administrative settlement agreement, administrative final order, or judicial judgment against you arising from your violation of this chapter, or violation of 18 U.S.C. 1001, 42 U.S.C. 7413(c)(2), or other applicable provisions of the Clean Air Act.

(i) If you are required to post a bond under this section, you must note that in your application for certification as described in §1054.205. Your certification is conditioned on your compliance with this section. Your certificate is automatically suspended if you fail to comply with the requirements of this section. We may also revoke your certificate.

(j) The following provisions apply if you import engines for resale when those engines have been certified by someone else (or equipment containing such engines):

(1) You and the certificate holder are each responsible for compliance with the requirements of this part and the Clean Air Act. For example, we may require you to comply with the warranty requirements in the standard-setting part.

(2) You do not need to post bond if the certificate holder complies with the bond requirements of this section. You also do not need to post bond if the certificate holder complies with the asset requirements of this section and the repair-network provisions of §1054.120(f)(4).

Subpart H—Averaging, Banking, and Trading for Certification

§1054.701 General provisions.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart to show compliance with the standards of this part. This applies for engines with respect to exhaust emissions and for equipment with respect to evaporative emissions. Participation in this program is voluntary.

(b) The definitions of subpart I of this part apply to this subpart. The following definitions also apply:

(1) Actual emission credits means emission credits you have generated that we have verified by reviewing your final report.

(2) Averaging set means a set of engines (or equipment) in which emission credits may be exchanged only with other engines (or equipment) in the same averaging set.

(3) Broker means any entity that facilitates a trade of emission credits between a buyer and seller.

(4) Buyer means the entity that receives emission credits as a result of a trade.

(5) Family means engine family for exhaust credits or emission family for evaporative credits.

(6) Reserved emission credits means emission credits you have generated that we have not yet verified by reviewing your final report.

(7) Seller means the entity that provides emission credits during a trade.

(8) Standard means the emission standard that applies under subpart B of this part for engines or fuel-system components not participating in the ABT program of this subpart.

(9) Trade means to exchange emission credits, either as a buyer or seller.

(c) The use of emission credits is limited to averaging sets, as follows:

(1) You may not average or exchange exhaust credits with evaporative credits, or vice versa.

(2) Handheld engines and nonhandheld engines are in separate averaging sets with respect to exhaust emissions except as specified in §1054.740(e). You may use emission credits generated under 40 CFR part 90 for handheld engines subject to the standards in §1054.103 only if you can demonstrate that those credits were generated by handheld engines, except as specified in §1054.740(e). You may use emission credits generated under 40 CFR part 90 for nonhandheld engines only if you can demonstrate that those credits were generated by nonhandheld engines, subject to the provisions of §1054.740.

(3) Equipment using handheld engines and equipment using nonhandheld engines are in separate averaging sets with respect to evaporative emissions. You may not average or exchange evaporative credits between either of these averaging sets.

(4) For purposes of calculating emission credits under this subpart, engines with displacement at or below 80 cc are presumed to be handheld engines. You may treat these as nonhandheld engines for calculating exhaust or evaporative emission credits only for those engines you can demonstrate will be installed in nonhandheld equipment. For example, if 50 percent of engines in a family will be used in nonhandheld equipment, you may calculate the emission credits for 50 percent of the engines to be nonhandheld credits. Use the specified calculation methods for handheld engines to quantify positive or negative exhaust emission credits for all engines at or below 80 cc.

(d) You may not generate evaporative credits based on permeation measurements from metal fuel tanks.

(e) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard. This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing. However, if exhaust emissions from an engine exceed an exhaust FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the family with a higher FEL that applies only to future production.

(f) Emission credits may be used in the model year they are generated (averaging) and in future model years (banking). Emission credits may not be used for past model years.

(g) You may increase or decrease an exhaust FEL during the model year by amending your application for certification under §1054.225. See 40 CFR 1060.225 for provisions related to changing an FEL for fuel tank permeation.

(h) Engine and equipment manufacturers certifying with respect to evaporative emissions may use emission credits to demonstrate compliance under this subpart. Component manufacturers may establish FELs for their certified products, but they may not generate or use emission credits under this subpart.

(i) In your application for certification, base your showing of compliance on projected production volumes for engines or equipment intended for sale in the United States. As described in §1054.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for engines or equipment intended for sale in the United States. Do not include any of the following engines or equipment to calculate emission credits:

(1) Engines or equipment exempted under subpart G of this part or under 40 CFR part 1068.

(2) Engines or equipment intended for export.

(3) Engines or equipment that are subject to state emission standards for that model year. However, this restriction does not apply if we determine that the state standards and requirements are equivalent to those of this part and that products sold in such a state will not generate credits under the state program. For example, you may not include engines or equipment certified for California if California has more stringent emission standards for these products or if your products generate or use emission credits under the California program.

(4) Engines or equipment not subject to the requirements of this part, such as those excluded under §1054.5.

(5) Any other engines or equipment where we indicate elsewhere in this part 1054 that they are not to be included in the calculations of this subpart.

§1054.705 How do I generate and calculate exhaust emission credits?

The provisions of this section apply for calculating exhaust emission credits. You may generate exhaust emission credits only if you are a certifying engine manufacturer.

(a) For each participating family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family that has an FEL below the standard. Calculate negative emission credits for a family that has an FEL above the standard. Sum your positive and negative credits for the model year before rounding. Round the sum of emission credits to the nearest kilogram (kg) using consistent units throughout the following equation:

$$\text{Emission credits (kg)} = (\text{STD} - \text{FEL}) \times (\text{Volume}) \times (\text{Power}) \times (\text{UL}) \times (\text{LF}) \times (10^{-3})$$

Where:

STD = the emission standard, in g/kW-hr.

FEL = the family emission limit for the family, in g/kW-hr.

Volume = the number of engines eligible to participate in the averaging, banking, and trading program within the given family during the model year, as described in §1054.701(i).

Power = the maximum modal power of the emission-data engine as calculated from the applicable test procedure described in subpart F of this part, in kilowatts.

UL = the useful life for the given family, in hours.

LF = load factor. Use 0.47 for nonhandheld engines and 0.85 for handheld engines. We may specify a different load factor if we approve the use of special test procedures for a family under 40 CFR 1065.10(c)(2), consistent with good engineering judgment.

(b) [Reserved]

§1054.706 How do I generate and calculate evaporative emission credits?

The provisions of this section apply for calculating evaporative emission credits related to fuel tank permeation. You may generate credits only if you are a certifying equipment manufacturer. This may include engine manufacturers that make engines with complete fuel systems as described in §1054.2.

(a) For each participating family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family that has an FEL below the standard. Calculate negative emission credits for a family that has an FEL above the standard. Sum your positive and negative credits for the model year before rounding. Round the sum of emission credits to the nearest kilogram (kg) using consistent units throughout the following equation:

$$\text{Emission credits (kg)} = (\text{STD} - \text{FEL}) \times (\text{Total Area}) \times (\text{UL}) \times (\text{AF}) \times (365) \times (10^{-3})$$

Where:

STD = the emission standard, in g/m²/day.

FEL = the family emission limit for the family, in g/m²/day, as described in paragraph (b) of this section.

Total Area = The combined internal surface area of all fuel tanks in the family, taking production volume into account, in m².

UL = 5 years, which represents the useful life for the given family.

AF = adjustment factor. Use 1.0 for testing at 28°C; use 0.60 for testing at 40°C.

(b) For calculating credits under paragraph (a) of this section, the emission standard and FEL must both be based on test measurements at the same temperature (28° or 40°C). Determine the FEL for calculating emission credits relative to testing at 28°C as described in paragraphs (b)(1) and (2) of this section. Determine the FEL for calculating emission credits relative to testing at 40°C as described in paragraph (b)(3) of this section.

(1) To use an FEL below 5.0 g/m²/day, it must be based on emission measurements.

(2) The provisions of this paragraph (b)(2) apply for all emission families with FELs at or above 5.0 g/m²/day. To calculate emission credits for such emission families, you must choose from one of the following options and apply it to all your emission families with FELs at or above 5.0 g/m²/day:

(i) Option 1: Establish all your FELs based on emission measurements. This may include measurements from a certifying fuel tank manufacturer.

(ii) Option 2: Use an assigned FEL of 10.4 g/m²/day. This would apply without regard to whether any of these emission families have measured emission levels below 10.4 g/m²/day. If any of your fuel tanks were otherwise certified (by you or the fuel tank manufacturer) with an FEL at or above 5.0 g/m²/day, the assigned FEL of 10.4 g/m²/day applies only for emission credit calculations.

(3) Determine the FEL for calculating emission credits relative to testing at 40°C as described in paragraph (b)(1) and (2) of this section, but use 8.3 g/m²/day instead of 5.0 g/m²/day and use 17.3 g/m²/day instead of 10.4 g/m²/day.

§1054.710 How do I average emission credits?

- (a) Averaging is the exchange of emission credits among your families. You may average emission credits only within the same averaging set.
- (b) You may certify one or more families to an FEL above the emission standard, subject to the FEL caps and other provisions in subpart B of this part, if you show in your application for certification that your projected balance of all emission-credit transactions in that model year is greater than or equal to zero.
- (c) If you certify a family to an FEL that exceeds the otherwise applicable standard, you must obtain enough emission credits to offset the family's deficit by the due date for the final report required in §1054.730. The emission credits used to address the deficit may come from your other families that generate emission credits in the same model year, from emission credits you have banked, or from emission credits you obtain through trading.

§1054.715 How do I bank emission credits?

- (a) Banking is the retention of emission credits by the manufacturer generating the emission credits for use in future model years for averaging or trading. You may use banked emission credits only within the averaging set in which they were generated, except as described in this subpart.
- (b) You may designate any emission credits you plan to bank in the reports you submit under §1054.730. During the model year and before the due date for the final report, you may designate your reserved emission credits for averaging or trading.
- (c) Reserved credits become actual emission credits when you submit your final report. However, we may revoke these emission credits if we are unable to verify them after reviewing your reports or auditing your records.

§1054.720 How do I trade emission credits?

- (a) Trading is the exchange of emission credits between manufacturers. You may use traded emission credits for averaging, banking, or further trading transactions. Traded emission credits may be used only within the averaging set in which they were generated, except as described in this subpart.
- (b) You may trade actual emission credits as described in this subpart. You may also trade reserved emission credits, but we may revoke these emission credits based on our review of your records or reports or those of the company with which you traded emission credits. You may trade banked credits within an averaging set to any certifying engine or equipment manufacturer.
- (c) If a negative emission credit balance results from a transaction, both the buyer and seller are liable, except in cases we deem to involve fraud. See §1054.255(e) for cases involving fraud. We may void the certificates of all families participating in a trade that results in a manufacturer having a negative balance of emission credits. See §1054.745.

§1054.725 What must I include in my application for certification?

- (a) You must declare in your application for certification your intent to use the provisions of this subpart for each family that will be certified using the ABT program. You must also declare the FELs you select for the family for each pollutant for which you are using the ABT program. Your FELs must comply with the specifications of subpart B of this part, including the FEL caps. FELs must be expressed to the same number of decimal places as the emission standard.
- (b) Include the following in your application for certification:
 - (1) A statement that, to the best of your belief, you will not have a negative balance of emission credits for any averaging set when all emission credits are calculated at the end of the year.
 - (2) Detailed calculations of projected emission credits (positive or negative) based on projected production volumes. We may require you to include similar calculations from your other engine families to demonstrate that you will be able to avoid a negative credit balance for the model year. If you project negative emission credits for a family, state the source of positive emission credits you expect to use to offset the negative emission credits.

§1054.730 What ABT reports must I send to EPA?

(a) If any of your families are certified using the ABT provisions of this subpart, you must send an end-of-year report within 90 days after the end of the model year and a final report within 270 days after the end of the model year. We may waive the requirement to send the end-of year report as long as you send the final report on time.

(b) Your end-of-year and final reports must include the following information for each family participating in the ABT program:

- (1) Family designation.
- (2) The emission standards that would otherwise apply to the family.
- (3) The FEL for each pollutant. If you change the FEL after the start of production, identify the date that you started using the new FEL and/or give the engine identification number for the first engine covered by the new FEL. In this case, identify each applicable FEL and calculate the positive or negative emission credits under each FEL.
- (4) The projected and actual production volumes for the model year with a point of retail sale in the United States, as described in §1054.701(i). For fuel tanks, state the production volume in terms of surface area and production volume for each fuel tank configuration and state the total surface area for the emission family. If you changed an FEL during the model year, identify the actual production volume associated with each FEL.
- (5) The maximum modal power of the emission-data engine or the appropriate internal surface area of the fuel tank.
- (6) Useful life.
- (7) Calculated positive or negative emission credits for the whole family. Identify any emission credits that you traded, as described in paragraph (d)(1) of this section.

(c) Your end-of-year and final reports must include the following additional information:

- (1) Show that your net balance of emission credits from all your participating families in each averaging set in the applicable model year is not negative.
- (2) State whether you will retain any emission credits for banking.
- (3) State that the report's contents are accurate.

(d) If you trade emission credits, you must send us a report within 90 days after the transaction, as follows:

- (1) As the seller, you must include the following information in your report:
 - (i) The corporate names of the buyer and any brokers.
 - (ii) A copy of any contracts related to the trade.
 - (iii) The families that generated emission credits for the trade, including the number of emission credits from each family.
- (2) As the buyer, you must include the following information in your report:
 - (i) The corporate names of the seller and any brokers.
 - (ii) A copy of any contracts related to the trade.
 - (iii) How you intend to use the emission credits, including the number of emission credits you intend to apply to each family (if known).

(e) Send your reports electronically to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.

(f) Correct errors in your end-of-year report or final report as follows:

- (1) You may correct any errors in your end-of-year report when you prepare the final report as long as you send us the final report by the time it is due.
- (2) If you or we determine within 270 days after the end of the model year that errors mistakenly decreased your balance of emission credits, you may correct the errors and recalculate the balance of emission credits. You may not make these corrections for errors that are determined more than 270 days after the end of the model year. If you report a negative balance of emission credits, we may disallow corrections under this paragraph (f)(2).
- (3) If you or we determine anytime that errors mistakenly increased your balance of emission credits, you must correct the errors and recalculate the balance of emission credits.

§1054.735 What records must I keep?

- (a) You must organize and maintain your records as described in this section. We may review your records at any time.
- (b) Keep the records required by this section for at least eight years after the due date for the end-of-year report. You may not use emission credits for any engines or equipment if you do not keep all the records required under this section. You must therefore keep these records to continue to bank valid credits. Store these records in any format and on any media as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.
- (c) Keep a copy of the reports we require in §1054.730.
- (d) Keep records of the engine identification number for each engine or piece of equipment you produce that generates or uses emission credits under the ABT program. You may identify these numbers as a range. If you change the FEL after the start of production, identify the date you started using each FEL and the range of engine identification numbers associated with each FEL.
- (e) We may require you to keep additional records or to send us relevant information not required by this section in accordance with the Clean Air Act.

§1054.740 What special provisions apply for generating and using emission credits?

- (a) You may generate Phase 3 emission credits from 2008 through 2011 model year Class I engines if you voluntarily meet the Phase 3 exhaust emission standards specified in §1054.105. Divide these into transitional and enduring emission credits as follows:
 - (1) Transitional credits are based on reducing emissions from Phase 2 levels down to Phase 3 levels. Calculate the value of transitional emission credits as described in §1054.705, based on setting STD equal to 15.0 g/kW-hr and FEL equal to 10.0 g/kW-hr. You may use these transitional credits only for Class I engines in 2012 through 2014 model years. You may not use these transitional credits for Class II engines.
 - (2) Enduring credits are based on reducing emissions below Phase 3 levels. Calculate the value of enduring credits as described in §1054.705, based on setting STD equal to 10.0 g/kW-hr and FEL to the value of the family emission limit you select for the family. You may use these enduring credits for any nonhandheld engines certified to the Phase 3 standards under this part, except as specified in paragraph (d) of this section.
- (b) You may generate Phase 3 emission credits from 2008 through 2010 model year Class II engines if you voluntarily meet the Phase 3 exhaust emission standards specified in §1054.105. Divide these into transitional and enduring emission credits as follows:
 - (1) Transitional credits are based on reducing emissions from Phase 2 levels down to Phase 3 levels. Calculate the value of transitional emission credits as described in §1054.705, based on setting STD equal to 11.0 g/kW-hr and FEL equal to 8.0 g/kW-hr. You may use these transitional credits only for Class II engines in 2011 through 2013 model years. You may not use these transitional credits for Class I engines.
 - (2) Enduring credits are based on reducing emissions below Phase 3 levels. Calculate the value of enduring credits as described in §1054.705, based on setting STD equal to 8.0 g/kW-hr and FEL to the value of the family emission limit you select for the family. You may use these enduring credits for any nonhandheld engines certified to the Phase 3 standards under this part, except as specified in paragraph (d) of this section.
- (c) You may use emission credits generated by Class I and Class II engines subject to Phase 2 emission standards under 40 CFR part 90 to demonstrate compliance with the Phase 3 exhaust emission standards, but only after you have exhausted all transitional credits from engines meeting Phase 3 standards, subject to the conditions of paragraph (d) of this section. You may use these Phase 2 emission credits only in the 2012 and 2013 model years for Class I engines and only in the 2011 through 2013 model years for Class II engines. Determine a maximum number of Phase 2 emission credits for demonstrating compliance with the Phase 3 standards for a given engine class (Class I or Class II) as follows:

(1) Calculate a Phase 2 credit allowance for each engine class based on production information for model years 2007, 2008, and 2009 using the following equation:

$$\text{Credit allowance (kg)} = (\text{Emissions Delta}) \times (\text{Volume}) \times (\text{Avg. Power}) \times (\text{Avg. UL}) \times (\text{LF}) \times (10^{-3})$$

Where:

Emissions Delta = 1.6 g/kW-hr for Class I and 2.1 g/kW-hr for Class II.

Volume = the number of your engines eligible to participate in the averaging, banking, and trading program, as described in §1054.701(i), based on actual U.S.-directed production volumes.

Avg. Power = the production-weighted average value of the maximum modal power for all your engine families in the engine class, as described in §1054.705(a), in kilowatts.

Avg. UL = the production-weighted average value of the useful life for all your engine families in the engine class, in hours.

LF = load factor. Use 0.47.

(2) Do not include wintertime engines in the calculation of credit allowances unless they are certified to meet the otherwise applicable HC+NO_x emission standard.

(3) Calculate the average annual Phase 2 credit allowance for each engine class over three model years as specified in paragraph (c)(1) of this section. The resulting average value is the maximum number of Phase 2 emission credits you may use under this paragraph (c) for each engine class.

(4) For 2013 and earlier model years, include in the reports described in §1054.730 the total allowable number of Phase 2 emission credits and your cumulative totals of Phase 2 credits you have used to comply with the requirements of this part for each engine class.

(d) If you generate enduring emission credits from Class I engines under paragraph (a) of this section, you may not use these for Class II engines in the 2011 or 2012 model year. Similarly, if you generate enduring emission credits from Class II engines under paragraph (b) of this section, you may not use these for Class I engines in the 2012 model year. These restrictions also apply for emission credits you generate for engines subject to the standards of this part in the 2011 or 2012 model year.

(e) You may use Phase 2 or Phase 3 emission credits from nonhandheld engines to demonstrate compliance with the Phase 3 standards for handheld engines subject to the following restrictions:

(1) The handheld family must be certified in 2008 and all later model years using carryover of emission data from an engine family that was most recently certified with new emission data in 2007 or an earlier model year.

(2) The handheld family's FEL may not increase above the level selected for the 2007 model year in later years unless such an increase is based on emission data from production engines.

(3) Your total production of handheld engines certified under this paragraph (e) may not exceed 30,000 in any model year.

§1054.745 What can happen if I do not comply with the provisions of this subpart?

(a) For each family participating in the ABT program, the certificate of conformity is conditional upon full compliance with the provisions of this subpart during and after the model year. You are responsible to establish to our satisfaction that you fully comply with applicable requirements. We may void the certificate of conformity for a family if you fail to comply with any provisions of this subpart.

(b) You may certify your family to an FEL above an emission standard based on a projection that you will have enough emission credits to offset the deficit for the family. However, we may void the certificate of conformity if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in a family.

(c) We may void the certificate of conformity for a family if you fail to keep records, send reports, or give us information we request.

(d) You may ask for a hearing if we void your certificate under this section (see §1054.820).

Subpart I—Definitions and Other Reference Information

§1054.801 What definitions apply to this part?

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Clean Air Act gives to them. The definitions follow:

Adjustable parameter means any device, system, or element of design that someone can adjust (including those which are difficult to access) and that, if adjusted, may affect emissions or engine performance during emission testing or normal in-use operation. This includes, but is not limited to, parameters related to injection timing and fueling rate. You may ask us to exclude a parameter that is difficult to access if it cannot be adjusted to affect emissions without significantly degrading engine performance, or if you otherwise show us that it will not be adjusted in a way that affects emissions during in-use operation.

Aftertreatment means relating to a catalytic converter, particulate filter, thermal reactor, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR), turbochargers, and oxygen sensors are not aftertreatment.

Alcohol-fueled engine means an engine that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

Amphibious vehicle means a vehicle with wheels or tracks that is designed primarily for operation on land and secondarily for operation in water.

Applicable emission standard or applicable standard means an emission standard to which an engine (or equipment) is subject. Additionally, if an engine (or equipment) has been or is being certified to another standard or FEL, applicable emission standard means the FEL or other standard to which the engine (or equipment) has been or is being certified. This definition does not apply to subpart H of this part.

Auxiliary emission control device means any element of design that senses temperature, motive speed, engine RPM, transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

Brake power means the usable power output of the engine, not including power required to fuel, lubricate, or heat the engine, circulate coolant to the engine, or to operate aftertreatment devices.

Calibration means the set of specifications and tolerances specific to a particular design, version, or application of a component or assembly capable of functionally describing its operation over its working range.

Carryover means relating to certification based on emission data generated from an earlier model year as described in §1054.235(d).

Certification means relating to the process of obtaining a certificate of conformity for an emission family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in an emission family for a given pollutant from either transient or steady-state testing.

Class I means relating to nonhandheld engines with total displacement below 225 cc. See §1054.101 for special provisions that apply for engines with total displacement at or below 80 cc.

Class II means relating to nonhandheld engines with total displacement at or above 225 cc.

Class III means relating to handheld engines with total displacement below 20 cc.

Class IV means relating to handheld engines with total displacement at or above 20 cc but below 50 cc.

Class V means relating to handheld engines with total displacement at or above 50 cc.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401-7671q.

Cold-weather equipment is limited to the following types of handheld equipment: chainsaws, cut-off saws, clearing saws, brush cutters with engines at or above 40cc, commercial earth and wood drills, and ice augers. This includes earth augers if they are also marketed as ice augers.

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the engine crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

Critical emission-related component means any of the following components:

- (1) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, air filters, spark plugs, and all sensors and actuators associated with any of these components.
- (2) Any other component whose primary purpose is to reduce emissions.

Date of manufacture has the meaning given in 40 CFR 1068.30.

Days means calendar days unless otherwise specified. For example, when we specify working days we mean calendar days, excluding weekends and U.S. national holidays.

Designated Compliance Officer means the Manager, Heavy-Duty and Nonroad Engine Group (6405-J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Designated Enforcement Officer means the Director, Air Enforcement Division (2242A), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Deteriorated emission level means the emission level that results from applying the appropriate deterioration factor to the official emission result of the emission-data engine.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point (see §§1054.240 and 1054.245), expressed in one of the following ways:

- (1) For multiplicative deterioration factors, the ratio of emissions at the end of useful life to emissions at the low-hour test point.
- (2) For additive deterioration factors, the difference between emissions at the end of useful life and emissions at the low-hour test point.

Discrete-mode means relating to the discrete-mode type of steady-state test described in §1054.505.

Displacement has the meaning given in §1054.140.

Dry weight means the weight of the equipment as sold without fuel, oil, or engine coolant.

Dual-fuel engine means an engine designed for operation on two different fuels but not on a continuous mixture of those fuels.

Emission control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from an engine.

Emission-data engine means an engine that is tested for certification. This includes engines tested to establish deterioration factors.

Emission-data equipment means an engine, piece of equipment, or fuel system component that is tested for certification. This includes units tested to establish deterioration factors.

Emission family has the meaning given in §1054.230. We may refer to emission families as "engine families" where provisions relate only to exhaust emissions from engines.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine has the meaning given in 40 CFR 1068.30. This includes complete and partially complete engines.

Engine configuration means a unique combination of engine hardware and calibration within an emission family. Engines within a single engine configuration differ only with respect to normal production variability.

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this section.

Equipment means any mechanical device commonly known as equipment, including vehicles. If the equipment has an installed engine, the term equipment includes the installed engine and fuel system components.

Equipment manufacturer means a manufacturer of nonroad equipment. All nonroad equipment manufacturing entities under the control of the same person are considered to be a single nonroad equipment manufacturer. (Note: In §1054.626, the term "equipment manufacturer" has a narrower meaning that applies only to that section.)

Evaporative means relating to fuel emissions controlled by 40 CFR part 1060. This generally includes emissions that result from permeation of fuel through the fuel-system materials or from ventilation of the fuel system.

Excluded means relating to an engine that either:

- (1) Has been determined not to be a nonroad engine, as specified in 40 CFR 1068.30; or
- (2) Is a nonroad engine that, according to §1054.5, is not subject to this part 1054.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation (EGR) means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the engine to be mixed with incoming air before or during combustion. The use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion is not considered exhaust-gas recirculation for the purposes of this part.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under the ABT program in subpart H of this part. The family emission limit must be expressed to the same number of decimal places as the emission standard it replaces. The family emission limit serves as the emission standard for the engine family (exhaust) or emission family (evaporative) with respect to all required testing.

Flexible-fuel engine means an engine designed for operation on any mixture of two or more different fuels.

Fuel line means hose or tubing designed to contain liquid fuel (including molded hose or tubing).

This does not include any of the following:

- (1) Fuel tank vent lines.
- (2) Segments of hose or tubing whose external surface is normally exposed to liquid fuel inside the fuel tank.
- (3) Hose or tubing designed to return unused fuel from the carburetor to the fuel tank for handheld engines.
- (4) Primer bulbs that contain liquid fuel only for priming the engine before starting.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to the combustion chamber(s), including the fuel tank, fuel tank cap, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents.

Fuel type means a general category of fuels such as gasoline or natural gas. There can be multiple grades within a single fuel type, such as low-temperature or all-season gasoline.

Good engineering judgment has the meaning given in 40 CFR 1068.30. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

Handheld means relating to equipment that meets any of the following criteria:

- (1) It is carried by the operator throughout the performance of its intended function.
- (2) It is designed to operate multi-positionally, such as upside down or sideways, to complete its intended function.
- (3) It has a combined engine and equipment dry weight under 16.0 kilograms, has no more than two wheels, and at least one of the following attributes is also present:
 - (i) The operator provides support or carries the equipment throughout the performance of its intended function. Carry means to completely bear the weight of the equipment, including the engine. Support means to hold a piece of equipment in position to prevent it from falling, slipping, or sinking, without carrying it.
 - (ii) The operator provides support or attitudinal control for the equipment throughout the performance of its intended function. Attitudinal control involves regulating the horizontal or vertical position of the equipment.
- (4) It is an auger with a combined engine and equipment dry weight under 22.0 kilograms.

(5) It is used in a recreational application with a combined total vehicle dry weight under 20.0 kilograms. Note that snowmobiles, offroad motorcycles, and all-terrain vehicles are regulated under 40 CFR part 1051 and marine vessels are regulated under 40 CFR part 1045.

(6) It is a hand-supported jackhammer or rammer/compactor. This does not include equipment that can remain upright without operator support, such as a plate compactor.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type, as described in subpart B of this part.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular engine from other similar engines.

Integrated equipment manufacturer means an equipment manufacturer that also manufactures the engines for its equipment. Equipment manufacturers that manufacture the engines for some but not all of their equipment are considered to be integrated manufacturers for that equipment using the manufacturer's own engines.

Intermediate-speed equipment means nonhandheld equipment in which the installed engine is intended for operation at speeds substantially below 3600 rpm.

Low-hour means relating to an engine that is considered to have stabilized emissions and represents the undeteriorated emission level. A low-hour engine typically operates no more than a few hours beyond the minimum stabilization period. However, a low-hour engine could have more hours as long as emissions remain stable. In the absence of other information, a low-hour engine with a useful life of 300 hours or less would generally have operated no more than 15 hours and a low-hour engine with a longer useful would generally have operated no more than 24 hours.

Manufacture means the physical and engineering process of designing, constructing, and assembling an engine or piece of equipment.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act (42 U.S.C. 7550(1)). In general, this term includes any person who manufactures an engine, vehicle, vessel, or piece of equipment for sale in the United States or otherwise introduces a new nonroad engine or piece of equipment into U.S. commerce. This includes importers who import engines, equipment, or vehicles for resale, but not dealers. All manufacturing entities under the control of the same person are considered to be a single manufacturer.

Marine engine means a nonroad engine that is installed or intended to be installed on a vessel. There are two kinds of marine engines:

(1) Propulsion marine engine means a marine engine that moves a vessel through the water or directs the vessel's movement.

(2) Auxiliary marine engine means a marine engine not used for propulsion. This includes a portable auxiliary marine engine only if its fueling, cooling, or exhaust system is an integral part of the vessel.

Marine generator engine means an auxiliary marine engine used primarily to operate an electrical generator or alternator to produce electric power.

Marine vessel has the meaning given in 1 U.S.C. 3, except that it does not include amphibious vehicles. The definition in 1 U.S.C. 3 very broadly includes every craft capable of being used as a means of transportation on water.

Maximum engine power has the meaning given in §1054.140.

Maximum test torque has the meaning given in 40 CFR 1065.1001.

Model year has the meaning given in 40 CFR part 1060 for equipment and means one of the following things for engines:

(1) For freshly manufactured engines (see definition of "new nonroad engine," paragraph (1)), model year means your annual new model production period. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For seasonal production periods not including January 1, model year means the calendar year in which the production occurs, unless you choose to certify the applicable emission family with the following model year. For example, if your production period is June 1, 2010 through November 30, 2010, your model year would be 2010 unless you choose to certify the emission family for model year 2011.

(2) For an engine that is converted to a nonroad engine after being placed into service as a stationary engine, or being certified and placed into service as a motor vehicle engine, model year means the calendar year in which the engine was originally produced. For a motor vehicle engine that is converted to be a nonroad engine without having been certified, model year means the calendar year in which the engine becomes a new nonroad engine. (See definition of “new nonroad engine,” paragraph (2).)

(3) For a nonroad engine excluded under §1054.5 that is later converted to operate in an application that is not excluded, model year means the calendar year in which the engine was originally produced (see definition of “new nonroad engine,” paragraph (3)).

(4) For engines that are not freshly manufactured but are installed in new nonroad equipment, model year means the calendar year in which the engine is installed in the new nonroad equipment (see definition of “new nonroad engine,” paragraph (4)).

(5) For imported engines:

(i) For imported engines described in paragraph (5)(i) of the definition of “new nonroad engine,” model year has the meaning given in paragraphs (1) through (4) of this definition.

(ii) For imported engines described in paragraph (5)(ii) of the definition of “new nonroad engine,” model year means the calendar year in which the engine is assembled in its final certified configuration.

(iii) For imported engines described in paragraph (5)(iii) of the definition of “new nonroad engine,” model year means the calendar year in which the engine is assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

Motor vehicle has the meaning given in 40 CFR 85.1703(a).

New nonroad engine means any of the following things:

(1) A freshly manufactured nonroad engine for which the ultimate purchaser has never received the equitable or legal title. This kind of engine might commonly be thought of as “brand new.” In the case of this paragraph (1), the engine is new from the time it is produced until the ultimate purchaser receives the title or the product is placed into service, whichever comes first.

(2) An engine originally manufactured as a motor vehicle engine or a stationary engine that is later used or intended to be used in a piece of nonroad equipment. In this case, the engine is no longer a motor vehicle or stationary engine and becomes a “new nonroad engine.” The engine is no longer new when it is placed into nonroad service. This paragraph (2) applies if a motor vehicle engine or a stationary engine is installed in nonroad equipment, or if a motor vehicle or a piece of stationary equipment is modified (or moved) to become nonroad equipment.

(3) A nonroad engine that has been previously placed into service in an application we exclude under §1054.5, when that engine is installed in a piece of equipment that is covered by this part 1054. The engine is no longer new when it is placed into nonroad service covered by this part 1054. For example, this would apply to a marine-propulsion engine that is no longer used in a marine vessel but is instead installed in a piece of nonroad equipment subject to the provisions of this part.

(4) An engine not covered by paragraphs (1) through (3) of this definition that is intended to be installed in new nonroad equipment. This generally includes installation of used engines in new equipment. The engine is no longer new when the ultimate purchaser receives a title for the equipment or the product is placed into service, whichever comes first.

(5) An imported nonroad engine, subject to the following provisions:

(i) An imported nonroad engine covered by a certificate of conformity issued under this part that meets the criteria of one or more of paragraphs (1) through (4) of this definition, where the original engine manufacturer holds the certificate, is new as defined by those applicable paragraphs.

(ii) An imported engine that will be covered by a certificate of conformity issued under this part, where someone other than the original engine manufacturer holds the certificate (such as when the engine is modified after its initial assembly), is a new nonroad engine when it is imported. It is no longer new when the ultimate purchaser receives a title for the engine or it is placed into service, whichever comes first.

(iii) An imported nonroad engine that is not covered by a certificate of conformity issued under this part at the time of importation is new. This addresses uncertified engines and equipment initially

placed into service that someone seeks to import into the United States. Importation of this kind of engine (or equipment containing such an engine) is generally prohibited by 40 CFR part 1068. However, the importation of such an engine is not prohibited if the engine has a model year before 1997, since it is not subject to standards.

New nonroad equipment means either of the following things:

- (1) A nonroad piece of equipment for which the ultimate purchaser has never received the equitable or legal title. The product is no longer new when the ultimate purchaser receives this title or the product is placed into service, whichever comes first.
- (2) A nonroad piece of equipment with an engine that becomes new while installed in the equipment. For example a complete piece of equipment that was imported without being covered by a certificate of conformity would be new nonroad equipment because the engine would be considered to be new at the time of importation.

Noncompliant engine or noncompliant equipment means an engine or equipment that was originally covered by a certificate of conformity but is not in the certified configuration or otherwise does not comply with the conditions of the certificate.

Nonconforming engine or nonconforming equipment means an engine or equipment not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonhandheld means relating to an engine (or equipment) subject to the standards of this part that is not a handheld engine (or equipment).

Nonintegrated equipment manufacturer means an equipment manufacturer that is not an integrated equipment manufacturer. Equipment manufacturers that manufacture the engines for some but not all of their equipment are considered to be nonintegrated manufacturers for that equipment using a different engine manufacturer's engines.

Nonmethane hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the difference between the emitted mass of total hydrocarbons and the emitted mass of methane.

Nonroad means relating to nonroad engines or equipment that includes nonroad engines.

Nonroad engine has the meaning given in 40 CFR 1068.30. In general this means all internal-combustion engines except motor vehicle engines, stationary engines, engines used solely for competition, or engines used in aircraft.

Official emission result means the measured emission rate for an emission-data engine on a given duty cycle before the application of any deterioration factor.

Overhead valve means relating to a four-stroke spark-ignition engine in which the intake and exhaust valves are located above the combustion chamber within the cylinder head. Such engines are sometimes referred to as "valve-in-head" engines.

Owners manual means a document or collection of documents prepared by the engine manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

Oxides of nitrogen has the meaning given in 40 CFR part 1065.1001

Percent has the meaning given in 40 CFR 1065.1001.

Permeation emissions means fuel that escapes from the fuel system by diffusing through the walls of fuel-system components.

Phase 1 means relating to the Phase 1 emission standards described in 40 CFR 90.103.

Phase 2 means relating to the Phase 2 emission standards described in 40 CFR 90.103.

Phase 3 means relating to the Phase 3 exhaust emission standards described in §1054.105.

Placed into service means put into initial use for its intended purpose.

Pressurized oil system means a system designed to deliver lubricating oil to internal engine components, including a step to circulate oil through a filter.

Ramped-modal means relating to the ramped-modal type of steady-state test described in §1054.505.

Rated-speed equipment means nonhandheld equipment in which the installed engine is intended for operation at a rated speed that is nominally 3600 rpm or higher.

Recreational application means an application in which a vehicle is ridden primarily for pleasure. Note that engines used in reduced-scale model vehicles that cannot be ridden (such as model airplanes) are excluded from this part under §1054.5.

Relating to as used in this section means relating to something in a specific, direct manner. This expression is used in this section only to define terms as adjectives and not to broaden the meaning of the terms.

Revoke has the meaning given in 40 CFR 1068.30. In general this means to terminate the certificate or an exemption for an engine family.

Round has the meaning given in 40 CFR 1065.1001.

Running loss emissions has the meaning given in 40 CFR 1060.801.

Scheduled maintenance means adjusting, repairing, removing, disassembling, cleaning, or replacing components or systems periodically to keep a part or system from failing, malfunctioning, or wearing prematurely. It also may mean actions you expect are necessary to correct an overt indication of failure or malfunction for which periodic maintenance is not appropriate.

Side valve means relating to a four-stroke spark-ignition engine in which the intake and exhaust valves are located to the side of the cylinder, not within the cylinder head. Such engines are sometimes referred to as “L-head” engines.

Small-volume emission family means one of the following:

- (1) For requirements related to exhaust emissions for nonhandheld engines and to exhaust and evaporative emissions for handheld engines, small-volume emission family means any emission family whose U.S.-directed production volume in a given model year is projected at the time of certification to be no more than 5,000 engines.
- (2) For requirements related to evaporative emissions for nonhandheld equipment, small-volume emission family means any equipment manufacturer’s U.S.-directed production volume for identical fuel tank is projected at the time of certification to be no more than 5,000 units. Tanks are generally considered identical if they are produced under a single part number to conform to a single design or blueprint. Tanks should be considered identical if they differ only with respect to production variability, post-production changes (such as different fittings or grommets), supplier, color, or other extraneous design variables.

Small-volume engine manufacturer means one of the following:

- (1) For handheld engines, an engine manufacturer that had U.S.-directed production volume of handheld engines of no more than 25,000 handheld engines in any calendar year. For manufacturers owned by a parent company, this production limit applies to the production of the parent company and all its subsidiaries.
- (2) For nonhandheld engines, an engine manufacturer that had U.S.-directed production volume of no more than 10,000 nonhandheld engines in any calendar year. For manufacturers owned by a parent company, this production limit applies to the production of the parent company and all its subsidiaries.
- (3) An engine manufacturer that we designate to be a small-volume engine manufacturer under §1054.635.

Small-volume equipment manufacturer means one of the following:

- (1) For handheld equipment, an equipment manufacturer that had a U.S.-directed production volume of no more than 25,000 pieces of handheld equipment in any calendar year. For manufacturers owned by a parent company, this production limit applies to the production of the parent company and all its subsidiaries.
- (2) For nonhandheld equipment, an equipment manufacturer with annual U.S.-directed production volumes of no more than 5,000 pieces of nonhandheld equipment in 2007, 2008, and 2009. For manufacturers owned by a parent company, this production limit applies to the production of the parent company and all its subsidiaries.
- (3) An equipment manufacturer that we designate to be a small-volume equipment manufacturer under §1054.635.

Snowthrower engine means an engine used exclusively to power snowthrowers.

Spark-ignition means relating to a gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark-ignition engines usually use a throttle to regulate intake air flow to control power during normal operation.

Steady-state means relating to emission tests in which engine speed and load are held at a finite set of essentially constant values. Steady-state tests are either discrete-mode tests or ramped-modal tests.

Structurally integrated nylon fuel tank has the meaning given in 40 CFR 1060.801.

Subchapter U means the portion of the Code of Federal Regulations including 40 CFR parts 1000 through 1299.

Suspend has the meaning given in 40 CFR 1068.30. In general this means to temporarily discontinue the certificate or an exemption for an engine family.

Test engine means an engine in a test sample.

Test sample means the collection of engines selected from the population of an emission family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Tethered gas cap means a gas cap that is loosely but permanently connected to the fuel tank.

Thermal reactor means a hot surface in the engine exhaust system that has the effect of significantly lowering emissions of one or more regulated pollutants. Hot surfaces that have an inconsequential effect on emissions are not thermal reactors.

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001. This generally means the sum of the carbon mass contributions of non-oxygenated hydrocarbons, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled engines. The hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Ultimate purchaser means, with respect to any new nonroad equipment or new nonroad engine, the first person who in good faith purchases such new nonroad equipment or new nonroad engine for purposes other than resale.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year for an emission family means the model year after the one currently in production.

U.S.-directed production volume means the number of engine or equipment units, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

Useful life means the period during which the engine and equipment are designed to properly function in terms of power output and intended function, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. It is the period during which a nonroad engine is required to comply with all applicable emission standards. See, for example, §§1054.107, 1054.110, and 1054.112. If an engine has no hour meter, the specified number of hours does not limit the period during which an in-use engine is required to comply with emission standards unless the degree of service accumulation can be verified separately.

Variable-speed engine means an engine that is not a constant-speed engine.

Vessel means marine vessel.

Void has the meaning given in 40 CFR 1068.30. In general this means to invalidate a certificate or an exemption both retroactively and prospectively.

Volatile liquid fuel means any fuel other than diesel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

Wide-open throttle means maximum throttle opening.

Wintertime engine means an engine used exclusively to power equipment that is used only in wintertime, such as snowthrowers and ice augers.

§1054.805 What symbols, acronyms, and abbreviations does this part use?

The following symbols, acronyms, and abbreviations apply to this part:

ABT	Averaging, banking, and trading.
cc	cubic centimeters.
CFR	Code of Federal Regulations.
CH ₄	methane.
CO	carbon monoxide.
CO ₂	carbon dioxide.
EPA	Environmental Protection Agency.
FEL	Family Emission Limit.
g	gram.
HC	hydrocarbon.
hr	hour.
kPa	kilopascals.
kW	kilowatts.
N ₂ O	nitrous oxide.
NMHC	nonmethane hydrocarbons.
NO _x	oxides of nitrogen (NO and NO ₂).
psig	pounds per square inch of gauge pressure.
RPM	revolutions per minute.
THC	total hydrocarbon.
THCE	total hydrocarbon equivalent.
U.S.C.	United States Code.

§1054.815 What provisions apply to confidential information?

- (a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.
- (b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.
- (c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.
- (d) If you send us information without claiming it is confidential, we may make it available to the public without further notice to you, as described in 40 CFR 2.204.

§1054.820 How do I request a hearing?

- (a) You may request a hearing under certain circumstances as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.
- (b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.
- (c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

§1054.825 What reporting and recordkeeping requirements apply under this part?

Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for engines and equipment regulated under this part:

- (a) We specify the following requirements related to engine and equipment certification in this part 1054:
 - (1) In §1054.20 we require equipment manufacturers to label their equipment if they are relying on component certification.

- (2) In §1054.135 we require engine manufacturers to keep certain records related to duplicate labels sent to equipment manufacturers.
 - (3) In §1054.145 we include various reporting and recordkeeping requirements related to interim provisions.
 - (4) In subpart C of this part we identify a wide range of information required to certify engines.
 - (5) In §§1054.345 and 1054.350 we specify certain records related to production-line testing.
 - (6) [Reserved]
 - (7) In subpart G of this part we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various special compliance provisions.
 - (8) In §§1054.725, 1054.730, and 1054.735 we specify certain records related to averaging, banking, and trading.
- (b) We specify the following requirements related to equipment and component certification in 40 CFR part 1060:
- (1) In 40 CFR 1060.20 we give an overview of principles for reporting information.
 - (2) In 40 CFR part 1060, subpart C, we identify a wide range of information required to certify products.
 - (3) In 40 CFR 1060.301 we require manufacturers to make engines or equipment available for our testing if we make such a request.
 - (4) In 40 CFR 1060.505 we specify information needs for establishing various changes to published test procedures.
- (c) We specify the following requirements related to testing in 40 CFR part 1065:
- (1) In 40 CFR 1065.2 we give an overview of principles for reporting information.
 - (2) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published test procedures.
 - (3) In 40 CFR 1065.25 we establish basic guidelines for storing test information.
 - (4) In 40 CFR 1065.695 we identify data that may be appropriate for collecting during testing of in-use engines using portable analyzers.
- (d) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:
- (1) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.
 - (2) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information.
 - (3) In 40 CFR 1068.27 we require manufacturers to make engines available for our testing or inspection if we make such a request.
 - (4) In 40 CFR 1068.105 we require equipment manufacturers to keep certain records related to duplicate labels from engine manufacturers.
 - (5) In 40 CFR 1068.120 we specify recordkeeping related to rebuilding engines.
 - (6) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.
 - (7) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing engines.
 - (8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.
 - (9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.
 - (10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming engines.

Appendix I to Part 1054— Summary of Previous Emission Standards

The following standards apply to nonroad spark-ignition engines produced before the model years specified in §1054.1:

(a) Handheld engines. Phase 1 and Phase 2 standards apply for handheld engines as specified in 40 CFR 90.103 and summarized in the following tables:

Table 1 to Appendix I—Phase 1 emission standards for handheld engines (g/kW-hr)^a

Engine displacement class	HC	NO _x	CO
Class III	295	5.36	805
Class IV	241	5.36	805
Class V	161	5.36	603

^a Phase 1 standards are based on testing with new engines only.

Table 2 to Appendix I—Phase 2 emission standards for handheld engines (g/kW-hr)^a

Engine displacement class	HC+NO _x	CO
Class III	50	805
Class IV	50	805
Class V	72	603

^a The standards shown are the fully phased-in standards. See 40 CFR 90.103 for standards that applied during the phase-in period.

(b) Nonhandheld engines. Phase 1 and Phase 2 standards apply for nonhandheld engines as specified in 40 CFR 90.103 and summarized in the following tables:

Table 3 to Appendix I—Phase 1 emission standards for nonhandheld engines (g/kW-hr)^a

Engine displacement class	HC+NO _x	CO
Class I	16.1	519
Class II	13.4	519

^a Phase 1 standards are based on testing with new engines only.

Table 4 to Appendix I—Phase 2 emission standards for nonhandheld engines (g/kW-hr)

Engine displacement class	HC+NOx	NMHC+NOx	CO
Class I-A	50	—	610
Class I-B	40	37	610
Class I	16.1	14.8	610
Class II ^a	12.1	11.3	610

^a The Class II standards shown are the fully phased-in standards. See 40 CFR 90.103 for standards that applied during the phase-in period.

Appendix II to Part 1054— Duty Cycles for Laboratory Testing

(a) Test handheld engines with the following steady-state duty cycle:

G3 Mode Number	Engine Speed ^a	Torque (percent) ^b	Weighting Factors
1	Rated speed	100	0.85
2	Warm idle	0	0.15

^a Test engines at the specified speeds as described in §1054.505.

^b Test engines at 100 percent torque by setting operator demand to maximum. Control torque during idle at its warm idle speed as described in 40 CFR 1065.510.

(b) Test nonhandheld engines with one of the following steady-state duty cycles:

(1) The following duty cycle applies for discrete-mode testing:

G2 Mode Number ^a	Torque (percent) ^b	Weighting Factors
1	100	0.09
2	75	0.2
3	50	0.29
4	25	0.3
5	10	0.07
6	0	0.05

^a Control engine speed as described in §1054.505. Control engine speed for Mode 6 as described in §1054.505(c) for idle operation.

^b The percent torque is relative to the value established for full-load torque, as described in §1054.505.

(2) The following duty cycle applies for ramped-modal testing:

RMC Mode ^a	Time in mode (seconds)	Torque (percent) ^{b, c}
1a Steady-state	41	0
1b Transition	20	Linear transition
2a Steady-state	135	100
2b Transition	20	Linear transition
3a Steady-state	112	10
3b Transition	20	Linear transition
4a Steady-state	337	75
4b Transition	20	Linear transition
5a Steady-state	518	25
5b Transition	20	Linear transition
6a Steady-state	494	50
6b Transition	20	Linear transition
7 Steady-state	43	0

^a Control engine speed as described in §1054.505. Control engine speed for Mode 6 as described in §1054.505(c) for idle operation.

^b Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

^c The percent torque is relative to the value established for full-load torque, as described in §1054.505.

208. A new part 1060 is added to subchapter U of chapter I to read as follows:

**PART 1060—CONTROL OF EVAPORATIVE EMISSIONS FROM NEW AND IN-USE
NONROAD AND STATIONARY EQUIPMENT**

Subpart A—Overview and Applicability

- 1060.1 Which products are subject to this part's requirements?
- 1060.5 Do the requirements of this part apply to me?
- 1060.10 How is this part organized?
- 1060.15 Do any other CFR parts apply to me?
- 1060.30 Submission of information.

Subpart B—Emission Standards and Related Requirements

- 1060.101 What evaporative emission requirements apply under this part?
- 1060.102 What permeation emission control requirements apply for fuel lines?
- 1060.103 What permeation emission control requirements apply for fuel tanks?
- 1060.104 What running loss emission control requirements apply?
- 1060.105 What diurnal requirements apply for equipment?
- 1060.120 What emission-related warranty requirements apply?
- 1060.125 What maintenance instructions must I give to buyers?
- 1060.130 What installation instructions must I give to equipment manufacturers?
- 1060.135 How must I label and identify the engines and equipment I produce?
- 1060.137 How must I label and identify the fuel-system components I produce?

Subpart C—Certifying Emission Families

- 1060.201 What are the general requirements for obtaining a certificate of conformity?
- 1060.202 What are the certification requirements related to the general standards in §1060.101?
- 1060.205 What must I include in my application?
- 1060.210 What records should equipment manufacturers keep if they do not apply for certification?
- 1060.225 How do I amend my application for certification?
- 1060.230 How do I select emission families?
- 1060.235 What emission testing must I perform for my application for a certificate of conformity?
- 1060.240 How do I demonstrate that my emission family complies with evaporative emission standards?
- 1060.250 What records must I keep?
- 1060.255 What decisions may EPA make regarding my certificate of conformity?

Subpart D—Production Verification Testing

- 1060.301 Manufacturer testing.
- 1060.310 Supplying products to EPA for testing.

Subpart E—In-use Testing

- 1060.401 General Provisions.

Subpart F—Test Procedures

- 1060.501 General testing provisions.
- 1060.505 Other procedures.
- 1060.510 How do I test EPA Low-Emission Fuel Lines for permeation emissions?
- 1060.515 How do I test EPA Nonroad Fuel Lines and EPA Cold-Weather Fuel Lines for permeation emissions?
- 1060.520 How do I test fuel tanks for permeation emissions?
- 1060.521 How do I test fuel caps for permeation emissions?

1060.525 How do I test fuel systems for diurnal emissions?

Subpart G—Special Compliance Provisions

1060.601 How do the prohibitions of 40 CFR 1068.101 apply with respect to the requirements of this part?

1060.605 Exemptions from evaporative emission standards.

1060.640 What special provisions apply to branded equipment?

Subpart H—Averaging, Banking, and Trading Provisions

1060.701 Applicability.

1060.705 How do I certify components to an emission level other than the standard under this part or use such components in my equipment?

Subpart I—Definitions and Other Reference Information

1060.801 What definitions apply to this part?

1060.805 What symbols, acronyms, and abbreviations does this part use?

1060.810 What materials does this part reference?

1060.815 What provisions apply to confidential information?

1060.820 How do I request a hearing?

1060.825 What reporting and recordkeeping requirements apply under this part?

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

Subpart A—Overview and Applicability

§1060.1 Which products are subject to this part's requirements?

(a) The standards and other requirements in this part 1060 apply to the fuel lines, fuel tanks, couplings and fittings, and fuel caps used or intended to be used in the following categories of new engines and equipment that are fueled with a volatile liquid fuel (such as gasoline, but not including diesel fuel), and to the equipment in which these components are installed, starting with the model years shown in Table 1 to this section:

- (1) Compression-ignition engines we regulate under 40 CFR part 1039. This includes stationary compression-ignition engines we regulate under the provisions of 40 CFR part 1039, as indicated under 40 CFR part 60, subpart IIII. See the evaporative emission standards specified in 40 CFR 1048.105. These engines are considered to be Large SI engines for purposes of this part 1060.
- (2) Marine compression-ignition engines we regulate under 40 CFR part 1042. See the evaporative emission standards specified in 40 CFR 1045.112. These engines are considered to be Marine SI engines for purposes of this part 1060.
- (3) Marine SI engines we regulate under 40 CFR part 1045. See the evaporative emission standards specified in 40 CFR 1045.112.
- (4) Large SI engines we regulate under 40 CFR part 1048. This includes stationary spark-ignition engines subject to standards under 40 CFR parts 1048 or 1054 as indicated in 40 CFR part 60, subpart JJJJ. See the evaporative emission standards specified in 40 CFR 1048.105.
- (5) Recreational vehicles and engines we regulate under 40 CFR part 1051 (such as snowmobiles and off-highway motorcycles). This includes highway motorcycles subject to standards under 40 CFR part 1051 as indicated in 40 CFR part 86, subpart E since these motorcycles are considered to be recreational vehicles for purposes of this part 1060. See the evaporative emission standards specified in 40 CFR 1051.110.
- (6) Small SI engines we regulate under 40 CFR part 1054. See the evaporative emission standards specified for handheld engines in 40 CFR 1054.110 and for nonhandheld engines in 40 CFR 1054.112.
- (7) Portable marine fuel tanks and fuel lines associated with such fuel tanks must meet evaporative emission standards specified in 40 CFR 1045.112. Portable nonroad fuel tanks and fuel lines

associated with such fuel tanks must also meet evaporative emission standards specified in 40 CFR 1045.112, whether or not they are used with marine vessels. Portable nonroad fuel tanks are considered to be portable marine fuel tanks for purposes of this part 1060.

(b) The regulations in this part 1060 apply for new replacement components used with any of the engines or equipment specified in paragraph (a) of this section as described in §1060.601.

(c) Fuel caps are subject to evaporative emission standards at the point of installation on a fuel tank. If a fuel cap is certified for use with Marine SI engines or Small SI engines under the optional standards of §1060.103, it is subject to all the requirements of this part 1060 as if these optional standards were mandatory.

(d) This part 1060 does not apply to any diesel-fueled engine or any other engine that does not use a volatile liquid fuel. In addition, this part does not apply to any engines or equipment in the following categories even if they use a volatile liquid fuel:

(1) Light-duty motor vehicles (see 40 CFR part 86).

(2) Heavy-duty motor vehicles and heavy-duty motor vehicle engines (see 40 CFR part 86). This part 1060 also does not apply to fuel systems for nonroad engines where such fuel systems are subject to part 86 because they are part of a heavy-duty motor vehicle.

(3) Aircraft engines (see 40 CFR part 87).

(4) Locomotives (see 40 CFR part 92 and 1033).

(5) Land-based nonroad diesel engines we regulate under 40 CFR part 89.

(6) Marine diesel engines we regulate under 40 CFR part 89, 94, or 1042.

(7) Land-based spark-ignition engines at or below 19 kW that we regulate under 40 CFR part 90.

Note that there are provisions in 40 CFR part 90 that reference specific portions of this part 1060.

(8) Marine spark-ignition engines we regulate under 40 CFR part 91.

(e) This part 1060 does not apply for fuel lines made wholly of metal.

Table 1 to §1060.1— Part 1060 Applicability ^a

Equipment category or subcategory	Fuel line permeation	Tank permeation	Diurnal emissions	Running loss emissions
Marine SI — portable marine fuel tanks	January 1, 2009 ^b	January 1, 2011	January 1, 2010	Not applicable
Marine SI— personal watercraft	January 1, 2009	Model year 2011	Model year 2010	Not applicable
Marine SI— other vessels with installed fuel tanks	January 1, 2009 ^b	Model year 2012	July 31, 2011	Not applicable
Large SI	Model year 2007	Not applicable	Model year 2007 (includes tank permeation)	Model year 2007
Recreational vehicles	Model year 2008	Model year 2008	Not applicable	Not applicable
Small SI— handheld	Model year 2012 ^c	Model year 2010 ^d	Not applicable	Not applicable
Small SI—Class I nonhandheld	January 1, 2009	Model year 2012	Not applicable ^e	Model year 2012
Small SI— Class II nonhandheld	January 1, 2009	Model year 2011	Not applicable ^e	Model year 2011

^a Implementation is based on the date of manufacture of the equipment. Where we do not identify a specific date, the emission standards start to apply at the beginning of the model year.

^b January 1, 2011 for primer bulbs. Standards phase in for under-cowl fuel lines on outboard engines, by length: 30% in 2010, 60% in 2011, 90% in 2012-2014, 100% in 2015.

^c 2013 for small-volume emission families that do not include cold-weather fuel lines.

^d 2011 for structurally integrated nylon fuel tanks and 2013 for all small-volume emission families.

^e Manufacturers may optionally meet diurnal standards as specified in §1060.105(e)

§1060.5 Do the requirements of this part apply to me?

The requirements of this part are generally addressed to the manufacturers that are subject to this part's requirements as described in paragraph (a) of this section. The term "you" generally means the manufacturer or manufacturers that are subject to these requirements. Paragraphs (b) through (e) of this section describe which manufacturers may or must certify their products. (Note: §1060.601(f) allows the certification responsibility to be delegated in certain circumstances.)

(a) Overall responsibilities. Manufacturers of the engines, equipment, and fuel-system components described in §1060.1 are subject to the standards and other requirements of this part 1060 except as otherwise noted. Multiple manufacturers may be subject to these standards and other requirements. For example, when a Small SI equipment manufacturer buys fuel line manufactured by another person and installs them in its equipment, both the equipment manufacturer and the fuel line manufacturer are subject to the standards and other requirements of this part. The following provisions apply in such cases:

(1) Each person meeting the definition of manufacturer for a product that is subject to the standards and other requirements of this part must comply with such requirements. However, if one person complies with a specific requirement for a given product, then all manufacturers are deemed to have complied with that specific requirement. For example, if a Small SI equipment manufacturer uses fuel lines manufactured and certified by another company, the equipment manufacturer is not required to obtain a certificate with respect to the fuel line emission standards. Such an equipment manufacturer remains subject to the standards and other requirements of this part. However, where a

provision requires a specific manufacturer to comply with certain provisions, this paragraph (a) does not change or modify such a requirement. For example, this paragraph (a) does not allow you to rely on another company to certify instead of you if we specifically require you to certify.

(2) The requirements of subparts C and D of this part apply to the manufacturer that obtains the certificate of conformity. Other manufacturers are required to comply with the requirements of subparts C and D of this part only when we send notification. In our notification, we will specify a reasonable period for complying with the requirements identified in the notice. See §1060.601 for the applicability of 40 CFR part 1068 to these other manufacturers.

(3) Certificate holders are responsible for meeting all applicable requirements even if other manufacturers are also subject to those requirements.

(b) Marine SI. Certify vessels, engines, and fuel-system components as follows:

(1) Component manufacturers must certify their fuel lines and fuel tanks intended for installation with Marine SI engines and vessels under this part 1060, except as allowed by §1060.601(f). This includes permeation and diurnal emission standards.

(2) Vessel manufacturers are subject to all the requirements of this part 1060 that apply to Marine SI engines and fuel systems. However, they must certify their vessels to the emission standards specified in §§1060.102 through 1060.105 only if one or more of the following conditions apply:

(i) Vessel manufacturers install certified components that are not certified to meet all applicable evaporative emission standards, including both permeation and diurnal standards. This would include vessel manufacturers that make their own fuel tanks. Vessel manufacturers would certify under this part 1060.

(ii) Vessel manufacturers intend to generate or use evaporative emission credits, even if they use only certified components to meet all applicable evaporative emission standards. Vessel manufacturers would certify under part 40 CFR part 1045 using the emission-credit provisions in subpart H of that part to demonstrate compliance with the emission standard.

(3) Engine manufacturers must meet all the requirements of this part 1060 that apply to vessel manufacturers for all fuel-system components they install on their engines. For example, engine manufacturers that install under-cowl fuel lines and fuel tanks must comply with the requirements specified for vessel manufacturers with respect to those components.

(c) Large SI. Certify engines, equipment, and fuel-system components as follows:

(1) Engine manufacturers must certify their engines under 40 CFR part 1048.

(2) Equipment manufacturers and component manufacturers may certify fuel lines and fuel tanks intended for use with Large SI engines under this part 1060.

(d) Recreational vehicles. Certify vehicles, engines and fuel-system components as follows:

(1) Vehicle manufacturers must certify their vehicles under 40 CFR part 1051.

(2) Engine manufacturers must meet all the requirements of 40 CFR part 1051 that apply to vehicle manufacturers for all fuel-system components they install on their engines. For example, engine manufacturers that install fuel-line segments on the engines they ship to vehicle manufacturers must comply with the requirements specified for equipment manufacturers with respect to those components.

(3) Component manufacturers may certify fuel lines and fuel tanks intended for recreational vehicles under this part 1060.

(e) Small SI. Certify engines, equipment, and fuel-system components as follows:

(1) Component manufacturers must certify their fuel lines and fuel tanks intended for Small SI engines and equipment under this part 1060, except as allowed by §1060.601(f).

(2) Engine manufacturers must meet all the requirements of this part 1060 that apply to equipment manufacturers for all fuel-system components they install on their engines. Engine manufacturers that produce Small SI engines with complete fuel systems are considered the equipment manufacturers for those engines under this part 1060.

(3) Equipment manufacturers must certify their equipment and are subject to all the requirements of this part 1060.

(f) Summary of certification responsibilities. Tables 1 through 3 of this section summarize the certification responsibilities for different kinds of manufacturers as described in paragraphs (b) through

(e) of this section. The term “No” as used in the tables means that a manufacturer is not required to obtain a certificate of conformity under paragraphs (b) through (e) of this section. In situations where multiple manufacturers are subject to the standards and other requirements of this part, such a manufacturer must nevertheless certify if the manufacturer who is required to certify under paragraphs (b) through (e) of this section fails to obtain a certificate of conformity.

Table 1 to §1060.5—Summary of Engine Manufacturer Certification Responsibilities

Equipment type	Is the engine manufacturer required to certify fuel systems? ^a	Code of Federal Regulations Cite for Certification
Marine SI	No.	—
Large SI	Yes.	40 CFR part 1048.
Recreational vehicles	No.	—
Small SI	No, unless engines are sold with complete fuel systems.	40 CFR part 1060.

^a Fuel lines and fuel tanks that are attached to or sold with engines must be covered by a certificate of conformity.

Table 2 to §1060.5—Summary of Equipment Manufacturer Certification Responsibilities

Equipment type	Is the equipment manufacturer required to certify fuel systems?	Code of Federal Regulations Cite for Certification
Marine SI	Yes, but only if vessel manufacturers install uncertified fuel lines or fuel tanks or intend to generate or use evaporative emission credits.	40 CFR part 1060. ^a
Large SI	Allowed but not required.	40 CFR part 1060.
Recreational vehicles	Yes, even if vehicle manufacturers install certified components.	40 CFR part 1051.
Small SI	Yes.	40 CFR part 1060. ^a

^a See the exhaust standard-setting part for provisions related to generating or using evaporative emission credits.

Table 3 of §1060.5—Summary of Component Manufacturer Certification Responsibilities

Equipment type	Is the component manufacturer required to certify fuel lines and fuel tanks?	Code of Federal Regulations Cite for Certification
Marine SI	Yes, including portable marine fuel tanks and associated fuel lines. ^a	40 CFR part 1060.
Large SI	Allowed but not required.	40 CFR part 1060.
Recreational vehicles	Allowed but not required.	40 CFR part 1060.
Small SI	Yes. ^a	40 CFR part 1060.

^a See §1060.601 for an allowance to make contractual arrangements with engine or equipment manufacturers instead of certifying.

§1060.10 How is this part organized?

This part 1060 is divided into the following subparts:

- (a) Subpart A of this part defines the applicability of part 1060 and gives an overview of regulatory requirements.
- (b) Subpart B of this part describes the emission standards and other requirements that must be met to certify equipment or components under this part. Note that §1060.110 discusses certain interim requirements and compliance provisions that apply only for a limited time.
- (c) Subpart C of this part describes how to apply for a certificate of conformity.
- (d) Subpart D of this part describes the requirements related to verifying that products are being produced as described in an approved application for certification.
- (e) Subpart E of this part describes the requirements related to verifying that products are meeting the standards in use.
- (f) Subpart F of this part describes how to measure evaporative emissions.
- (g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to manufacturers, owners, operators, and all others.
- (h) Subpart H of this part describes how to certify your equipment or components for inclusion in an emission averaging program allowed by an exhaust standard-setting part.
- (i) Subpart I of this part contains definitions and other reference information.

§1060.15 Do any other CFR parts apply to me?

(a) There is a separate part of the CFR that includes exhaust emission requirements for each particular application, as described in §1060.1(a). We refer to these as the exhaust standard-setting parts. In cases where an exhaust standard-setting part includes evaporative requirements, apply this part 1060 as specified in the exhaust standard-setting part, as follows:

- (1) The requirements in the exhaust standard-setting part may differ from the requirements in this part. In cases where it is not possible to comply with both the exhaust standard-setting part and this part, you must comply with the requirements in the exhaust standard-setting part. The exhaust standard-setting part may also allow you to deviate from the procedures of this part for other reasons.
- (2) The exhaust standard-setting parts may reference some sections of this part 1060 or may allow or require certification under this part 1060. See the exhaust standard-setting parts to determine what provisions of this part 1060 apply for these equipment types.

(b) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, imports, owns, operates, or services any of the fuel systems subject to this part 1060. Part 1068 of this chapter describes general provisions, including the following areas:

- (1) Prohibited acts and penalties for engine manufacturers, equipment manufacturers, and others.
- (2) Exclusions and exemptions for certain products.
- (3) Importing products.
- (4) Defect reporting and recall.
- (5) Procedures for hearings.

(c) Other parts of this chapter apply if referenced in this part.

§1060.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to §1060.825, 40 CFR 1068.25, and the exhaust standard-setting part regarding recordkeeping requirements. If recordkeeping requirements are not specified, store these records in any format and on any media and keep them readily available for one year after you send an associated application for certification, or one year after you generate the data if they do not support an application for certification. You must promptly send us organized, written records in English if we ask for them. We may review them at any time.

(b) The regulations in §1060.255 and 40 CFR 1068.101 describe your obligation to report truthful and complete information and the consequences of failing to meet this obligation. This includes information not related to certification.

(c) Send all reports and requests for approval to the Designated Compliance Officer (see §1060.801).

(d) Any written information we require you to send to or receive from another company is deemed to be a required record under this section. Such records are also deemed to be submissions to EPA. We may require you to send us these records whether or not you are a certificate holder.

Subpart B—Emission Standards and Related Requirements

§1060.101 What evaporative emission requirements apply under this part?

Products subject to this part must meet emission standards and related requirements as follows:

- (a) Section 1060.102 describes permeation emission control requirements for fuel lines.
- (b) Section 1060.103 describes permeation emission control requirements for fuel tanks.
- (c) Section 1060.104 describes running loss emission control requirements for fuel systems.
- (d) Section 1060.105 describes diurnal emission control requirements for fuel tanks.
- (e) The following general requirements apply for components and equipment subject to the emission standards in §§1060.102 through 1060.105:
 - (1) Adjustable parameters. Components or equipment with adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range.
 - (2) Prohibited controls. The following controls are prohibited:
 - (i) For anyone to design, manufacture, or install emission control systems so they cause or contribute to an unreasonable risk to public health, welfare, or safety while operating.
 - (ii) For anyone to design, manufacture, or install emission control systems with features that disable, deactivate, or bypass the emission controls, either actively or passively. For example, you may not include a manual vent that the operator can open to bypass emission controls. You may ask us to allow such features if needed for safety reasons or if the features are fully functional during emission tests described in subpart F of this part.
 - (3) Emission credits. Equipment manufacturers are allowed to comply with the emission standards in this part using evaporative emission credits only if the exhaust standard-setting part explicitly allows it for evaporative emissions. See the exhaust standard-setting part and subpart H of this part for information about complying with evaporative emission credits. For equipment manufacturers to generate or use evaporative emission credits, components must be certified to a family emission limit, which serves as the standard for those components.
- (f) This paragraph (f) specifies requirements that apply to equipment manufacturers subject to requirements under this part, whether or not they are subject to and certify to any of the emission standards in §§1060.102 through 1060.105. Equipment manufacturers meeting these requirements will be deemed to be certified as in conformity with the requirements of this paragraph (f) without submitting an application for certification, as follows:
 - (1) Fuel caps, vents, and carbon canisters. You are responsible for ensuring that proper caps and vents are installed on each new piece of equipment that is subject to emission standards under this part. The following particular requirements apply to equipment that is subject to running loss or diurnal emission standards, including portable marine fuel tanks:
 - (i) All equipment must have a tethered fuel cap. Fuel caps must also include a visual, audible, or other physical indication that they have been properly sealed.
 - (ii) You may not add vents unless they are specified in or allowed by the applicable certificates of conformity.
 - (iii) If the emission controls rely on carbon canisters, they must be installed in a way that prevents exposing the carbon to water or liquid fuel.
 - (2) Fuel-line fittings. The following requirements apply for fuel-line fittings that will be used with fuel lines that must meet permeation emission standards:
 - (i) Use good engineering judgment to ensure that all fuel-line fittings will remain securely connected to prevent fuel leakage throughout the useful life of the equipment.
 - (ii) Fuel lines that are intended to be detachable (such as those for portable marine fuel tanks) must be self-sealing when detached from the fuel tank or engine.

(3) **Refueling.** For any equipment using fuel tanks that are subject to diurnal or permeation emission standards under this part, you must design and build your equipment such that operators can reasonably be expected to fill the fuel tank without spitback or spillage during the refueling event. The following examples illustrate designs that meet this requirement:

(i) Equipment that is commonly refueled using a portable gasoline container should have a fuel tank inlet that is larger than a typical dispensing spout. The fuel tank inlet should be located so the operator can place the nozzle directly in the fuel tank inlet and see the fuel level in the tank while pouring the fuel from an appropriately sized refueling container (either through the tank wall or the fuel tank inlet). We will deem you to comply with the requirements of this paragraph (f)(3)(i) if you design your equipment to meet applicable industry standards related to fuel tank inlets.

(ii) Marine SI vessels with a filler neck extending to the side of the boat should be designed for automatic fuel shutoff. Alternatively, the filler neck should be designed such that the orientation of the filler neck allows dispensed fuel that collects in the filler neck to flow back into the fuel tank. A filler neck that ends with a horizontal or nearly horizontal segment at the opening where fuel is dispensed would not be an acceptable design.

(g) Components and equipment must meet the standards specified in this part throughout the applicable useful life. Where we do not specify procedures for demonstrating the durability of emission controls, use good engineering judgment to ensure that your products will meet the standards throughout the useful life. The useful life is one of the following values:

(1) The useful life in years specified for the components or equipment in the exhaust standard-setting part.

(2) The useful life in years specified for the engine in the exhaust standard-setting part if the exhaust standards are specified for the engine rather than the equipment and there is no useful life given for components or equipment.

(3) Five years if no useful life is specified in years for the components, equipment, or engines in the exhaust standard-setting part.

§1060.102 What permeation emission control requirements apply for fuel lines?

(a) Nonmetal fuel lines must meet permeation requirements as follows:

(1) Marine SI fuel lines, including fuel lines associated with outboard engines or portable marine fuel tanks, must meet the permeation requirements in this section.

(2) Large SI fuel lines must meet the permeation requirements specified in 40 CFR 1048.105.

(3) Fuel lines for recreational vehicles must meet the permeation requirements specified in 40 CFR 1051.110 or in this section.

(4) Small SI fuel lines must meet the permeation requirements in this section, unless they are installed in equipment certified to meet diurnal emission standards under §1060.105(e).

(b) Different categories of nonroad equipment are subject to different requirements with respect to fuel line permeation. Fuel lines are classified based on measured emissions over the test procedure specified for the class.

(c) The regulations in 40 CFR part 1048 require that fuel lines used with Large SI engines must meet the standards for EPA Low-Emission Fuel Lines. The regulations in 40 CFR part 1054 require that fuel lines used with handheld Small SI engines installed in cold-weather equipment must meet the standards for EPA Cold-Weather Fuel Lines. Unless specified otherwise in this subchapter U, fuel lines used with all other engines and equipment subject to the provisions of this part 1060, including fuel lines associated with outboard engines or portable marine fuel tanks, must meet the standards for EPA Nonroad Fuel Lines.

(d) The following standards apply for each fuel line classification:

(1) EPA Low-Emission Fuel Lines must have permeation emissions at or below 10 g/m²/day when measured according to the test procedure described in §1060.510.

(2) EPA Nonroad Fuel Lines must have permeation emissions at or below 15 g/m²/day when measured according to the test procedure described in §1060.515.

(3) EPA Cold-Weather Fuel Lines must meet the following permeation emission standards when measured according to the test procedure described in §1060.515:

Table 1 to §1060.102—
Permeation Standards for EPA Cold-Weather Fuel Lines

Model Year	Standard (g/m ² /day)
2012	290
2013	275
2014	260
2015	245
2016 and later	225

(e) You may certify fuel lines as follow:

- (1) You may certify straight-run fuel lines as sections of any length.
- (2) You may certify molded fuel lines in any configuration representing your actual production, subject to the provisions for selecting a worst-case configuration in §1060.235(b).
- (3) You may certify fuel line assemblies as aggregated systems that include multiple sections of fuel line with connectors and fittings. For example, you may certify fuel lines for portable marine fuel tanks as assemblies of fuel hose, primer bulbs, and self-sealing end connections. The length of such an assembly must not be longer than a typical in-use installation and must always be less than 2.5 meters long. You may also certify primer bulbs separately. The standard applies with respect to the total permeation emissions divided by the wetted internal surface area of the assembly. Where it is not practical to determine the actual internal surface area of the assembly, you may assume that the internal surface area per unit length of the assembly is equal to the ratio of internal surface area per unit length of the hose section of the assembly.

§1060.103 What permeation emission control requirements apply for fuel tanks?

(a) Fuel tanks must meet permeation requirements as follows:

- (1) Marine SI fuel tanks, including engine-mounted fuel tanks and portable marine fuel tanks, must meet the permeation requirements in this section.
- (2) Large SI fuel tanks must meet diurnal emission standards as specified in §1060.105, which includes measurement of permeation emissions. No separate permeation standard applies.
- (3) Fuel tanks for recreational vehicles must meet the permeation requirements specified in 40 CFR 1051.110 or in this section.
- (4) Small SI fuel tanks must meet the permeation requirements in this section unless they are installed in equipment certified to meet diurnal emission standards under §1060.105(e).

(b) Permeation emissions from fuel tanks may not exceed 1.5 g/m²/day when measured at a nominal temperature of 28°C with the test procedures for tank permeation in §1060.520. You may also choose to meet a standard of 2.5 g/m²/day if you perform testing at a nominal temperature of 40°C under §1060.520(d).

(c) The exhaust standard-setting part may allow for certification of fuel tanks to a family emission limit for calculating evaporative emission credits as described in subpart H of this part instead of meeting the emission standards in this section.

(d) For purposes of this part, fuel tanks do not include fuel lines that are subject to §1060.102, petcocks designed for draining fuel, or grommets used with fuel lines. Fuel tanks include other fittings (such as fuel caps, gaskets, and O-rings) that are directly mounted to the fuel tank.

(e) Fuel caps may be certified separately to the permeation emission standard in paragraph (b) of this section using the test procedures specified in §1060.521. For the purposes of this paragraph (e), gaskets or O-rings that are produced as part of an assembly with the fuel cap are considered part of the fuel cap.

(f) Metal fuel tanks that meet the permeation criteria in §1060.240(d)(2) or use certified nonmetal fuel caps will be deemed to be certified as in conformity with the requirements of this section without submitting an application for certification.

§1060.104 What running loss emission control requirements apply?

- (a) Engines and equipment must meet running loss requirements as follows:
- (1) Marine SI engines and vessels are not subject to running loss emission standards.
 - (2) Large SI engines and equipment must prevent fuel boiling during operation as specified in 40 CFR 1048.105.
 - (3) Recreational vehicles are not subject to running loss emission standards.
 - (4) Nonhandheld Small SI engines and equipment that are not used in wintertime equipment must meet running loss requirements described in this section. Handheld Small SI engines and equipment are not subject to running loss emission standards.
- (b) You must demonstrate control of running loss emissions in one of the following ways if your engines or equipment are subject to the requirements of this section:
- (1) Route running loss emissions into the engine intake system so fuel vapors vented from the tank during engine operation are combusted in the engine. This may involve routing vapors through a carbon canister. If another company has certified the engine with respect to exhaust emissions, state in your application for certification that you have followed the engine manufacturer's installation instructions.
 - (2) Use a fuel tank that remains sealed under normal operating conditions. This may involve a bladder or other means to prevent pressurized fuel tanks.
 - (3) Get an approved Executive Order from the California Air Resources Board showing that your system meets applicable running loss standards in California.
- (c) If you are subject to both running loss and diurnal emission standards, use good engineering judgment to ensure that the emission controls are compatible.

§1060.105 What diurnal requirements apply for equipment?

- (a) Fuel tanks must meet diurnal emission requirements as follows:
- (1) Marine SI fuel tanks, including engine-mounted fuel tanks and portable marine fuel tanks, must meet the requirements related to diurnal emissions specified in this section.
 - (2) Large SI fuel tanks must meet the requirements related to diurnal emissions specified in 40 CFR 1048.105.
 - (3) Recreational vehicles are not subject to diurnal emission standards.
 - (4) Small SI fuel tanks are not subject to diurnal emission standards, except as specified in paragraph (e) of this section.
- (b) Diurnal emissions from Marine SI fuel tanks may not exceed 0.40 g/gal/day when measured using the test procedures specified in §1060.525 for general fuel temperatures. An alternative standard of 0.16 g/gal/day applies for fuel tanks installed in nontrailerable boats when measured using the corresponding fuel temperature profile in §1060.525. Portable marine fuel tanks are not subject to the requirements of this paragraph (b), but must instead comply with the requirements of paragraphs (c) and (d) of this section.
- (c) Portable marine fuel tanks and associated fuel-system components must meet the following requirements:
- (1) They must be self-sealing (without any manual vents) when not attached to the engines. The tanks may not vent to the atmosphere when attached to an engine.
 - (2) They must remain sealed up to a positive pressure of 34.5 kPa (5.0 psig); however, they may contain air inlets that open when there is a vacuum pressure inside the tank.
- (d) Detachable fuel lines that are intended for use with portable marine fuel tanks must be self-sealing (without any manual vents) when not attached to the engine or fuel tank.
- (e) Manufacturers of nonhandheld Small SI equipment may optionally meet the diurnal emission standards adopted by the California Air Resources Board in the Final Regulation Order, Article 1, Chapter 15, Division 3, Title 13, California Code of Regulations, July 26, 2004 (incorporated by

reference in §1060.810). To meet this requirement, equipment must be certified to the performance standards specified in Title 13 CCR §2754(a) based on the applicable requirements specified in CP-902 and TP-902, including the requirements related to fuel caps in Title 13 CCR §2756. Equipment certified under this paragraph (e) does not need to use fuel lines or fuel tanks that have been certified separately. Equipment certified under this paragraph (e) are subject to all the referenced requirements as if these specifications were mandatory.

(f) The following general provisions apply for controlling diurnal emissions:

- (1) If you are subject to both running loss and diurnal emission standards, use good engineering judgment to ensure that the emission controls are compatible.
- (2) You may not use diurnal emission controls that increase the occurrence of fuel spitback or spillage during in-use refueling. Also, if you use a carbon canister, you must incorporate design features that prevent liquid gasoline from reaching the canister during refueling or as a result of fuel sloshing or fuel expansion.

§1060.120 What emission-related warranty requirements apply?

(a) General requirements. The certifying manufacturer must warrant to the ultimate purchaser and each subsequent purchaser that the new nonroad equipment, including its evaporative emission control system, meets two conditions:

- (1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.
- (2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.

(b) Warranty period. Your emission-related warranty must be valid for at least two years from the point of first retail sale.

(c) Components covered. The emission-related warranty covers all components whose failure would increase the evaporative emissions, including those listed in 40 CFR part 1068, Appendix I, and those from any other system you develop to control emissions. Your emission-related warranty does not cover components whose failure would not increase evaporative emissions.

(d) Relationships between manufacturers.

- (1) The emission-related warranty required for equipment manufacturers that certify equipment must cover all specified components even if another company produces the component.
- (2) Where an equipment manufacturer fulfills a warranty obligation for a given component, the component manufacturer is deemed to have also met that obligation.

§1060.125 What maintenance instructions must I give to buyers?

Give ultimate purchasers written instructions for properly maintaining and using the emission control system. You may not specify any maintenance more frequently than once per year. For example, if you produce cold-weather equipment that requires replacement of fuel cap gaskets or O-rings, provide clear instructions to the ultimate purchaser, including the required replacement interval.

§1060.130 What installation instructions must I give to equipment manufacturers?

(a) If you sell a certified fuel-system component for someone else to install in equipment, give the installer instructions for installing it consistent with the requirements of this part.

(b) Make sure the instructions have the following information:

- (1) Include the heading: "Emission-related installation instructions".
- (2) State: "Failing to follow these instructions when installing [IDENTIFY COMPONENT(S)] in a piece of nonroad equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act."
- (3) Describe any limits on the range of applications needed to ensure that the component operates consistently with your application for certification. For example:
 - (i) For fuel tanks sold without fuel caps, you must specify the requirements for the fuel cap, such as the allowable materials, thread pattern, how it must seal, etc. You must also include

instructions to tether the fuel cap as described in §1060.101(f)(1) if you do not sell your fuel tanks with tethered fuel caps.

(ii) If your fuel lines do not meet permeation standards specified in §1060.102 for EPA Low-Emission Fuel Lines, tell equipment manufacturers not to install the fuel lines with Large SI engines that operate on gasoline or another volatile liquid fuel.

(4) Describe instructions for installing components so they will operate according to design specifications in your application for certification. Specify sufficient detail to ensure that the equipment will meet the applicable standards when your component is installed.

(5) If you certify a component with a family emission limit above the emission standard, be sure to indicate that the equipment manufacturer must have a source of credits to offset the higher emissions. Also indicate the applications for which the regulations allow for compliance using evaporative emission credits.

(6) Instruct the equipment manufacturers that they must comply with the requirements of §1060.202.

(c) You do not need installation instructions for components you install in your own equipment.

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available website for downloading or printing, provided you keep a copy of these instructions in your records. If you do not provide the instructions in writing, explain in your application for certification how you will ensure that each installer is informed of the installation requirements.

§1060.135 How must I label and identify the engines and equipment I produce?

The labeling requirements of this section apply for all equipment manufacturers and for engine manufacturers that certify with respect to evaporative emissions. See §1060.137 for the labeling requirements that apply separately for fuel lines, fuel tanks, and other fuel-system components.

(a) You must affix a permanent and legible label identifying each engine or piece of equipment before introducing it into U.S. commerce. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.

(2) Secured to a part of the engine or equipment needed for normal operation and not normally requiring replacement.

(3) Durable and readable for the equipment's entire life.

(4) Written in English.

(5) Readily visible in the final installation. It may be under a hinged door or other readily opened cover. It may not be hidden by any cover attached with screws or any similar designs. Labels on marine vessels must be visible from the helm.

(b) If you hold a certificate for your engine or equipment with respect to evaporative emissions, the engine or equipment label specified in paragraph (a) of this section must—

(1) Include the heading "EMISSION CONTROL INFORMATION".

(2) Include your corporate name and trademark. You may identify another company and use its trademark instead of yours if you comply with the provisions of §1060.640.

(3) State the date of manufacture [MONTH and YEAR] of the equipment; however, you may omit this from the label if you stamp or engrave it on the equipment.

(4) State: "THIS EQUIPMENT [or VEHICLE or BOAT] MEETS U.S. EPA EVAP STANDARDS."

(5) Identify the certified fuel-system components installed on the equipment as described in this paragraph (b)(5). Establish a component code for each certified fuel-system component, including those certified by other companies. You may use part numbers, certification numbers, or any other unique code that you or the certifying component manufacturer establish. This identifying information must correspond to printing or other labeling on each certified fuel-system component, whether you or the component manufacturer certifies the individual component. You may identify multiple part numbers if your equipment design might include an option to use more than one component design (such as from multiple component manufacturers). Use one of the following methods to include information on the label that identifies certified fuel-system components:

(i) Use the component codes to identify each certified fuel-system component on the label specified in this paragraph (b).

- (ii) Identify the emission family on the label using EPA’s standardized designation or an abbreviated equipment code that you establish in your application for certification. Equipment manufacturers that also certify their engines with respect to exhaust emissions may use the same emission family name for both exhaust and evaporative emissions. If you use the provisions of this paragraph (b)(5)(ii), you must identify all the certified fuel-system components and the associated component codes in your application for certification. In this case the label specified in this paragraph (b) may omit the information related to specific fuel-system components.
- (c) If you produce equipment without certifying with respect to evaporative emissions, the equipment label specified in paragraph (a) of this section must–
 - (1) State: "MEETS U.S. EPA EVAP STANDARDS USING CERTIFIED COMPONENTS."
 - (2) Include your corporate name.
- (d) You may add information to the emission control information label as follows:
 - (1) You may identify other emission standards that the engine meets or does not meet (such as California standards). You may include this information by adding it to the statement we specify or by including a separate statement.
 - (2) You may add other information to ensure that the engine will be properly maintained and used.
 - (3) You may add appropriate features to prevent counterfeit labels. For example, you may include the engine’s unique identification number on the label.
- (e) Anyone subject to the labeling requirements in this part 1060 may ask us to approve modified labeling requirements if it is necessary or appropriate. We will approve the request if the alternate label is consistent with the requirements of this part.

§1060.137 How must I label and identify the fuel-system components I produce?

The requirements of this section apply for manufacturers of fuel-system components subject to emission standards under this part 1060. However, these requirements do not apply if you produce fuel-system components that will be covered by a certificate of conformity from another company under §1060.601(f). These requirements also do not apply for components you certify if you also certify the equipment in which the component is installed and meet the labeling requirements in §1060.135.

- (a) Label the following components as described in this section:
 - (1) All fuel tanks, except for metal fuel tanks that are deemed certified under §1060.103(f).
 - (2) Fuel lines. This includes primer bulbs unless they are excluded from the definition of “fuel line” under the standard-setting part. Label primer bulbs separately.
 - (3) Carbon canisters.
 - (4) Fuel caps, as described in this paragraph (a)(4). Fuel caps must be labeled if they are separately certified under §1060.103 or if the diurnal control system requires that the fuel tank hold pressure. Fuel caps must also be labeled if they are attached directly to the fuel tank, unless the fuel tank is certified based on a worst-case fuel cap.
 - (5) Replaceable pressure-relief assemblies. This does not apply if the component is integral to the fuel tank or fuel cap.
 - (6) Other components we determine to be critical to the proper functioning of evaporative emission controls.
- (b) Label your certified fuel-system components at the time of manufacture. The label must be–
 - (1) Attached so it is not removable without being destroyed or defaced. This may involve printing directly on the product. For molded products, you may use the mold to apply the label.
 - (2) Durable and readable for the equipment’s entire life.
 - (3) Written in English.
- (c) Except as specified in paragraph (d) of this section, you must create the label specified in paragraph (b) of this section as follows:
 - (1) Include your corporate name. You may identify another company instead of yours if you comply with the provisions of §1054.640.
 - (2) Include EPA’s standardized designation for the emission family.
 - (3) State: “EPA COMPLIANT”.
 - (4) Fuel tank labels must identify the FEL, if applicable.

(5) Fuel line labels must identify the applicable permeation level. This may involve any of the following approaches:

(i) Identify the applicable numerical emission standard (such as 15 g/m²/day).

(ii) Identify the applicable emission standards using EPA classifications (such as EPA Nonroad Fuel Lines).

(iii) Identify the applicable industry standard specification (such as SAE J30 R12).

(6) Fuel line labels must be continuous, with no more than 12 inches before repeating. We will consider labels to be continuous if the space between repeating segments is no longer than that of the repeated information. You may add a continuous stripe or other pattern to help identify the particular type or grade of your products.

(d) You may create an abbreviated label for your components. Such a label may rely on codes to identify the component. The code must at a minimum identify the certification status, your corporate name, and the emission family. For example, XYZ Manufacturing may label its fuel lines as “EPA-XYZ-A15” to designate that their “A15” family was certified to meet EPA’s 15 g/m²/day standard. If you do this, you must describe the abbreviated label in your application for certification and identify all the associated information specified in paragraph (c) of this section.

(e) You may ask us to approve modified labeling requirements in this section as described in §1060.135(e).

Subpart C—Certifying Emission Families

§1060.201 What are the general requirements for obtaining a certificate of conformity?

Manufacturers of engines, equipment, or fuel-system components may need to certify their products with respect to evaporative emission standards as described in §§1060.1 and 1060.601. See §1060.202 for requirements related to certifying with respect to the requirements specified in §1060.101(f). The following general requirements apply for obtaining a certificate of conformity:

(a) You must send us a separate application for a certificate of conformity for each emission family. A certificate of conformity for equipment is valid starting with the indicated effective date but it is not valid for any production after December 31 of the model year for which it is issued. No certificate will be issued after December 31 of the model year. A certificate of conformity for a component is valid starting with the indicated effective date but it is not valid for any production after the end of the production period for which it is issued.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see §1060.255).

(c) We may ask you to include less information than we specify in this subpart as long as you maintain all the information required by §1060.250. For example, equipment manufacturers might use only components that are certified by other companies to meet applicable emission standards, in which case we would not require submission of emission data already submitted by the component manufacturer.

(d) You must use good engineering judgment for all decisions related to your application (see 40 CFR 1068.5).

(e) An authorized representative of your company must approve and sign the application.

(f) See §1060.255 for provisions describing how we will process your application.

(g) We may specify streamlined procedures for small-volume equipment manufacturers.

§1060.202 What are the certification requirements related to the general standards in §1060.101?

Equipment manufacturers must ensure that their equipment is certified with respect to the general standards specified in §1060.101(f) as follows:

(a) If §1060.5 requires you to certify your equipment to any of the emission standards specified in §§1060.102 through 1060.105, describe in your application for certification how you will meet the general standards specified in §1060.101(f).

(b) If §1060.5 does not require you to certify your equipment to any of the emission standards specified in §§1060.102 through 1060.105, your equipment is deemed to be certified with respect to the general standards specified in §1060.101(f) if you design and produce your equipment to meet those standards.

(1) You must keep records as described in §1060.210. The other provisions of this part for certificate holders apply only as specified in §1060.5.

(2) Your equipment is deemed to be certified only to the extent that it meets the general standards in §1060.101(f). Thus, it is a violation of 40 CFR 1068.101(a)(1) to introduce into U.S. commerce such equipment that does not meet applicable requirements under §1060.101(f).

(c) Instead of relying on paragraph (b) of this section, you may submit an application for certification and obtain a certificate from us. The provisions of this part apply in the same manner for certificates issued under this paragraph (c) as for any other certificate issued under this part.

§1060.205 What must I include in my application?

This section specifies the information that must be in your application, unless we ask you to include less information under §1060.201(c). We may require you to provide additional information to evaluate your application.

(a) Describe the emission family's specifications and other basic parameters of the emission controls.

Describe how you meet the running loss emission control requirements in §1060.104, if applicable.

Describe how you meet any applicable equipment-based requirements of §1060.101(e) and (f). State whether you are requesting certification for gasoline or some other fuel type. List each distinguishable configuration in the emission family.

(b) Describe the products you selected for testing and the reasons for selecting them.

(c) Describe the test equipment and procedures that you used, including any special or alternate test procedures you used (see §1060.501).

(d) List the specifications of the test fuel to show that it falls within the required ranges specified in subpart F of this part.

(e) State the equipment applications to which your certification is limited. For example, if your fuel system meets the emission requirements of this part applicable only to handheld Small SI equipment, state that the requested certificate would apply only for handheld Small SI equipment.

(f) Identify the emission family's useful life.

(g) Include the maintenance instructions you will give to the ultimate purchaser of each new nonroad engine (see §1060.125).

(h) Include the emission-related installation instructions you will provide if someone else will install your component in a piece of nonroad equipment (see §1060.130).

(i) Describe your emission control information label (see §§1060.135 and 1060.137).

(j) Identify the emission standards or FELs to which you are certifying the emission family.

(k) Present emission data to show your products meet the applicable emission standards. Note that §§1060.235 and 1060.240 allow you to submit an application in certain cases without new emission data.

(l) State that your product was tested as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part. If you did not do the testing, identify the source of the data.

(m) Report all test results, including those from invalid tests, whether or not they were conducted according to the test procedures of subpart F of this part. We may ask you to send other information to confirm that your tests were valid under the requirements of this part.

(n) Unconditionally certify that all the products in the emission family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(o) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models.

(p) Include other applicable information, such as information required by other subparts of this part.

(q) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

§1060.210 What records should equipment manufacturers keep if they do not apply for certification?

If you are an equipment manufacturer that does not need to obtain a certificate of conformity for your equipment as described in §1060.5, you must keep the records specified in this section to document compliance with applicable requirements. We may review these records at any time. If we ask, you must send us these records within 30 days. You must keep these records for eight years from the end of the model year.

- (a) Identify your equipment models and the annual U.S.-directed production volumes for each model.
- (b) Identify the emission family names of the certificates that will cover your equipment, the part numbers of those certified components, and the names of the companies that hold the certificates. You must be able to identify this information for each piece of equipment you produce.
- (c) Describe how you comply with any emission-related installation instructions, labeling requirements, and the general standards in §1060.101(e) and (f).

§1060.225 How do I amend my application for certification?

Before we issue a certificate of conformity, you may amend your application to include new or modified configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or modified configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information included in your application.

- (a) You must amend your application before you take any of the following actions:
 - (1) Add a configuration to an emission family. In this case, the configuration added must be consistent with other configurations in the emission family with respect to the criteria listed in §1060.230.
 - (2) Change a configuration already included in an emission family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the equipment's lifetime.
 - (3) Modify an FEL for an emission family as described in paragraph (f) of this section. Note however that component manufacturers may not modify an FEL for their products unless they submit a separate application for a new emission family.
- (b) To amend your application for certification, send the Designated Compliance Officer the following information:
 - (1) Describe in detail the addition or change in the configuration you intend to make.
 - (2) Include engineering evaluations or data showing that the amended emission family complies with all applicable requirements. You may do this by showing that the original emission data are still appropriate for showing that the amended family complies with all applicable requirements.
 - (3) If the original emission data for the emission family are not appropriate to show compliance for the new or modified configuration, include new test data showing that the new or modified configuration meets the requirements of this part.
- (c) We may ask for more test data or engineering evaluations. Within 30 days after we make our request, you must provide the information or describe your plan for providing it in a timely manner.
- (d) For emission families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your new or modified configuration. You may ask for a hearing if we deny your request (see §1060.820).
- (e) For emission families already covered by a certificate of conformity, you may start producing the new or modified configuration anytime after you send us your amended application and before we make a decision under paragraph (d) of this section. However, if we determine that the affected configurations do not meet applicable requirements, we will notify you to cease production of the configurations and may require you to recall the equipment at no expense to the owner. Choosing to produce equipment under this paragraph (e) is deemed to be consent to recall all equipment that we determine do not meet applicable emission standards or other requirements and to remedy the nonconformity at no expense to

the owner. If you do not provide information we request under paragraph (c) of this section within 30 days after we request it, you must stop producing the new or modified equipment.

(f) If you hold a certificate of conformity for equipment and you have certified the fuel tank that you install in the equipment, you may ask us to approve a change to your FEL after the start of production. The changed FEL may not apply to equipment you have already introduced into U.S. commerce, except as described in this paragraph (f). If we approve a changed FEL after the start of production, you must identify the date or serial number for applying the new FEL. If you identify this by month and year, we will consider that a lowered FEL applies on the last day of the month and a raised FEL applies on the first day of the month. You may ask us to approve a change to your FEL in the following cases:

(1) You may ask to raise your FEL for your emission family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in the exhaust standard-setting part. If you amend your application by submitting new test data to include a newly added or modified fuel tank configuration, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding production volumes to calculate your production-weighted average FEL for the model year. In all other circumstances, you must use the higher FEL for the entire family to calculate your production-weighted average FEL under subpart H of this part.

(2) You may ask to lower the FEL for your emission family only if you have test data from production units showing that emissions are below the proposed lower FEL. The lower FEL applies only for units you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate your production-weighted average FEL for the model year.

(g) Component manufacturers may not change an emission family's FEL under any circumstances. Changing the FEL would require submission of a new application for certification.

§1060.230 How do I select emission families?

(a) For purposes of certification, divide your product line into families of equipment (or components) that are expected to have similar emission characteristics throughout their useful life.

(b) Group fuel lines into the same emission family if they are the same in all the following aspects:

(1) Type of material including barrier layer.

(2) Production method.

(3) Types of connectors and fittings (material, approximate wall thickness, etc.) for fuel line assemblies certified together.

(c) Group fuel tanks (or fuel systems including fuel tanks) into the same emission family if they are the same in all the following aspects:

(1) Type of material, including any pigments, plasticizers, UV inhibitors, or other additives that are expected to affect control of emissions.

(2) Production method.

(3) Relevant characteristics of fuel cap design for fuel systems subject to diurnal emission requirements.

(4) Gasket material.

(5) Emission control strategy.

(6) Family emission limit, if applicable.

(d) Group other fuel-system components and equipment into the same emission family if they are the same in all the following aspects:

(1) Emission control strategy and design.

(2) Type of material (such as type of charcoal used in a carbon canister). This criteria does not apply for materials that are unrelated to emission control performance.

(3) The fuel systems meet the running loss emission standard based on the same type of compliance demonstration specified in §1060.104(b), if applicable.

(e) You may subdivide a group of equipment or components that are identical under paragraphs (b) through (d) of this section into different emission families if you show the expected emission characteristics are different during the useful life.

(f) In unusual circumstances, you may group equipment or components that are not identical with respect to the things listed in paragraph (b) through (d) of this section into the same emission family if you show that their emission characteristics during the useful life will be similar. The provisions of this paragraph (f) do not exempt any engines or equipment from meeting all the applicable standards and requirements in subpart B of this part.

(g) Emission families may include components used in multiple equipment categories. Such families are covered by a single certificate. For example, a single emission family may contain fuel tanks used in both Small SI equipment and Marine SI vessels.

§1060.235 What emission testing must I perform for my application for a certificate of conformity?

This section describes the emission testing you must perform to show compliance with the emission standards in subpart B of this part.

(a) Test your products using the procedures and equipment specified in subpart F of this part.

(b) Select an emission-data unit from each emission family for testing. If you are certifying with a family emission limit, you must test at least three emission-data units. In general, you must test a preproduction product that will represent actual production. However, for fuel tank permeation, you may test a tank with standardized geometry provided that it is made of the same material(s) and appropriate wall thickness. In general, the test procedures specify that components or systems be tested rather than complete equipment. For example, to certify your family of Small SI equipment, you would need to test a sample of fuel line for permeation emissions and a fuel tank for permeation emissions. Note that paragraph (e) of this section and §1060.240 allow you in certain circumstances to certify without testing an emission-data unit from the emission family. Select test components that are most likely to exceed (or have emissions nearer to) the applicable emission standards as follows:

(1) For fuel tanks, consider the following factors associated with higher emission levels:

(i) Smallest average wall thickness (or barrier thickness, as appropriate).

(ii) Greatest extent of pinch welds for tanks using barrier technologies.

(iii) Greatest relative area of gasket material, especially if gaskets are made of high-permeation materials.

(2) For fuel lines, consider the following factors associated with higher emission levels:

(i) Smallest average wall thickness (or barrier thickness, as appropriate).

(ii) Smallest inner diameter.

(c) You may not do maintenance on emission-data units.

(d) We may measure emissions from any of your products from the emission family, as follows:

(1) You must supply your products to us if we choose to perform confirmatory testing.

(2) If we measure emissions on one of your products, the results of that testing become the official emission results for the emission family. Unless we later invalidate these data, we may decide not to consider your data in determining if your emission family meets applicable requirements.

(e) You may ask to use carryover emission data from a previous production period instead of doing new tests, but only if all the following are true:

(1) The emission family from the previous production period differs from the current emission family only with respect to production period or other characteristics unrelated to emissions. You may also ask to add a configuration subject to §1060.225.

(2) The emission-data unit from the previous production period remains the appropriate emission-data unit under paragraph (b) of this section. For example, you may not carryover emission data for your family of nylon fuel tanks if you have added a thinner-walled fuel tank than was tested previously.

(3) The data show that the emission-data unit would meet all the requirements that apply to the emission family covered by the application for certification.

(f) We may require you to test another unit of the same or different configuration in addition to the unit(s) tested under paragraph (b) of this section.

(g) If you use an alternate test procedure under §1060.505, and later testing shows that such testing does not produce results that are equivalent to the procedures specified in this part, we may reject data you generated using the alternate procedure.

§1060.240 How do I demonstrate that my emission family complies with evaporative emission standards?

- (a) For purposes of certification, your emission family is considered in compliance with an evaporative emission standard in subpart B of this part if you do either of the following:
- (1) You have test results showing a certified emission level from the fuel tank or fuel line (as applicable) in the family are at or below the applicable standard.
 - (2) You comply with design specifications as specified in paragraphs (d) through (f) of this section.
- (b) Your emission family is deemed not to comply if any fuel tank or fuel line representing that family has an official emission result above the standard.
- (c) Round each official emission result to the same number of decimal places as the emission standard.
- (d) You may demonstrate for certification that your emission family complies with the fuel tank permeation standards specified in §1060.103 with any of the following control technologies:
- (1) A coextruded high-density polyethylene fuel tank with a continuous ethylene vinyl alcohol barrier layer (with not more than 40 molar percent ethylene) making up at least 2 percent of the fuel tank's overall wall thickness with any of the following gasket and fuel-cap characteristics:
 - (i) No nonmetal gaskets or fuel caps.
 - (ii) All nonmetal gaskets and fuel caps made from low-permeability materials.
 - (iii) Nonmetal gaskets and fuel caps that are not made from low-permeability materials up to the following limits:
 - (A) Gaskets with a total exposed surface area less than 0.25 percent of the total inside surface area of the fuel tank. For example, a fuel tank with an inside surface area of 0.40 square meters may use high-permeation gasket material representing a surface area of up to 1,000 mm² ($0.25\% \times 1/100 \times 0.40 \text{ m}^2 \times 1,000,000 \text{ mm}^2/\text{m}^2$). Determine surface area based on the amount of material exposed to liquid fuel.
 - (B) Fuel caps directly mounted to the fuel tank with the surface area of the fuel cap less than 3.0 percent of the total inside surface area of the fuel tank. Use the smallest inside cross-sectional area of the opening on which the cap is mounted as the fuel cap's surface area.
 - (2) A metal fuel tank with the gasket and fuel-cap characteristics meeting the specifications in paragraphs (d)(1)(i) through (iii) of this section.
- (e) You may demonstrate for certification that your emission family complies with the diurnal emission standards specified in §1060.105 with any of the following control technologies:
- (1) A Marine SI fuel tank sealed up to a positive pressure of 7.0 kPa (1.0 psig); however, the fuel tank may contain air inlets that open when there is a vacuum pressure inside the tank.
 - (2) A Marine SI fuel tank equipped with a passively purged carbon canister that meets the requirements of this paragraph (e)(2). The carbon must adsorb no more than 0.5 grams of water per gram of carbon at 90% relative humidity and a temperature of 25 ± 5 °C. The carbon granules must have a minimum mean diameter of 3.1 mm based on the procedures in ASTM D2862 (incorporated by reference in §1060.810). The carbon must also pass a dust attrition test based on ASTM D3802 (incorporated by reference in §1060.810), except that hardness is defined as the ratio of mean particle diameter before and after the test and the procedure must involve twenty ½-inch steel balls and ten ¾-inch steel balls. Use good engineering judgment in the structural design of the carbon canister. The canister must have a volume compensator or some other device to prevent the carbon pellets from moving within the canister as a result of vibration or changing temperature. The canister must have a minimum working capacity as follows:
 - (i) You may use the measurement procedures specified by the California Air Resources Board in Attachment 1 to TP-902 to show that canister working capacity is least 3.6 grams of vapor storage capacity per gallon of nominal fuel tank capacity (or 1.4 grams of vapor storage capacity per gallon of nominal fuel tank capacity for fuel tanks used in nontrailerable boats). TP-902 is part of Final Regulation Order, Article 1, Chapter 15, Division 3, Title 13, California Code of Regulations, July 26, 2004 as adopted by the California Air Resources Board (incorporated by reference in §1060.810).
 - (ii) You may produce canisters with a minimum carbon volume of 0.040 liters per gallon of nominal fuel tank capacity (or 0.016 liters per gallon for fuel tanks used in nontrailerable boats).

The carbon canister must have a minimum effective length-to-diameter ratio of 3.5 and the vapor flow must be directed with the intent of using the whole carbon bed. The carbon must have a minimum carbon working capacity of 90 grams per liter.

(f) We may establish additional design certification options where we find that new test data demonstrate that the use of a different technology design will ensure compliance with the applicable emission standards.

(g) You may not establish a family emission limit below the emission standard for components certified based on design specifications under this section even if actual emission rates are much lower.

§1060.250 What records must I keep?

(a) Organize and maintain the following records:

(1) A copy of all applications and any summary information you send us.

(2) Any of the information we specify in §1060.205 that you were not required to include in your application.

(3) A detailed history of each emission-data unit. For each emission data unit, include all of the following:

(i) The emission-data unit's construction, including its origin and buildup, steps you took to ensure that it represents production equipment, any components you built specially for it, and all the components you include in your application for certification.

(ii) All your emission tests, including documentation on routine and standard tests, and the date and purpose of each test.

(iii) All tests to diagnose emission control performance, giving the date and time of each and the reasons for the test.

(iv) Any other significant events.

(4) Annual production figures for each emission family divided by assembly plant.

(5) Keep a list of equipment identification numbers for all the equipment you produce under each certificate of conformity.

(b) Keep required data from routine emission tests (such as temperature measurements) for one year after we issue the associated certificate of conformity. Keep all other information specified in paragraph (a) of this section for eight years after we issue your certificate.

(c) Store these records in any format and on any media as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

§1060.255 What decisions may EPA make regarding my certificate of conformity?

(a) If we determine your application is complete and shows that the emission family meets all the requirements of this part and the Clean Air Act, we will issue a certificate of conformity for your emission family for that production period. We may make the approval subject to additional conditions.

(b) We may deny your application for certification if we determine that your emission family fails to comply with emission standards or other requirements of this part or the Clean Air Act. We will base our decision on all available information. If we deny your application, we will explain why in writing.

(c) In addition, we may deny your application or suspend or revoke your certificate if you do any of the following:

(1) Refuse to comply with any testing or reporting requirements.

(2) Submit false or incomplete information (paragraph (e) of this section applies if this is fraudulent).

(3) Render inaccurate any test data.

(4) Deny us from completing authorized activities despite our presenting a warrant or court order (see 40 CFR 1068.20). This includes a failure to provide reasonable assistance.

(5) Produce equipment or components for importation into the United States at a location where local law prohibits us from carrying out authorized activities.

(6) Fail to supply requested information or amend your application to include all equipment or components being produced.

(7) Take any action that otherwise circumvents the intent of the Clean Air Act or this part.

- (d) We may void your certificate if you do not keep the records we require or do not give us information when we ask for it.
- (e) We may void your certificate if we find that you intentionally submitted false or incomplete information.
- (f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see §1060.820).

Subpart D—Production Verification Testing

§1060.301 Manufacturer testing.

- (a) Using good engineering judgment, you must evaluate production samples to verify that equipment or components you produce are as specified in the certificate of conformity. This may involve testing using certification procedures or other measurements.
- (b) You must give us records to document your evaluation if we ask for them.

§1060.310 Supplying products to EPA for testing.

Upon our request, you must supply a reasonable number of production samples to us for verification testing.

Subpart E—In-use Testing

§1060.401 General Provisions.

We may perform in-use testing of any equipment or fuel-system components subject to the standards of this part.

Subpart F—Test Procedures

§1060.501 General testing provisions.

- (a) This subpart is addressed to you as a certifying manufacturer but it applies equally to anyone who does testing for you.
- (b) Unless we specify otherwise, the terms “procedures” and “test procedures” in this part include all aspects of testing, including the equipment specifications, calibrations, calculations, and other protocols and procedural specifications needed to measure emissions.
- (c) The specification for gasoline to be used for testing is given in 40 CFR 1065.710. Use the grade of gasoline specified for general testing. For testing specified in this part that requires a blend of gasoline and ethanol, blend this grade of gasoline with fuel-grade ethanol meeting the specifications of ASTM D4806 (incorporated by reference in §1060.810). You do not need to measure the ethanol concentration of such blended fuels and may instead calculate the blended composition by assuming that the ethanol is pure and mixes perfectly with the base fuel. For example, if you mix 10.0 liters of fuel-grade ethanol with 90.0 liters of gasoline, you may assume the resulting mixture is 10.0 percent ethanol. You may use more or less pure ethanol if you can demonstrate that it will not affect your ability to demonstrate compliance with the applicable emission standards. Note that unless we specify otherwise, any references to gasoline-ethanol mixtures containing a specified ethanol concentration means mixtures meeting the provisions of this paragraph (c).
- (d) Accuracy and precision of all temperature measurements must be $\pm 1.0^{\circ}\text{C}$ or better. If you use multiple sensors to measure differences in temperature, calibrate the sensors so they will be within 0.5°C of each other when they are in thermal equilibrium at a point within the range of test temperatures (use the starting temperature in Table 1 to §1060.525 unless this is not feasible).
- (e) Accuracy and precision of mass balances must be sufficient to ensure accuracy and precision of two percent or better for emission measurements for products at the maximum level allowed by the standard.

The readability of the display may not be coarser than half of the required accuracy and precision. Examples are shown in the following table:

	Example #1	Example #2	Example #3
Applicable standard	1.5 g/m ² /day	1.5 g/m ² /day	15 g/m ² /day
Internal surface area	1.15 m ²	0.47 m ²	0.070 m ²
Length of test	14 days	14 days	28 days
Maximum allowable mass change	24.15 g	9.87 g	1.96 g
Required accuracy and precision	±0.483 g or better	±0.197 g or better	±0.0392 g or better
Required readability	0.1 g or better	0.1 g or better	0.01 g or better

§1060.505 Other procedures.

(a) Your testing. The procedures in this part apply for all testing you do to show compliance with emission standards, with certain exceptions listed in this section.

(b) Our testing. These procedures generally apply for testing that we do to determine if your equipment complies with applicable emission standards. We may perform other testing as allowed by the Clean Air Act.

(c) Exceptions. We may allow or require you to use procedures other than those specified in this part in the following cases:

(1) You may request to use special procedures if your equipment cannot be tested using the specified procedures. We will approve your request if we determine that it would produce emission measurements that represent in-use operation and we determine that it can be used to show compliance with the requirements of the standard-setting part.

(2) You may ask to use emission data collected using other procedures, such as those of the California Air Resources Board or the International Organization for Standardization. We will approve this only if you show us that using these other procedures does not affect your ability to show compliance with the applicable emission standards. This generally requires emission levels to be far enough below the applicable emission standards so any test differences do not affect your ability to state unconditionally that your equipment will meet all applicable emission standards when tested using the specified test procedures.

(3) You may request to use alternate procedures that are equivalent to allowed procedures or are more accurate or more precise than allowed procedures. See 40 CFR 1065.12 for a description of the information that is generally required to show that an alternate test procedure is equivalent.

(4) The test procedures are specified for gasoline-fueled equipment. If your equipment will use another volatile liquid fuel instead of gasoline, use a test fuel that is representative of the fuel that will be used with the equipment in use. You may ask us to approve other changes to the test procedures to reflect the effects of using a fuel other than gasoline.

(d) Approval. If we require you to request approval to use other procedures under paragraph (c) of this section, you may not use them until we approve your request.

§1060.510 How do I test EPA Low-Emission Fuel Lines for permeation emissions?

For EPA Low-Emission Fuel Lines, measure emissions according to SAE J2260, which is incorporated by reference in §1054.810.

§1060.515 How do I test EPA Nonroad Fuel Lines and EPA Cold-Weather Fuel Lines for permeation emissions?

Measure emission as follows for EPA Nonroad Fuel Lines and EPA Cold-Weather Fuel Lines:

(a) Prior to permeation testing, use good engineering judgment to precondition the fuel line by filling it with the fuel specified in this paragraph (a), sealing the openings, and soaking it for at least four weeks at $43\pm 5^\circ\text{C}$ or eight weeks at $23\pm 5^\circ\text{C}$.

(1) For EPA Nonroad Fuel Lines, use Fuel CE10, which is Fuel C as specified in ASTM D471 (incorporated by reference in §1054.810) blended with ethanol such that the blended fuel has 10.0 ± 1.0 percent ethanol by volume.

(2) For EPA Cold-Weather Fuel Lines, use gasoline blended with ethanol such that the blended fuel has 10.0 ± 1.0 percent ethanol by volume.

(b) Drain the fuel line and refill it immediately with the fuel specified in paragraph (a) of this section. Be careful not to spill any fuel.

(c) Measure fuel line permeation emissions using the equipment and procedures for weight-loss testing specified in SAE J30 or SAE J1527 (incorporated by reference in §1054.810). Start the measurement procedure within 8 hours after draining and refilling the fuel line. Perform the emission test over a sampling period of 14 days.

(d) Use good engineering judgment to test fuel line segments with short length or narrow inner diameter. For example, size the fuel reservoir appropriately for the tested fuel line and take steps to eliminate air bubbles from narrow-diameter fuel lines.

§1060.520 How do I test fuel tanks for permeation emissions?

Measure permeation emissions by weighing a sealed fuel tank before and after a temperature-controlled soak.

(a) Preconditioning durability testing. Take the following steps before an emission test, in any order, if your emission control technology involves surface treatment or other post-processing treatments such as an epoxy coating:

(1) Pressure cycling. Perform a pressure test by sealing the tank and cycling it between +13.8 and -1.7 kPa (+2.0 and -0.5 psig) for 10,000 cycles at a rate of 60 seconds per cycle. The purpose of this test is to represent environmental wall stresses caused by pressure changes and other factors (such as vibration or thermal expansion). If your tank cannot be tested using the pressure cycles specified by this paragraph (a)(1), you may ask to use special test procedures under §1060.505.

(2) UV exposure. Perform a sunlight-exposure test by exposing the tank to an ultraviolet light of at least 24 W/m^2 ($0.40\text{ W-hr/m}^2/\text{min}$) on the tank surface for at least 450 hours. Alternatively, the fuel tank may be exposed to direct natural sunlight for an equivalent period of time as long as you ensure that the tank is exposed to at least 450 daylight hours.

(3) Slosh testing. Perform a slosh test by filling the tank to 40-50 percent of its capacity with the fuel specified in paragraph (e) of this section and rocking it at a rate of 15 cycles per minute until you reach one million total cycles. Use an angle deviation of $+15^\circ$ to -15° from level.

(b) Preconditioning fuel soak. Take the following steps before an emission test:

(1) Fill the tank with the fuel specified in paragraph (e) of this section, seal it, and allow it to soak at $28 \pm 5^\circ\text{C}$ for at least 20 weeks. Alternatively, the tank may be soaked for at least 10 weeks at $43\pm 5^\circ\text{C}$. You may count the time of the preconditioning steps in paragraph (a) of this section as part of the preconditioning fuel soak as long as the ambient temperature remains within the specified temperature range and the fuel tank is at least 40 percent full; you may add or replace fuel as needed to conduct the specified durability procedures.

(2) Empty the fuel tank and immediately refill it with the specified test fuel to its nominal capacity. Be careful not to spill any fuel.

(3) Perform durability cycles on fuel caps intended for use with handheld equipment by putting the fuel cap on and taking it off 300 times. Tighten the fuel cap each time in a way that represents the typical in-use experience.

(4) Allow the tank and its contents to equilibrate to the temperatures specified in paragraph (d)(7) of this section. Seal the fuel tank as described in paragraph (b)(5) of this section once the fuel temperatures are stabilized at the test temperature. You must seal the tank no more than eight hours after refueling. Until the fuel tank is sealed, take steps to minimize the vapor losses from the fuel tank, such as keeping the fuel cap loose on the fuel inlet or routing vapors through a vent hose.

- (5) Seal the fuel tank as follows:
- (i) If fuel tanks are designed for use with a filler neck such that the fuel cap is not directly mounted on the fuel tank, you may seal the fuel inlet with a nonpermeable covering.
 - (ii) If fuel tanks are designed with fuel caps directly mounted on the fuel tank, take one of the following approaches:
 - (A) Use a production fuel cap expected to have permeation emissions at least as high as the highest-emitting fuel cap that you expect to be used with fuel tanks from the emission family. It would generally be appropriate to consider an HDPE fuel cap with a nitrile rubber seal to be worst-case.
 - (B) You may seal the fuel inlet with a nonpermeable covering if you separately measure the permeation from a worst-case fuel cap as described in §1060.521.
 - (C) If you use or specify a fuel gasket made of low-permeability material, you may seal the fuel inlet with a nonpermeable covering and calculate an emission rate for the complete fuel tank using a default value of 30 g/m²/day for the fuel cap (or 50 g/m²/day for testing at 40°C). Use the smallest inside cross-sectional area of the opening on which the cap is mounted as the fuel cap's surface area.
 - (iii) Openings that are not normally sealed on the fuel tank (such as hose-connection fittings and vents in fuel caps) may be sealed using nonpermeable fittings such as metal or fluoropolymer plugs.
 - (iv) Openings for petcocks that are designed for draining fuel may be sealed using nonpermeable fittings such as metal or fluoropolymer plugs.
 - (v) Openings for grommets may be sealed using nonpermeable fittings such as metal or fluoropolymer plugs.
 - (vi) Rather than sealing a fuel tank with nonpermeable fittings, you may produce a fuel tank for testing without machining or stamping those holes.
- (c) Reference tank. A reference tank is required to correct for buoyancy effects that may occur during testing. Prepare the reference tank as follows:
- (1) Obtain a second tank that is identical to the test tank. You may not use a tank that has previously contained fuel or any other contents that might affect its mass stability.
 - (2) Fill the reference tank with enough glass beads (or other inert material) so the mass of the reference tank is approximately the same as the test tank when filled with fuel. Considering the performance characteristics of your balance, use good engineering judgment to determine how similar the mass of the reference tank needs to be to the mass of the test tank.
 - (3) Ensure that the inert material is dry.
 - (4) Seal the tank.
- (d) Permeation test run. To run the test, take the following steps after preconditioning:
- (1) Determine the fuel tank's internal surface area in square-meters, accurate to at least three significant figures. You may use less accurate estimates of the surface area if you make sure not to overestimate the surface area.
 - (2) Weigh the sealed test tank and record the weight. Place the reference tank on the balance and tare it so it reads zero. Place the sealed test tank on the balance and record the difference between the test tank and the reference tank. This value is M_0 . Take this measurement directly after sealing the test tank as specified in paragraphs (b)(4) and (5) of this section.
 - (3) Carefully place the tank within a temperature-controlled room or enclosure. Do not spill or add any fuel.
 - (4) Close the room or enclosure as needed to control temperatures and record the time. However, you may need to take steps to prevent an accumulation of hydrocarbon vapors in the room or enclosure that might affect the degree to which fuel permeates through the fuel tank. This might simply involve passive ventilation to allow fresh air exchanges.
 - (5) Ensure that the measured temperature in the room or enclosure stays within the temperatures specified in paragraph (d)(6) of this section.
 - (6) Leave the tank in the room or enclosure for the duration of the test run.

(7) Hold the temperature of the room or enclosure at $28 \pm 2^\circ \text{C}$; measure and record the temperature at least daily. You may alternatively hold the temperature of the room or enclosure at $40 \pm 2^\circ \text{C}$ to demonstrate compliance with the alternative standards specified in §1060.103(b).

(8) Measure weight loss daily by retaring the balance using the reference tank and weighing the sealed test tank. Calculate the cumulative weight loss in $\text{g}/\text{m}^2/\text{day}$ for each measurement. Calculate the coefficient of determination, r^2 , based on a linear plot of cumulative weight loss vs. test days as described in 40 CFR 1065.602(k). Continue testing for ten full days or, if r^2 is below 0.95, continue testing until r^2 is at or above 0.95. If r^2 is not at or above 0.95 within 20 days of testing, discontinue the test and precondition the fuel tank further until it has stabilized emission levels, then repeat the testing. The daily measurements must be at approximately the same time each day. You may omit up to two daily measurements in any seven-day period.

(9) Record the difference in mass between the reference tank and the test tank for each measurement. This value is M_i , where i is a counter representing the number of days elapsed. Subtract M_i from M_0 and divide the difference by the internal surface area of the fuel tank. Divide this g/m^2 value by the number of test days (using at least two decimal places) to calculate the emission rate in $\text{g}/\text{m}^2/\text{day}$.

Example: If a tank with an internal surface area of 0.720 m^2 weighed 1.31 grams less than the reference tank at the beginning of the test and weighed 9.86 grams less than the reference tank after soaking for 10.03 days, the emission rate would be—

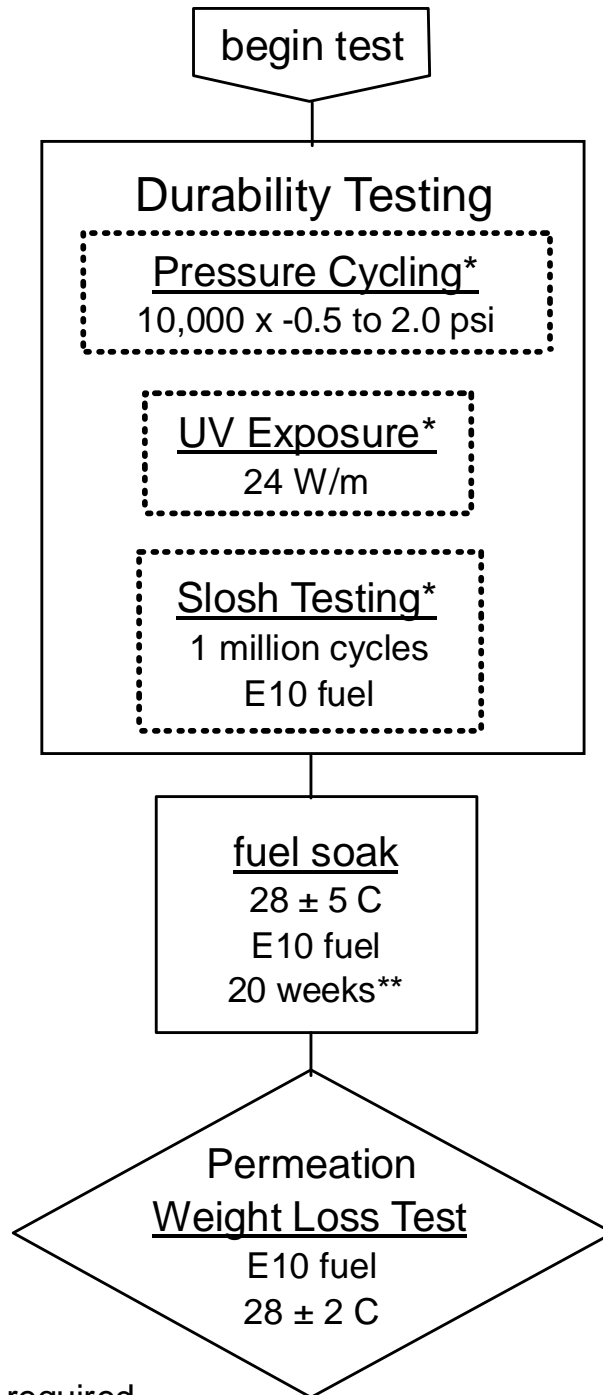
$$((-1.31 \text{ g}) - (-9.82 \text{ g})) / 0.720 \text{ m}^2 / 10.03 \text{ days} = 1.36 \text{ g}/\text{m}^2/\text{day}.$$

(10) Round your result to the same number of decimal places as the emission standard.

(e) Fuel specifications. Use gasoline blended with ethanol such that the blended fuel has 10.0 ± 1.0 percent ethanol by volume as specified in §1060.501. As an alternative, you may use Fuel CE10, as described in §1060.515(a)(1).

(f) Flow chart. The following figure presents a flow chart for the permeation testing described in this section:

Figure 1 to §1060.520 — Fuel Tank Permeation Test Procedures



* if required

** The length of "soak" during durability testing may be included in the fuel soak period provided that fuel remains in the tank. Soak periods can be shortened to 10 weeks if performed at 43 ± 5 C

§1060.521 How do I test fuel caps for permeation emissions?

If you measure a fuel tank's permeation emissions with a nonpermeable covering in place of the fuel cap under §1060.520(b)(5)(ii)(B), you must separately measure permeation emissions from a fuel cap. You may show that your fuel tank and fuel cap meet emission standards by certifying them separately or by combining the separate measurements into a single emission rate based on the relative surface areas of the fuel tank and fuel cap. However, you may not combine these emission measurements if you test the fuel cap at a nominal temperature of 28°C and you test the fuel tank at 40°C. Measure the fuel cap's permeation emissions as follows:

- (a) Select a fuel cap expected to have permeation emissions at least as high as the highest-emitting fuel cap that you expect to be used with fuel tanks from the emission family. Include a gasket that represents production models. If the fuel cap includes vent paths, seal these vents as follows:
 - (1) If the vent path is through grooves in the gasket, you may use another gasket with no vent grooves if it is otherwise the same as a production gasket.
 - (2) If the vent path is through the cap, seal any vents for testing.
- (b) Attach the fuel cap to a fuel tank with a capacity of at least one liter made of metal or some other impermeable material.
- (c) Use the procedures specified in §1060.520 to measure permeation emissions. Calculate emission rates using the smallest inside cross sectional area of the opening on which the cap is mounted as the fuel cap's surface area.

§1060.525 How do I test fuel systems for diurnal emissions?

Use the procedures of this section to determine whether your fuel tanks meet diurnal emission standards as specified in §1060.105.

- (a) Except as specified in paragraph (c) of this section, use the following procedure to measure diurnal emissions:
 - (1) Diurnal measurements are based on a representative temperature cycle. For marine fuel tanks, the temperature cycle specifies fuel temperatures rather than ambient temperatures. The applicable temperature cycle is indicated in the following table:

Table 1 to §1060.525—Diurnal Temperature Profiles for Fuel Tanks

Time (hours)	Ambient Temperature Profile for Land-based Fuel Tanks (°C)	General Fuel Temperature Profile for Installed Marine Fuel Tanks (°C)	Fuel Temperature Profile for Marine Fuel Tanks Installed in Nontrailerable Boats (°C)
0	22.2	25.6	27.6
1	22.5	25.7	27.6
2	24.2	26.5	27.9
3	26.8	27.9	28.5
4	29.6	29.2	29.0
5	31.9	30.4	29.5
6	33.9	31.4	29.9
7	35.1	32.0	30.1
8	35.4	32.2	30.2
9	35.6	32.2	30.2
10	35.3	32.1	30.2
11	34.5	31.7	30.0
12	33.2	31.0	29.7
13	31.4	30.2	29.4
14	29.7	29.3	29.1
15	28.2	28.6	28.8
16	27.2	28.0	28.5
17	26.1	27.5	28.3
18	25.1	27.0	28.1
19	24.3	26.6	28.0
20	23.7	26.3	27.9
21	23.3	26.1	27.8
22	22.9	25.9	27.7
23	22.6	25.7	27.6
24	22.2	25.6	27.6

- (2) Fill the fuel tank to 40 percent of nominal capacity with the gasoline specified in 40 CFR 1065.710 for general testing.
- (3) Install a vapor line from any vent ports that would not be sealed in the final in-use configuration. Use a length of vapor line representing the largest inside diameter and shortest length that would be expected with the range of in-use installations for the emission family.
- (4) Stabilize the fuel tank at the starting temperature of the applicable temperature profile from paragraph (a)(1) of this section. For sealed fuel systems, replace the fuel cap once the fuel reaches equilibrium at the appropriate starting temperature.
- (5) If the fuel tank is equipped with a carbon canister, load the canister with butane or gasoline vapors to its canister working capacity as specified in §1060.240(e)(2)(i) and attach it to the fuel tank in a way that represents a typical in-use configuration.
- (6) Place the fuel tank with the carbon canister and vent line in a SHED meeting the specifications of 40 CFR 86.107-96(a)(1). Follow the applicable temperature trace from paragraph (a)(1) of this section for one 24-hour period. You need not measure emissions during this stabilization step.
- (7) As soon as possible after the stabilization in paragraph (a)(6) of this section, purge the SHED and follow the applicable temperature trace from paragraph (a)(1) of this section for three consecutive 24-hour periods. Start measuring emissions when you start the temperature profile. The end of the first, second, and third emission sampling periods must occur 1440 ± 6 , 2880 ± 6 , and 4320 ± 6 minutes, respectively, after starting the measurement procedure. Use the highest of the three emission levels to determine whether your fuel tank meets the diurnal emission standard.
- (8) For emission control technologies that rely on a sealed fuel system, you may omit the stabilization step in paragraph (a)(6) of this section and the last two 24-hour periods of emission measurements in paragraph (a)(7) of this section. For purposes of this paragraph (a), sealed fuel systems include those that rely on pressure-relief valves, limiting flow orifices, bladder fuel tanks, and volume-compensating air bags.

(b) You may subtract your fuel tank's permeation emissions from the measured diurnal emissions if the fuel tank is preconditioned with diurnal test fuel as described in §1060.520(b) or if you use good engineering judgment to otherwise establish that the fuel tank has stabilized permeation emissions. Measure permeation emissions for subtraction as specified in §1060.520(c) and (d) before measuring diurnal emissions, except that the permeation measurement must be done with diurnal test fuel at $28\pm 2^{\circ}\text{C}$. Use appropriate units and corrections to subtract the permeation emissions from the fuel tank during the diurnal emission test. You may not subtract a greater mass of emissions under this paragraph (b) than the fuel tank would emit based on meeting the applicable emission standard for permeation.

Subpart G—Special Compliance Provisions

§1060.601 How do the prohibitions of 40 CFR 1068.101 apply with respect to the requirements of this part?

(a) As described in §1060.1, fuel tanks and fuel lines that are used with or intended to be used with new nonroad engines or equipment are subject to evaporative emission standards under this part 1060. This includes portable marine fuel tanks and fuel lines and other fuel-system components associated with portable marine fuel tanks. Note that §1060.1 specifies an implementation schedule based on the date of manufacture of nonroad equipment, so new fuel tanks and fuel lines are not subject to standards under this part 1060 if they will be installed for use in equipment built before the specified dates for implementing the appropriate standards, subject to the limitations in paragraph (b) of this section. Except as specified in paragraph (f) of this section, fuel-system components that are subject to permeation or diurnal emission standards under this part 1060 must be covered by a valid certificate of conformity before being introduced into U.S. commerce to avoid violating the prohibition of 40 CFR 1068.101(a). To the extent we allow it under the exhaust standard-setting part, fuel-system components may be certified with a family emission limit higher than the specified emission standard. The provisions of this paragraph (a) do not apply to fuel caps.

(b) New replacement fuel tanks and fuel lines must meet the requirements of this part 1060 if they are intended to be used with nonroad engines or equipment regulated under this part 1060, as follows:

(1) Applicability of standards between January 1, 2012 and December 31, 2019. Manufacturers, distributors, retailers, and importers must clearly state on the packaging for all replacement components that could reasonably be used with nonroad engines how such components may be used consistent with the prohibition in paragraph (a) of this section. It is presumed that such components are intended for use with nonroad engines regulated under this part 1060 unless the components, or the packaging for such components, clearly identify appropriate restrictions. This requirement does not apply for components that are clearly not intended for use with fuels.

(2) Applicability of standards after January 1, 2020. Starting January 1, 2020 it is presumed that replacement components will be used with nonroad engines regulated under this part 1060 if they can reasonably be used with such engines. Manufacturers, distributors, retailers, and importers are therefore obligated to take reasonable steps to ensure that any uncertified components are not used to replace certified components. This would require labeling the components and may also require restricting the sales and requiring the ultimate purchaser to agree to not use the components inappropriately. This requirement does not apply for components that are clearly not intended for use with fuels.

(3) Applicability of the tampering prohibition. If a fuel tank or fuel line needing replacement was certified to meet the emission standards in this part with a family emission limit below the otherwise applicable standard, the new replacement fuel tank or fuel line must be certified to current emission standards, but need not be certified with the same or lower family emission limit to avoid violating the tampering prohibition in 40 CFR 1068.101(b)(1).

(c) [Reserved]

(d) Manufacturers that generate or use evaporative emission credits related to Marine SI engines in 40 CFR part 1045 or Small SI engines in 40 CFR part 1054 are subject to the emission standards for which they are generating or using evaporative emission credits. These engines or equipment must therefore be

covered by a valid certificate of conformity showing compliance with emission-credit provisions before being introduced into U.S. commerce to avoid violating the prohibition of 40 CFR 1068.101(a).

(e) If there is no valid certificate of conformity for any given evaporative emission standard for new equipment, the manufacturers of the engine, equipment and fuel-system components are each liable for violations of the prohibited acts with respect to the fuel systems and fuel-system components they have introduced into U.S. commerce, including fuel systems and fuel-system components installed in engines or equipment at the time the engines or equipment are introduced into U.S. commerce.

(f) If you manufacture fuel lines or fuel tanks that are subject to the requirements of this part as described in paragraph (a) of this section, 40 CFR 1068.101(a) does not prohibit you from shipping your products directly to an equipment manufacturer or another manufacturer from which you have received a written commitment to be responsible for certifying the components as required under this part 1060. This includes SHED-based certification of Small SI equipment as described in §1060.105. If you ship fuel lines or fuel tanks under this paragraph (f), you must include documentation that accompanies the shipped products identifying the name and address of the company receiving shipment and stating that the fuel lines or fuel tanks are exempt under the provisions of 40 CFR 1060.601(f).

(g) If new evaporative emission standards apply in a given model year, your equipment in that model year must have fuel-system components that are certified to the new standards, except that you may continue to use up your normal inventory of earlier fuel-system components that were built before the date of the new or changed standards. For example, if your normal inventory practice is to keep on hand a one-month supply of fuel tanks based on your upcoming production schedules, and a new tier of standards starts to apply for the 2012 model year, you may order fuel tanks based on your normal inventory requirements late in the fuel tank manufacturer's 2011 model year and install those fuel tanks in your equipment, regardless of the date of installation. Also, if your model year starts before the end of the calendar year preceding new standards, you may use fuel-system components from the previous model year (or uncertified components if no standards were in place) for those units you produce before January 1 of the year that new standards apply. If emission standards do not change in a given model year, you may continue to install fuel-system components from the previous model year without restriction. You may not circumvent the provisions of 40 CFR 1068.101(a)(1) by stockpiling fuel-system components that were built before new or changed standards take effect.

§1060.605 Exemptions from evaporative emission standards.

(a) Except as specified in the exhaust standard-setting part and paragraph (b) of this section, equipment using an engine that is exempt from exhaust emission standards under the provisions in 40 CFR part 1068, subpart C or D, is also exempt from the requirements of this part 1060. For example, engines or equipment exempted from exhaust emission standards for purposes of national security do not need to meet evaporative emission standards. Also, any engine that is exempt from emission standards because it will be used solely for competition does not need to meet evaporative emission standards. Equipment that is exempt from all exhaust emission standards under the standard-setting part are also exempt from the requirements of this part 1060; however, this does not apply for engines that must meet a less stringent exhaust emission standard as a condition of the exemption.

(b) Engines produced under the replacement-engine exemption in 40 CFR 1068.240 must use fuel-system components that meet the evaporative emission standards based on the model year of the engine being replaced subject to the provisions of 40 CFR 1068.265. If no evaporative emission standards applied at that time, no requirements related to evaporative emissions apply to the new engine. Installing a replacement engine does not change the applicability of requirements for the equipment into which the replacement engine is installed.

(c) Engines or equipment that are temporarily exempt from EPA exhaust emission standards are also exempt from the requirements of this part 1060 for the same period as the exhaust exemption.

(d) For equipment powered by more than one engine, all the engines installed in the equipment must be exempt from all applicable EPA exhaust emission standards for the equipment to also be exempt under paragraph (a) or (b) of this section.

(e) In unusual circumstances, we may exempt components or equipment from the requirements of this part 1060 even if the equipment is powered by one or more engines that are subject to EPA exhaust emission standards. See 40 CFR part 1068. Such exemptions will be limited to:

- (1) Testing. See 40 CFR 1068.210.
- (2) National security. See 40 CFR 1068.225.
- (3) Economic hardship. See 40 CFR 1068.245 and 1068.250.

(f) Evaporative emission standards generally apply based on the model year of the equipment, which is determined by the equipment's date of final assembly. However, in the first year of new emission standards, equipment manufacturers may apply evaporative emission standards based on the model year of the engine as shown on the engine's emission control information label. For example, for fuel tank permeation standards starting in 2012, equipment manufacturers may order a batch of 2011 model year engines for installation in 2012 model year equipment, subject to the anti-stockpiling provisions of 40 CFR 1068.105(a). The equipment with the 2011 model year engines would not need to meet fuel tank permeation standards as long as the equipment is fully assembled by December 31, 2012.

§1060.640 What special provisions apply to branded equipment?

The following provisions apply if you identify the name and trademark of another company instead of your own on your emission control information label for equipment, as provided by §§1060.135 and 1060.137:

- (a) You must have a contractual agreement with the other company that obligates that company to take the following steps:
 - (1) Meet the emission warranty requirements that apply under §1060.120. This may involve a separate agreement involving reimbursement of warranty-related expenses.
 - (2) Report all warranty-related information to the certificate holder.
- (b) In your application for certification, identify the company whose trademark you will use and describe the arrangements you have made to meet your requirements under this section.
- (c) You remain responsible for meeting all the requirements of this chapter, including warranty and defect-reporting provisions.

Subpart H—Averaging, Banking, and Trading Provisions

§1060.701 Applicability.

- (a) You are allowed to comply with the emission standards in this part with evaporative emission credits only if the exhaust standard-setting part explicitly allows it for evaporative emissions.
- (b) The following exhaust standard-setting parts allow some use of evaporative emission credits:
 - (1) 40 CFR part 1045 for marine vessels.
 - (2) 40 CFR part 1051 for recreational vehicles.
 - (3) 40 CFR part 1054 for Small SI equipment.
- (c) As specified in 40 CFR part 1048, there is no allowance to generate or use emission credits with Large SI equipment.

§1060.705 How do I certify components to an emission level other than the standard under this part or use such components in my equipment?

As specified in this section, a fuel-system component may be certified to a family emission limit (FEL) instead of the otherwise applicable emission standard. Note that the exhaust standard-setting part may apply maximum values for an FEL (i.e., FEL caps).

- (a) Requirements for certifying component manufacturers. See subpart C of this part for instructions regarding the general requirements for certifying components.
 - (1) When you submit your application for certification, indicate the FEL to which your components will be certified. This FEL will serve as the applicable standard for your component, and the equipment that uses the component. For example, when the regulations of this part use the phrase

"demonstrate compliance with the applicable emission standard" it will mean "demonstrate compliance with the FEL" for your component.

(2) You may not change the FEL for an emission family. To specify a different FEL for your components, you must send a new application for certification for a new emission family.

(3) Unless your FEL is below all emission standards that could potentially apply, you must ensure that all equipment manufacturers that will use your component are aware of the limitations regarding the conditions under which they may use your component.

(4) It is your responsibility to read the instructions relative to emission-credit provisions in the standard-setting parts identified in §1060.1.

(b) Requirements for equipment manufacturers. See subpart C of this part for instructions regarding your ability to rely on the component manufacturer's certificate.

(1) The FEL of the component will serve as the applicable standard for your equipment.

(2) You may not specify more than one FEL for an emission family at one time; however, you may change the FEL during the model year as described in §1060.225(f).

(3) If the FEL is above the emission standard you must ensure that the exhaust standard-setting part allows you to use evaporative emission credits to comply with emission standards and that you will have an adequate source of evaporative emission credits. You must certify your equipment as specified in §1060.201 and the rest of subpart C of this part.

Subpart I—Definitions and Other Reference Information

§1060.801 What definitions apply to this part?

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Clean Air Act gives to them. The definitions follow:

Accuracy and precision means the sum of accuracy and repeatability, as defined in 40 CFR 1065.1001. For example, if a measurement device is determined to have an accuracy of $\pm 1\%$ and a repeatability of $\pm 2\%$, then its accuracy and precision would be $\pm 3\%$.

Adjustable parameter means any device, system, or element of design that someone can adjust and that, if adjusted, may affect emissions. You may ask us to exclude a parameter if you show us that it will not be adjusted in use in a way that affects emissions.

Applicable emission standard or applicable standard means an emission standard to which a fuel-system component is subject. Additionally, if a fuel-system component has been or is being certified to another standard or FEL, applicable emission standard means the FEL or other standard to which the fuel-system component has been or is being certified. This definition does not apply to subpart H of this part.

Canister working capacity means the measured amount of hydrocarbon vapor that can be stored in a canister as specified in §1060.240(e)(2)(i).

Carbon working capacity means the measured amount of hydrocarbon vapor that can be stored in a given volume of carbon when tested according to ASTM D5228 (incorporated by reference in §1060.810). See §1060.240(e)(2)(ii).

Certification means relating to the process of obtaining a certificate of conformity for an emission family that complies with the emission standards and requirements in this part.

Certified emission level means the highest official emission result in an emission family.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401-7671q.

Cold-weather equipment is limited to the following types of handheld equipment: chainsaws, cut-off saws, clearing saws, brush cutters with engines at or above 40cc, commercial earth and wood drills, and ice augers. This includes earth augers if they are also marketed as ice augers.

Configuration means a unique combination of hardware (material, geometry, and size) and calibration within an emission family. Units within a single configuration differ only with respect to normal production variability.

Date of manufacture, means one of the following with respect to equipment:

(1) For outboard engines with under-cowl fuel tanks and for vessels equipped with outboard engines and installed fuel tanks, date of manufacture means the date on which the fuel tank is installed.

(2) For all other equipment, date of manufacture has the meaning given in 40 CFR 1068.30.

Days means calendar days unless otherwise specified. For example, when we specify working days we mean calendar days, excluding weekends and U.S. national holidays.

Designated Compliance Officer means the Manager, Heavy-Duty and Nonroad Engine Group (6405-J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Detachable fuel line means a fuel line or fuel line assembly intended to be used with a portable nonroad fuel tank and which is connected by special fittings to the fuel tank and/or engine for easy disassembly. Fuel lines that require a wrench or other tools to disconnect are not considered detachable fuel lines.

Diurnal emissions means evaporative emissions that occur as a result of venting fuel tank vapors during daily temperature changes while the engine is not operating.

Effective length-to-diameter ratio means the mean vapor path length of a carbon canister divided by the effective diameter of that vapor path. The effective diameter is the diameter of a circle with the same cross-sectional area as the average cross-sectional area of the carbon canister's vapor path.

Emission control system means any device, system, or element of design that controls or reduces the regulated evaporative emissions from a piece of nonroad equipment.

Emission-data unit means a fuel line, fuel tank, fuel system, or fuel-system component that is tested for certification. This includes components tested by EPA.

Emission family has the meaning given in §1060.230.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Equipment means vehicles, marine vessels, and other types of nonroad equipment that are subject to this part's requirements.

Evaporative means relating to fuel emissions that result from permeation of fuel through the fuel-system materials or from ventilation of the fuel system.

Exhaust standard-setting part means the part in the Code of Federal Regulations that contains exhaust emission standards for a particular piece of equipment (or the engine in that piece of equipment). For example, the exhaust standard-setting part for off-highway motorcycles is 40 CFR part 1051. Exhaust standard-setting parts may include evaporative emission requirements or describe how the requirements of this part 1060 apply.

Exposed gasket surface area means the surface area of the gasket inside the fuel tank that is exposed to fuel or fuel vapor. For the purposes of calculating exposed surface area of a gasket, the thickness of the gasket and the outside dimension of the opening being sealed are used. Gasket overhang into the fuel tank should be ignored for the purpose of this calculation.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under an ABT program specified by the exhaust standard-setting part. The family emission limit must be expressed to the same number of decimal places as the emission standard it replaces. The family emission limit serves as the emission standard for the emission family with respect to all required testing.

Fuel CE10 has the meaning given in §1060.515(a).

Fuel line means hoses or tubing designed to contain liquid fuel. The exhaust standard-setting part may further specify which types of hoses and tubing are subject to the standards of this part.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to the combustion chamber(s), including the fuel tank, fuel tank cap, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents. In the case where the fuel tank cap or other components (excluding fuel lines) are directly mounted on the fuel tank, they are considered to be a part of the fuel tank.

Fuel type means a general category of fuels such as gasoline or natural gas. There can be multiple grades within a single fuel type, such as premium gasoline, regular gasoline, or gasoline with 10 percent ethanol.

Gasoline means one of the following:

(1) For in-use fuels, gasoline means fuel that is commonly and commercially known as gasoline, including ethanol blends.

(2) For testing, gasoline has the meaning given in subpart F of this part.

Good engineering judgment means judgments made consistent with generally accepted scientific and engineering principles and all available relevant information. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

High-permeability material means any nonmetal material that does not qualify as low-permeability material.

Installed marine fuel tank means a fuel tank designed for delivering fuel to a Marine SI engine, excluding portable marine fuel tanks.

Large SI means relating to engines that are subject to evaporative emission standards in 40 CFR part 1048.

Low-permeability material means, for gaskets, a material with permeation emission rates at or below 10 (g-mm)/m²/day when measured according to SAE J2659 (incorporated by reference in §1060.810), where the test temperature is 23°C, the test fuel is Fuel CE10, and testing immediately follows a four-week preconditioning soak with the test fuel.

Manufacture means the physical and engineering process of designing, constructing, and assembling an engine, piece of nonroad equipment, or fuel-system components subject to the requirements of this part.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act (42 U.S.C. 7550(1)). In general, this term includes:

- (1) Any person who manufactures an engine or piece of nonroad equipment for sale in the United States or otherwise introduces a new nonroad engine or a piece of new nonroad equipment into U.S. commerce.
- (2) Any person who manufactures a fuel-system component for an engine subject to the requirements of this part as described in §1060.1(a).
- (3) Importers who import such products into the United States.

Marine SI means relating to vessels powered by engines that are subject to exhaust emission standards in 40 CFR part 1045.

Marine vessel has the meaning given in 40 CFR §1045.801, which generally includes all nonroad equipment used as a means of transportation on water.

Model year means one of the following things:

(1) For equipment defined as "new nonroad equipment" under paragraph (1) of the definition of "new nonroad engine," model year means one of the following:

(i) Calendar year.

(ii) Your annual new model production period if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For other equipment defined as "new nonroad equipment" under paragraph (2) of the definition of "new nonroad engine," model year has the meaning given in the exhaust standard-setting part.

(3) For other equipment defined as "new nonroad equipment" under paragraph (3) or paragraph (4) of the definition of "new nonroad engine," model year means the model year of the engine as defined in the exhaust standard-setting part.

New nonroad equipment means equipment meeting one or more of the following criteria:

(1) Nonroad equipment for which the ultimate purchaser has never received the equitable or legal title. The equipment is no longer new when the ultimate purchaser receives this title or the product is placed into service, whichever comes first.

(2) Nonroad equipment that is defined as new under the exhaust standard-setting part. (Note: equipment that is not defined as new under the exhaust standard-setting part may be defined as new under this definition of "new nonroad equipment.")

(3) Nonroad equipment with an engine that becomes new (as defined in the exhaust standard-setting part) while installed in the equipment. The equipment is no longer new when it is subsequently placed into service. This paragraph (3) does not apply if the engine becomes new before being installed in the equipment.

(4) Nonroad equipment not covered by a certificate of conformity issued under this part at the time of importation and manufactured after the requirements of this part start to apply (see §1060.1). The equipment is no longer new when it is subsequently placed into service. Importation of this kind of new nonroad equipment is generally prohibited by 40 CFR part 1068.

Nominal capacity means a fuel tank's volume as specified by the fuel tank manufacturer, using at least two significant figures, based on the maximum volume of fuel the tank can hold with standard refueling techniques.

Nonroad engine has the meaning we give in 40 CFR 1068.30. In general this means all internal-combustion engines except motor vehicle engines, stationary engines, engines used solely for competition, or engines used in aircraft. This part does not apply to all nonroad engines (see §1060.1).

Nonroad equipment means a piece of equipment that is powered by or intended to be powered by one or more nonroad engines. Note that §§1060.5 and 1060.601 describes how we treat outboard engines, portable marine fuel tanks, and associated fuel-system components as nonroad equipment under this part 1060.

Nontrailerable boat means a vessel whose length is 26.0 feet or more, or whose width is more than 8.5 feet.

Official emission result means the measured emission rate for an emission-data unit.

Placed into service means put into initial use for its intended purpose.

Portable marine fuel tank means a portable fuel tank that is used or intended to be used to supply fuel to a marine engine during operation.

Portable nonroad fuel tank means a fuel tank that meets each of the following criteria:

- (1) It has design features indicative of use in portable applications, such as a carrying handle and fuel line fitting that can be readily attached to and detached from a nonroad engine.
- (2) It has a nominal fuel capacity of 12 gallons or less.
- (3) It is designed to supply fuel to an engine while the engine is operating.
- (4) It is not used or intended to be used to supply fuel to a marine engine.

Production period means the period in which a component or piece of equipment will be produced under a certificate of conformity. A given production period for an emission family may not include components certified using different test data. A production period may not exceed five years for certified components. Note that the definition of model year includes specifications related to production periods for which a certificate is valid for equipment.

Recreational vehicle means vehicles that are subject to evaporative emission standards in 40 CFR part 1051. This generally includes engines that will be installed in recreational vehicles if the engines are certified separately under 40 CFR 1051.20.

Relating to as used in this section means relating to something in a specific, direct manner. This expression is used in this section only to define terms as adjectives and not to broaden the meaning of the terms.

Revoke has the meaning given in 40 CFR 1068.30. If we revoke a certificate or an exemption, you must apply for a new certificate or exemption before continuing to introduce the affected equipment into U.S. commerce.

Round means to round numbers according to standard procedures as specified in 40 CFR 1065.1001.

Running loss emissions means unburned fuel vapor that escapes from the fuel system to the ambient atmosphere while the engine is operating, excluding permeation emissions and diurnal emissions. Running loss emissions generally result from fuel-temperature increases caused by heat released from in-tank fuel pumps, fuel recirculation, or proximity to heat sources such as the engine or exhaust components.

Sealed means lacking openings to the atmosphere that would allow a measurable amount of liquid or vapor to leak out under normal operating pressures or other pressures specified in this part. For example, you may generally establish a maximum value for operating pressures based on the highest pressure you would observe from an installed fuel tank during continuous equipment operation on a sunny day with ambient temperatures of 35°C. Sealed fuel systems may have openings for emission controls or for fuel lines needed to route fuel to the engine.

Small SI means relating to engines that are subject to emission standards in 40 CFR part 90 or 1054.

Structurally integrated nylon fuel tank means a fuel tank having all the following characteristics:

- (1) The fuel tank is made of a polyamide material that does not contain more than 50 percent by weight of a reinforcing glass fiber or mineral filler and does not contain more than 10 percent by weight of impact modified polyamides that use rubberized agents such as EPDM rubber.
- (2) The fuel tank must be used in a cut-off saw or chainsaw or be integrated into a major structural member where, as a single component, the fuel tank material is a primary structural/stress member for other major components such as the engine, transmission, or cutting attachment.

Subchapter U means 40 CFR parts 1000 through 1299.

Suspend has the meaning given in 40 CFR 1068.30. If we suspend a certificate, you may not introduce into U.S. commerce equipment from that emission family unless we reinstate the certificate or approve a new one. If we suspend an exemption, you may not introduce into U.S. commerce equipment that was previously covered by the exemption unless we reinstate the exemption.

Tare means to use a container or other reference mass to zero a balance before weighing a sample. Generally, this means placing the container or reference mass on the balance, allowing it to stabilize, then zeroing the balance without removing the container or reference mass. This allows you to use the balance to determine the difference in mass between the sample and the container or reference mass.

Test sample means the collection of fuel lines, fuel tanks, or fuel systems selected from the population of an emission family for emission testing. This may include certification testing or any kind of confirmatory testing.

Test unit means a piece of fuel line, a fuel tank, or a fuel system in a test sample.

Ultimate purchaser means, with respect to any new nonroad equipment, the first person who in good faith purchases such new nonroad equipment for purposes other than resale.

Ultraviolet light means electromagnetic radiation with a wavelength between 300 and 400 nanometers.

United States has the meaning given in 40 CFR 1068.30.

U.S.-directed production volume means the amount of equipment, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

Useful life means the period during which new nonroad equipment is required to comply with all applicable emission standards. See §1060.101.

Void has the meaning given in 40 CFR 1068.30. In general this means to invalidate a certificate or an exemption both retroactively and prospectively.

Volatile liquid fuel means any fuel other than diesel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

Wintertime equipment means equipment using a wintertime engine, as defined in 40 CFR 1054.801. Note this definition applies only for Small SI equipment.

§1060.805 What symbols, acronyms, and abbreviations does this part use?

The following symbols, acronyms, and abbreviations apply to this part:

°	degree.
ASTM	American Society for Testing and Materials.
C	Celsius.
CFR	Code of Federal Regulations.
EPA	Environmental Protection Agency.
FEL	family emission limit.
g	gram.
gal	gallon.
hr	hour.
in	inch.
kPa	kilopascal.
kW	kilowatt.
L	liter.

m	meter.
min	minute.
mm	millimeter.
psig	pounds per square inch of gauge pressure.
SAE	Society of Automotive Engineers.
SHED	Sealed Housing for Evaporative Determination.
U.S.	United States.
U.S.C.	United States Code.
W	watt.

§1060.810 What materials does this part reference?

Documents listed in this section have been incorporated by reference into this part. The Director of the Federal Register approved the incorporation by reference as prescribed in 5 U.S.C. 552(a) and 1 CFR part 51. Anyone may inspect copies at the U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(a) ASTM material. Table 1 to this section lists material from the American Society for Testing and Materials that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the American Society for Testing and Materials, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA 19428 or www.astm.com. Table 1 follows:

Table 1 to §1060.810—ASTM materials

Document number and name	Part 1060 reference
ASTM D471-06, Standard Test Method for Rubber Property—Effect of Liquids (“ASTM D471”).	1060.515
ASTM D2862-97 (Reapproved 2004), Standard Test Method for Particle Size Distribution of Granular Activated Carbon (“ASTM D2862”).	1060.240
ASTM D3802-79 (Reapproved 2005), Standard Test Method for Ball-Pan Hardness of Activated Carbon (“ASTM D3802”).	1060.240
ASTM D4806-07, Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel (“ASTM D4806”).	1060.501
ASTM D5228-92 (Reapproved 2005), Standard Test Method for Determination of Butane Working Capacity of Activated Carbon (“ASTM D5228”).	1060.801

(b) SAE material. Table 2 to this section lists material from the Society of Automotive Engineers that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096 or www.sae.org. Table 2 follows:

Table 2 to §1060.810—SAE Materials

Document number and name	Part 1060 reference
SAE J30, Fuel and Oil Hoses, June 1998.	1060.515
SAE J1527, Marine Fuel Hoses, January 1993 (Issued 1985-12, Revised 1993-02).	1060.515
SAE J2260, Nonmetallic Fuel System Tubing with One or More Layers, November 2004.	1060.510
SAE J2659, Test Method to Measure Fluid Permeation of Polymeric Materials by Speciation, December 2003.	1060.801

(c) California Air Resources Board material. Table 3 to this section lists material from the California Air Resources Board that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may obtain copies of these materials from California Air Resources Board, Haagen-Smit Laboratory, 9528 Telstar Avenue, El Monte, CA 91731-2990 or www.arb.ca.gov. Table 3 follows:

Table 3 to §1060.810—California Air Resources Board Materials

Document number and name	Part 1060 reference
Final Regulation Order, Article 1, Chapter 15, Division 3, Title 13, California Code of Regulations, July 26, 2004.	1060.105, 1060.240

§1060.815 What provisions apply to confidential information?

- (a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.
- (b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.
- (c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.
- (d) If you send us information without claiming it is confidential, we may make it available to the public without further notice to you, as described in 40 CFR 2.204.

§1060.820 How do I request a hearing?

- (a) You may request a hearing under certain circumstances as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.
- (b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.
- (c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

§1060.825 What reporting and recordkeeping requirements apply under this part?

Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for products regulated under this part:

- (a) We specify the following requirements related to equipment certification in this part 1060:
 - (1) In 40 CFR 1060.20 we give an overview of principles for reporting information.
 - (2) In 40 CFR part 1060, subpart C, we identify a wide range of information required to certify engines.

- (3) In 40 CFR 1060.301 we require manufacturers to make engines or equipment available for our testing if we make such a request.
- (4) In 40 CFR 1060.505 we specify information needs for establishing various changes to published test procedures.
- (b) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:
- (1) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.
 - (2) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information.
 - (3) In 40 CFR 1068.27 we require manufacturers to make equipment available for our testing or inspection if we make such a request.
 - (4) In 40 CFR 1068.105 we require equipment manufacturers to keep certain records related to duplicate labels from engine manufacturers.
 - (5) [Reserved]
 - (6) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.
 - (7) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing equipment.
 - (8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line products in a selective enforcement audit.
 - (9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.
 - (10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming equipment.

PART 1065—ENGINE-TESTING PROCEDURES

209. The authority citation for part 1065 continues to read as follows:

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

Subpart A – [Amended]

210. Section 1065.1 is amended by revising paragraphs (a)(5) and (a)(8) to read as follows:

§1065.1 Applicability.

(a) * * *

(5) Marine spark-ignition engines we regulate under 40 CFR part 1045. For earlier model years, manufacturers may use the test procedures in this part or those specified in 40 CFR part 91 according to §1065.10.

* * * * *

(8) Small nonroad spark-ignition engines we regulate under 40 CFR part 1054 and stationary engines that are certified to the standards in 40 CFR part 1054 as specified in 40 CFR part 60, subpart JJJJ. For earlier model years, manufacturers may use the test procedures in this part or those specified in 40 CFR part 90 according to §1065.10.

* * * * *

Subpart B – [Amended]

211. Section 1065.125 is amended by revising paragraphs (b) and (c) to read as follows:

§1065.125 Engine intake air.

* * * * *

(b) Measure temperature, humidity, and atmospheric pressure near the entrance of the furthest upstream engine or in-use intake system component. This would generally be near the engine’s air filter, or near the inlet to the in-use air intake system for engines that have no air filter. For engines with multiple intakes, make measurements near the entrance of each intake.

(1) Pressure. You may use a single shared atmospheric pressure meter as long as your laboratory equipment for handling intake air maintains ambient pressure at all intakes within ±1 kPa of the shared atmospheric pressure. For engines with multiple intakes with separate atmospheric pressure measurements at each intake, use an average value for verifying compliance to §1065.520(b)(2).

(2) Humidity. You may use a single shared humidity measurement for intake air as long as your equipment for handling intake air maintains dewpoint at all intakes to within ±0.5 °C of the shared humidity measurement. For engines with multiple intakes with separate humidity measurements at each intake, use a flow-weighted average humidity for NOx corrections. If individual flows of each intake are not measured, use good engineering judgment to estimate a flow-weighted average humidity.

(3) Temperature. Good engineering judgment may require that you shield the temperature sensors or move them upstream of an elbow in the laboratory intake system to prevent measurement errors due to radiant heating from hot engine surfaces or in-use intake

system components. You must limit the distance between the temperature sensor and the entrance to the furthest upstream engine or in-use intake system component to no more than 12 times the outer hydraulic diameter of the entrance to the furthest upstream engine or in-use intake system component. However, you may exceed this limit if you use good engineering judgment to show that the temperature at the furthest upstream engine or in-use intake system component meets the specification in paragraph (c) of this section. For engines with multiple intakes, use a flow-weighted average value to verify compliance with the specification in paragraph (c) of this section. If individual flows of each intake are not measured, you may use good engineering judgment to estimate a flow-weighted average temperature. You may also verify that each individual intake complies with the specification in paragraph (c) of this section.

(c) Unless stated otherwise in the standard-setting part, maintain the temperature of intake air to $(25 \pm 5) ^\circ\text{C}$.

* * * * *

212. Section 1065.170 is amended by revising paragraphs (a)(2), (c)(1), and Figure 1 to read as follows:

§1065.170 Batch sampling for gaseous and PM constituents.

* * * * *

(a) * * *

(2) You must follow the requirements in §1065.140(e)(2) related to PM dilution ratios. For each filter, if you expect the net PM mass on the filter to exceed 400 µg, assuming a 38 mm diameter filter stain area, you may take the following actions in sequence:

(i) For discrete-mode testing only, you may reduce sample time as needed to target a filter loading of 400 µg, but not below the minimum sample time specified in the standard-setting part.

(ii) Reduce filter face velocity as needed to target a filter loading of 400 µg, down to 50 cm/s or less.

(iii) Increase overall dilution ratio above the values specified in §1065.140(e)(2) to target a filter loading of 400 µg.

* * * * *

(c) * * *

(1) If you use filter-based sampling media to extract and store PM for measurement, your procedure must meet the following specifications:

(i) If you expect that a filter's total surface concentration of PM will exceed 400 µg, assuming a 38 mm diameter filter stain area, for a given test interval, you may use filter media with a minimum initial collection efficiency of 98 %; otherwise you must use a filter media with a minimum initial collection efficiency of 99.7 %. Collection efficiency must be measured as described in ASTM D2986-95a (incorporated by reference in §1065.1010), though you may rely on the sample-media manufacturer's measurements reflected in their product ratings to show that you meet this requirement.

(ii) The filter must be circular, with an overall diameter of 46.50 ± 0.6 mm and an exposed diameter of at least 38 mm. See the cassette specifications in paragraph

(c)(1)(vii) of this section.

(iii) We highly recommend that you use a pure PTFE filter material that does not have any flow-through support bonded to the back and has an overall thickness of 40 ± 20 µm.

An inert polymer ring may be bonded to the periphery of the filter material for support and for sealing between the filter cassette parts. We consider Polymethylpentene (PMP) and PTFE inert materials for a support ring, but other inert materials may be used. See the cassette specifications in paragraph (c)(1)(vii) of this section. We allow the use of PTFE-coated glass fiber filter material, as long as this filter media selection does not affect your ability to demonstrate compliance with the applicable standards, which we base on a pure PTFE filter material. Note that we will use pure PTFE filter material for compliance testing, and we may require you to use pure PTFE filter material for any compliance testing we require, such as for selective enforcement audits.

(iv) You may request to use other filter materials or sizes under the provisions of §1065.10.

(v) To minimize turbulent deposition and to deposit PM evenly on a filter, use a filter holder with a 12.5° (from center) divergent cone angle to transition from the transfer-line inside diameter to the exposed diameter of the filter face. Use 300 series stainless steel for this transition.

(vi) Maintain a filter face velocity near 100 cm/s with less than 5% of the recorded flow values exceeding 100 cm/s, unless you expect either the net PM mass on the filter to exceed 400 µg, assuming a 38 mm diameter filter stain area. Measure face velocity as the volumetric flow rate of the sample at the pressure upstream of the filter and temperature of the filter face as measured in §1065.140(e), divided by the filter's exposed area. You may use the exhaust stack or CVS tunnel pressure for the upstream pressure if the pressure drop through the PM sampler up to the filter is less than 2 kPa.

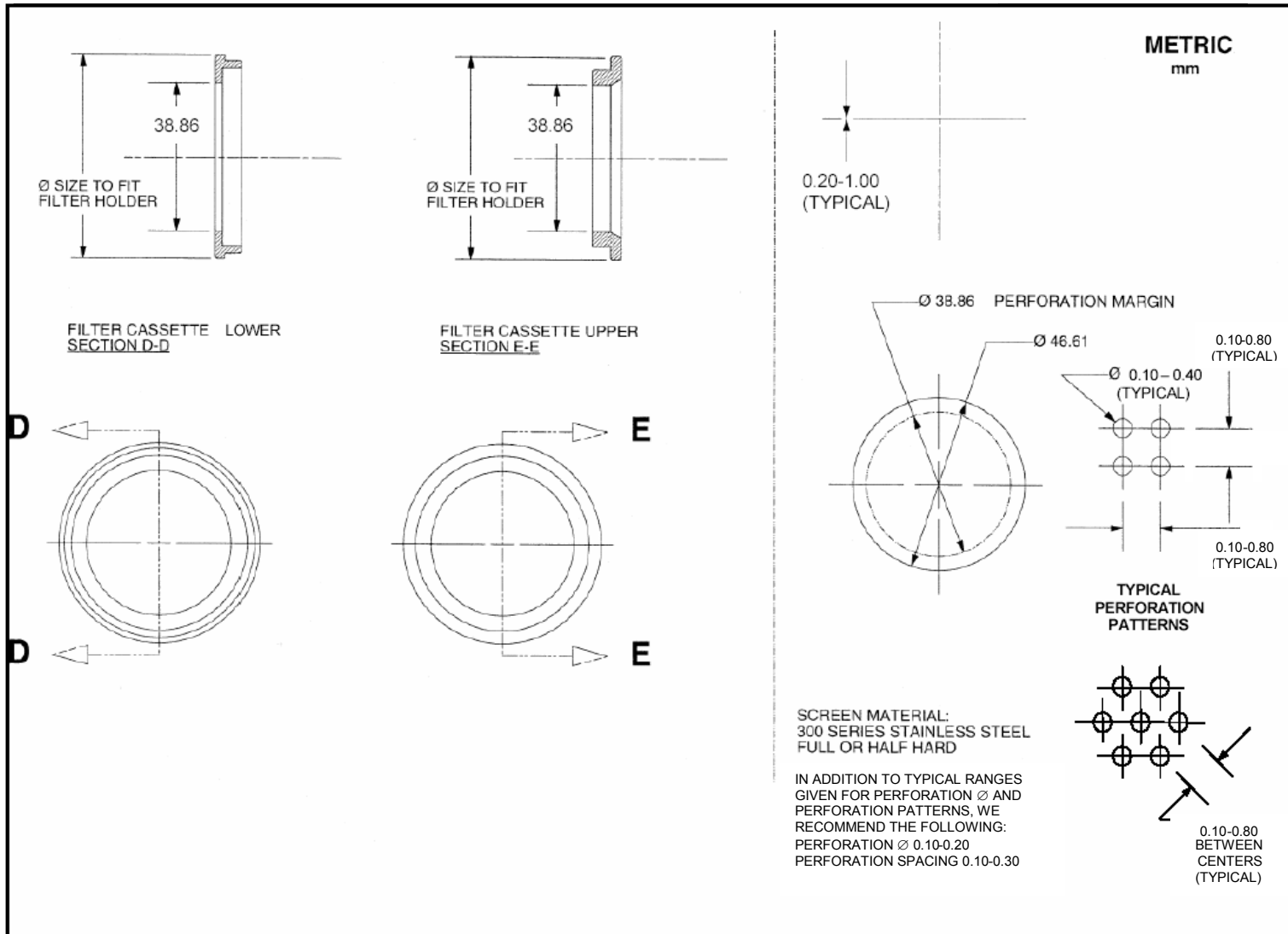
(vii) Use a clean cassette designed to the specifications of Figure 1 of §1065.170. In auto changer configurations, you may use cassettes of similar design. Cassettes must be made of one of the following materials: Delrin™, 300 series stainless steel, polycarbonate, acrylonitrile-butadiene-styrene (ABS) resin, or conductive polypropylene. We recommend that you keep filter cassettes clean by periodically washing or wiping them with a compatible solvent applied using a lint-free cloth. Depending upon your cassette material, ethanol (C₂H₅OH) might be an acceptable solvent. Your cleaning frequency will depend on your engine's PM and HC emissions.

(viii) If you keep the cassette in the filter holder after sampling, prevent flow through the filter until either the holder or cassette is removed from the PM sampler. If you remove the cassettes from filter holders after sampling, transfer the cassette to an individual container that is covered or sealed to prevent communication of semi-volatile matter from one filter to another. If you remove the filter holder, cap the inlet and outlet. Keep them covered or sealed until they return to the stabilization or weighing environments.

(ix) The filters should not be handled outside of the PM stabilization and weighing environments and should be loaded into cassettes, filter holders, or auto changer apparatus before removal from these environments.

* * * * *

Figure 1 of 1065.170



213. Section 1065.190 is amended by revising paragraph (d)(2) to read as follows:

§1065.190 PM-stabilization and weighing environments for gravimetric analysis.

* * * * *

(d) * * *

(2) Dewpoint. Maintain a dewpoint of 9.5 °C in both environments. This dewpoint will control the amount of water associated with sulfuric acid (H₂SO₄) PM, such that 1.2216 grams of water will be associated with each gram of H₂SO₄.

* * * * *

Subpart C— [Amended]

214. Section 1065.205 is amended by revising Table 1 to read as follows:

§1065.205 Performance specifications for measurement instruments.

* * * * *

Table 1 of §1065.205–Recommended performance specifications for measurement instruments

Measurement Instrument	Measured quantity symbol	Complete System Rise time (t_{10-90}) and Fall time (t_{90-10}) ^a	Recording update frequency	Accuracy ^b	Repeatability ^b	Noise ^b
Engine speed transducer	f_n	1 s	1 Hz means	2.0 % of pt. or 0.5 % of max.	1.0 % of pt. or 0.25 % of max.	0.05 % of max
Engine torque transducer	T	1 s	1 Hz means	2.0 % of pt. or 1.0 % of max.	1.0 % of pt. or 0.5 % of max	0.05 % of max.
Electrical work (active-power meter)	W	1 s	1 Hz means	2.0 % of pt. or 0.5 % of max.	1.0 % of pt. or 0.25 % of max.	0.05 % of max
General pressure transducer (not a part of another instrument)	p	5 s	1 Hz	2.0 % of pt. or 1.0 % of max.	1.0 % of pt. or 0.50 % of max.	0.1 % of max
Atmospheric pressure meter used for PM-stabilization and balance environments	p_{atmos}	50 s	5 times per hour	50 Pa	25 Pa	5 Pa
General purpose atmospheric pressure meter	p_{atmos}	50 s	5 times per hour	250 Pa	100Pa	50 Pa
Temperature sensor for PM-stabilization and balance environments	T	50 s	0.1 Hz	0.25 K	0.1 K	0.1 K
Other temperature sensor (not a part of another instrument)	T	10 s	0.5 Hz	0.4 % of pt. K or 0.2 % of max. K	0.2 % of pt. K or 0.1 % of max. K	0.1 % of max
Dewpoint sensor for PM-stabilization and balance environments	T_{dew}	50 s	0.1 Hz	0.25 K	0.1 K	0.02 K
Other dewpoint sensor	T_{dew}	50 s	0.1 Hz	1 K	0.5 K	0.1 K
Fuel flow meter (Fuel totalizer)	\dot{m}	5 s (N/A)	1 Hz (N/A)	2.0 % of pt. or 1.5 % of max.	1.0 % of pt. or 0.75 % of max.	0.5 % of max.
Total diluted exhaust meter (CVS) (With heat exchanger before meter)	\dot{n}	1 s (5 s)	1 Hz means (1 Hz)	2.0 % of pt. or 1.5 % of max.	1.0 % of pt. or 0.75 % of max.	1.0 % of max.
Dilution air, inlet air, exhaust, and sample flow meters	\dot{n}	1 s	1 Hz means of 5 Hz samples	2.5 % of pt. or 1.5 % of max.	1.25 % of pt. or 0.75 % of max.	1.0 % of max.
Continuous gas analyzer	x	5 s	1 Hz	2.0 % of pt. or 2.0 % of meas.	1.0 % of pt. or 1.0 % of meas.	1.0 % of max.
Batch gas analyzer	x	N/A	N/A	2.0 % of pt. or 2.0 % of meas.	1.0 % of pt. or 1.0 % of meas.	1.0 % of max.
Gravimetric PM balance	m_{PM}	N/A	N/A	See §1065.790	0.5 µg	N/A
Inertial PM balance	m_{PM}	5 s	1 Hz	2.0 % of pt. or 2.0 % of meas.	1.0 % of pt. or 1.0 % of meas.	0.2 % of max.

^a The performance specifications identified in the table apply separately for rise time and fall time.

^b Accuracy, repeatability, and noise are all determined with the same collected data, as described in §1065.305, and based on absolute values. “pt.” refers to the overall flow-weighted mean value expected at the standard; “max.” refers to the peak value expected at the standard over any test interval, not the maximum of the instrument’s range; “meas” refers to the actual flow-weighted mean measured over any test interval.

215. Section 1065.272 is amended by revising paragraph (a) to read as follows:

§1065.272 Nondispersive ultraviolet analyzer.

(a) Application. You may use a nondispersive ultraviolet (NDUV) analyzer to measure NO_x concentration in raw or diluted exhaust for batch or continuous sampling. We generally accept an NDUV for NO_x measurement, even though it measures only NO and NO₂, since conventional engines and aftertreatment systems do not emit significant amounts of other NO_x species. Measure other NO_x species if required by the standard-setting part. Note that good engineering judgment may preclude you from using an NDUV analyzer if sampled exhaust from test engines contains oil (or other contaminants) in sufficiently high concentrations to interfere with proper operation.

* * * * *

Subpart D— [Amended]

216. Section 1065.303 is revised to read as follows:

§1065.303 Summary of required calibration and verifications

The following table summarizes the required and recommended calibrations and verifications described in this subpart and indicates when these have to be performed:

Table 1 of §1065.303—Summary of required calibration and verifications

Type of calibration or verification	Minimum frequency ^a
§1065.305: Accuracy, repeatability and noise	Accuracy: Not required, but recommended for initial installation. Repeatability: Not required, but recommended for initial installation. Noise: Not required, but recommended for initial installation.
§1065.307: Linearity	Speed: Upon initial installation, within 370 days before testing and after major maintenance. Torque: Upon initial installation, within 370 days before testing and after major maintenance. Electrical power: Upon initial installation, within 370 days before testing and after major maintenance. Clean gas and diluted exhaust flows: Upon initial installation, within 370 days before testing and after major maintenance, unless flow is verified by propane check or by carbon or oxygen balance. Raw exhaust flow: Upon initial installation, within 185 days before testing and after major maintenance, unless flow is verified by propane check or by carbon or oxygen balance. Gas analyzers: Upon initial installation, within 35 days before testing and after major maintenance. PM balance: Upon initial installation, within 370 days before testing and after major maintenance. Stand-alone pressure and temperature: Upon initial installation, within 370 days before testing and after major maintenance.
§1065.308: Continuous gas analyzer system response and updating-recording verification—for gas analyzers not continuously compensated for other gas species	Upon initial installation or after system modification that would effect response.
§1065.309: Continuous gas analyzer system-response and updating-recording verification—for gas analyzers continuously compensated for other gas species	Upon initial installation or after system modification that would effect response.
§1065.310: Torque	Upon initial installation and after major maintenance.
§1065.315: Pressure, temperature, dewpoint	Upon initial installation and after major maintenance.
§1065.320: Fuel flow	Upon initial installation and after major maintenance.
§1065.325: Intake flow	Upon initial installation and after major maintenance.
§1065.330: Exhaust flow	Upon initial installation and after major maintenance.
§1065.340: Diluted exhaust flow (CVS)	Upon initial installation and after major maintenance.
§1065.341: CVS and batch sampler verification ^b	Upon initial installation, within 35 days before testing, and after major maintenance.
§1065.345: Vacuum leak	Before each laboratory test according to subpart F of this part and before each field test according to subpart J of this part.
§1065.350: CO ₂ NDIR H ₂ O interference	Upon initial installation and after major maintenance.
§1065.355: CO NDIR CO ₂ and H ₂ O interference	Upon initial installation and after major maintenance.
§1065.360: FID calibration THC FID optimization, and THC FID verification.	Calibrate all FID analyzers: upon initial installation and after major maintenance. Optimize and determine CH ₄ response for THC FID analyzers: upon initial installation and after major maintenance. Verify CH ₄ response for THC FID analyzers: upon initial installation, within 185 days before testing, and after major maintenance.
§1065.362: Raw exhaust FID O ₂ interference	For all FID analyzers: upon initial installation, and after major maintenance. For THC FID analyzers: upon initial installation, after major maintenance, and after FID optimization according to §1065.360.
§1065.365: Nonmethane cutter penetration	Upon initial installation, within 185 days before testing, and after major maintenance.

§1065.370: CLD CO ₂ and H ₂ O quench	Upon initial installation and after major maintenance.
§1065.372: NDUV HC and H ₂ O interference	Upon initial installation and after major maintenance.
§1065.376: Chiller NO ₂ penetration	Upon initial installation and after major maintenance.
§1065.378: NO ₂ -to-NO converter conversion	Upon initial installation, within 35 days before testing, and after major maintenance.
§1065.390: PM balance and weighing	Independent verification: upon initial installation, within 370 days before testing, and after major maintenance. Zero, span, and reference sample verifications: within 12 hours of weighing, and after major maintenance.
§1065.395: Inertial PM balance and weighing	Independent verification: upon initial installation, within 370 days before testing, and after major maintenance. Other verifications: upon initial installation and after major maintenance.

^aPerform calibrations and verifications more frequently, according to measurement system manufacturer instructions and good engineering judgment.

^bThe CVS verification described in §1065.341 is not required for systems that agree within ± 2% based on a chemical balance of carbon or oxygen of the intake air, fuel, and diluted exhaust.

217. Section 1065.307 is amended by revising paragraphs (e)(2) and (e)(3) to read as follows:

§1065.307 Linearity verification.

* * * * *

(e) * * *

(2) The expression “ x_{\min} ” refers to the reference value used during the linearity verification that is closest to zero. This is the value used to calculate the first tolerance in Table 1 of this section using the intercept, a_0 . Note that this value may be zero, positive, or negative depending on the reference values. For example, if the reference values chosen to validate a pressure transducer vary from -10 to -1 kPa, x_{\min} is -1 kPa. If the reference values used to validate a temperature device vary from 290 to 390 K, x_{\min} is 290 K.

(3) The expression “max” generally refers to the absolute value of the reference value used during the linearity verification that is furthest from zero. This is the value used to scale the first and third tolerances in Table 1 of this section using a_0 and *SEE*. For example, if the reference values chosen to validate a pressure transducer vary from -10 to -1 kPa, then p_{\max} is +10 kPa. If the reference values used to validate a temperature device vary from 290 to 390 K, then T_{\max} is 390 K. For gas dividers, x_{\max} is the undivided, undiluted, span gas concentration. The following are special cases where “max” refers to a different value:

(i) For linearity verification with a PM balance, m_{\max} refers to the typical mass of a PM filter.

(ii) For linearity verification of torque, T_{\max} refers to the manufacturer’s specified engine torque peak value of the lowest torque engine to be tested.

* * * * *

218. Section 1065.308 is revised to read as follows:

§1065.308 Continuous gas analyzer system-response and updating-recording verification—for gas analyzers not continuously compensated for other gas species.

(a) Scope and frequency. This section describes a verification procedure for system response and updating-recording frequency for continuous gas analyzers that output a gas species mole fraction (i.e., concentration) using a single gas detector, i.e., gas analyzers not continuously compensated for other gas species measured with multiple gas detectors. See §1065.309 for verification procedures that apply to continuous gas analyzers that are continuously compensated for other gas species measured with multiple gas detectors. Perform this verification to determine the system response of the continuous gas analyzer and its sampling system. This verification is required for continuous gas analyzers used for transient or ramped-modal testing. You need not perform this verification for batch gas analyzer systems or for continuous gas analyzer systems that are used only for discrete-mode testing. Perform this verification after initial installation (i.e., test cell commissioning) and after any modifications to the system that would change system response. For example, perform this verification if you add a significant volume to the transfer lines by increasing their length or adding a filter; or if you reduce the frequency at which the gas analyzer updates its output or the frequency at which you sample and record gas-analyzer concentrations.

(b) Measurement principles. This test verifies that the updating and recording frequencies match the overall system response to a rapid change in the value of concentrations at the sample probe. Gas analyzers and their sampling systems must be optimized such that their overall response to a rapid change in concentration is updated and recorded at an appropriate frequency to prevent loss of information. This test also verifies that the measurement system meets a minimum response time. You may use the results of this test to determine transformation time, t_{50} , for the purposes of time alignment of continuous data in accordance with §1065.650(c)(2)(i). You may also use an alternate procedure to determine t_{50} in accordance with good engineering judgment. Note that any such procedure for determining t_{50} must account for both transport delay and analyzer response time.

(c) System requirements. Demonstrate that each continuous analyzer has adequate update and recording frequencies and has a minimum rise time and a minimum fall time during a rapid change in gas concentration. You must meet one of the following criteria:

(1) The product of the mean rise time, t_{10-90} , and the frequency at which the system records an updated concentration must be at least 5, and the product of the mean fall time, t_{90-10} , and the frequency at which the system records an updated concentration must be at least 5. If the recording frequency is different than the analyzer's output update frequency, you must use the lower of these two frequencies for this verification, which is referred to as the updating-recording frequency. This verification applies to the nominal updating and recording frequencies. This criterion makes no assumption regarding the frequency content of changes in emission concentrations during emission testing; therefore, it is valid for any testing. Also, the mean rise time must be at or below 10 seconds and the mean fall time must be at or below 10 seconds.

(2) The frequency at which the system records an updated concentration must be at least 5 Hz. This criterion assumes that the frequency content of significant changes in emission concentrations during emission testing do not exceed 1 Hz. Also, the mean rise time must be at or below 10 seconds and the mean fall time must be at or below 10 seconds.

(3) You may use other criteria if we approve the criteria in advance.

(4) You may meet the overall PEMS verification in §1065.920 instead of the verification in this section for field testing with PEMS.

(d) Procedure. Use the following procedure to verify the response of each continuous gas analyzer:

(1) Instrument setup. Follow the analyzer manufacturer's start-up and operating instructions. Adjust the measurement system as needed to optimize performance. Run this verification with the analyzer operating in the same manner you will use for emission testing. If the analyzer shares its sampling system with other analyzers, and if gas flow to the other analyzers will affect the system response time, then start up and operate the other analyzers while running this verification test. You may run this verification test on multiple analyzers sharing the same sampling system at the same time. If you use any analog or real-time digital filters during emission testing, you must operate those filters in the same manner during this verification.

(2) Equipment setup. We recommend using minimal lengths of gas transfer lines between all connections and fast-acting three-way valves (2 inlets, 1 outlet) to control the flow of zero and blended span gases to the sample system's probe inlet or a tee near the outlet of the probe. Normally the gas flow rate is higher than the probe sample flow rate and the excess is overflowed out the inlet of the probe. If the gas flow rate is lower than the probe flow rate, the gas concentrations must be adjusted to account for the dilution from ambient air drawn into the probe. Select span gases for the species being measured. You may use binary or multi-gas span gases. You may use a gas blending or mixing device to blend span gases. A gas blending or mixing device is recommended when blending span gases diluted in N₂ with span gases diluted in air. You may use a multi-gas span gas, such as NO-CO-CO₂-C₃H₈-CH₄, to verify multiple analyzers at the same time. If you use standard binary span gases, you must run separate response tests for each analyzer. In designing your experimental setup, avoid pressure pulsations due to stopping the flow through the gas-blending device.

(3) Data collection. (i) Start the flow of zero gas.

(ii) Allow for stabilization, accounting for transport delays and the slowest analyzer's full response.

(iii) Start recording data. For this verification you must record data at a frequency greater than or equal to that of the updating-recording frequency used during emission testing. You may not use interpolation or filtering to alter the recorded values.

(iv) Switch the flow to allow the blended span gases to flow to the analyzer. If you intend to use the data from this test to determine t_{50} for time alignment, record this time as t_0 .

(v) Allow for transport delays and the slowest analyzer's full response.

(vi) Switch the flow to allow zero gas to flow to the analyzer. If you intend to use the data from this test to determine t_{50} for time alignment, record this time as t_{100} .

(vii) Allow for transport delays and the slowest analyzer's full response.

(viii) Repeat the steps in paragraphs (d)(3)(iv) through (vii) of this section to record seven full cycles, ending with zero gas flowing to the analyzers.

(ix) Stop recording.

(e) Performance evaluation. (1) If you choose to demonstrate compliance with paragraph (c)(1) of this section, use the data from paragraph (d)(3) of this section to calculate the mean rise time, t_{10-90} , and mean fall time, t_{90-10} , for each of the analyzers being verified.

You may use interpolation between recorded values to determine rise and fall times. If the recording frequency used during emission testing is different from the analyzer's output update frequency, you must use the lower of these two frequencies for this verification. Multiply these times (in seconds) by their respective updating-recording frequencies in Hertz (1/second). The resulting product must be at least 5 for both rise time and fall time. If either value is less than 5, increase the updating-recording frequency, or adjust the flows or design of the sampling system to increase the rise time and fall time as needed. You may also configure analog or digital filters before recording to increase rise and fall times. In no case may the mean rise time or mean fall time be greater than 10 seconds.

(2) If a measurement system fails the criterion in paragraph (e)(1) of this section, ensure that signals from the system are updated and recorded at a frequency of at least 5 Hz. In no case may the mean rise time or mean fall time be greater than 10 seconds.

(3) If a measurement system fails the criteria in paragraphs (e)(1) and (2) of this section, you may use the measurement system only if the deficiency does not adversely affect your ability to show compliance with the applicable standards.

(f) Transformation time, t_{50} , determination. If you choose to determine t_{50} for purposes of time alignment using data generated in paragraph (d)(3) of this section, calculate the mean t_{0-50} and the mean t_{100-50} from the recorded data. Average these two values to determine the final t_{50} for the purposes of time alignment in accordance with §1065.650(c)(2)(i).

219. Section 1065.309 is revised to read as follows:

§1065.309 Continuous gas analyzer system-response and updating-recording verification—for gas analyzers continuously compensated for other gas species.

(a) Scope and frequency. This section describes a verification procedure for system response and updating-recording frequency for continuous gas analyzers that output a single gas species mole fraction (i.e., concentration) based on a continuous combination of multiple gas species measured with multiple detectors (i.e., gas analyzers continuously compensated for other gas species). See §1065.308 for verification procedures that apply to continuous gas analyzers that are not continuously compensated for other gas species or that use only one detector for gaseous species. Perform this verification to determine the system response of the continuous gas analyzer and its sampling system. This verification is required for continuous gas analyzers used for transient or ramped-modal testing. You need not perform this verification for batch gas analyzers or for continuous gas analyzers that are used only for discrete-mode testing. For this check we consider water vapor a gaseous constituent. This verification does not apply to any processing of individual analyzer signals that are time aligned to their t_{50} times and were verified according to §1065.308. For example, this verification does not apply to correction for water removed from the sample done in post-processing according to §1065.659 and it does not apply to NMHC determination from THC and CH₄ according to §1065.660. Perform this verification after initial installation (i.e., test cell commissioning) and after any modifications to the system that would change the system response.

(b) Measurement principles. This procedure verifies that the updating and recording frequencies match the overall system response to a rapid change in the value of

concentrations at the sample probe. It indirectly verifies the time-alignment and uniform response of all the continuous gas detectors used to generate a continuously combined/compensated concentration measurement signal. Gas analyzer systems must be optimized such that their overall response to rapid change in concentration is updated and recorded at an appropriate frequency to prevent loss of information. This test also verifies that the measurement system meets a minimum response time. For this procedure, ensure that all compensation algorithms and humidity corrections are turned on. You may use the results of this test to determine transformation time, t_{50} , for the purposes of time alignment of continuous data in accordance with §1065.650(c)(2)(i). You may also use an alternate procedure to determine t_{50} consistent with good engineering judgment. Note that any such procedure for determining t_{50} must account for both transport delay and analyzer response time.

(c) System requirements. Demonstrate that each continuously combined/compensated concentration measurement has adequate updating and recording frequencies and has a minimum rise time and a minimum fall time during a system response to a rapid change in multiple gas concentrations, including H₂O concentration if H₂O compensation is applied. You must meet one of the following criteria:

(1) The product of the mean rise time, t_{10-90} , and the frequency at which the system records an updated concentration must be at least 5, and the product of the mean fall time, t_{90-10} , and the frequency at which the system records an updated concentration must be at least 5. If the recording frequency is different than the update frequency of the continuously combined/compensated signal, you must use the lower of these two frequencies for this verification. This criterion makes no assumption regarding the frequency content of changes in emission concentrations during emission testing; therefore, it is valid for any testing. Also, the mean rise time must be at or below 10 seconds and the mean fall time must be at or below 10 seconds.

(2) The frequency at which the system records an updated concentration must be at least 5 Hz. This criterion assumes that the frequency content of significant changes in emission concentrations during emission testing do not exceed 1 Hz. Also, the mean rise time must be at or below 10 seconds and the mean fall time must be at or below 10 seconds.

(3) You may use other criteria if we approve them in advance.

(4) You may meet the overall PEMS verification in §1065.920 instead of the verification in this section for field testing with PEMS.

(d) Procedure. Use the following procedure to verify the response of each continuously compensated analyzer (verify the combined signal, not each individual continuously combined concentration signal):

(1) Instrument setup. Follow the analyzer manufacturer's start-up and operating instructions. Adjust the measurement system as needed to optimize performance. Run this verification with the analyzer operating in the same manner you will use for emission testing. If the analyzer shares its sampling system with other analyzers, and if gas flow to the other analyzers will affect the system response time, then start up and operate the other analyzers while running this verification test. You may run this verification test on multiple analyzers sharing the same sampling system at the same time. If you use any analog or real-time digital filters during emission testing, you must operate those filters in the same manner during this verification.

(2) Equipment setup. We recommend using minimal lengths of gas transfer lines between all connections and fast-acting three-way valves (2 inlets, 1 outlet) to control the flow of zero and blended span gases to the sample system's probe inlet or a tee near the outlet of the probe. Normally the gas flow rate is higher than the probe sample flow rate and the excess is overflowed out the inlet of the probe. If the gas flow rate is lower than the probe flow rate, the gas concentrations must be adjusted to account for the dilution from ambient air drawn into the probe. Select span gases for the species being continuously combined, other than H₂O. Select concentrations of compensating species that will yield concentrations of these species at the analyzer inlet that covers the range of concentrations expected during testing. You may use binary or multi-gas span gases. You may use a gas blending or mixing device to blend span gases. A gas blending or mixing device is recommended when blending span gases diluted in N₂ with span gases diluted in air. You may use a multi-gas span gas, such as NO-CO-CO₂-C₃H₈-CH₄, to verify multiple analyzers at the same time. In designing your experimental setup, avoid pressure pulsations due to stopping the flow through the gas blending device. If H₂O correction is applicable, then span gases must be humidified before entering the analyzer; however, you may not humidify NO₂ span gas by passing it through a sealed humidification vessel that contains water. You must humidify NO₂ span gas with another moist gas stream. We recommend humidifying your NO-CO-CO₂-C₃H₈-CH₄, balance N₂ blended gas by flowing the gas mixture through a sealed vessel that humidifies the gas by bubbling it through distilled water and then mixing the gas with dry NO₂ gas, balance purified synthetic air. If your system does not use a sample dryer to remove water from the sample gas, you must humidify your span gas to the highest sample H₂O content that you estimate during emission sampling. If your system uses a sample dryer during testing, it must pass the sample dryer verification check in §1065.342, and you must humidify your span gas to an H₂O content greater than or equal to the level determined in §1065.145(d)(2). If you are humidifying span gases without NO₂, use good engineering judgment to ensure that the wall temperatures in the transfer lines, fittings, and valves from the humidifying system to the probe are above the dewpoint required for the target H₂O content. If you are humidifying span gases with NO₂, use good engineering judgment to ensure that there is no condensation in the transfer lines, fittings, or valves from the point where humidified gas is mixed with NO₂ span gas to the probe. We recommend that you design your setup so that the wall temperatures in the transfer lines, fittings, and valves from the humidifying system to the probe are at least 5 °C above the local sample gas dewpoint. Operate the measurement and sample handling system as you do for emission testing. Make no modifications to the sample handling system to reduce the risk of condensation. Flow humidified gas through the sampling system before this check to allow stabilization of the measurement system's sampling handling system to occur, as it would for an emission test.

(3) Data collection. (i) Start the flow of zero gas.

(ii) Allow for stabilization, accounting for transport delays and the slowest analyzer's full response.

(iii) Start recording data. For this verification you must record data at a frequency greater than or equal to that of the updating-recording frequency used during emission testing. You may not use interpolation or filtering to alter the recorded values.

- (iv) Switch the flow to allow the blended span gases to flow to the analyzer. If you intend to use the data from this test to determine t_{50} for time alignment, record this time as t_0 .
- (v) Allow for transport delays and the slowest analyzer's full response.
- (vi) Switch the flow to allow zero gas to flow to the analyzer. If you intend to use the data from this test to determine t_{50} for time alignment, record this time as t_{100} .
- (vii) Allow for transport delays and the slowest analyzer's full response.
- (viii) Repeat the steps in paragraphs (d)(3)(iv) through (vii) of this section to record seven full cycles, ending with zero gas flowing to the analyzers.
- (ix) Stop recording.
- (e) Performance evaluations. (1) If you choose to demonstrate compliance with paragraph (c)(1) of this section, use the data from paragraph (d)(3) of this section to calculate the mean rise time, t_{10-90} , and mean fall time, t_{90-10} , for the continuously combined signal from each analyzer being verified. You may use interpolation between recorded values to determine rise and fall times. If the recording frequency used during emission testing is different from the analyzer's output update frequency, you must use the lower of these two frequencies for this verification. Multiply these times (in seconds) by their respective updating-recording frequencies in Hz (1/second). The resulting product must be at least 5 for both rise time and fall time. If either value is less than 5, increase the updating-recording frequency or adjust the flows or design of the sampling system to increase the rise time and fall time as needed. You may also configure analog or digital filters before recording to increase rise and fall times. In no case may the mean rise time or mean fall time be greater than 10 seconds.
- (2) If a measurement system fails the criterion in paragraph (e)(1) of this section, ensure that signals from the system are updated and recorded at a frequency of at least 5 Hz. In no case may the mean rise time or mean fall time be greater than 10 seconds.
- (3) If a measurement system fails the criteria in paragraphs (e)(1) and (2) of this section, you may use the measurement system only if the deficiency does not adversely affect your ability to show compliance with the applicable standards.
- (f) Transformation time, t_{50} , determination. If you choose to determine t_{50} for purposes of time alignment using data generated in paragraph (d)(3) of this section, calculate the mean t_{0-50} and the mean t_{100-50} from the recorded data. Average these two values to determine the final t_{50} for the purposes of time alignment in accordance with §1065.650(c)(2)(i).

220. Section 1065.341 is amended by revising paragraph (d)(4) to read as follows:

§1065.341 CVS and batch sampler verification (propane check).

* * * * *

(d) * * *

(4) Overflow zero air at the HC probe inlet or into a tee near the outlet of the probe.

* * * * *

221. Section 1065.342 is amended by revising paragraphs (d) and (e) to read as follows:

§1065.342 Sample dryer verification.

* * * * *

(d) Sample dryer verification procedure. Use the following method to determine sample dryer performance. Run this verification with the dryer and associated sampling system operating in the same manner you will use for emission testing (including operation of sample pumps). You may run this verification test on multiple sample dryers sharing the same sampling system at the same time. You may run this verification on the sample dryer alone, but you must use the maximum gas flow rate expected during testing. You may use good engineering judgment to develop a different protocol.

- (1) Use PTFE or stainless steel tubing to make necessary connections.
- (2) Humidify room air, N₂, or purified air by bubbling it through distilled water in a sealed vessel that humidifies the gas to the highest sample water content that you estimate during emission sampling.
- (3) Introduce the humidified gas upstream of the sample dryer. You may disconnect the transfer line from the probe and introduce the humidified gas at the inlet of the transfer line of the sample system used during testing. You may use the sample pumps in the sample system to draw gas through the vessel.
- (4) Maintain the sample lines, fittings, and valves from the location where the humidified gas water content is measured to the inlet of the sampling system at a temperature at least 5 °C above the local humidified gas dewpoint. For dryers used in NO_x sample systems, verify the sample system components used in this verification prevent aqueous condensation as required in §1065.145(c)(1)(i). We recommend that the sample system components be maintained at least 5 °C above the local humidified gas dewpoint to prevent aqueous condensation.
- (5) Measure the humidified gas dewpoint, T_{dew} , and absolute pressure, p_{total} , as close as possible to the inlet of the sample dryer or inlet of the sample system to verify the water content is at least as high as the highest value that you estimated during emission sampling. You may verify the water content based on any humidity parameter (e.g. mole fraction water, local dewpoint, or absolute humidity).
- (6) Measure the humidified gas dewpoint, T_{dew} , and absolute pressure, p_{total} , as close as possible to the outlet of the sample dryer. Note that the dewpoint changes with absolute pressure. If the dewpoint at the sample dryer outlet is measured at a different pressure, then this reading must be corrected to the dewpoint at the sample dryer absolute pressure, p_{total} .
- (7) The sample dryer meets the verification if the dewpoint at the sample dryer pressure as measured in paragraph (d)(6) of this section is less than the dewpoint corresponding to the sample dryer specifications as determined in §1065.145(d)(2) plus 2 °C or if the mole fraction of water as measured in (d)(6) is less than the corresponding sample dryer specifications plus 0.002 mol/mol.

(e) Alternate sample dryer verification procedure. The following method may be used in place of the sample dryer verification procedure in (d) of this section. If you use a humidity sensor for continuous monitoring of dewpoint at the sample dryer outlet you may skip the performance check in §1065.342(d), but you must make sure that the dryer

outlet humidity is at or below the minimum value used for quench, interference, and compensation checks.

222. Section 1065.345 is amended by revising paragraph (d)(3) to read as follows:

§1065.345 Vacuum-side leak verification.

* * * * *

(d) * * *

(3) Route overflow span gas to the inlet of the sample probe or at a tee fitting in the transfer line near the exit of the probe. You may use a valve upstream of the overflow fitting to prevent overflow of span gas out of the inlet of the probe, but you must then provide an overflow vent in the overflow supply line.

* * * * *

223. Section 1065.350 is amended by revising paragraphs (d)(4) and (d)(5) to read as follows:

§1065.350 H₂O interference verification for CO₂ NDIR analyzers.

* * * * *

(d) * * *

(4) Measure the water mole fraction, x_{H_2O} , of the humidified test gas, as close as possible to the inlet of the analyzer. For example, measure dewpoint, T_{dew} , and absolute pressure, p_{total} , to calculate x_{H_2O} .

(5) Use good engineering judgment to prevent condensation in the transfer lines, fittings, or valves from the point where x_{H_2O} is measured to the analyzer. We recommend that you design your system so the wall temperatures in the transfer lines, fittings, and valves from the point where x_{H_2O} is measured to the analyzer are at least 5 °C above the local sample gas dewpoint.

* * * * *

224. Section 1065.355 is amended by revising paragraphs (d)(4) and (d)(5) to read as follows:

§1065.355 H₂O and CO₂ interference verification for CO NDIR analyzers.

* * * * *

(d) * * *

(4) Measure the water mole fraction, x_{H_2O} , of the humidified CO₂ test gas as close as possible to the inlet of the analyzer. For example, measure dewpoint, T_{dew} , and absolute pressure, p_{total} , to calculate x_{H_2O} .

(5) Use good engineering judgment to prevent condensation in the transfer lines, fittings, or valves from the point where x_{H_2O} is measured to the analyzer. We recommend that you design your system so the wall temperatures in the transfer lines, fittings, and valves from the point where x_{H_2O} is measured to the analyzer are at least 5 °C above the local sample gas dewpoint.

* * * * *

225. Section 1065.370 is revised to to read as follows:

§1065.370 CLD CO₂ and H₂O quench verification.

(a) Scope and frequency. If you use a CLD analyzer to measure NO_x, verify the amount of H₂O and CO₂ quench after installing the CLD analyzer and after major maintenance.

(b) Measurement principles. H₂O and CO₂ can negatively interfere with a CLD's NO_x response by collisional quenching, which inhibits the chemiluminescent reaction that a CLD utilizes to detect NO_x. This procedure and the calculations in §1065.675 determine quench and scale the quench results to the maximum mole fraction of H₂O and the maximum CO₂ concentration expected during emission testing. If the CLD analyzer uses quench compensation algorithms that utilize H₂O and/or CO₂ measurement instruments, evaluate quench with these instruments active and evaluate quench with the compensation algorithms applied.

(c) System requirements. A CLD analyzer must have a combined H₂O and CO₂ quench of ±2 % or less, though we strongly recommend a quench of ±1 % or less. Combined quench is the sum of the CO₂ quench determined as described in paragraph (d) of this section, plus the H₂O quench determined in paragraph (e) of this section.

(d) CO₂ quench verification procedure. Use the following method to determine CO₂ quench by using a gas divider that blends binary span gases with zero gas as the diluent and meets the specifications in §1065.248, or use good engineering judgment to develop a different protocol:

(1) Use PTFE or stainless steel tubing to make necessary connections.

(2) Configure the gas divider such that nearly equal amounts of the span and diluent gases are blended with each other.

(3) If the CLD analyzer has an operating mode in which it detects NO-only, as opposed to total NO_x, operate the CLD analyzer in the NO-only operating mode.

(4) Use a CO₂ span gas that meets the specifications of §1065.750 and a concentration that is approximately twice the maximum CO₂ concentration expected during emission testing.

(5) Use an NO span gas that meets the specifications of §1065.750 and a concentration that is approximately twice the maximum NO concentration expected during emission testing.

(6) Zero and span the CLD analyzer. Span the CLD analyzer with the NO span gas from paragraph (d)(5) of this section through the gas divider. Connect the NO span gas to the span port of the gas divider; connect a zero gas to the diluent port of the gas divider; use the same nominal blend ratio selected in paragraph (d)(2) of this section; and use the gas divider's output concentration of NO to span the CLD analyzer. Apply gas property corrections as necessary to ensure accurate gas division.

(7) Connect the CO₂ span gas to the span port of the gas divider.

(8) Connect the NO span gas to the diluent port of the gas divider.

(9) While flowing NO and CO₂ through the gas divider, stabilize the output of the gas divider. Determine the CO₂ concentration from the gas divider output, applying gas property correction as necessary to ensure accurate gas division. Record this concentration, x_{CO_2act} , and use it in the quench verification calculations in §1065.675.

Alternatively, you may use a simple gas blending device and use an NDIR to determine this CO₂ concentration. If you use an NDIR, it must meet the requirements of this part

for laboratory testing and you must span it with the CO₂ span gas from paragraph (d)(4) of this section.

(10) Measure the NO concentration downstream of the gas divider with the CLD analyzer. Allow time for the analyzer response to stabilize. Stabilization time may include time to purge the transfer line and to account for analyzer response. While the analyzer measures the sample's concentration, record the analyzer's output for 30 seconds. Calculate the arithmetic mean concentration from these data, x_{NOmeas} . Record x_{NOmeas} , and use it in the quench verification calculations in §1065.675.

(11) Calculate the actual NO concentration at the gas divider's outlet, x_{NOact} , based on the span gas concentrations and x_{CO2act} according to Equation 1065.675-2. Use the calculated value in the quench verification calculations in Equation 1065.675-1.

(12) Use the values recorded according to this paragraph (d) and paragraph (e) of this section to calculate quench as described in §1065.675.

(e) H₂O quench verification procedure. Use the following method to determine H₂O quench, or use good engineering judgment to develop a different protocol:

(1) Use PTFE or stainless steel tubing to make necessary connections.

(2) If the CLD analyzer has an operating mode in which it detects NO-only, as opposed to total NO_x, operate the CLD analyzer in the NO-only operating mode.

(3) Use an NO span gas that meets the specifications of §1065.750 and a concentration that is near the maximum concentration expected during emission testing.

(4) Zero and span the CLD analyzer. Span the CLD analyzer with the NO span gas from paragraph (e)(3) of this section, record the span gas concentration as x_{NOdry} , and use it in the quench verification calculations in §1065.675.

(5) Humidify the NO span gas by bubbling it through distilled water in a sealed vessel. If the humidified NO span gas sample does not pass through a sample dryer for this verification test, control the vessel temperature to generate an H₂O level approximately equal to the maximum mole fraction of H₂O expected during emission testing. If the humidified NO span gas sample does not pass through a sample dryer, the quench verification calculations in §1065.675 scale the measured H₂O quench to the highest mole fraction of H₂O expected during emission testing. If the humidified NO span gas sample passes through a dryer for this verification test, control the vessel temperature to generate an H₂O level at least as high as the level determined in §1065.145(d)(2). For this case, the quench verification calculations in §1065.675 do not scale the measured H₂O quench.

(6) Introduce the humidified NO test gas into the sample system. You may introduce it upstream or downstream of any sample dryer that is used during emission testing. Note that the sample dryer must meet the sample dryer verification check in §1065.342.

(7) Measure the mole fraction of H₂O in the humidified NO span gas downstream of the sample dryer, x_{H2Omeas} . We recommend that you measure x_{H2Omeas} as close as possible to the CLD analyzer inlet. You may calculate x_{H2Omeas} from measurements of dewpoint, T_{dew} , and absolute pressure, p_{total} .

(8) Use good engineering judgment to prevent condensation in the transfer lines, fittings, or valves from the point where x_{H2Omeas} is measured to the analyzer. We recommend that you design your system so the wall temperatures in the transfer lines, fittings, and valves from the point where x_{H2Omeas} is measured to the analyzer are at least 5 °C above the local sample gas dewpoint.

(9) Measure the humidified NO span gas concentration with the CLD analyzer. Allow time for the analyzer response to stabilize. Stabilization time may include time to purge the transfer line and to account for analyzer response. While the analyzer measures the sample's concentration, record the analyzer's output for 30 seconds. Calculate the arithmetic mean of these data, x_{NOwet} . Record x_{NOwet} and use it in the quench verification calculations in §1065.675.

(f) Corrective action. If the sum of the H₂O quench plus the CO₂ quench is less than -2 % or greater than +2 %, take corrective action by repairing or replacing the analyzer. Before running emission tests, verify that the corrective action successfully restored the analyzer to proper functioning.

(g) Exceptions. The following exceptions apply:

(1) You may omit this verification if you can show by engineering analysis that for your NO_x sampling system and your emission calculations procedures, the combined CO₂ and H₂O interference for your NO_x CLD analyzer always affects your brake-specific NO_x emission results within no more than ±1.0 % of the applicable NO_x standard.

(2) You may use a NO_x CLD analyzer that you determine does not meet this verification, as long as you try to correct the problem and the measurement deficiency does not adversely affect your ability to show that engines comply with all applicable emission standards.

226. Section 1065.378 is amended by revising paragraph (d)(4) to read as follows:

§1065.378 NO₂-to-NO converter conversion verification.

* * * * *

(d) * * *

(4) Performance evaluation. Calculate the efficiency of the NO_x converter by substituting the concentrations obtained into the following equation:

$$\text{efficiency} = \left(1 + \frac{x_{\text{NOxmeas}} - x_{\text{NOx+O2mix}}}{x_{\text{NO+O2mix}} - x_{\text{NOmeas}}} \right) \cdot 100 \%$$

* * * * *

Subpart F— [Amended]

227. Section 1065.510 is amended by revising paragraphs (b)(3) and (b)(6) to read as follows:

§1065.510 Engine mapping.

* * * * *

(b) * * *

(3) Operate the engine at its warm idle speed as follows:

(i) For engines with a low-speed governor, set the operator demand to minimum, use the dynamometer or other loading device to target a torque of zero on the engine's primary output shaft, and allow the engine to govern the speed. Measure this warm idle speed; we recommend recording at least 30 values of speed and using the mean of those values.

(ii) For engines without a low-speed governor, operate the engine at warm idle speed and zero torque on the engine's primary output shaft. You may use the dynamometer to target a torque of zero on the engine's primary output shaft, and manipulate the operator demand to control the speed to target the manufacturer-declared value for the lowest engine speed possible with minimum load (also known as manufacturer-declared warm idle speed). You may alternatively use the dynamometer to target the manufacturer-declared warm idle speed and manipulate the operator demand to control the torque on the engine's primary output shaft to zero.

(iii) For variable-speed engines with or without a low-speed governor, if a nonzero idle torque is representative of in-use operation, you may use the dynamometer or operator demand to target the manufacturer-declared idle torque instead of targeting zero torque as specified in paragraphs (b)(3)(i) and (ii) of this section. Control speed as specified in paragraph (b)(3)(i) or (ii) of this section, as applicable. If you use this option for engines with a low-speed governor to measure the warm idle speed with the manufacturer-declared torque at this step, you may use this as the warm-idle speed for cycle generation as specified in paragraph (b)(6) of this section. However, if you identify multiple warm idle torques under paragraph (f)(4)(i) of this section, measure the warm idle speed at only one torque level for this paragraph (b)(3).

* * * * *

(6) For engines with a low-speed governor, if a nonzero idle torque is representative of in-use operation, operate the engine at warm idle with the manufacturer-declared idle torque. Set the operator demand to minimum, use the dynamometer to target the declared idle torque, and allow the engine to govern the speed. Measure this speed and use it as the warm idle speed for cycle generation in §1065.512. We recommend recording at least 30 values of speed and using the mean of those values. If you identify multiple warm idle torques under paragraph (f)(4)(i) of this section, measure the warm idle speed at each torque. You may map the idle governor at multiple load levels and use this map to determine the measured warm idle speed at the declared idle torque(s).

* * * * *

228. Section 1065.514 is amended by revising paragraph (f)(3) to read as follows:

§1065.514 Cycle-validation criteria for operation over specified duty cycles.

* * * * *

(f) * * *

(3) For discrete-mode steady-state testing, apply cycle-validation criteria by treating the sampling periods from the series of test modes as a continuous sampling period, analogous to ramped-modal testing and apply statistical criteria as described in paragraph (f)(1) or (2) of this section.

* * * * *

229. Section 1065.520 is amended by revising paragraphs (g)(4) and (g)(5)(ii) to read as follows:

§1065.520 Pre-test verification procedures and pre-test data collection.

* * * * *

(g) * * *

(4) Overflow zero gas at the HC probe inlet or into a tee near the probe outlet.

(5) * * *

(ii) For batch sampling, fill the sample medium (e.g., bag) and record its mean THC concentration.

* * * * *

Subpart G— [Amended]

230. Section 1065.610 is amended by revising paragraphs (a) and (b) to read as follows:

§1065.610 Duty cycle generation.

* * * * *

(a) Maximum test speed, f_{ntest} . This section generally applies to duty cycles for variable-speed engines. For constant-speed engines subject to duty cycles that specify normalized speed commands, use the no-load governed speed as the measured f_{ntest} . This is the highest engine speed where an engine outputs zero torque. For variable-speed engines, determine the measured f_{ntest} from the power-versus-speed map, generated according to §1065.510, as follows:

(1) Based on the map, determine maximum power, P_{max} , and the speed at which maximum power occurred, f_{nPmax} . If maximum power occurs at multiple speeds, take f_{nPmax} as the lowest of these speeds. Divide every recorded power by P_{max} and divide every recorded speed by f_{nPmax} . The result is a normalized power-versus-speed map. Your measured f_{ntest} is the speed at which the sum of the squares of normalized speed and power is maximum. Note that if multiple maximum values are found, f_{ntest} should be taken as the lowest speed of all points with the same maximum sum of squares. Determine f_{ntest} as follows:

$$f_{ntest} = f_{ni} \text{ at the maximum of } (f_{nnormi}^2 + P_{normi}^2)$$

Eq. 1065.610-1

Where:

f_{ntest} = maximum test speed.

i = an indexing variable that represents one recorded value of an engine map.

f_{nnormi} = an engine speed normalized by dividing it by f_{nPmax} .

P_{normi} = an engine power normalized by dividing it by P_{max} .

Example:

$$(f_{nnorm1} = 1.002, P_{norm1} = 0.978, f_{n1} = 2359.71)$$

$$(f_{nnorm2} = 1.004, P_{norm2} = 0.977, f_{n2} = 2364.42)$$

$$(f_{nnorm3} = 1.006, P_{norm3} = 0.974, f_{n3} = 2369.13)$$

$$(f_{nnorm1}^2 + P_{norm1}^2) = (1.002^2 + 0.978^2) = 1.960$$

$$(f_{nnorm2}^2 + P_{norm2}^2) = (1.004^2 + 0.977^2) = 1.963$$

$$(f_{nnorm3}^2 + P_{norm3}^2) = (1.006^2 + 0.974^2) = 1.961$$

maximum = 1.963 at $i = 2$

$$f_{ntest} = 2364.42 \text{ rev/min}$$

(2) For variable-speed engines, transform normalized speeds to reference speeds according to paragraph (c) of this section by using the measured maximum test speed determined according to paragraph (a)(1) of this section—or use your

declared maximum test speed, as allowed in §1065.510.

(3) For constant-speed engines, transform normalized speeds to reference speeds according to paragraph (c) of this section by using the measured no-load governed speed—or use your declared maximum test speed, as allowed in §1065.510.

(b) Maximum test torque, T_{test} . For constant-speed engines, determine the measured T_{test} from the power-versus-speed map, generated according to §1065.510, as follows:

(1) Based on the map, determine maximum power, P_{max} , and the speed at which maximum power occurs, f_{nPmax} . If maximum power occurs at multiple speeds, take f_{nPmax} as the lowest of these speeds. Divide every recorded power by P_{max} and divide every recorded speed by f_{nPmax} . The result is a normalized power-versus-speed map. Your measured T_{test} is the torque at which the sum of the squares of normalized speed and power is maximum. Note that that if multiple maximum values are found, T_{test} should be taken as the highest torque of all points with the same maximum sum of squares. Determine T_{test} as follows:

$$T_{\text{test}} = T_i \text{ at the maximum of } (f_{\text{norm}i}^2 + P_{\text{norm}i}^2)$$

Eq. 1065.610-2

Where:

T_{test} = maximum test torque.

Example:

$$(f_{\text{norm}1} = 1.002, P_{\text{norm}1} = 0.978, T_1 = 722.62 \text{ N}\cdot\text{m})$$

$$(f_{\text{norm}2} = 1.004, P_{\text{norm}2} = 0.977, T_2 = 720.44 \text{ N}\cdot\text{m})$$

$$(f_{\text{norm}3} = 1.006, P_{\text{norm}3} = 0.974, T_3 = 716.80 \text{ N}\cdot\text{m})$$

$$(f_{\text{norm}1}^2 + P_{\text{norm}1}^2) = (1.002^2 + 0.978^2) = 1.960$$

$$(f_{\text{norm}2}^2 + P_{\text{norm}2}^2) = (1.004^2 + 0.977^2) = 1.963$$

$$(f_{\text{norm}3}^2 + P_{\text{norm}3}^2) = (1.006^2 + 0.974^2) = 1.961$$

$$\text{maximum} = 1.963 \text{ at } i = 2$$

$$T_{\text{test}} = 720.44 \text{ N}\cdot\text{m}$$

(2) Transform normalized torques to reference torques according to paragraph (d) of this section by using the measured maximum test torque determined according to paragraph (b)(1) of this section—or use your declared maximum test torque, as allowed in §1065.510.

* * * * *

231. Section 1065.640 is amended by revising paragraph (a) to read as follows:

§1065.640 Flow meter calibration calculations.

* * * * *

(a) Reference meter conversions. The calibration equations in this section use molar flow rate, \dot{n}_{ref} , as a reference quantity. If your reference meter outputs a flow rate in a

different quantity, such as standard volume rate, \dot{V}_{stdref} , actual volume rate, \dot{V}_{actref} , or mass rate, \dot{m}_{ref} , convert your reference meter output to a molar flow rate using the

following equations, noting that while values for volume rate, mass rate, pressure, temperature, and molar mass may change during an emission test, you should ensure that they are as constant as practical for each individual set point during a flow meter

calibration:

$$\dot{n}_{\text{ref}} = \frac{\dot{V}_{\text{stdref}} \cdot P_{\text{std}}}{T_{\text{std}} \cdot R} = \frac{\dot{V}_{\text{actref}} \cdot P_{\text{act}}}{T_{\text{act}} \cdot R} = \frac{\dot{m}_{\text{ref}}}{M_{\text{mix}}}$$

Eq. 1065.640-1

Where:

\dot{n}_{ref} = reference molar flow rate.

\dot{V}_{stdref} = reference volume flow rate, corrected to a standard pressure and a standard temperature.

\dot{V}_{actref} = reference volume flow rate at the actual pressure and temperature of the flow rate.

\dot{m}_{ref} = reference mass flow.

P_{std} = standard pressure.

P_{act} = actual pressure of the flow rate.

T_{std} = standard temperature.

T_{act} = actual temperature of the flow rate.

R = molar gas constant.

M_{mix} = molar mass of the flow rate.

Example 1:

$$\dot{V}_{\text{stdref}} = 1000.00 \text{ ft}^3/\text{min} = 0.471948 \text{ m}^3/\text{s}$$

$$P = 29.9213 \text{ in Hg @ } 32 \text{ }^\circ\text{F} = 101325 \text{ Pa}$$

$$T = 68.0 \text{ }^\circ\text{F} = 293.15 \text{ K}$$

$$R = 8.314472 \text{ J}/(\text{mol}\cdot\text{K})$$

$$\dot{n}_{\text{ref}} = \frac{0.471948 \cdot 101325}{293.15 \cdot 8.314472}$$

$$\dot{n}_{\text{ref}} = 19.619 \text{ mol/s}$$

Example 2:

$$\dot{m}_{\text{ref}} = 17.2683 \text{ kg}/\text{min} = 287.805 \text{ g/s}$$

$$M_{\text{mix}} = 28.7805 \text{ g/mol}$$

$$\dot{n}_{\text{ref}} = \frac{287.805}{28.7805}$$

$$\dot{n}_{\text{ref}} = 10.0000 \text{ mol/s}$$

* * * * *

232. Section 1065.645 is amended by revising paragraphs (a) and (b) to read as follows:

§1065.645 Amount of water in an ideal gas.

* * * * *

(a) Vapor pressure of water. Calculate the vapor pressure of water for a given saturation

temperature condition, T_{sat} , as follows, or use good engineering judgment to use a different relationship of the vapor pressure of water to a given saturation temperature condition:

- (1) For humidity measurements made at ambient temperatures from (0 to 100) °C, or for humidity measurements made over super-cooled water at ambient temperatures from (-50 to 0) °C, use the following equation:

$$\log_{10}(p_{\text{H}_2\text{O}}) = 10.79574 \cdot \left(1 - \frac{273.16}{T_{\text{sat}}}\right) - 5.02800 \cdot \log_{10}\left(\frac{T_{\text{sat}}}{273.16}\right) + 1.50475 \cdot 10^{-4} \cdot \left(1 - 10^{-8.2969 \left(\frac{T_{\text{sat}}}{273.16} - 1\right)}\right) + 0.42873 \cdot 10^{-3} \cdot \left(10^{4.76955 \cdot \left(1 - \frac{273.16}{T_{\text{sat}}}\right)} - 1\right) - 0.2138602$$

Eq. 1065.645-1

Where:

$p_{\text{H}_2\text{O}}$ = vapor pressure of water at saturation temperature condition, kPa.

T_{sat} = saturation temperature of water at measured conditions, K.

Example:

$T_{\text{sat}} = 9.5$ °C

$T_{\text{dsat}} = 9.5 + 273.15 = 282.65$ K

$$\log_{10}(p_{\text{H}_2\text{O}}) = 10.79574 \cdot \left(1 - \frac{273.16}{282.65}\right) - 5.02800 \cdot \log_{10}\left(\frac{282.65}{273.16}\right) + 1.50475 \cdot 10^{-4} \cdot \left(1 - 10^{-8.2969 \left(\frac{282.65}{273.16} - 1\right)}\right) + 0.42873 \cdot 10^{-3} \cdot \left(10^{4.76955 \cdot \left(1 - \frac{273.16}{282.65}\right)} - 1\right) - 0.2138602$$

$$\log_{10}(p_{\text{H}_2\text{O}}) = 0.074297$$

$$p_{\text{H}_2\text{O}} = 10^{0.074297} = 1.186581 \text{ kPa}$$

- (2) For humidity measurements over ice at ambient temperatures from (-100 to 0) °C, use the following equation:

$$\log_{10}(p_{\text{sat}}) = -9.096853 \cdot \left(\frac{273.16}{T_{\text{sat}}} - 1\right) - 3.566506 \cdot \log_{10}\left(\frac{273.16}{T_{\text{sat}}}\right) + 0.876812 \cdot \left(\frac{T_{\text{sat}}}{273.16} - 1\right) - 0.2138602$$

Eq. 1065.645-2

Example:

$T_{\text{ice}} = -15.4$ °C

$T_{\text{ice}} = -15.4 + 273.15 = 257.75$ K

$$\log_{10}(p_{\text{sat}}) = -9.096853 \cdot \left(\frac{273.16}{257.75} - 1\right) - 3.566506 \cdot \log_{10}\left(\frac{273.16}{257.75}\right) + 0.876812 \cdot \left(1 - \frac{257.75}{273.16}\right) - 0.2138602$$

$$\log_{10}(p_{H2O}) = 0.798207$$

$$p_{H2O} = 10^{0.79821} = 0.159145 \text{ kPa}$$

(b) **Dewpoint.** If you measure humidity as a dewpoint, determine the amount of water in an ideal gas, x_{H2O} , as follows:

$$x_{H2O} = \frac{p_{H2O}}{p_{abs}}$$

Eq. 1065.645-3

Where:

x_{H2O} = amount of water in an ideal gas.

p_{H2O} = water vapor pressure at the measured dewpoint, $T_{sat} = T_{dew}$.

p_{abs} = wet static absolute pressure at the location of your dewpoint measurement.

Example:

$$p_{abs} = 99.980 \text{ kPa}$$

$$T_{sat} = T_{dew} = 9.5 \text{ }^\circ\text{C}$$

Using Eq. 1065.645-1,

$$p_{H2O} = 1.18489 \text{ kPa}$$

$$x_{H2O} = 1.18489 / 99.980$$

$$x_{H2O} = 0.011851 \text{ mol/mol}$$

* * * * *

233. Section 1065.650 is amended by revising paragraphs (b)(3), (c)(2)(i), (d)(8), (e)(4), (f)(2), and (g) and adding paragraph (h) to read as follows:

§1065.650 Emission calculations.

* * * * *

(b) * * *

(3) For field testing, you may calculate the ratio of total mass to total work, where these individual values are determined as described in paragraph (f) of this section. You may also use this approach for laboratory testing, consistent with good engineering judgment. This is a special case in which you use a signal linearly proportional to raw exhaust molar flow rate to determine a value proportional to total emissions. You then use the same linearly proportional signal to determine total work using a chemical balance of fuel, intake air, and exhaust as described in §1065.655, plus information about your engine's brake-specific fuel consumption. Under this method, flow meters need not meet accuracy specifications, but they must meet the applicable linearity and repeatability specifications in subpart D or subpart J of this part. The result is a brake-specific emission value calculated as follows:

$$e = \frac{\tilde{m}}{\tilde{W}}$$

Eq. 1065.650-3

Example:

$$\tilde{m} = 805.5 \text{ g}$$

$$\tilde{w} = 52.102 \text{ kW}\cdot\text{hr}$$

$$e_{CO} = 805.5/52.102$$

$$e_{CO} = 2.520 \text{ g}/(\text{kW}\cdot\text{hr})$$

(c) * * *
 (2) * * *

(i) Varying flow rate. If you continuously sample from a changing exhaust flow rate, time align and then multiply concentration measurements by the flow rate from which you extracted it. Use good engineering judgment to time-align flow and concentration data to match transformation time, t_{50} , to within ± 1 s. We consider the following to be examples of changing flows that require a continuous multiplication of concentration times molar flow rate: raw exhaust, exhaust diluted with a constant flow rate of dilution air, and CVS dilution with a CVS flow meter that does not have an upstream heat exchanger or electronic flow control. This multiplication results in the flow rate of the emission itself. Integrate the emission flow rate over a test interval to determine the total emission. If the total emission is a molar quantity, convert this quantity to a mass by multiplying it by its molar mass, M . The result is the mass of the emission, m . Calculate m for continuous sampling with variable flow using the following equations:

$$m = M \cdot \sum_{i=1}^N x_i \cdot \dot{n}_i \cdot \Delta t$$

Eq. 1065.650-4

Where:
 $\Delta t = 1/f_{\text{record}}$ Eq. 1065.650-5

Example:
 $M_{\text{NMHC}} = 13.875389 \text{ g/mol}$
 $N = 1200$
 $x_{\text{NMHC1}} = 84.5 \text{ } \mu\text{mol/mol} = 84.5 \cdot 10^{-6} \text{ mol/mol}$
 $x_{\text{NMHC2}} = 86.0 \text{ } \mu\text{mol/mol} = 86.0 \cdot 10^{-6} \text{ mol/mol}$
 $\dot{n}_{\text{exh1}} = 2.876 \text{ mol/s}$

$$\dot{n}_{\text{exh2}} = 2.224 \text{ mol/s}$$

$f_{\text{record}} = 1 \text{ Hz}$
 Using Eq. 1065.650-5,
 $\Delta t = 1/1 = 1 \text{ s}$

$$m_{\text{NMHC}} = 13.875389 \cdot (84.5 \cdot 10^{-6} \cdot 2.876 + 86.0 \cdot 10^{-6} \cdot 2.224 + \dots + x_{\text{NMHC1200}} \cdot \dot{n}_{\text{exh}}) \cdot 1$$

$$m_{\text{NMHC}} = 25.23 \text{ g}$$

* * * * *
 (d) * * *

(8) You may use a trapezoidal integration method instead of the rectangular integration described in this paragraph (d). To do this, you must integrate the fraction of work between points where the torque is positive. You may assume that speed and torque are linear between data points. You may not set negative values to zero before running the integration.

(e) * * *

(4) The following example shows how to calculate mass of emissions using mean mass rate and mean power:

$$M_{\text{CO}} = 28.0101 \text{ g/mol}$$

$$\bar{x}_{\text{CO}} = 12.00 \text{ mmol/mol} = 0.01200 \text{ mol/mol}$$

$$\bar{\dot{n}} = 1.530 \text{ mol/s}$$

$$\bar{f}_n = 3584.5 \text{ rev/min} = 375.37 \text{ rad/s}$$

$$\bar{T} = 121.50 \text{ N}\cdot\text{m}$$

$$\bar{\dot{m}} = 28.0101 \cdot 0.01200 \cdot 1.530$$

$$\bar{\dot{m}} = 0.514 \text{ g/s} = 1850.4 \text{ g/hr}$$

$$\bar{P} = 121.5 \cdot 375.37$$

$$\bar{P} = 45607 \text{ W}$$

$$\bar{P} = 45.607 \text{ kW}$$

$$e_{\text{CO}} = 1850.4/45.61$$

$$\alpha_{\text{CO}} = 40.57 \text{ g/(kW}\cdot\text{hr)}$$

(f) * * *

(2) Total work. To calculate a value proportional to total work over a test interval, integrate a value that is proportional to power. Use information about the brake-specific fuel consumption of your engine, e_{fuel} , to convert a signal proportional to fuel flow rate to a signal proportional to power. To determine a signal proportional to fuel flow rate, divide a signal that is proportional to the mass rate of carbon products by the fraction of carbon in your fuel, w_c . You may use a measured w_c or you may use default values for a given fuel as described in §1065.655(d). Calculate the mass rate of carbon from the amount of carbon and water in the exhaust, which you determine with a chemical balance of fuel, intake air, and exhaust as described in §1065.655. In the chemical balance, you must use concentrations from the flow that generated the signal proportional to molar flow rate, \tilde{n} , in paragraph (e)(1) of this section. Calculate a value proportional to total work as follows:

$$W = \sum_{i=1}^N \tilde{P}_i \cdot \Delta t$$

Eq. 1065.650-15

Where:

$$\tilde{P}_i = \frac{\tilde{m}_{\text{fuel}i}}{e_{\text{fuel}}}$$

Eq. 1065.650-16

* * * * *

(g) Calculating cycle-weighted mean values. Unless the standard-setting part specifies otherwise, use the approach specified in this paragraph (g) to calculate cycle-weighted means of different test segments or modes. Weighting factors are generally intended to represent the ratio of time spent operating at each mode in a theoretical duty cycle. Use

good engineering judgment to calculate the cycle-weighted mean consistent with this intent. The following examples illustrate the two primary methods:

(1) For discrete-mode testing, a cycle-weighted mean may be calculated by dividing the sum of the weighted mass emission rates (weighting factor times mass emission rate in g/hr) by the sum of the weighted brake power (kW). You are not required to have identical sampling times for each mode with this approach.

(2) For any testing where the sampling time for each mode is identical, a cycle-weighted mean may be calculated by dividing the sum of the weighted mass emissions (weighting factor times total mass emission for the mode in g) by the sum of the weighted brake work (kW·hr).

(h) Rounding. Round emission values only after all calculations are complete and the result is in g/(kW·hr) or units equivalent to the units of the standard, such as g/(hp·hr). See the definition of “Round” in §1065.1001.

234. Section 1065.655 is amended by revising paragraphs (c) and (d) and adding paragraph (e) to read as follows:

§1065.655 Chemical balances of fuel, intake air, and exhaust.

* * * * *

(c) Chemical balance procedure. The calculations for a chemical balance involve a system of equations that require iteration. We recommend using a computer to solve this system of equations. You must guess the initial values of up to three quantities: the amount of water in the measured flow, $x_{\text{H}_2\text{O}_{\text{exh}}}$, fraction of dilution air in diluted exhaust, $x_{\text{dil/exh}}$, and the amount of products on a C_1 basis per dry mole of dry measured flow, $x_{\text{C}_{\text{combdry}}}$. You may use time-weighted mean values of combustion air humidity and dilution air humidity in the chemical balance; as long as your combustion air and dilution air humidities remain within tolerances of ± 0.0025 mol/mol of their respective mean values over the test interval. For each emission concentration, x , and amount of water, $x_{\text{H}_2\text{O}_{\text{exh}}}$, you must determine their completely dry concentrations, x_{dry} and $x_{\text{H}_2\text{O}_{\text{exhdry}}}$. You must also use your fuel’s atomic hydrogen-to-carbon ratio, α , and oxygen-to-carbon ratio, β . You may measure α and β or you may use default values for a given fuel as described in §1065.655(d). Use the following steps to complete a chemical balance:

(1) Convert your measured concentrations such as, $x_{\text{CO}_2\text{meas}}$, $x_{\text{NO}_{\text{meas}}}$, and $x_{\text{H}_2\text{O}_{\text{int}}}$, to dry concentrations by dividing them by one minus the amount of water present during their respective measurements; for example: $x_{\text{H}_2\text{O}_x\text{CO}_2\text{meas}}$, $x_{\text{H}_2\text{O}_x\text{NO}_{\text{meas}}}$, and $x_{\text{H}_2\text{O}_{\text{int}}}$. If the amount of water present during a “wet” measurement is the same as the unknown amount of water in the exhaust flow, $x_{\text{H}_2\text{O}_{\text{exh}}}$, iteratively solve for that value in the system of equations. If you measure only total NO_x and not NO and NO_2 separately, use good engineering judgment to estimate a split in your total NO_x concentration between NO and NO_2 for the chemical balances. For example, if you measure emissions from a stoichiometric spark-ignition engine, you may assume all NO_x is NO . For a compression-ignition engine, you may assume that your molar concentration of NO_x , x_{NO_x} , is 75 % NO and 25 % NO_2 . For NO_2 storage aftertreatment systems, you may assume x_{NO_x} is 25 % NO and 75 % NO_2 . Note that for calculating the mass of NO_x emissions, you must use the molar mass of NO_2 for the effective molar mass of all NO_x species, regardless of

the actual NO₂ fraction of NO_x.

(2) Enter the equations in paragraph (c)(4) of this section into a computer program to iteratively solve for $x_{\text{H}_2\text{Oexh}}$, x_{Ccombdry} , and $x_{\text{dil/exh}}$. Use good engineering judgment to guess initial values for $x_{\text{H}_2\text{Oexh}}$, x_{Ccombdry} , and $x_{\text{dil/exh}}$. We recommend guessing an initial amount of water that is about twice the amount of water in your intake or dilution air. We recommend guessing an initial value of x_{Ccombdry} as the sum of your measured CO₂, CO, and THC values. We also recommend guessing an initial $x_{\text{dil/exh}}$ between 0.75 and 0.95, such as 0.8. Iterate values in the system of equations until the most recently updated guesses are all within $\pm 1\%$ of their respective most recently calculated values.

(3) Use the following symbols and subscripts in the equations for this paragraph (c):

$x_{\text{dil/exh}}$ = Amount of dilution gas or excess air per mole of exhaust.

$x_{\text{H}_2\text{Oexh}}$ = Amount of water in exhaust per mole of exhaust.

x_{Ccombdry} = Amount of carbon from fuel in the exhaust per mole of dry exhaust.

$x_{\text{H}_2\text{dry}}$ = Amount of H₂ in exhaust per amount of dry exhaust.

$K_{\text{H}_2\text{Ogas}}$ = Water-gas reaction equilibrium coefficient. You may use 3.5 or calculate your own value using good engineering judgment.

$x_{\text{H}_2\text{Oexhdry}}$ = Amount of water in exhaust per dry mole of dry exhaust.

$x_{\text{prod/intdry}}$ = Amount of dry stoichiometric products per dry mole of intake air.

$x_{\text{dil/exhdry}}$ = Amount of dilution gas and/or excess air per mole of dry exhaust.

$x_{\text{int/exhdry}}$ = Amount of intake air required to produce actual combustion products per mole of dry (raw or diluted) exhaust.

$x_{\text{raw/exhdry}}$ = Amount of undiluted exhaust, without excess air, per mole of dry (raw or diluted) exhaust.

$x_{\text{O}_2\text{int}}$ = Amount of intake air O₂ per mole of intake air.

$x_{\text{CO}_2\text{intdry}}$ = Amount of intake air CO₂ per mole of dry intake air. You may use $x_{\text{CO}_2\text{intdry}} = 375 \mu\text{mol/mol}$, but we recommend measuring the actual concentration in the intake air.

$x_{\text{H}_2\text{Ointdry}}$ = Amount of intake air H₂O per mole of dry intake air.

$x_{\text{CO}_2\text{int}}$ = Amount of intake air CO₂ per mole of intake air.

$x_{\text{CO}_2\text{dil}}$ = Amount of dilution gas CO₂ per mole of dilution gas.

$x_{\text{CO}_2\text{dildry}}$ = Amount of dilution gas CO₂ per mole of dry dilution gas. If you use air as diluent, you may use $x_{\text{CO}_2\text{dildry}} = 375 \mu\text{mol/mol}$, but we recommend measuring the actual concentration in the intake air.

$x_{\text{H}_2\text{Odildry}}$ = Amount of dilution gas H₂O per mole of dry dilution gas.

$x_{\text{H}_2\text{Odil}}$ = Amount of dilution gas H₂O per mole of dilution gas.

$x_{\text{[emission]meas}}$ = Amount of measured emission in the sample at the respective gas analyzer.

$x_{\text{[emission]dry}}$ = Amount of emission per dry mole of dry sample.

$x_{\text{H}_2\text{O[emission]meas}}$ = Amount of water in sample at emission-detection location. Measure or estimate these values according to §1065.145(d)(2).

$x_{\text{H}_2\text{Oint}}$ = Amount of water in the intake air, based on a humidity measurement of intake air.

α = Atomic hydrogen-to-carbon ratio in fuel.

β = Atomic oxygen-to-carbon ratio in fuel.

(4) Use the following equations to iteratively solve for $x_{\text{dil/exh}}$, $x_{\text{H}_2\text{Oexh}}$, and x_{Ccombdry} :

$$x_{\text{dil/exh}} = 1 - \frac{x_{\text{raw/exhdry}}}{1 + x_{\text{H}_2\text{Oexhdry}}} \quad \text{Eq. 1065.655-1}$$

$$x_{\text{H}_2\text{Oexh}} = \frac{x_{\text{H}_2\text{Oexhdry}}}{1 + x_{\text{H}_2\text{Oexhdry}}} \quad \text{Eq. 1065.655-2}$$

$$x_{\text{Ccombdry}} = x_{\text{CO}_2\text{dry}} + x_{\text{COdry}} + x_{\text{THCdry}} - x_{\text{CO}_2\text{dil}} \times x_{\text{dil/exhdry}} - x_{\text{CO}_2\text{int}} \times x_{\text{int/exhdry}} \quad \text{Eq. 1065.655-3}$$

$$x_{\text{H2dry}} = \frac{x_{\text{COdry}} \cdot (x_{\text{H2Oexhdry}} - x_{\text{H2Odil}} \cdot x_{\text{dil/exhdry}})}{K_{\text{H2O-gas}} \cdot (x_{\text{CO2dry}} - x_{\text{CO2dil}} \cdot x_{\text{dil/exhdry}})}$$

Eq. 1065.655-4

$$x_{\text{H2Oexhdry}} = \frac{a}{2} (x_{\text{Ccombdry}} - x_{\text{THCdry}}) + x_{\text{H2Odil}} \cdot x_{\text{dil/exhdry}} + x_{\text{H2Oint}} \cdot x_{\text{int/exhdry}} - x_{\text{H2dry}}$$

Eq. 1065.655-5

$$x_{\text{dil/exhdry}} = \frac{x_{\text{dil/exh}}}{1 - x_{\text{H2Oexh}}}$$

Eq. 1065.655-6

$$x_{\text{int/exhdry}} = \frac{1}{2 \cdot x_{\text{O2int}}} \left[\left(\frac{\alpha}{2} - \beta + 2 \right) (x_{\text{Ccombdry}} - x_{\text{THCdry}}) - (x_{\text{COdry}} - x_{\text{NOdry}} - 2x_{\text{NO2dry}} + x_{\text{H2dry}}) \right]$$

Eq. 1065.655-7

$$x_{\text{raw/exhdry}} = \frac{1}{2} \left[\left(\frac{\alpha}{2} + \beta \right) (x_{\text{Ccombdry}} - x_{\text{THCdry}}) + (2x_{\text{THCdry}} + x_{\text{COdry}} - x_{\text{NO2dry}} + x_{\text{H2dry}}) \right] + x_{\text{int/exhdry}}$$

Eq. 1065.655-8

$$x_{\text{O2int}} = \frac{0.209820 - x_{\text{CO2intdry}}}{1 + x_{\text{H2Ointdry}}}$$

Eq. 1065.655-9

$$x_{\text{CO2int}} = \frac{x_{\text{CO2intdry}}}{1 + x_{\text{H2Ointdry}}}$$

Eq. 1065.655-10

$$x_{\text{H2Ointdry}} = \frac{x_{\text{H2Oint}}}{1 - x_{\text{H2Oint}}}$$

Eq. 1065.655-11

$$x_{\text{CO2dil}} = \frac{x_{\text{CO2dildry}}}{1 + x_{\text{H2Odildry}}}$$

Eq. 1065.655-12

$$x_{\text{H2Odildry}} = \frac{x_{\text{H2Odil}}}{1 - x_{\text{H2Odil}}}$$

Eq. 1065.655-13

$$x_{\text{COdry}} = \frac{x_{\text{COmeas}}}{1 - x_{\text{H2OCOmeas}}}$$

Eq. 1065.655-14

$$x_{\text{CO2dry}} = \frac{x_{\text{CO2meas}}}{1 - x_{\text{H2OCO2meas}}}$$

Eq. 1065.655-15

$$x_{\text{NOdry}} = \frac{x_{\text{NOmeas}}}{1 - x_{\text{H2ONOmeas}}}$$

Eq. 1065.655-16

$$x_{\text{NO2dry}} = \frac{x_{\text{NO2meas}}}{1 - x_{\text{H2ONO2meas}}}$$

Eq. 1065.655-17

$$x_{\text{THCdry}} = \frac{x_{\text{THCmeas}}}{1 - x_{\text{H2OTHCmeas}}}$$

Eq. 1065.655-18

(5) The following example is a solution for $x_{\text{dil/exh}}$, x_{H2Oexh} , and x_{Ccombdry} using the equations in paragraph (c)(4) of this section:

$$x_{\text{dil/exh}} = 1 - \frac{0.184}{1 + \frac{35.50}{1000}} = 0.822 \text{ mol/mol}$$

$$x_{\text{H2Oexh}} = \frac{35.50}{1 + \frac{35.50}{1000}} = 34.29 \text{ mmol/mol}$$

$$x_{\text{Ccombdry}} = 0.025 + \frac{29.3}{1000000} + \frac{47.6}{1000000} - \frac{0.371}{1000} \times 0.852 - \frac{0.369}{1000} \times 0.172 = 0.0249 \text{ mol/mol}$$

$$x_{\text{H2dry}} = \frac{29.3 \cdot (0.036 - 0.012 \cdot 0.852)}{3.5 \cdot \left(\frac{25.2}{1000} - \frac{0.371}{1000} \cdot 0.852 \right)} = 8.5 \text{ } \mu\text{mol/mol}$$

$$x_{\text{H2Oexhdry}} = \frac{1.8}{2} \left(0.0249 - \frac{47.6}{1000000} \right) + 0.012 \cdot 0.852 + 0.017 \cdot 0.172 - \frac{8.5}{1000000} = 0.036 \text{ mol/mol}$$

$$x_{\text{dil/exhdry}} = \frac{0.822}{1 - 0.036} = 0.852 \text{ mol/mol}$$

$$x_{\text{int/exhdry}} = \frac{1}{2 \cdot 0.206} \left[\left(\frac{1.8}{2} - 0.050 + 2 \right) \left(0.0249 - \frac{47.6}{1000000} \right) - \left(\frac{29.3}{1000000} - \frac{50.4}{1000000} - 2 \cdot \frac{12.1}{1000000} + \frac{8.5}{1000000} \right) \right]$$

$$= 0.172 \text{ mol/mol}$$

$$x_{\text{raw/exhdry}} = \frac{1}{2} \left[\left(\frac{1.8}{2} + 0.050 \right) \left(0.0249 - \frac{47.6}{1000000} \right) + \left(2 \cdot \frac{47.6}{1000000} + \frac{29.3}{1000000} - \frac{12.1}{1000000} + \frac{8.5}{1000000} \right) \right] + 0.172$$

$$= 0.184 \text{ mol/mol}$$

$$x_{\text{O}_2\text{int}} = \frac{0.209820 - 0.000375}{1 + \frac{17.22}{1000}} = 0.206 \text{ mol/mol}$$

$$x_{\text{CO}_2\text{int}} = \frac{0.000375 \times 1000}{1 + \frac{17.22}{1000}} = 0.369 \text{ mmol/mol}$$

$$x_{\text{H}_2\text{Ointdry}} = \frac{16.93}{1 - \frac{16.93}{1000}} = 17.22 \text{ mmol/mol}$$

$$x_{\text{CO}_2\text{dil}} = \frac{0.375}{1 + \frac{12.01}{1000}} = 0.371 \text{ mmol/mol}$$

$$x_{\text{H}_2\text{Oildry}} = \frac{11.87}{1 - \frac{11.87}{1000}} = 12.01 \text{ mmol/mol}$$

$$x_{\text{COdry}} = \frac{29.0}{1 - \frac{8.601}{1000}} = 29.3 \text{ mmol/mol}$$

$$x_{\text{CO}_2\text{dry}} = \frac{24.98}{1 - \frac{8.601}{1000}} = 25.2 \text{ mmol/mol}$$

$$x_{\text{NOdry}} = \frac{50.0}{1 - \frac{8.601}{1000}} = 50.4 \text{ mmol/mol}$$

$$x_{\text{NO}_2\text{dry}} = \frac{12.0}{1 - \frac{8.601}{1000}} = 12.1 \text{ mmol/mol}$$

$$x_{\text{THCdry}} = \frac{46}{1 - \frac{33.98}{1000}} = 47.6 \text{ mmol/mol}$$

$$\alpha = 1.8$$

$$\beta = 0.05$$

(d) Carbon mass fraction. Determine carbon mass fraction of fuel, w_c , using one of the following methods:

(1) You may calculate w_c using the following equation based on measured fuel properties:

$$w_c = \frac{1 \cdot M_C}{1 \cdot M_C + \alpha \cdot M_H + \beta \cdot M_O}$$

Eq. 1065.655-19

Where:

w_c = carbon mass fraction of fuel
 α = atomic hydrogen-to-carbon ratio
 β = atomic oxygen-to-carbon ratio
 M_C = molar mass of carbon
 M_H = molar mass of hydrogen
 M_O = molar mass of oxygen

(2) You may use the default values in the following table to determine w_c for a given fuel:

Table 1 of §1065.655–Default values of α , β , and w_c for various fuels

Fuel	Atomic hydrogen and oxygen-to-carbon ratios $CH_\alpha O_\beta$	Carbon mass fraction, w_c g/g
Gasoline	$CH_{1.85}O_0$	0.866
#2 Diesel	$CH_{1.80}O_0$	0.869
#1 Diesel	$CH_{1.93}O_0$	0.861
Liquified Petroleum Gas	$CH_{2.64}O_0$	0.819
Natural gas	$CH_{3.78}O_{0.016}$	0.747
Ethanol	$CH_3O_{0.5}$	0.521
Methanol	CH_4O_1	0.375

(e) Calculated raw exhaust molar flow rate from measured intake air molar flow rate or fuel mass flow rate. You may calculate the raw exhaust molar flow rate from which you

sampled emissions, n_{exh} , based on the measured intake air molar flow rate, n_{int} , or the

measured fuel mass flow rate, m_{fuel} , and the values calculated using the chemical balance

in paragraph (c) of this section. Note that the chemical balance must be based on raw exhaust gas concentrations. Solve for the chemical balance in paragraph (c) of this

section at the same frequency that you update and record n_{int} or m_{fuel} .

(1) Crankcase flow rate. If engines are not subject to crankcase controls under the standard-setting part, you may calculate raw exhaust flow based on n_{int} or m_{fuel} using one of the following:

(i) You may measure flow rate through the crankcase vent and subtract it from the calculated exhaust flow.

(ii) You may estimate flow rate through the crankcase vent by engineering analysis as long as the uncertainty in your calculation does not adversely

affect your ability to show that your engines comply with applicable emission standards.

(iii) You may assume your crankcase vent flow rate is zero.

(2) Intake air molar flow rate calculation. Based on \dot{n}_{int} , calculate \dot{n}_{exh} as follows:

$$\dot{n}_{\text{exh}} = \frac{\dot{n}_{\text{int}}}{\left(1 + \frac{(x_{\text{int/exhdry}} - x_{\text{raw/exhdry}})}{(1 + x_{\text{H2Oexhdry}})}\right)}$$

Eq. 1065.655-20

Where:

\dot{n}_{exh} = raw exhaust molar flow rate from which you measured emissions.

\dot{n}_{int} = intake air molar flow rate including humidity in intake air.

Example:

$$\dot{n}_{\text{int}} = 3.780 \text{ mol}$$

$$x_{\text{int/exhdry}} = 0.69021 \text{ mol/mol}$$

$$x_{\text{raw/exhdry}} = 1.10764 \text{ mol/mol}$$

$$x_{\text{H2Oexhdry}} = 107.64 \text{ mmol/mol} = 0.10764 \text{ mol/mol}$$

$$\dot{n}_{\text{exh}} = \frac{3.780}{\left(1 + \frac{(0.69021 - 1.10764)}{(1 + 0.10764)}\right)}$$

$$\dot{n}_{\text{exh}} = 6.066 \text{ mol/s}$$

(3) Fuel mass flow rate calculation. Based on m_{fuel} , calculate \dot{n}_{exh} as follows:

$$\dot{n}_{\text{exh}} = \frac{\dot{m}_{\text{fuel}} \cdot w_c \cdot (1 + x_{\text{H2Oexhdry}})}{M_c \cdot x_{\text{Ccombdry}}}$$

Eq. 1065.655-21

Where:

\dot{n}_{exh} = raw exhaust molar flow rate from which you measured emissions.

\dot{m}_{fuel} = fuel flow rate including humidity in intake air.

Example:

$$\dot{m}_{\text{fuel}} = 7.559 \text{ g/s}$$

$$w_c = 0.869 \text{ g/g}$$

$$M_c = 12.0107 \text{ g/mol}$$

$$x_{\text{Ccombdry}} = 99.87 \text{ mmol/mol} = 0.09987 \text{ mol/mol}$$

$$x_{\text{H2Oexhdry}} = 107.64 \text{ mmol/mol} = 0.10764 \text{ mol/mol}$$

$$\dot{n}_{\text{exh}} = \frac{7.559 \cdot 0.869 \cdot (1 + 0.10764)}{12.0107 \cdot 0.09987}$$

$$\dot{n}_{\text{exh}} = 6.066 \text{ mol/s}$$

235. Section 1065.660 is amended by revising paragraphs (b)(2)(i) and (b)(3) to read as follows:

§1065.660 THC and NMHC determination.

* * * * *

(b) * * *

(2) * * *

(i) Use the following equation for penetration fractions determined using an NMC configuration as outlined in §1065.365(d):

$$x_{\text{NMHC}} = \frac{x_{\text{THC}[\text{THC-FID}]_{\text{cor}}} - x_{\text{THC}[\text{NMC-FID}]} \cdot RF_{\text{CH}_4[\text{THC-FID}]}}{1 - RFPF_{\text{C}_2\text{H}_6[\text{NMC-FID}]} \cdot RF_{\text{CH}_4[\text{THC-FID}]}}$$

Eq. 1065.660-2

Where:

x_{NMHC} = concentration of NMHC.

$x_{\text{THC}[\text{THC-FID}]_{\text{cor}}}$ = concentration of THC, HC contamination and dry-to-wet corrected, as measured by the THC FID during sampling while bypassing the NMC.

$x_{\text{THC}[\text{NMC-FID}]}$ = concentration of THC, HC contamination (optional) and dry-to-wet corrected, as measured by the NMC FID during sampling through the NMC.

$RF_{\text{CH}_4[\text{THC-FID}]}$ = response factor of THC FID to CH_4 , according to §1065.360(d).

$RFPF_{\text{C}_2\text{H}_6[\text{NMC-FID}]}$ = nonmethane cutter combined ethane response factor and penetration fraction, according to §1065.365(d).

Example:

$$x_{\text{THC}[\text{THC-FID}]_{\text{cor}}} = 150.3 \text{ } \mu\text{mol/mol}$$

$$x_{\text{THC}[\text{NMC-FID}]} = 20.5 \text{ } \mu\text{mol/mol}$$

$$RFPF_{\text{C}_2\text{H}_6[\text{NMC-FID}]} = 0.019$$

$$RF_{\text{CH}_4[\text{THC-FID}]} = 1.05$$

$$x_{\text{NMHC}} = \frac{150.3 - 20.5 \cdot 1.05}{1 - 0.019 \cdot 1.05}$$

$$x_{\text{NMHC}} = 131.4 \text{ } \mu\text{mol/mol}$$

* * * * *

(3) For a gas chromatograph, calculate x_{NMHC} using the THC analyzer's response factor (RF) for CH_4 , from §1065.360, and the HC contamination and wet-to-dry corrected initial THC concentration $x_{\text{THC}[\text{THC-FID}]_{\text{cor}}}$ as determined in paragraph (a) of this section as follows:

$$x_{\text{NMHC}} = x_{\text{THC}[\text{THC-FID}]_{\text{cor}}} - RF_{\text{CH}_4[\text{THC-FID}]} \cdot x_{\text{CH}_4}$$

Eq. 1065.660-5

Where:

x_{NMHC} = concentration of NMHC.

$x_{\text{THC}[\text{THC-FID}]_{\text{cor}}}$ = concentration of THC, HC contamination and dry-to-wet corrected, as measured by the THC FID.

x_{CH_4} = concentration of CH_4 , HC contamination (optional) and dry-to-wet corrected, as measured by the gas chromatograph FID.

$RF_{\text{CH}_4[\text{THC-FID}]}$ = response factor of THC-FID to CH_4 .

Example:

$$x_{\text{THC}}[\text{THC-FID}]_{\text{cor}} = 145.6 \text{ } \mu\text{mol/mol}$$

$$RF_{\text{CH}_4}[\text{THC-FID}] = 0.970$$

$$x_{\text{CH}_4} = 18.9 \text{ } \mu\text{mol/mol}$$

$$x_{\text{NMHC}} = 145.6 - 0.970 \cdot 18.9$$

$$x_{\text{NMHC}} = 127.3 \text{ } \mu\text{mol/mol}$$

236. Section 1065.667 is revised to read as follows:

§1065.667 Dilution air background emission correction.

(a) To determine the mass of background emissions to subtract from a diluted exhaust sample, first determine the total flow of dilution air, n_{dil} , over the test interval. This may be a measured quantity or a quantity calculated from the diluted exhaust flow and the flow-weighted mean fraction of dilution air in diluted exhaust, $\bar{x}_{\text{dil/exh}}$. Multiply the total flow of dilution air by the mean concentration of a background emission. This may be a time-weighted mean or a flow-weighted mean (e.g., a proportionally sampled background). The product of n_{dil} and the mean concentration of a background emission is the total amount of a background emission. If this is a molar quantity, convert it to a mass by multiplying it by its molar mass, M . The result is the mass of the background emission, m . In the case of PM, where the mean PM concentration is already in units of mass per mole of sample, \bar{M}_{PM} , multiply it by the total amount of dilution air, and the result is the total background mass of PM, m_{PM} . Subtract total background masses from total mass to correct for background emissions.

(b) You may determine the total flow of dilution air by a direct flow measurement. In this case, calculate the total mass of background as described in §1065.650(c), using the dilution air flow, n_{dil} . Subtract the background mass from the total mass. Use the result in brake-specific emission calculations.

(c) You may determine the total flow of dilution air from the total flow of diluted exhaust and a chemical balance of the fuel, intake air, and exhaust as described in §1065.655. In this case, calculate the total mass of background as described in §1065.650(c), using the total flow of diluted exhaust, n_{dexh} , then multiply this result by the flow-weighted mean fraction of dilution air in diluted exhaust, $\bar{x}_{\text{dil/exh}}$. Calculate $\bar{x}_{\text{dil/exh}}$ using flow-weighted mean concentrations of emissions in the chemical balance, as described in §1065.655. You may assume that your engine operates stoichiometrically, even if it is a lean-burn engine, such as a compression-ignition engine. Note that for lean-burn engines this assumption could result in an error in emission calculations. This error could occur because the chemical balances in §1065.655 correct excess air passing through a lean-burn engine as if it was dilution air. If an emission concentration expected at the standard is about 100 times its dilution air background concentration, this error is negligible. However, if an emission concentration expected at the standard is similar to its background concentration, this error could be significant. If this error might affect your ability to show that your engines comply with applicable standards, we recommend that you remove background emissions from dilution air by HEPA filtration, chemical adsorption, or catalytic scrubbing. You might also consider using a partial-flow dilution technique such as a bag mini-diluter, which uses purified air as the dilution air.

(d) The following is an example of using the flow-weighted mean fraction of dilution air

in diluted exhaust, $\bar{x}_{\text{dil/exh}}$, and the total mass of background emissions calculated using the total flow of diluted exhaust, n_{dexh} , as described in §1065.650(c):

$$m_{\text{bkngnd}} = \bar{x}_{\text{dil/exh}} \cdot m_{\text{bkngnddexh}} \quad \text{Eq. 1065.667-1}$$

$$m_{\text{bkngnddexh}} = M \cdot \bar{x}_{\text{bkngnd}} \cdot n_{\text{dexh}} \quad \text{Eq. 1065.667-2}$$

Example:

$$M_{\text{NOx}} = 46.0055 \text{ g/mol}$$

$$\bar{x}_{\text{bkngnd}} = 0.05 \text{ } \mu\text{mol/mol} = 0.05 \cdot 10^{-6} \text{ mol/mol}$$

$$n_{\text{dexh}} = 23280.5 \text{ mol}$$

$$\bar{x}_{\text{dil/exh}} = 0.843$$

$$m_{\text{bkngndNOxdexh}} = 46.0055 \cdot 0.05 \cdot 10^{-6} \cdot 23280.5$$

$$m_{\text{bkngndNOxdexh}} = 0.0536 \text{ g}$$

$$m_{\text{bkngndNOx}} = 0.843 \cdot 0.0536$$

$$m_{\text{bkngndNOx}} = 0.0452 \text{ g}$$

(e) The following is an example of using the fraction of dilution air in diluted exhaust, $x_{\text{dil/exh}}$, and the mass rate of background emissions calculated using the flow rate of diluted exhaust, \dot{n}_{dexh} , as described in §1065.650(c) :

$$\dot{m}_{\text{bkngnd}} = x_{\text{dil/exh}} \cdot \dot{m}_{\text{bkngnddexh}} \quad \text{Eq. 1065.667-3}$$

$$\dot{m}_{\text{bkngnddexh}} = M \cdot x_{\text{bkngnd}} \cdot \dot{n}_{\text{dexh}} \quad \text{Eq. 1065.667-4}$$

Example:

$$M_{\text{NOx}} = 46.0055 \text{ g/mol}$$

$$x_{\text{bkngnd}} = 0.05 \text{ } \mu\text{mol/mol} = 0.05 \cdot 10^{-6} \text{ mol/mol}$$

$$\dot{n}_{\text{dexh}} = 23280.5 \text{ mol/s}$$

$$x_{\text{dil/exh}} = 0.843$$

$$\dot{m}_{\text{bkngndNOxdexh}} = 46.0055 \cdot 0.05 \cdot 10^{-6} \cdot 23280.5$$

$$\dot{m}_{\text{bkngndNOxdexh}} = 0.0536 \text{ g/hr}$$

$$\dot{m}_{\text{bkngndNOx}} = 0.843 \cdot 0.0536$$

$$\dot{m}_{\text{bkngndNOx}} = 0.0452 \text{ g/hr}$$

237. Section 1065.675 is revised to read as follows:

§1065.675 CLD quench verification calculations.

Perform CLD quench-check calculations as follows:

(a) Perform a CLD analyzer quench verification test as described in §1065.370.

(b) Estimate the maximum expected mole fraction of water during emission testing, $x_{\text{H}_2\text{Oexp}}$. Make this estimate where the humidified NO span gas was introduced in

§1065.370(e)(6). When estimating the maximum expected mole fraction of water, consider the maximum expected water content in combustion air, fuel combustion products, and dilution air (if applicable). If you introduced the humidified NO span gas into the sample system upstream of a sample dryer during the verification test, you need not estimate the maximum expected mole fraction of water and you must set $x_{\text{H}_2\text{Oexp}}$ equal to $x_{\text{H}_2\text{Omeas}}$.

(c) Estimate the maximum expected CO₂ concentration during emission testing, $x_{\text{CO}_2\text{exp}}$. Make this estimate at the sample system location where the blended NO and CO₂ span gases are introduced according to §1065.370(d)(10). When estimating the maximum expected CO₂ concentration, consider the maximum expected CO₂ content in fuel combustion products and dilution air.

(d) Calculate quench as follows:

$$\text{quench} = \left(\left(\frac{x_{\text{NOwet}}}{1 - x_{\text{H}_2\text{Omeas}} - 1} \right) \cdot \frac{x_{\text{H}_2\text{Oexp}}}{x_{\text{H}_2\text{Omeas}}} + \left(\frac{x_{\text{NOmeas}}}{x_{\text{NOact}}} - 1 \right) \cdot \frac{x_{\text{CO}_2\text{exp}}}{x_{\text{CO}_2\text{act}}} \right) \cdot 100 \%$$

Eq. 1065.675-1

Where:

quench = amount of CLD quench.

x_{NOdry} = concentration of NO upstream of a bubbler, according to §1065.370(e)(4).

x_{NOwet} = measured concentration of NO downstream of a bubbler, according to §1065.370(e)(9).

$x_{\text{H}_2\text{Oexp}}$ = maximum expected mole fraction of water during emission testing, according to paragraph (b) of this section.

$x_{\text{H}_2\text{Omeas}}$ = measured mole fraction of water during the quench verification, according to §1065.370(e)(7).

x_{NOmeas} = measured concentration of NO when NO span gas is blended with CO₂ span gas, according to §1065.370(d)(10).

x_{NOact} = actual concentration of NO when NO span gas is blended with CO₂ span gas, according to §1065.370(d)(11) and calculated according to Equation 1065.675-2.

$x_{\text{CO}_2\text{exp}}$ = maximum expected concentration of CO₂ during emission testing, according to paragraph (c) of this section.

$x_{\text{CO}_2\text{act}}$ = actual concentration of CO₂ when NO span gas is blended with CO₂ span gas, according to §1065.370(d)(9).

$$x_{\text{NOact}} = \left(1 - \frac{x_{\text{CO}_2\text{act}}}{x_{\text{CO}_2\text{span}}} \right) \cdot x_{\text{NOspan}}$$

Eq. 1065.675-2

Where:

x_{NOspan} = the NO span gas concentration input to the gas divider, according to §1065.370(d)(5).

$x_{\text{CO}_2\text{span}}$ = the CO₂ span gas concentration input to the gas divider, according to §1065.370(d)(4).

Example:

$x_{\text{NOdry}} = 1800.0 \mu\text{mol/mol}$

$x_{\text{NOwet}} = 1729.6 \mu\text{mol/mol}$

$x_{\text{H}_2\text{Oexp}} = 0.030 \text{ mol/mol}$

$x_{\text{H}_2\text{Omeas}} = 0.030 \text{ mol/mol}$

$x_{\text{NOmeas}} = 1495.2 \mu\text{mol/mol}$

$x_{\text{NOspan}} = 3001.6 \mu\text{mol/mol}$

$x_{\text{CO}_2\text{exp}} = 3.2 \%$

$x_{\text{CO}_2\text{span}} = 6.00 \%$

$x_{\text{CO}_2\text{act}} = 2.98 \%$

$$x_{\text{NOact}} = \left(1 - \frac{2.98}{6.00} \right) \cdot 3001.6 = 1510.8 \mu\text{mol/mol}$$

$$quench = \left(\left(\frac{1729.6}{1800.0} - 1 \right) \cdot \frac{0.030}{0.030} + \left(\frac{1495.2}{1510.8} - 1 \right) \cdot \frac{3.2}{2.98} \right) \cdot 100 \%$$

$$quench = (-0.00939 - 0.01109) \cdot 100\% = -2.0048 \% = -2 \%$$

Subpart H— [Amended]

238. Section 1065.701 is amended by redesignating paragraph (e) as paragraph (f) and adding a new paragraph (e) to read as follows:

§1065.701 General requirements for test fuels.

* * * * *

(e) Two-stroke fuel/oil mixing. For two-stroke engines, use a fuel/oil mixture meeting the manufacturer’s specifications.

* * * * *

239. Section 1065.703 is amended by revising Table 1 to read as follows:

§1065.703 Distillate diesel fuel.

* * * * *

Table 1 of §1065.703—Test fuel specifications for distillate diesel fuel

Item	Units	Ultra Low Sulfur	Low Sulfur	High Sulfur	Reference Procedure ¹
Cetane Number	—	40 - 50	40 - 50	40 - 50	ASTM D613-05
Distillation range:	°C				
Initial boiling point		171 - 204	171 - 204	171 - 204	ASTM D86-07a
10 pct. point		204 - 238	204 - 238	204 - 238	
50 pct. point		243 - 282	243 - 282	243 - 282	
90 pct. point		293 - 332	293 - 332	293 - 332	
Endpoint		321 - 366	321 - 366	321 - 366	
Gravity	°API	32 - 37	32 - 37	32 - 37	ASTM D4052-96e01
Total sulfur, ultra low sulfur	mg/kg	7 - 15			See 40 CFR 80.580
Total sulfur, low and high sulfur	mg/kg		300 - 500	2000 - 4000	ASTM D2622-07 or alternates as allowed under 40 CFR 80.580
Aromatics, min. (Remainder shall be paraffins, naphthalenes, and olefins)	g/kg	100	100	100	ASTM D5186-03
Flashpoint, min.	°C	54	54	54	ASTM D93-07
Kinematic Viscosity	cSt	2.0 - 3.2	2.0 - 3.2	2.0 - 3.2	ASTM D445-06

¹ASTM procedures are incorporated by reference in §1065.1010. See §1065.701(d) for other allowed procedures.

Subpart J— [Amended]

240. Section 1065.915 is amended by revising paragraph (a) to read as follows:

§1065.915 PEMS instruments.

(a) Instrument specifications. We recommend that you use PEMS that meet the specifications of subpart C of this part. For unrestricted use of PEMS in a laboratory or similar environment, use a PEMS that meets the same specifications as each lab instrument it replaces. For field testing or for testing with PEMS in a laboratory or similar environment, under the provisions of §1065.905(b), the specifications in the following table apply instead of the specifications in Table 1 of §1065.205.

Table 1 of §1065.915–Recommended minimum PEMS measurement instrument performance

Measurement	Measured quantity symbol	Rise time, t_{10-90} and Fall time, t_{90-10}	Recording update frequency	Accuracy ¹	Repeatability ¹	Noise ¹
Engine speed transducer	f_n	1 s	1 Hz means	5.0 % of pt. or 1.0 % of max.	2.0 % of pt. or 1.0 % of max.	0.5 % of max
Engine torque estimator, BSFC (This is a signal from an engine’s ECM)	T or BSFC	1 s	1 Hz means	8.0 % of pt. or 5 % of max.	2.0 % of pt. or 1.0 % of max.	1.0 % of max.
General pressure transducer (not a part of another instrument)	p	5 s	1 Hz	5.0 % of pt. or 5.0 % of max.	2.0 % of pt. or 0.5 % of max.	1.0 % of max
Atmospheric pressure meter	p_{atmos}	50 s	0.1 Hz	250 Pa	200 Pa	100 Pa
General temperature sensor (not a part of another instrument)	T	5 s	1 Hz	1.0 % of pt. K or 5 K	0.5 % of pt. K or 2 K	0.5 % of max 0.5 K
General dewpoint sensor	T_{dew}	50 s	0.1 Hz	3 K	1 K	1 K
Exhaust flow meter	\dot{n}	1 s	1 Hz means	5.0 % of pt. or 3.0 % of max.	2.0 % of pt.	2.0 % of max.
Dilution air, inlet air, exhaust, and sample flow meters	\dot{n}	1 s	1 Hz means	2.5 % of pt. or 1.5 % of max.	1.25 % of pt. or 0.75 % of max.	1.0 % of max.
Continuous gas analyzer	x	5 s	1 Hz	4.0 % of pt. or 4.0 % of meas.	2.0 % of pt. or 2.0 % of meas.	1.0 % of max.
Gravimetric PM balance	m_{PM}	N/A	N/A	See §1065.790	0.5 μg	N/A
Inertial PM balance	m_{PM}	5 s	1 Hz	4.0 % of pt. or 4.0 % of meas.	2.0 % of pt. or 2.0 % of meas.	1.0 % of max

^a Accuracy, repeatability, and noise are all determined with the same collected data, as described in §1065.305, and based on absolute values. “pt.” refers to the overall flow-weighted mean value expected at the standard; “max.” refers to the peak value expected at the standard over any test interval, not the maximum of the instrument’s range; “meas” refers to the actual flow-weighted mean measured over any test interval.

* * * * *

241. Section 1065.925 is amended by revising paragraph (h)(4) to read as follows:

§1065.925 PEMS preparation for field testing.

* * * * *

(h) * * *

(4) Overflow zero or ambient air at the HC probe inlet or into a tee near the probe outlet.

* * * * *

Subpart K— [Amended]

242. Section 1065.1001 is amended by adding definitions for “Calibration gas”, “Span gas”, “Transformation time, t_{50} ”, “ t_{0-50} ”, and “ t_{100-50} ” in alphabetical order to read as follows:

§1065.1001 Definitions.

* * * * *

Calibration gas means a purified gas mixture used to calibrate gas analyzers. Calibration gases must meet the specifications of §1065.750. Note that calibration gases and span gases are qualitatively the same, but differ in terms of their primary function. Various performance verification checks for gas analyzers and sample handling components might refer to either calibration gases or span gases.

* * * * *

Span gas means a purified gas mixture used to span gas analyzers. Span gases must meet the specifications of §1065.750. Note that calibration gases and span gases are qualitatively the same, but differ in terms of their primary function. Various performance verification checks for gas analyzers and sample handling components might refer to either calibration gases or span gases.

* * * * *

Transformation time, t_{50} , means the overall system response time to any step change in input, generally the average of the time to reach 50% response to a step increase, t_{0-50} , or to a step decrease, t_{100-50} .

t_{0-50} means the time interval of a measurement system’s response after any step increase to the input between the following points:

- (1) The point at which the step change is initiated at the sample probe.
- (2) The point at which the response has risen 50% of the total amount it will rise in response to the step change.

t_{100-50} means the time interval of a measurement system’s response after any step decrease to the input between the following points:

- (1) The point at which the step change is initiated at the sample probe.
- (2) The point at which the response has fallen 50% of the total amount it will fall in response to the step change.

* * * * *

243. Section 1065.1005 is amended by revising paragraph (a) to read as follows:

§1065.1005 Symbols, abbreviations, acronyms, and units of measure.

* * * * *

(a) Symbols for quantities. This part uses the following symbols and units of measure for various quantities:

Symbol	Quantity	Unit	Unit Symbol	Base SI units
%	percent	0.01	%	10^{-2}

α	atomic hydrogen to carbon ratio	mole per mole	mol/mol	1
A	area	square meter	m ²	m ²
A_0	intercept of least squares regression			
A_1	slope of least squares regression			
β	ratio of diameters	meter per meter	m/m	1
β	atomic oxygen to carbon ratio	mole per mole	mol/mol	1
$C^\#$	number of carbon atoms in a molecule			
d	Diameter	meter	m	m
DR	dilution ratio	mole per mol	mol/mol	1
ε	error between a quantity and its reference			
e	brake-specific basis	gram per kilowatt hour	g/(kW·h)	$3.6 \cdot 10^6 \cdot \text{m}^{-2} \cdot \text{kg} \cdot \text{s}^2$
F	F-test statistic			
f	frequency	hertz	Hz	s ⁻¹
f_n	rotational frequency (shaft)	revolutions per minute	rev/min	$2 \cdot \pi \cdot 60^{-1} \cdot \text{s}^{-1}$
γ	ratio of specific heats	(joule per kilogram kelvin) per (joule per kilogram kelvin)	(J/(kg·K))/(J/(kg·K))	1
K	correction factor			1
l	length	meter	m	m
μ	viscosity, dynamic	pascal second	Pa·s	$\text{m}^{-1} \cdot \text{kg} \cdot \text{s}^{-1}$
M	molar mass ¹	gram per mole	g/mol	$10^{-3} \cdot \text{kg} \cdot \text{mol}^{-1}$
m	mass	kilogram	kg	kg
\dot{m}	mass rate	kilogram per second	kg/s	$\text{kg} \cdot \text{s}^{-1}$
ν	viscosity, kinematic	meter squared per second	m ² /s	$\text{m}^2 \cdot \text{s}^{-1}$
N	total number in series			
n	amount of substance	mole	mol	mol
\dot{n}	amount of substance rate	mole per second	mol/s	$\text{mol} \cdot \text{s}^{-1}$
P	power	kilowatt	kW	$10^3 \cdot \text{m}^2 \cdot \text{kg} \cdot \text{s}^{-3}$
PF	penetration fraction			
p	pressure	pascal	Pa	$\text{m}^{-1} \cdot \text{kg} \cdot \text{s}^{-2}$
ρ	mass density	kilogram per cubic meter	kg/m ³	$\text{kg} \cdot \text{m}^{-3}$
r	ratio of pressures	pascal per pascal	Pa/Pa	1
R^2	coefficient of determination			
Ra	average surface roughness	micrometer	μm	m ⁻⁶
$Re^\#$	Reynolds number			
RF	response factor			
$RH \%$	relative humidity	0.01	%	10 ⁻²
σ	non-biased standard deviation			
S	Sutherland constant	kelvin	K	K
SEE	standard estimate of error			
T	absolute temperature	kelvin	K	K
T	Celsius temperature	degree Celsius	°C	K-273.15
T	torque (moment of force)	newton meter	N·m	$\text{m}^2 \cdot \text{kg} \cdot \text{s}^{-2}$
t	time	second	s	s
Δt	time interval, period, 1/frequency	second	s	s

V	volume	cubic meter	m^3	m^3
\dot{V}	volume rate	cubic meter per second	m^3/s	$m^3 \cdot s^{-1}$
W	work	kilowatt hour	$kW \cdot h$	$3.6 \cdot 10^{-6} \cdot m^2 \cdot kg \cdot s^{-2}$
w_c	carbon mass fraction	gram per gram	g/g	1
x	amount of substance mole fraction ²	mole per mole	mol/mol	1
\bar{x}	flow-weighted mean concentration	mole per mole	mol/mol	1
y	generic variable			

¹ See paragraph (f)(2) of this section for the values to use for molar masses. Note that in the cases of NOx and HC, the regulations specify effective molar masses based on assumed speciation rather than actual speciation.

² Note that mole fractions for THC, THCE, NMHC, NMHCE, and NOTHC are expressed on a C₁ equivalent basis.

* * * * *

244. Section 1065.1010 is amended by revising paragraph (d) to read as follows:

§1065.1010 Reference materials.

* * * * *

(d) SAE material. Table 4 of this section lists material from the Society of Automotive Engineering that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096 or www.sae.org. Table 4 follows:

Table 4 of §1065.1010–SAE materials

Document number and name	Part 1065 reference
“Optimization of Flame Ionization Detector for Determination of Hydrocarbon in Diluted Automotive Exhausts,” Reschke Glen D., SAE 770141.	1065.360

* * * * *

209. Part 1068 is revised to read as follows:

PART 1068— GENERAL COMPLIANCE PROVISIONS FOR NONROAD PROGRAMS

Subpart A—Applicability and Miscellaneous Provisions

- 1068.1 Does this part apply to me?
- 1068.2 How does this part apply for engines and how does it apply for equipment?
- 1068.5 How must manufacturers apply good engineering judgment?
- 1068.10 What provisions apply to confidential information?
- 1068.15 What general provisions apply for EPA decision-making?
- 1068.20 May EPA enter my facilities for inspections?
- 1068.25 What information must I give to EPA?
- 1068.27 May EPA conduct testing with my production engines/equipment?
- 1068.30 What definitions apply to this part?
- 1068.31 What provisions apply to nonroad or stationary engines that change their status?
- 1068.35 What symbols, acronyms, and abbreviations does this part use?
- 1068.40 What special provisions apply for implementing technical amendments?
- 1068.45 General labeling provisions.
- 1068.95 What materials does this part reference?

Subpart B—Prohibited Actions and Related Requirements

- 1068.101 What general actions does this regulation prohibit?
- 1068.103 What are the provisions related to the duration and applicability of certificates of conformity?
- 1068.105 What other provisions apply to me specifically if I manufacture equipment needing certified engines?
- 1068.110 What other provisions apply to engines/equipment in service?
- 1068.115 When must manufacturers honor emission-related warranty claims?
- 1068.120 What requirements must I follow to rebuild engines?
- 1068.125 What happens if I violate the regulations?

Subpart C— Exemptions and Exclusions

- 1068.201 Does EPA exempt or exclude any engines/equipment from the prohibited acts?
- 1068.210 What are the provisions for exempting test engines/equipment?
- 1068.215 What are the provisions for exempting manufacturer-owned engines/equipment?
- 1068.220 What are the provisions for exempting display engines/equipment?
- 1068.225 What are the provisions for exempting engines/equipment for national security?
- 1068.230 What are the provisions for exempting engines/equipment for export?
- 1068.235 What are the provisions for exempting engines/equipment used solely for competition?
- 1068.240 What are the provisions for exempting new replacement engines?
- 1068.245 What temporary provisions address hardship due to unusual circumstances?
- 1068.250 What are the provisions for extending compliance deadlines for small businesses under hardship?
- 1068.255 What are the provisions for exempting engines and fuel-system components for hardship for equipment manufacturers and secondary engine manufacturers?
- 1068.260 What general provisions apply for selling or shipping engines that are not yet in their certified configuration?
- 1068.261 What provisions apply for selling or shipping certified engines that are not yet in the certified configuration?
- 1068.262 What are the provisions for temporarily exempting engines for shipment to secondary engine manufacturers?
- 1068.265 What provisions apply to engines/equipment that are conditionally exempted from certification?

Subpart D—Imports

- 1068.301 What general provisions apply?
- 1068.305 How do I get an exemption or exclusion for imported engines/equipment?
- 1068.310 What are the exclusions for imported engines/equipment?
- 1068.315 What are the permanent exemptions for imported engines/equipment?
- 1068.325 What are the temporary exemptions for imported engines/equipment?
- 1068.335 What are the penalties for violations?
- 1068.360 What restrictions apply to assigning a model year to imported engines and equipment?

Subpart E—Selective Enforcement Auditing

- 1068.401 What is a selective enforcement audit?
 - 1068.405 What is in a test order?
 - 1068.410 How must I select and prepare my engines/equipment?
 - 1068.415 How do I test my engines/equipment?
 - 1068.420 How do I know when my engine family fails an SEA?
 - 1068.425 What happens if one of my production-line engines/equipment exceeds the emission standards?
 - 1068.430 What happens if a family fails an SEA?
 - 1068.435 May I sell engines/equipment from a family with a suspended certificate of conformity?
 - 1068.440 How do I ask EPA to reinstate my suspended certificate?
 - 1068.445 When may EPA revoke my certificate under this subpart and how may I sell these engines/equipment again?
 - 1068.450 What records must I send to EPA?
 - 1068.455 What records must I keep?
- Appendix A to Subpart E of Part 1068—Plans for Selective Enforcement Auditing

Subpart F—Reporting Defects and Recalling Engines/Equipment

- 1068.501 How do I report emission-related defects?
- 1068.505 How does the recall program work?
- 1068.510 How do I prepare and apply my remedial plan?
- 1068.515 How do I mark or label repaired engines/equipment?
- 1068.520 How do I notify affected owners?
- 1068.525 What records must I send to EPA?
- 1068.530 What records must I keep?
- 1068.535 How can I do a voluntary recall for emission-related problems?

Subpart G—Hearings

- 1068.601 What are the procedures for hearings?

Appendix I to Part 1068—Emission-Related Components

Appendix II to Part 1068—Emission-Related Parameters and Specifications

Appendix III to Part 1068— High-Altitude Counties

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

Subpart A—Applicability and Miscellaneous Provisions

§1068.1 Does this part apply to me?

(a) The provisions of this part apply to everyone with respect to the following engines and to equipment using the following engines (including owners, operators, parts manufacturers, and persons performing maintenance).

- (1) Locomotives we regulate under 40 CFR part 1033.
 - (2) Land-based nonroad compression-ignition engines we regulate under 40 CFR part 1039.
 - (3) Stationary compression-ignition engines certified using the provisions of 40 CFR part 1039, as indicated in 40 CFR part 60, subpart IIII.
 - (4) Marine diesel engines we regulate under 40 CFR part 1042.
 - (5) Marine spark-ignition engines we regulate under 40 CFR part 1045.
 - (6) Large nonroad spark-ignition engines we regulate under 40 CFR part 1048.
 - (7) Stationary spark-ignition engines certified using the provisions of 40 CFR parts 1048 or 1054, as indicated in 40 CFR part 60, subpart JJJJ.
 - (8) Recreational engines and vehicles we regulate under 40 CFR part 1051 (such as snowmobiles and off-highway motorcycles).
 - (9) Small nonroad spark-ignition engines we regulate under 40 CFR part 1054.
- (b) This part does not apply to any of the following engine or vehicle categories:
- (1) Light-duty motor vehicles (see 40 CFR part 86).
 - (2) Heavy-duty motor vehicles and motor vehicle engines (see 40 CFR part 86).
 - (3) Aircraft engines (see 40 CFR part 87).
 - (4) Land-based nonroad diesel engines we regulate under 40 CFR part 89.
 - (5) Small nonroad spark-ignition engines we regulate under 40 CFR part 90.
 - (6) Marine spark-ignition engines we regulate under 40 CFR part 91.
 - (7) Locomotive engines we regulate under 40 CFR part 92.
 - (8) Marine diesel engines we regulate under 40 CFR parts 89 or 94.
- (c) Paragraph (a) of this section identifies the parts of the CFR that define emission standards and other requirements for particular types of engines and equipment. This part 1068 refers to each of these other parts generically as the “standard-setting part.” For example, 40 CFR part 1051 is always the standard-setting part for snowmobiles. Follow the provisions of the standard-setting part if they are different than any of the provisions in this part.
- (d)(1) The provisions of §§1068.30, 1068.310, and 1068.320 apply for stationary spark-ignition engines built on or after January 1, 2004, and for stationary compression-ignition engines built on or after January 1, 2006.
- (2) The provisions of §§1068.30 and 1068.235 apply for the types of engines/equipment listed in paragraph (a) of this section beginning January 1, 2004, if they are used solely for competition.

§1068.2 How does this part apply for engines and how does it apply for equipment?

- (a) See the standard-setting part to determine if engine-based and/or equipment-based standards apply. (Note: Some equipment is subject to engine-based standards for exhaust emission and equipment-based standards for evaporative emissions.)
- (b) The provisions of this part apply differently depending on whether the engine or equipment is required to be certified.
- (1) Subpart A and subpart B of this part apply to engines and equipment, without regard to which is subject to certification requirements in the standard-setting part.
 - (2) Subparts C, D, and E of this part apply to the engines or to the equipment, whichever is subject to certification requirements in the standard-setting part.
 - (3) Subpart F of this part generally applies to the engines or to the equipment, whichever is subject to standards under the standard-setting part. However, since subpart F of this part addresses in-use engines and equipment (in which the engine is installed in the equipment), the requirements do not always distinguish between engines and equipment.
- (c) For issues related to testing, read the term “engines/equipment” to mean engines for engines subject to engine-based testing and equipment for equipment subject to equipment-based testing; otherwise, read the term “engines/equipment” to mean engines for sources subject to engine-based standards and equipment for sources subject to equipment-based standards.
- (d) When we use the term engines (rather than engines/equipment), read it to mean engines without regard to whether the source is subject to engine-based standards or testing. When we use the term equipment (rather than engines/equipment), read it to mean equipment without regard to whether the

source is subject to equipment-based standards or testing. (Note: The definition of “equipment” in §1068.30 includes the engine.)

(e) The terminology convention described in this section is not intended to limit our authority or your obligations under the Clean Air Act.

§1068.5 How must manufacturers apply good engineering judgment?

(a) You must use good engineering judgment for decisions related to any requirements under this chapter. This includes your applications for certification, any testing you do to show that your certification, production-line, and in-use engines/equipment comply with requirements that apply to them, and how you select, categorize, determine, and apply these requirements.

(b) If we send you a written request, you must give us a written description of the engineering judgment in question. Respond within 15 working days of receiving our request unless we allow more time.

(c) We may reject your decision if it is not based on good engineering judgment or is otherwise inconsistent with the requirements that apply, based on the following provisions:

(1) We may suspend, revoke, or void a certificate of conformity if we determine you deliberately used incorrect information or overlooked important information, that you did not decide in good faith, or that your decision was not rational.

(2) If we believe a different decision would better reflect good engineering judgment, but none of the provisions of paragraph (c)(1) of this section apply, we will tell you of our concern (and its basis).

You will have 30 days to respond to our concerns, or more time if we agree that you need it to generate more information. After considering your information, we will give you a final ruling. If we conclude that you did not use good engineering judgment, we may reject your decision and apply the new ruling to similar situations as soon as possible.

(d) We will tell you in writing of the conclusions we reach under paragraph (c) of this section and explain our reasons for them.

(e) If you disagree with our conclusions, you may file a request for a hearing with the Designated Compliance Officer as described in subpart G of this part. In your request, specify your objections, include data or supporting analysis, and get your authorized representative’s signature. If we agree that your request raises a substantial factual issue, we will hold the hearing according to subpart F of this part.

§1068.10 What provisions apply to confidential information?

(a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.

(b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.

(c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.

(d) If you send us information without claiming it is confidential, we may make it available to the public without further notice to you, as described in 40 CFR 2.204.

§1068.15 What general provisions apply for EPA decision-making?

(a) The Administrator of the Environmental Protection Agency or any official to whom the Administrator has delegated specific authority may represent the Agency. For more information, ask for a copy of the relevant sections of the EPA Delegations Manual from the Designated Compliance Officer.

(b) The regulations in this part and in the standard-setting part have specific requirements describing how to get EPA approval before you take specific actions. These regulations also allow us to waive some specific requirements. For provisions or flexibilities that we address frequently, we may choose to provide detailed guidance in supplemental compliance instructions for manufacturers. Such instructions will generally state how they relate to the need for pre-approval. Unless we explicitly state so, you should not consider full compliance with the instructions to be equivalent to EPA approval.

§1068.20 May EPA enter my facilities for inspections?

- (a) We may inspect your testing, manufacturing processes, storage facilities (including port facilities for imported engines and equipment or other relevant facilities), or records, as authorized by the Clean Air Act, to enforce the provisions of this chapter. Inspectors will have authorizing credentials and will limit inspections to reasonable times—usually, normal operating hours.
- (b) If we come to inspect, we may or may not have a warrant or court order.
- (1) If we do not have a warrant or court order, you may deny us entry.
 - (2) If we have a warrant or court order, you must allow us to enter the facility and carry out the activities it describes.
- (c) We may seek a warrant or court order authorizing an inspection described in this section whether or not we first tried to get your permission to inspect.
- (d) We may select any facility to do any of the following:
- (1) Inspect and monitor any aspect of engine or equipment manufacturing, assembly, storage, or other procedures, and any facilities where you do them.
 - (2) Inspect and monitor any aspect of engine or equipment test procedures or test-related activities, including test engine/equipment selection, preparation, service accumulation, emission duty cycles, and maintenance and verification of your test equipment's calibration.
 - (3) Inspect and copy records or documents related to assembling, storing, selecting, and testing an engine or piece of equipment.
 - (4) Inspect and photograph any part or aspect of engines or equipment and components you use for assembly.
- (e) You must give us reasonable help without charge during an inspection authorized by the Clean Air Act. For example, you may need to help us arrange an inspection with the facility's managers, including clerical support, copying, and translation. You may also need to show us how the facility operates and answer other questions. If we ask in writing to see a particular employee at the inspection, you must ensure that he or she is present (legal counsel may accompany the employee).
- (f) If you have facilities in other countries, we expect you to locate them in places where local law does not keep us from inspecting as described in this section. We will not try to inspect if we learn that local law prohibits it, but we may suspend your certificate if we are not allowed to inspect.

§1068.25 What information must I give to EPA?

If you are subject to the requirements of this part, we may require you to give us information to evaluate your compliance with any regulations that apply, as authorized by the Clean Air Act. This includes the following things:

- (a) You must provide the information we require in this chapter. We may require an authorized representative of your company to approve and sign any submission of information to us, and to certify that the information is accurate and complete.
- (b) You must establish and maintain records, perform tests, make reports and provide additional information that we may reasonably require under section 208 of the Clean Air Act (42 U.S.C. 7542). This also applies to engines/equipment we exempt from emission standards or prohibited acts. Unless we specify otherwise, you must keep required records for eight years.

§1068.27 May EPA conduct testing with my production engines/equipment?

If we request it, you must make a reasonable number of production-line engines or pieces of production-line equipment available for a reasonable time so we can test or inspect them for compliance with the requirements of this chapter.

§1068.30 What definitions apply to this part?

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Clean Air Act gives to them. The definitions follow:

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design

function is to reduce emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR) is not aftertreatment.

Aircraft means any vehicle capable of sustained air travel above treetop heights.

Certificate holder means a manufacturer (including importers) with a currently valid certificate of conformity for at least one family in a given model year.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401- 7671q.

Date of manufacture means one of the following:

(1) For engines, the date on which the crankshaft is installed in an engine block, with the following exceptions:

(i) For engines produced by secondary engine manufacturers under §1068.262, date of manufacture means the date the engine is received from the original engine manufacturer. You may assign an earlier date up to 30 days before you received the engine, but not before the crankshaft was installed. You may not assign an earlier date if you cannot demonstrate the date the crankshaft was installed.

(ii) Manufacturers may assign a date of manufacture at a point in the assembly process later than the date otherwise specified under this definition. For example, a manufacturer may use the build date printed on the label or stamped on the engine as the date of manufacture.

(2) For equipment, the date on which the engine is installed, unless otherwise specified in the standard-setting part. Manufacturers may alternatively assign a date of manufacture later in the assembly process.

Days means calendar days, including weekends and holidays.

Defeat device has the meaning given in the standard-setting part.

Designated Compliance Officer means the Manager, Heavy-Duty and Nonroad Engine Group (6405-J), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., Washington, DC 20460.

Designated Enforcement Officer means the Director, Air Enforcement Division (2242A), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Engine means an engine block with an installed crankshaft. The term engine does not include engine blocks without an installed crankshaft, nor does it include any assembly of engine components that does not include the engine block. (Note: For purposes of this definition, any component that is the primary means of converting an engine's energy into usable work is considered a crankshaft, whether or not it is known commercially as a crankshaft.) This includes complete and partially complete engines as follows:

(1) A complete engine is a fully assembled engine in its final configuration. In the case of equipment-based standards, an engine is not considered complete until it is installed in the equipment, even if the engine itself is fully assembled.

(2) A partially complete engine is an engine that is not fully assembled or is not in its final configuration. Except where we specify otherwise in this part or the standard-setting part, partially complete engines are subject to the same standards and requirements as complete engines. The following would be considered examples of partially complete engines:

(i) An engine that is missing certain emission-related components.

(ii) A new engine that was originally assembled as a motor-vehicle engine that will be recalibrated for use as a nonroad engine.

(iii) A new engine that was originally assembled as a land-based engine that will be modified for use as a marine propulsion engine.

(iv) A short block consisting of a crankshaft and other engine components connected to the engine block, but missing the head assembly.

(v) A long block consisting of all engine components except the fuel system and an intake manifold.

(vi) In the case of equipment-based standards, a fully functioning engine that is not yet installed in the equipment. For example, a fully functioning engine that will be installed in an off-highway motorcycle or a locomotive is considered partially complete until it is installed in the equipment.

Engine-based standard means an emission standard expressed in units of grams of pollutant per kilowatt-hour that applies to the engine. Emission standards are either engine-based or equipment-based. Note that engines may be subject to additional standards such as smoke standards.

Engine-based test means an emission test intended to measure emissions in units of grams of pollutant per kilowatt-hour, without regard to whether the standard applies to the engine or equipment. Note that

some products that are subject to engine-based testing are subject to additional test requirements such as for smoke.

Engine/equipment and engines/equipment mean engine(s) and/or equipment depending on the context. Specifically these terms mean the following:

- (1) Engine(s) when only engine-based standards apply.
- (2) Engine(s) for testing issues when engine-based testing applies.
- (3) Engine(s) and equipment when both engine-based and equipment-based standards apply.
- (4) Equipment when only equipment-based standards apply.
- (5) Equipment for testing issues when equipment-based testing applies.

Equipment means one of the following things:

- (1) Any vehicle, vessel, or other type of equipment that is subject to the requirements of this part or that uses an engine that is subject to the requirements of this part. An installed engine is part of the equipment.
- (2) Fuel-system components that are subject to an equipment-based standard under this chapter. Installed fuel-system components are part of the engine.

Equipment-based standard means an emission standard that applies to the equipment in which an engine is used or to fuel-system components associated with an engine, without regard to how the emissions are measured. If equipment-based standards apply, we require that the equipment or fuel-system components be certified rather than just the engine. Emission standards are either engine-based or equipment-based. For example, recreational vehicles we regulate under 40 CFR part 1051 are subject to equipment-based standards even if emission measurements are based on engine operation alone.

Exempted means relating to engines/equipment that are not required to meet otherwise applicable standards. Exempted engines/equipment must conform to regulatory conditions specified for an exemption in this part 1068 or in the standard-setting part. Exempted engines/equipment are deemed to be “subject to” the standards of the standard-setting part even though they are not required to comply with the otherwise applicable requirements. Engines/equipment exempted with respect to a certain tier of standards may be required to comply with an earlier tier of standards as a condition of the exemption; for example, engines exempted with respect to Tier 3 standards may be required to comply with Tier 1 or Tier 2 standards.

Family means engine family or emission family, as applicable under the standard-setting part.

Final deteriorated test result has the meaning given in the standard-setting part. If it is not defined in the standard-setting part, it means the emission level that results from applying all appropriate adjustments (such as deterioration factors) to the measured emission result of the emission-data engine.

Good engineering judgment means judgments made consistent with generally accepted scientific and engineering principles and all available relevant information.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act (42 U.S.C. 7550(1)). In general, this term includes any person who manufactures an engine or piece of equipment for sale in the United States or otherwise introduces a new engine or piece of equipment into U.S. commerce. This includes importers that import new engines or new equipment into the United States for resale. It also includes secondary engine manufacturers.

Model year has the meaning given in the standard-setting part. Unless the standard-setting part specifies otherwise, model year for individual engines/equipment is based on the date of manufacture or a later stage in the assembly process determined by the manufacturer, subject to the limitations described in §§1068.103 and 1068.360. The model year of a new engine that is neither certified nor exempt is deemed to be the calendar year in which it is sold, offered for sale, imported, or delivered or otherwise introduced into U.S. commerce.

Motor vehicle has the meaning given in 40 CFR 85.1703(a).

New has the meaning we give it in the standard-setting part.

Nonroad engine means:

- (1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:

(i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).

(ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).

(iii) By itself or in or on a piece of equipment, it is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(2) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:

(i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.

(ii) The engine is regulated under 40 CFR part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)).

(iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. See §1068.31 for provisions that apply if the engine is removed from the location.

Operating hours means:

(1) For engine and equipment storage areas or facilities, times during which people other than custodians and security personnel are at work near, and can access, a storage area or facility.

(2) For other areas or facilities, times during which an assembly line operates or any of the following activities occurs:

(i) Testing, maintenance, or service accumulation.

(ii) Production or compilation of records.

(iii) Certification testing.

(iv) Translation of designs from the test stage to the production stage.

(v) Engine or equipment manufacture or assembly.

Piece of equipment means any vehicle, vessel, locomotive, aircraft, or other type of equipment using engines to which this part applies.

Placed into service means used for its intended purpose.

Reasonable technical basis means information that would lead a person familiar with engine design and function to reasonably believe a conclusion related to compliance with the requirements of this part. For example, it would be reasonable to believe that parts performing the same function as the original parts (and to the same degree) would control emissions to the same degree as the original parts.

Relating to as used in this section means relating to something in a specific, direct manner. This expression is used in this section only to define terms as adjectives and not to broaden the meaning of the terms.

Replacement engine means an engine exempted as a replacement engine under §1068.240.

Revoke means to terminate the certificate or an exemption for a family. If we revoke a certificate or exemption, you must apply for a new certificate or exemption before continuing to introduce the affected engines/equipment into U.S. commerce. This does not apply to engines/equipment you no longer possess.

Secondary engine manufacturer means anyone who produces a new engine by modifying a complete or partially complete engine that was made by a different company. For the purpose of this definition, “modifying” does not include making changes that do not remove an engine from its original certified configuration. Secondary engine manufacturing includes, for example, converting automotive engines for use in industrial applications, or land-based engines for use in marine applications. This applies whether it involves a complete or partially complete engine and whether the engine was previously certified to

emission standards or not. Manufacturers controlled by the manufacturer of the base engine (or by an entity that also controls the manufacturer of the base engine) are not secondary engine manufacturers; rather, both entities are considered to be one manufacturer for purposes of this part. This definition applies equally to equipment manufacturers that modify engines. Also, equipment manufacturers that certify to equipment-based standards using engines produced by another company are deemed to be secondary engine manufacturers. Companies importing complete engines into the United States are not secondary engine manufacturers regardless of the procedures and relationships between companies for assembling the engines.

Small business means either of the following:

- (1) A company that qualifies under the standard-setting part for special provisions for small businesses or small-volume manufacturers.
- (2) A company that qualifies as a small business under the regulations adopted by the Small Business Administration at 13 CFR 121.201 if the standard-setting part does not establish such qualifying criteria.

Standard-setting part means a part in the Code of Federal Regulations that defines emission standards for a particular engine and/or piece of equipment (see §1068.1(a)). For example, the standard-setting part for marine spark-ignition engines is 40 CFR part 1045. For provisions related to evaporative emissions, the standard-setting part may be 40 CFR part 1060, as specified in 40 CFR 1060.1.

Suspend means to temporarily discontinue the certificate or an exemption for a family. If we suspend a certificate, you may not introduce into U.S. commerce engines/equipment from that family unless we reinstate the certificate or approve a new one. If we suspend an exemption, you may not introduce into U.S. commerce engines/equipment that were previously covered by the exemption unless we reinstate the exemption.

Ultimate purchaser means the first person who in good faith purchases a new nonroad engine or new piece of equipment for purposes other than resale.

United States means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, Guam, American Samoa, and the U.S. Virgin Islands.

U.S.-directed production volume means the number of engine/equipment units, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

Void means to invalidate a certificate or an exemption ab initio. If we void a certificate, all the engines/equipment introduced into U.S. commerce under that family for that model year are considered noncompliant, and you are liable for all engines/equipment introduced into U.S. commerce under the certificate and may face civil or criminal penalties or both. This applies equally to all engines/equipment in the family, including engines/equipment introduced into U.S. commerce before we voided the certificate. If we void an exemption, all the engines/equipment introduced into U.S. commerce under that exemption are considered uncertified (or nonconforming), and you are liable for engines/equipment introduced into U.S. commerce under the exemption and may face civil or criminal penalties or both. You may not introduce into U.S. commerce any additional engines/equipment using the voided exemption.

Voluntary emission recall means a repair, adjustment, or modification program voluntarily initiated and conducted by a manufacturer to remedy any emission-related defect for which engine owners have been notified.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

§1068.31 What provisions apply to nonroad or stationary engines that change their status?

This section specifies the provisions that apply when an engine previously used in a nonroad application is subsequently used in an application other than a nonroad application, or when an engine previously used in a stationary application (i.e., an engine that was not used as a nonroad engine and that was not used to propel a motor vehicle, an aircraft, or equipment used solely for competition) is moved.

(a) Changing the status of a stationary engine to be a new nonroad engine as described in paragraph (b) of this section is a violation of §1068.101(a)(1) or (b)(3) unless the engine has been certified to be compliant with all requirements of this chapter that apply to new nonroad engines of the same type (for example, a

compression-ignition engine rated at 40 kW) and model year, and is in its certified configuration. Note that the definitions of “model year” in the standard-setting parts generally identify the engine’s original date of manufacture as the basis for determining which standards apply if it becomes a nonroad engine after it is no longer new. For example, see 40 CFR 1039.801 and 1048.801.

(b) A stationary engine becomes a new nonroad engine if–

(1) It is used in an application that meets the criteria specified in paragraphs (1)(i) or (ii) in the definition of "nonroad engine" in §1068.30.

(2) It meets the criteria specified in paragraph (1)(iii) of the definition of “nonroad engine” in §1068.30 and is moved so that it fails to meet (or no longer meets) the criteria specified in paragraph (2)(iii) in the definition of "nonroad engine" in §1068.30.

(c) A stationary engine does not become a new nonroad engine if it is moved but continues to meet the criteria specified in paragraph (2)(iii) in the definition of "nonroad engine" in §1068.30 in its new location. For example, a transportable engine that is used in a single specific location for 18 months and is later moved to a second specific location where it will remain for at least 12 months is considered to be a stationary engine in both locations. Note that for engines that are neither portable nor transportable in actual use, the residence-time restrictions in the definition of “nonroad engine” generally do not apply.

(d) Changing the status of a nonroad engine to be a new stationary engine as described in paragraph (e) of this section is a violation of §1068.101(a)(1) unless the engine complies with all the requirements of this chapter for new stationary engines of the same type (for example, a compression-ignition engine rated at 40 kW) and model year. For a new stationary engine that is required to be certified under 40 CFR part 60, the engine must have been certified to be compliant with all the requirements that apply to new stationary engines of the same type and model year, and must be in its certified configuration.

(e) A nonroad engine ceases to be a nonroad engine and becomes a new stationary engine if–

(1) At any time, it meets the criteria specified in paragraph (2)(iii) in the definition of "nonroad engine" in §1068.30. For example, a portable generator engine ceases to be a nonroad engine if it is used or will be used in a single specific location for 12 months or longer. If we determine that an engine will be or has been used in a single specific location for 12 months or longer, it ceased to be a nonroad engine when it was placed in that location.

(2) It is otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411).

(f) A nonroad engine ceases to be a nonroad engine if it is used to propel a motor vehicle, an aircraft, or equipment used solely for competition. See 40 CFR part 86 for requirements applicable to motor vehicles and motor vehicle engines. See 40 CFR part 87 for requirements applicable to aircraft and aircraft engines. See §1068.235 for requirements applicable to equipment used solely for competition.

§1068.35 What symbols, acronyms, and abbreviations does this part use?

The following symbols, acronyms, and abbreviations apply to this part:

\$	U.S. dollars.
CFR	Code of Federal Regulations.
disp	engine displacement.
EPA	Environmental Protection Agency.
kW	kilowatt.
L/cyl	liters per cylinder.
NARA	National Archives and Records Administration.
NOx	Oxides of nitrogen.
SAE	Society of Automotive Engineers.
SEA	selective enforcement audit.
U.S.	United States.
U.S.C.	United States Code.

§1068.40 What special provisions apply for implementing technical amendments?

During the 12 months following the effective date of any change in the provisions of this part, you may ask to apply the previously applicable provisions. We will generally approve your request if you can demonstrate that it would be impractical to comply with the new requirements. We may consider the potential for adverse environmental impacts in our decision. Similarly, in unusual circumstances, you may ask for relief under this section from new requirements that apply under the standard-setting part.

§1068.45 General labeling provisions.

The provisions of this part and the standard-setting part include a variety of labeling requirements. The following general provisions apply:

(a) Permanent labels. Where we specify that you apply a permanent label, you must meet the following requirements unless the standard-setting part includes other specific label requirements:

- (1) Attach the label so no one can remove it without destroying or defacing it.
- (2) Make sure it is durable and readable for the engine/equipment's entire life.
- (3) Secure it to a part of the engine/equipment needed for normal operation and not normally requiring replacement.
- (4) Write it in English.
- (5) Make the labels readily visible to the average person after all installation and assembly are complete.

(b) Removable labels. Where we specify that you apply a removable label, it must meet the following conditions:

- (1) You must attach the label in a way that does not allow it to be separated from the engine/equipment without a deliberate effort. Note that for exemptions requiring removable labels, the exemption no longer applies once the label is separated from the engine/equipment.
- (2) The label must be durable and readable throughout the period of its intended purpose. This period generally includes all distribution in U.S. commerce during which the exemption applies.
- (3) Except as specified in paragraph (c) of this section, the label must be attached directly to the engine/equipment in a visible location. We consider a tag that meets the specified requirements to be an attached label.

(c) Labels on packaging. This part or the standard-setting part may in certain cases allow you to label the packaging if you ship engines/equipment packaged together instead of applying a removable label to engines/equipment individually. For example, this may involve packaging engines together by attaching them to a rack, binding them together on a pallet, or enclosing them in a box. The provisions of this paragraph (c) also apply for engines/equipment boxed individually where you do not apply labels directly to the engines/equipment. The following provisions apply if you label the packaging instead of labeling engines/equipment individually:

- (1) You may use the provisions of this paragraph (c) only if all the engines/equipment packaged together need the same label.
- (2) You must place the label on the package in a readily visible location. This may require labeling the package in multiple locations.
- (3) You must package the engines/equipment such that the labels will not be separated from the engines/equipment or otherwise become unreadable throughout the period that the label applies. For example, labels required for shipping engines to a secondary engine manufacturer under §1068.262 must remain attached and readable until they reach the secondary engine manufacturer. Similarly, removable labels specified in §1068.240 for replacement engines must remain attached and readable until they reach the point of final installation.
- (4) You are in violation of §1068.101(a)(1) if such engines/equipment are removed from the package or are otherwise separated from the label before reaching the point at which the label is no longer needed.

(d) Temporary consumer labels. Where we specify that you apply temporary consumer labels (including tags), each label must meet the following conditions:

- (1) You must attach the label in a way that does not allow it to be separated from the engine/equipment without a deliberate effort.

- (2) The label must be sufficiently durable to be readable until it reaches the ultimate purchaser.
- (3) The label must be attached directly to the engine/equipment in a visible location.
- (e) Prohibitions against removing labels. Removing permanent labels may be a violation of §1068.101(b)(7). Removing temporary or removable labels prematurely may also be a violation of §1068.101(b)(7).
- (f) Identifying emission control systems. If the standard-setting part specifies that you use standardized terms and abbreviations to identify emission control systems, use terms and abbreviations consistent with SAE J1930 (incorporated by reference in §1068.95).

§1068.95 What materials does this part reference?

Documents listed in this section have been incorporated by reference into this part. The Director of the Federal Register approved the incorporation by reference as prescribed in 5 U.S.C. 552(a) and 1 CFR part 51. Anyone may inspect copies at the U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(a) SAE material. Table 1 to this section lists material from the Society of Automotive Engineers that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096 or www.sae.org. Table 1 follows:

Table 1 to §1068.95—SAE Materials

Document number and name	Part 1068 reference
SAE J1930, Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms, revised April 2002.	1068.95

(b) [Reserved]

Subpart B—Prohibited Actions and Related Requirements

§1068.101 What general actions does this regulation prohibit?

This section specifies actions that are prohibited and the maximum civil penalties that we can assess for each violation in accordance with 42 U.S.C. 7522 and 7524. The maximum penalty values listed in paragraphs (a) and (b) of this section are shown for calendar year 2004. As described in paragraph (e) of this section, maximum penalty limits for later years are set forth in 40 CFR part 19.

(a) The following prohibitions and requirements apply to manufacturers of new engines, manufacturers of equipment containing these engines, and manufacturers of new equipment, except as described in subparts C and D of this part:

(1) Introduction into commerce. You may not sell, offer for sale, or introduce or deliver into commerce in the United States or import into the United States any new engine/equipment after emission standards take effect for the engine/equipment, unless it is covered by a valid certificate of conformity for its model year and has the required label or tag. You also may not take any of the actions listed in the previous sentence with respect to any equipment containing an engine subject to this part’s provisions unless the engine is covered by a valid certificate of conformity for its model year and has the required engine label or tag. We may assess a civil penalty up to \$32,500 for each engine or piece of equipment in violation.

(i) For purposes of this paragraph (a)(1), a valid certificate of conformity is one that applies for the same model year as the model year of the equipment (except as allowed by §1068.105(a)), covers the appropriate category of engines/equipment (such as locomotive or Marine SI), and conforms to all requirements specified for equipment in the standard-setting part.

Engines/equipment are considered not covered by a certificate unless they are in a configuration described in the application for certification.

(ii) The requirements of this paragraph (a)(1) also cover new engines you produce to replace an older engine in a piece of equipment, unless the engine qualifies for the replacement-engine exemption in §1068.240.

(iii) For engines used in equipment subject to equipment-based standards, you may not sell, offer for sale, or introduce or deliver into commerce in the United States or import into the United States any new engine unless it is covered by a valid certificate of conformity for its model year and has the required label or tag. See the standard-setting part for more information about how this prohibition applies.

(2) Reporting and recordkeeping. This chapter requires you to record certain types of information to show that you meet our standards. You must comply with these requirements to make and maintain required records (including those described in §1068.501). You may not deny us access to your records or the ability to copy your records if we have the authority to see or copy them. Also, you must give us complete and accurate reports and information without delay as required under this chapter. Failure to comply with the requirements of this paragraph is prohibited. We may assess a civil penalty up to \$32,500 for each day you are in violation. In addition, knowingly submitting false information is a violation of 18 U.S.C. 1001, which may involve criminal penalties and up to five years imprisonment.

(3) Testing and access to facilities. You may not keep us from entering your facility to test engines/equipment or inspect if we are authorized to do so. Also, you must perform the tests we require (or have the tests done for you). Failure to perform this testing is prohibited. We may assess a civil penalty up to \$32,500 for each day you are in violation.

(b) The following prohibitions apply to everyone with respect to the engines and equipment to which this part applies:

(1) Tampering. You may not remove or render inoperative any device or element of design installed on or in engines/equipment in compliance with the regulations prior to its sale and delivery to the ultimate purchaser. You also may not knowingly remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser. This includes, for example, operating an engine without a supply of appropriate quality urea if the emissions control system relies on urea to reduce NOx emissions or the use of incorrect fuel or engine oil that renders the emissions control system inoperative. Section 1068.120 describes how this applies to rebuilding engines. See the standard-setting part, which may include additional provisions regarding actions prohibited by this requirement. For a manufacturer or dealer, we may assess a civil penalty up to \$32,500 for each engine or piece of equipment in violation. For anyone else, we may assess a civil penalty up to \$2,750 for each day an engine or piece of equipment is operated in violation. This prohibition does not apply in any of the following situations:

(i) You need to repair the engine/equipment and you restore it to proper functioning when the repair is complete.

(ii) You need to modify the engine/equipment to respond to a temporary emergency and you restore it to proper functioning as soon as possible.

(iii) You modify new engines/equipment that another manufacturer has already certified to meet emission standards and recertify them under your own family. In this case you must tell the original manufacturer not to include the modified engines/equipment in the original family.

(2) Defeat devices. You may not knowingly manufacture, sell, offer to sell, or install, any part that bypasses, impairs, defeats, or disables the control of emissions of any regulated pollutant, except as explicitly allowed by the standard-setting part. We may assess a civil penalty up to \$2,750 for each part in violation.

(3) Stationary engines. For an engine that is excluded from any requirements of this chapter because it is a stationary engine, you may not move it or install it in any mobile equipment except as allowed by the provisions of this chapter. You may not circumvent or attempt to circumvent the residence-time requirements of paragraph (2)(iii) of the nonroad engine definition in §1068.30. Anyone

violating this paragraph (b)(3) is deemed to be a manufacturer in violation of paragraph (a)(1) of this section. We may assess a civil penalty up to \$32,500 for each day you are in violation.

(4) Competition engines/equipment. For uncertified engines/equipment that are excluded or exempted from any requirements of this chapter because they are to be used solely for competition, you may not use any of them in a manner that is inconsistent with use solely for competition. Anyone violating this paragraph (b)(4) is deemed to be a manufacturer in violation of paragraph (a)(1) of this section. We may assess a civil penalty up to \$32,500 for each day you are in violation.

(5) Importation. You may not import an uncertified engine or piece of equipment if it is defined to be new in the standard-setting part with a model year for which emission standards applied. Anyone violating this paragraph (b)(5) is deemed to be a manufacturer in violation of paragraph (a)(1) of this section. We may assess a civil penalty up to \$32,500 for each day you are in violation. Note the following:

(i) The definition of new is broad for imported engines/equipment; uncertified engines and equipment (including used engines and equipment) are generally considered to be new when imported.

(ii) Used engines/equipment that were originally manufactured before applicable EPA standards were in effect are generally not subject to emission standards.

(6) Warranty, recall, and maintenance instructions. You must meet your obligation to honor your emission-related warranty under §1068.115, including any commitments you identify in your application for certification. You must also fulfill all applicable requirements under subpart F of this part related to emission-related defects and recalls. You must also provide emission-related installation and maintenance instructions as described in the standard-setting part. Failure to meet these obligations is prohibited. Also, except as specifically provided by regulation, you are prohibited from directly or indirectly communicating to the ultimate purchaser or a later purchaser that the emission-related warranty is valid only if the owner has service performed at authorized facilities or only if the owner uses authorized parts, components, or systems. We may assess a civil penalty up to \$32,500 for each engine or piece of equipment in violation.

(7) Labeling. (i) You may not remove or alter an emission control information label or other required permanent label except as specified in this paragraph (b)(7) or otherwise allowed by this chapter. Removing or altering an emission control information label is a violation of paragraph (b)(1) of this section. However, it is not a violation to remove a label in the following circumstances:

(A) The engine is destroyed, is permanently disassembled, or otherwise loses its identity such that the original title to the engine is no longer valid.

(B) The regulations specifically direct you to remove the label. For example, see §1068.235.

(C) The part on which the label is mounted needs to be replaced. In this case, you must have a replacement part with a duplicate of the original label installed by the certifying manufacturer or an authorized agent, except that the replacement label may omit the date of manufacture if applicable. We generally require labels to be permanently attached to parts that will not normally be replaced, but this provision allows for replacements in unusual circumstances, such as damage in a collision or other accident.

(D) The original label is incorrect, provided that it is replaced with the correct label from the certifying manufacturer or an authorized agent. This allowance to replace incorrect labels does not affect whether the application of an incorrect original label is a violation.

(ii) Removing or altering a temporary or removable label contrary to the provisions of this paragraph (b)(7)(ii) is a violation of paragraph (b)(1) of this section.

(A) For labels identifying temporary exemptions, you may not remove or alter the label while the engine/equipment is in an exempt status. The exemption is automatically revoked for each engine/equipment for which the label has been removed.

(B) For temporary or removable consumer information labels, only the ultimate purchaser may remove the label.

(iii) You may not apply a false emission control information label. You also may not manufacture, sell, or offer to sell false labels. The application, manufacture, sale, or offer for sale of false labels is a violation of this section (such as paragraph (a)(1) or (b)(2) of this section).

Note that applying an otherwise valid emission control information label to the wrong engine is considered to be applying a false label.

- (c) If you cause someone to commit a prohibited act in paragraph (a) or (b) of this section, you are in violation of that prohibition.
- (d) Exemptions from these prohibitions are described in subparts C and D of this part and in the standard-setting part.
- (e) The standard-setting parts describe more requirements and prohibitions that apply to manufacturers (including importers) and others under this chapter.
- (f) The specification of prohibitions and penalties in this part does not limit the prohibitions and penalties described in the Clean Air Act. Additionally, a single act may trigger multiple violations under this section and the Act. We may pursue all available administrative, civil, or criminal remedies for those violations even if the regulation references only a single prohibited act in this section.
- (g) [Reserved]
- (h) The maximum penalty values listed in paragraphs (a) and (b) of this section are shown for calendar year 2004. Maximum penalty limits for later years may be adjusted based on the Consumer Price Index. The specific regulatory provisions for changing the maximum penalties, published in 40 CFR part 19, reference the applicable U.S. Code citation on which the prohibited action is based. The following table is shown here for informational purposes:

Table 1 of §1068.101—Legal Citation for Specific Prohibitions for Determining Maximum Penalty Amounts

Part 1068 Regulatory Citation of Prohibited Action	General Description of Prohibition	U.S. Code Citation for Clean Air Act Authority
§1068.101 (a)(1)	Introduction into U.S. commerce of an uncertified source.	42 U.S.C. 7522(a)(1) and (a)(4)
§1068.101(a)(2)	Failure to provide information.	42 U.S.C. 7522(a)(2)
§1068.101(a)(3)	Denying access to facilities.	42 U.S.C. 7522(a)(2)
§1068.101(b)(1)	Tampering with emission controls by a manufacturer or dealer. Tampering with emission controls by someone other than a manufacturer or dealer.	42 U.S.C. 7522(a)(3)
§1068.101(b)(2)	Sale or use of a defeat device.	42 U.S.C. 7522(a)(3)
§1068.101(b)(3)	Mobile use of a stationary engine.	42 U.S.C. 7522(a)(1) and (a)(4)
§1068.101(b)(4)	Noncompetitive use of uncertified engines/equipment that is exempted for competition.	42 U.S.C. 7522(a)(1) and (a)(4)
§1068.101(b)(5)	Importation of an uncertified source.	42 U.S.C. 7522(a)(1) and (a)(4)
§1068.101(b)(6)	Recall and warranty	42 U.S.C. 7522(a)(4)
§1068.101(b)(7)	Removing labels	42 U.S.C. 7522(a)(3)

§1068.103 What are the provisions related to the duration and applicability of certificates of conformity?

(a) Engines/equipment covered by a certificate of conformity are limited to those that are produced during the period specified in the certificate and conform to the specifications described in the certificate and the

associated application for certification. For example, if the application for certification specifies certain engine models or production facilities, the certificate does not cover any models that are not specified and it does not cover engines/equipment produced at production facilities that are not specified.

(b) Unless the standard-setting part specifies otherwise, determine the production period corresponding to each certificate of conformity as specified in this paragraph (b). In general, the production period is the manufacturer's annual production period identified as a model year.

(1) For engines/equipment subject to emission standards based on model years, the first day of the annual production period can be no earlier than January 2 of the calendar year preceding the year for which the model year is named, or the earliest date of manufacture for any engine/equipment in the engine family, whichever is later. The last day of the annual production period can be no later than December 31 of the calendar year for which the model year is named or the latest date of manufacture for any engine/equipment in the engine family, whichever is sooner.

(2) For fuel-system components certified to evaporative emission standards based on production periods rather than model years, the production period is either the calendar year or a longer period we specify consistent with the manufacturer's normal production practices.

(c) A certificate of conformity will not cover engines/equipment you produce with a date of manufacture earlier than the date you submit the application for certification for the family. You may start to produce engines/equipment after you submit an application for certification and before the effective date of a certificate of conformity, subject to the following conditions:

(1) The engines/equipment must conform in all material respects to the engines/equipment described in your application. Note that if we require you to modify your application, you must ensure that all engines/equipment conform to the specifications of the modified application.

(2) The engines/equipment may not be sold, offered for sale, introduced into commerce, or delivered for introduction into U.S. commerce before the effective date of the certificate of conformity.

(3) You must notify us in your application for certification that you plan to use the provisions of this paragraph (c) and when you intend to start production. If the standard-setting part specifies mandatory testing for production-line engines, you must start testing as directed in the standard-setting part based on your actual start of production, even if that occurs before we approve your certification. You must also agree to give us full opportunity to inspect and/or test the engines/equipment during and after production. For example, we must have the opportunity to specify selective enforcement audits as allowed by the standard-setting part and the Clean Air Act as if the engines/equipment were produced after the effective date of the certificate.

(4) See §1068.262 for special provisions that apply for secondary engine manufacturers receiving shipment of partially complete engines before the effective date of a certificate.

(d) Engines/equipment with a date of manufacture after December 31 of the calendar year for which a model year is named are not covered by the certificate of conformity for that model year. You must submit an application for a new certificate of conformity demonstrating compliance with applicable standards even if the engines/equipment are identical to those built before December 31.

(e) The flexible approach to naming the annual production period described in paragraph (b)(1) of this section is intended to allow you to introduce new products at any point during the year. This is based on the expectation that production periods generally run on consistent schedules from year to year. You may not use this flexibility to arrange your production periods such that you can avoid annual certification.

(f) An engine is generally assigned a model year based on its date of manufacture, which is typically based on the date the crankshaft is installed in the engine (see §1068.30). You may not circumvent the provisions of §1068.101(a)(1) by stockpiling engines with a date of manufacture before new or changed emission standards take effect by deviating from your normal production and inventory practices. (For purposes of this paragraph (f), normal production and inventory practices means those practices you typically use for similar families in years in which emission standards do not change. We may require you to provide us routine production and inventory records that document your normal practices for the preceding eight years.) For most engines you should plan to complete the assembly of an engine of a given model year within the first week after the end of the model year if new emission standards start to apply in that model year. For special circumstances it may be appropriate for your normal business practice to involve more time. For engines with per-cylinder displacement below 2.5 liters, we would

consider it to be a violation to complete the assembly of an engine of a given model year more than 30 days after the end of the model year for that engine family if new emission standards start to apply in that year. For example, in the case where new standards apply in the 2010 model year, and your normal production period is based on the calendar year, you must complete the assembly of all your 2009 model year engines before January 31, 2010, or an earlier date consistent with your normal production and inventory practices. For engines with per-cylinder displacement at or above 2.5 liters, this time may not exceed 60 days. Note that for the purposes of this paragraph (f), an engine shipped under §1068.261 is deemed to be a complete engine. Note also that §1068.245 allows flexibility for additional time in unusual circumstances. Note finally that disassembly of complete engines and reassembly (such as for shipment) does not affect the determination of model year; the provisions of this paragraph (f) apply based on the date on which initial assembly is complete.

§1068.105 What other provisions apply to me specifically if I manufacture equipment needing certified engines?

This section describes general provisions that apply to equipment manufacturers for sources subject to engine-based standards. See the standard-setting part for any requirements that apply for certain applications. See §1068.101 for penalties associated with violations under this section and for other prohibitions related to your equipment.

(a) Transitioning to new engine-based standards. If new engine-based emission standards apply in a given model year, your equipment in that calendar year must have engines that are certified to the new standards, except that you may continue to use up your normal inventory of earlier engines that were built before the date of the new or changed standards. (Note: this paragraph (a) does not apply in the case of new remanufacturing standards.) For example, if your normal inventory practice is to keep on hand a one-month supply of engines based on your upcoming production schedules, and a new tier of standards starts to apply for the 2015 model year, you may order engines consistent with your normal inventory requirements late in the engine manufacturer's 2014 model year and install those engines in your equipment, regardless of the date of installation. Also, if your model year starts before the end of the calendar year preceding new standards, you may use engines from the previous model year for those units you produce before January 1 of the year that new standards apply. If emission standards for the engine do not change in a given model year, you may continue to install engines from the previous model year without restriction. You may not circumvent the provisions of §1068.101(a)(1) by stockpiling engines that were built before new or changed standards take effect. Note that this allowance does not apply for equipment subject to equipment-based standards. See 40 CFR 1060.601 for similar provisions that apply for equipment subject to evaporative emission standards.

(b) Installing engines or certified components. The provisions in §1068.101(a)(1) generally prohibit you from introducing into U.S. commerce any new equipment that includes engines not covered by a certificate of conformity. In addition, you must follow the engine manufacturer's emission-related installation instructions. For example, you may need to constrain where you place an exhaust aftertreatment device or integrate into your equipment models a device for sending visual or audible signals to the operator. Similarly, you must follow the emission-related installation instructions from the manufacturer of a component that has been certified for controlling evaporative emissions under 40 CFR part 1060. Not meeting the manufacturer's emission-related installation instructions is a violation of one or more of the prohibitions of §1068.101. See §1068.261 for special provisions that apply when the engine manufacturer delegates final assembly of emission controls to you.

(c) Attaching a duplicate label. If you obscure the engine's label, you must do four things to avoid violating §1068.101(a)(1):

- (1) Send a request for duplicate labels in writing on your company's letterhead to the engine manufacturer. Include the following information in your request:
 - (i) Identify the type of equipment and the specific engine and equipment models needing duplicate labels.
 - (ii) Identify the family (from the original engine label).
 - (iii) State the reason that you need a duplicate label for each equipment model.
 - (iv) Identify the number of duplicate labels you will need.

- (2) Permanently attach the duplicate label to your equipment by securing it to a part needed for normal operation and not normally requiring replacement. Make sure an average person can easily read it.
- (3) Destroy any unused duplicate labels if you find that you will not need them.
- (4) Keep the following records for at least eight years after the end of the model year identified on the engine label:
 - (i) Keep a copy of your written request.
 - (ii) Keep drawings or descriptions that show how you apply the duplicate labels to your equipment.
 - (iii) Maintain a count of those duplicate labels you use and those you destroy.

§1068.110 What other provisions apply to engines/equipment in service?

- (a) Aftermarket parts and service. As the certifying manufacturer, you may not require anyone to use your parts or service to maintain or repair an engine or piece of equipment, unless we approve this in your application for certification. It is a violation of the Clean Air Act for anyone to manufacture any part if one of its main effects is to reduce the effectiveness of the emission controls. See §1068.101(b)(2).
- (b) Certifying aftermarket parts. As the manufacturer or rebuilder of an aftermarket engine or equipment part, you may—but are not required to—certify according to 40 CFR part 85, subpart V, that using the part will not cause engines/equipment to fail to meet emission standards. Whether you certify or not, you must keep any information showing how your parts or service affect emissions.
- (c) Compliance with standards. We may test engines and equipment to investigate compliance with emission standards and other requirements. We may also require the manufacturer to do this testing.
- (d) Defeat devices. We may test engines and equipment to investigate potential defeat devices. We may also require the manufacturer to do this testing. If we choose to investigate one of your designs, we may require you to show us that it does not have a defeat device. To do this, you may have to share with us information regarding test programs, engineering evaluations, design specifications, calibrations, on-board computer algorithms, and design strategies. It is a violation of the Clean Air Act for anyone to make, install or use defeat devices. See §1068.101(b)(2) and the standard-setting part.
- (e) Warranty and maintenance. Owners are responsible for properly maintaining their engines/equipment; however, owners may make warranty claims against the manufacturer for all expenses related to diagnosing and repairing or replacing emission-related parts, as described in §1068.115. Manufacturers may ask to limit diagnosis and repair to authorized service facilities, provided this does not limit their ability to meet their warranty obligations under §1068.115. The warranty period begins when the equipment is first placed into service. See the standard-setting part for specific requirements. It is a violation of the Clean Air Act for anyone to disable emission controls; see §1068.101(b)(1) and the standard-setting part.

§1068.115 When must manufacturers honor emission-related warranty claims?

Section 207(a) of the Clean Air Act (42 U.S.C. 7541(a)) requires certifying manufacturers to warrant to purchasers that their engines/equipment are designed, built, and equipped to conform at the time of sale to the applicable regulations for their full useful life, including a warranty that the engines/equipment are free from defects in materials and workmanship that would cause any engine/equipment to fail to conform to the applicable regulations during the specified warranty period. This section codifies the warranty requirements of section 207(a) without intending to limit these requirements.

- (a) As a certifying manufacturer, you may deny warranty claims only for failures that have been caused by the owner's or operator's improper maintenance or use, by accidents for which you have no responsibility, or by acts of God. For example, you would not need to honor warranty claims for failures that have been directly caused by the operator's abuse of the engine/equipment or the operator's use of the engine/equipment in a manner for which it was not designed and are not attributable to you in any way.
- (b) As a certifying manufacturer, you may not deny emission-related warranty claims based on any of the following:
 - (1) Maintenance or other service you or your authorized facilities performed.

- (2) Engine/equipment repair work that an operator performed to correct an unsafe, emergency condition attributable to you as long as the operator tries to restore the engine/equipment to its proper configuration as soon as possible.
- (3) Any action or inaction by the operator unrelated to the warranty claim.
- (4) Maintenance that was performed more frequently than you specify.
- (5) Anything that is your fault or responsibility.
- (6) The use of any fuel that is commonly available where the equipment operates unless your written maintenance instructions state that this fuel would harm the equipment's emission control system and operators can readily find the proper fuel.

§1068.120 What requirements must I follow to rebuild engines?

- (a) This section describes the steps to take when rebuilding engines to avoid violating the tampering prohibition in §1068.101(b)(1). These requirements apply to anyone rebuilding an engine subject to this part, but the recordkeeping requirements in paragraphs (j) and (k) of this section apply only to businesses. For maintenance or service that is not rebuilding, including any maintenance related to evaporative emission controls, you may not make changes that might increase emissions of any regulated pollutant, but you do not need to keep any records.
- (b) The term “rebuilding” refers to a rebuild of an engine or engine system, including a major overhaul in which you replace the engine's pistons or power assemblies or make other changes that significantly increase the service life of the engine. It also includes replacing or rebuilding an engine's turbocharger or aftercooler or the engine's systems for fuel metering or electronic control so that it significantly increases the service life of the engine. For these provisions, rebuilding may or may not involve removing the engine from the equipment. Rebuilding does not normally include the following:
 - (1) Scheduled emission-related maintenance that the standard-setting part allows during the useful life period (such as replacing fuel injectors).
 - (2) Unscheduled maintenance that occurs commonly within the useful life period. For example, replacing a water pump is not rebuilding an engine.
- (c) [Reserved]
- (d) If you rebuild an engine or engine system, you must have a reasonable technical basis for knowing that the rebuilt engine's emission control system performs as well as, or better than, it performs in its certified configuration. Identify the model year of the resulting engine configuration. You have a reasonable basis if you meet two main conditions:
 - (1) Install parts— new, used, or rebuilt— so a person familiar with engine design and function would reasonably believe that the engine with those parts will control emissions of all pollutants at least to the same degree as with the original parts. For example, it would be reasonable to believe that parts performing the same function as the original parts (and to the same degree) would control emissions to the same degree as the original parts.
 - (2) Adjust parameters or change design elements only according to the original engine manufacturer's instructions. Or, if you differ from these instructions, you must have data or some other technical basis to show you should not expect in-use emissions to increase.
- (e) If the rebuilt engine remains installed or is reinstalled in the same piece of equipment, you must rebuild it to the original configuration or another certified configuration of the same or later model year.
- (f) A rebuilt engine may replace another certified engine in a piece of equipment only if the engine was rebuilt to a certified configuration meeting equivalent or more stringent emission standards. Note that a certified configuration would generally include more than one model year. A rebuilt engine being installed that is from the same model year or a newer model year than the engine being replaced meets this requirement. The following examples illustrate the provisions of this paragraph (f):
 - (1) In most cases, you may use a rebuilt Tier 2 engine to replace a Tier 1 engine or another Tier 2 engine.
 - (2) You may use a rebuilt Tier 1 engine to replace a Tier 2 engine if the two engines differ only with respect to model year or other characteristics unrelated to emissions since such engines would be considered to be in the same configuration. This may occur if the Tier 1 engine had emission levels

below the Tier 2 standards or if the Tier 2 engine was certified with a Family Emission Limit for calculating emission credits.

(3) You may use a rebuilt engine that originally met the Tier 1 standards without certification, as provided under 40 CFR 1068.265, to replace a certified Tier 1 engine. This may occur for engines produced under a Transition Program for Equipment Manufacturers such as that described in 40 CFR 1039.625.

(4) You may never replace a certified engine with an engine rebuilt to a configuration that does not meet EPA emission standards. Note that a configuration is considered to meet EPA emission standards if it was previously certified or was otherwise shown to meet emission standards (see §1068.265).

(g) Do not erase or reset emission-related codes or signals from onboard monitoring systems without diagnosing and responding appropriately to any diagnostic codes. This requirement applies regardless of the manufacturer's reason for installing the monitoring system and regardless of its form or interface. Clear any codes from diagnostic systems when you return the rebuilt engine to service. Do not disable a diagnostic signal without addressing its cause.

(h) When you rebuild an engine, check, clean, adjust, repair, or replace all emission-related components (listed in Appendix I of this part) as needed according to the original manufacturer's recommended practice. In particular, replace oxygen sensors, replace the catalyst if there is evidence of malfunction, clean gaseous fuel-system components, and replace fuel injectors (if applicable), unless you have a reasonable technical basis for believing any of these components do not need replacement.

(i) If you are installing an engine that someone else has rebuilt, check all emission-related components listed in Appendix I of this part as needed according to the original manufacturer's recommended practice.

(j) Keep at least the following records for all engines except spark-ignition engines with total displacement below 225 cc:

(1) Identify the hours of operation (or mileage, as appropriate) at the time of rebuild. These may be noted as approximate values if the engine has no hour meter (or odometer).

(2) Identify the work done on the engine or any emission-related control components, including a listing of parts and components you used.

(3) Describe any engine parameter adjustments.

(4) Identify any emission-related codes or signals you responded to and reset.

(k) You must show us or send us your records if we ask for them. Keep records for at least two years after rebuilding an engine. Keep them in any format that allows us to readily review them.

(1) You do not need to keep information that is not reasonably available through normal business practices. We do not expect you to have information that you cannot reasonably access.

(2) You do not need to keep records of what other companies do.

(3) You may keep records based on families rather than individual engines if that is the way you normally do business.

§1068.125 What happens if I violate the regulations?

(a) Civil penalties and injunctions. We may bring a civil action to assess and recover civil penalties and/or enjoin and restrain violations in the United States District Court for the district where you allegedly violated a requirement, or the district where you live or have your main place of business. Actions to assess civil penalties or restrain violations of §1068.101 must be brought by and in the name of the United States. The selected court has jurisdiction to restrain violations and assess civil penalties.

(1) To determine the amount of a civil penalty and reach a just conclusion, the court considers these factors:

(i) The seriousness of your violation.

(ii) How much you benefited or saved because of the violation.

(iii) The size of your business.

(iv) Your history of compliance with Title II of the Clean Air Act (42 U.S.C. 7401-7590).

(v) What you did to remedy the violation.

(vi) How the penalty will affect your ability to continue in business.

- (vii) Such other matters as justice may require.
- (2) Subpoenas for witnesses who must attend a district court in any district may apply to any other district.
- (b) Administrative penalties. Instead of bringing a civil action, we may assess administrative penalties if the total is less than \$270,000 against you individually. This maximum penalty may be greater if the Administrator and the Attorney General jointly determine that a greater administrative penalty assessment is appropriate, or if the limit is adjusted under 40 CFR part 19. No court may review this determination. Before we assess an administrative penalty, you may ask for a hearing (subject to 40 CFR part 22). The Administrator may compromise or remit, with or without conditions, any administrative penalty that may be imposed under this section.
 - (1) To determine the amount of an administrative penalty, we will consider the factors described in paragraph (a)(1) of this section.
 - (2) An administrative order we issue under this paragraph (b) becomes final 30 days after we issue it unless you ask for judicial review by that time (see paragraph (c) of this section). You may ask for review by any of the district courts listed in paragraph (a) of this section. Send the Administrator a copy of the filing by certified mail.
 - (3) We will not pursue an administrative penalty for a particular violation if either of the following two conditions is true:
 - (i) We are separately prosecuting the violation under this subpart.
 - (ii) We have issued a final order for a violation, no longer subject to judicial review, for which you have already paid a penalty.
- (c) Judicial review. If you ask a court to review a civil or administrative penalty, we will file in the appropriate court within 30 days of your request a certified copy or certified index of the record on which the court or the Administrator issued the order.
 - (1) The judge may set aside or remand any order issued under this section only if one of the following is true:
 - (i) Substantial evidence does not exist in the record, taken as a whole, to support finding a violation.
 - (ii) The Administrator's assessment of the penalty is an abuse of discretion.
 - (2) The judge may not add civil penalties unless our penalty is an abuse of discretion that favors you.
- (d) Effect of enforcement actions on other requirements. Our pursuit of civil or administrative penalties does not affect or limit our authority to enforce any provisions of this chapter.
- (e) Penalties. In any proceedings, the United States government may seek to collect civil penalties assessed under this section.
 - (1) Once a penalty assessment is final, if you do not pay it, the Administrator will ask the Attorney General to bring a civil action in an appropriate district court to recover the money. We may collect interest from the date of the final order or final judgment at rates established by the Internal Revenue Code of 1986 (26 U.S.C. 6621(a)(2)). In this action to collect overdue penalties, the court will not review the validity, amount, and appropriateness of the penalty.
 - (2) In addition, if you do not pay the full amount of a penalty on time, you must then pay more to cover interest, enforcement expenses (including attorney's fees and costs for collection), and a quarterly nonpayment penalty for each quarter you do not pay. The quarterly nonpayment penalty is 10 percent of your total penalties plus any unpaid nonpayment penalties from previous quarters.

Subpart C— Exemptions and Exclusions

§1068.201 Does EPA exempt or exclude any engines/equipment from the prohibited acts?

We may exempt new engines/equipment from some or all of the prohibited acts or requirements of this part under provisions described in this subpart. We may exempt engines/equipment already placed in service in the United States from the prohibition in §1068.101(b)(1) if the exemption for engines/equipment used solely for competition applies (see §1068.235). In addition, see §1068.1 and the standard-setting parts to determine if other engines/equipment are excluded from some or all of the regulations in this chapter.

- (a) This subpart identifies which engines/equipment qualify for exemptions and what information we need. We may ask for more information.
- (b) If you violate any of the terms, conditions, instructions, or requirements to qualify for an exemption, we may void, revoke, or suspend the exemption.
- (c) If you use an exemption under this subpart, we may require you to add a permanent label to your exempted engines/equipment. You may ask us to modify these labeling requirements if it is appropriate for your engine/equipment.
- (d) If you produce engines/equipment we exempt under this subpart, we may require you to make and keep records, perform tests, make reports and provide information as needed to reasonably evaluate the validity of the exemption.
- (e) If you own or operate engines/equipment we exempt under this subpart, we may require you to provide information as needed to reasonably evaluate the validity of the exemption.
- (f) Subpart D of this part describes how we apply these exemptions to engines/equipment you import (or intend to import).
- (g) If you want to ask for an exemption or need more information, write to the Designated Compliance Officer.
- (h) You may ask us to modify the administrative requirements for the exemptions described in this subpart. We may approve your request if we determine that such approval is consistent with the intent of this part. For example, waivable administrative requirements might include some reporting requirements, but would not include any eligibility requirements or use restrictions.
- (i) If you want to take an action with respect to an exempted or excluded engine/equipment that is prohibited by the exemption or exclusion, such as selling it, you need to certify the engine/equipment. We will issue a certificate of conformity if you send us an application for certification showing that you meet all the applicable requirements from the standard-setting part and pay the appropriate fee. Alternatively, we may allow you to include in an existing certified engine family those engines/equipment you modify (or otherwise demonstrate) to be identical to engines/equipment already covered by the certificate. We would base such an approval on our review of any appropriate documentation. These engines/equipment must have emission control information labels that accurately describe their status.

§1068.210 What are the provisions for exempting test engines/equipment?

- (a) We may exempt engines/equipment that you will use for research, investigations, studies, demonstrations, or training. Note that you are not required to get an exemption under this section for engines that are exempted under other provisions of this part, such as the manufacturer-owned exemption in §1068.215.
- (b) Anyone may ask for a testing exemption.
- (c) If you are a certificate holder, you may request an exemption for engines/equipment you intend to include in test programs over a two-year period.
 - (1) In your request, tell us the maximum number of engines/equipment involved and describe how you will make sure exempted engines/equipment are used only for this testing.
 - (2) Give us the information described in paragraph (d) of this section if we ask for it.
- (d) If you are not a certificate holder, do all the following things:
 - (1) Show that the proposed test program has a valid purpose under paragraph (a) of this section.
 - (2) Show you need an exemption to achieve the purpose of the test program (time constraints may be a basis for needing an exemption, but the cost of certification alone is not).
 - (3) Estimate the duration of the proposed test program and the number of engines/equipment involved.
 - (4) Allow us to monitor the testing.
 - (5) Describe how you will ensure that you stay within this exemption's purposes. Address at least the following things:
 - (i) The technical nature of the test.
 - (ii) The test site.
 - (iii) The duration and accumulated engine/equipment operation associated with the test.
 - (iv) Ownership and control of the engines/equipment involved in the test.

- (v) The intended final disposition of the engines/equipment.
 - (vi) How you will identify, record, and make available the engine/equipment identification numbers.
 - (vii) The means or procedure for recording test results.
- (e) If we approve your request for a testing exemption, we will send you a letter or a memorandum for your signature describing the basis and scope of the exemption. The exemption does not take effect until we receive the signed letter or memorandum from you. It will also include any necessary terms and conditions, which normally require you to do the following:
- (1) Stay within the scope of the exemption.
 - (2) Create and maintain adequate records that we may inspect.
 - (3) Add a permanent label to all engines/equipment exempted under this section, consistent with §1068.45, with at least the following items:
 - (i) The label heading "EMISSION CONTROL INFORMATION".
 - (ii) Your corporate name and trademark.
 - (iii) Engine displacement, family identification, and model year of the engine/equipment (as applicable), or whom to contact for further information.
 - (iv) One of these statements (as applicable):
 - (A) "THIS ENGINE IS EXEMPT UNDER 40 CFR 1068.210 OR 1068.215 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (B) "THIS EQUIPMENT IS EXEMPT UNDER 40 CFR 1068.210 OR 1068.215 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (4) Tell us when the test program is finished.
 - (5) Tell us the final disposition of the engines/equipment.
 - (6) Send us a written confirmation that you meet the terms and conditions of this exemption.

§1068.215 What are the provisions for exempting manufacturer-owned engines/equipment?

- (a) You are eligible for the exemption for manufacturer-owned engines/equipment only if you are a certificate holder.
- (b) Engines/equipment may be exempt without a request if they are nonconforming engines/equipment under your ownership, possession, and control and you operate them to develop products, assess production methods, or promote your engines/equipment in the marketplace. You may not loan, lease, sell, or use the engine/equipment to generate revenue, either by itself or for an engine installed in a piece of equipment. Note that this paragraph (b) does not prevent the sale or shipment of a partially complete engine to a secondary engine manufacturer that will meet the requirements of this paragraph (b). See §1068.262 for provisions related to shipping partially complete engines to secondary engine manufacturers.
- (c) To use this exemption, you must do three things:
 - (1) Establish, maintain, and keep adequately organized and indexed information on all exempted engines/equipment, including the engine/equipment identification number, the use of the engine/equipment on exempt status, and the final disposition of any engine/equipment removed from exempt status.
 - (2) Let us access these records, as described in §1068.20.
 - (3) Add a permanent label to all engines/equipment exempted under this section, consistent with §1068.45, with at least the following items:
 - (i) The label heading "EMISSION CONTROL INFORMATION".
 - (ii) Your corporate name and trademark.
 - (iii) Family identification and model year of the engine/equipment (as applicable), or whom to contact for further information.
 - (iv) One of these statements (as applicable):
 - (A) "THIS ENGINE IS EXEMPT UNDER 40 CFR 1068.210 OR 1068.215 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (B) "THIS EQUIPMENT IS EXEMPT UNDER 40 CFR 1068.210 OR 1068.215 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."

§1068.220 What are the provisions for exempting display engines/equipment?

- (a) Anyone may request an exemption for display engines/equipment.
- (b) Nonconforming display engines/equipment will be exempted if they are used only for displays in the interest of a business or the general public. This exemption does not apply to engines/equipment displayed for private use, private collections, or any other purpose we determine is inappropriate for a display exemption.
- (c) You may operate the exempted engine/equipment, but only if we approve specific operation that is part of the display.
- (d) You may sell or lease the exempted engine/equipment only with our advance approval; you may not use it to generate revenue.
- (e) To use this exemption, you must add a permanent label to all engines/equipment exempted under this section, consistent with §1068.45, with at least the following items:
 - (1) The label heading "EMISSION CONTROL INFORMATION".
 - (2) Your corporate name and trademark.
 - (3) Engine displacement, family identification, and model year of the engine/equipment (as applicable), or whom to contact for further information.
 - (4) One of these statements (as applicable):
 - (i) "THIS ENGINE IS EXEMPT UNDER 40 CFR 1068.220 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (ii) "THIS EQUIPMENT IS EXEMPT UNDER 40 CFR 1068.220 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
- (f) We may set other conditions for approval of this exemption.

§1068.225 What are the provisions for exempting engines/equipment for national security?

- (a) You are eligible for the exemption for national security only if you are a manufacturer.
- (b) Your engine/equipment is exempt without a request if it will be used or owned by an agency of the federal government responsible for national defense, where the equipment has armor, permanently attached weaponry, or other substantial features typical of military combat.
- (c) You may request a national security exemption for engines/equipment not meeting the conditions of paragraph (b) of this section as long as your request is endorsed by an agency of the federal government responsible for national defense. In your request, explain why you need the exemption.
- (d) Add a permanent label to all engines/equipment exempted under this section, consistent with §1068.45, with at least the following items:
 - (1) The label heading "EMISSION CONTROL INFORMATION".
 - (2) Your corporate name and trademark.
 - (3) Engine displacement, family identification, and model year of the engine/equipment (as applicable), or whom to contact for further information.
 - (4) One of these statements (as applicable):
 - (i) "THIS ENGINE HAS AN EXEMPTION FOR NATIONAL SECURITY UNDER 40 CFR 1068.225."
 - (ii) "THIS EQUIPMENT HAS AN EXEMPTION FOR NATIONAL SECURITY UNDER 40 CFR 1068.225."

§1068.230 What are the provisions for exempting engines/equipment for export?

The provisions of this section apply differently depending on the country to which the engines/equipment are being exported.

- (a) We will not exempt new engines/equipment if you export them to a country with emission standards identical to ours, in which case they must be covered by a certificate of conformity. Where we determine that such engines/equipment will not be placed into service in the United States, the following provisions apply for special export-only certification:
 - (1) The engines/equipment must be covered by a certificate of conformity or equivalent approval issued by the destination country.

(2) To get an export-only certificate of conformity, send the Designated Compliance Officer a request. We may require you to provide information such as documentation of the foreign certification and related test data.

(3) No fees apply for export-only certification.

(4) The engines/equipment must be labeled as specified in paragraph (d) of this section.

(5) This export-only certificate is not considered a valid certificate of conformity with respect to the prohibition in §1068.101(a)(1) for sale to ultimate purchasers in the United States. These engines/equipment also may not reenter the United States unless the regulations of this chapter otherwise allow it.

(b) Engines/equipment exported to a country not covered by paragraph (a) of this section are exempt from the prohibited acts in this part without a request. If you produce exempt engines/equipment for export and any of them are sold or offered for sale to an ultimate purchaser in the United States, we will void the exemption for those engines/equipment.

(c) Except as specified in paragraph (d) of this section, label exempted engines/equipment (including shipping containers if the label on the engine/equipment will be obscured by the container) with a label showing that they are not certified for sale or use in the United States. This label may be permanent or removable. See §1068.45 for provisions related to the use of removable labels and applying labels to containers without labeling individual engines/equipment. The label must include your corporate name and trademark and one of the following statements (as applicable):

(1) "THIS ENGINE IS SOLELY FOR EXPORT AND IS THEREFORE EXEMPT UNDER 40 CFR 1068.230 FROM U.S. EMISSION STANDARDS AND RELATED REQUIREMENTS."

(2) "THIS EQUIPMENT IS SOLELY FOR EXPORT AND IS THEREFORE EXEMPT UNDER 40 CFR 1068.230 FROM U.S. EMISSION STANDARDS AND RELATED REQUIREMENTS."

(d) You must apply a permanent label as specified in this paragraph (d) for engines/equipment certified under paragraph (a) of this section. You may apply a permanent label as specified in this paragraph (d) instead of the label specified in paragraph (c) of this section for exempted engines/equipment. Add a permanent label meeting the requirements of the destination country and include in the bill of lading a statement that the engines/equipment must be exported to avoid violating EPA regulations. We may modify applicable labeling requirements to align with the labeling requirements that apply for the destination country.

(e) We may set other reasonable conditions to ensure that engines/equipment exempted under this section are not placed into service in the United States.

(f) Exemptions under this section expire once engines are no longer in the United States. Therefore exemptions under this section do not allow engines to be imported back into the United States.

§1068.235 What are the provisions for exempting engines/equipment used solely for competition?

(a) New engines/equipment you produce that are used solely for competition are generally excluded from emission standards. See the standard-setting parts for specific provisions where applicable.

(b) If you modify any engines/equipment after they have been placed into service in the United States so they will be used solely for competition, they are exempt without request. This exemption applies only to the prohibition in §1068.101(b)(1) and is valid only as long as the engine/equipment is used solely for competition. You may not use the provisions of this paragraph (b) to circumvent the requirements that apply to the sale of new competition engines under the standard-setting part.

(c) If you modify any engines/equipment under paragraph (b) of this section, you must destroy the original emission labels. If you loan, lease, sell, or give any of these engines/equipment to someone else, you must tell the new owner (or operator, if applicable) in writing that they may be used only for competition.

§1068.240 What are the provisions for exempting new replacement engines?

The prohibitions in §1068.101(a)(1) do not apply to a new engine if it is exempt under this section as a replacement engine. For purposes of this section, a replacement engine is a new engine that is used to replace an engine that has already been placed into service (whether the previous engine is replaced in whole or in part with a new engine).

(a) General provisions. You are eligible for the exemption for new replacement engines only if you are a certificate holder. Note that this exemption does not apply for locomotives (40 CFR 1033.601) and that unique provisions apply to marine compression-ignition engines (40 CFR 1042.615). Paragraphs (b) and (c) describe two different approaches for exempting new replacement engines where the engines are specially built to correspond to an earlier model year that was subject to less stringent standards than those that apply for current production (or is no longer covered by a certificate of conformity).

Paragraphs (d) and (e) describe a simpler approach for exempting partially complete new replacement engines that are built under a certificate of conformity that is valid for producing engines for the current model year.

(b) Previous-tier replacement engines with tracking. You may produce any number of new replacement engines under this section if all the following conditions are true:

(1) You produce a new engine to replace an engine already placed into service in a piece of equipment.

(2) The engine being replaced was not originally subject to emission standards or was originally subject to less stringent emission standards than those that would otherwise apply to the new engine. The provisions of this paragraph (b) also apply for engines that were originally certified to the same standards that apply for the current model year if you no longer have a certificate of conformity to continue producing that engine configuration.

(3) You determine that you do not produce an engine certified to meet current requirements that has the appropriate physical or performance characteristics to repower the equipment. If the engine being replaced was made by a different company, you must make this determination also for engines produced by this other company. You must keep records to document your basis for making this determination.

(4) You or your agent takes possession of the old engine or confirms that the old engine has been destroyed.

(5) If the old engine was subject to emission standards, you must make the new replacement engine in a configuration identical in all material respects to the old engine and meet the requirements of §1068.265. You may alternatively make the new replacement engine in a configuration identical in all material respects to another certified engine of the same or later model year as long as the engine is not certified with a family emission limit higher than that of the old engine.

(6) You add a permanent label, consistent with §1068.45, with your corporate name and trademark and the following additional information:

(i) Add the following statement if the engine being replaced was not subject to any emission standards under this chapter:

THIS ENGINE DOES NOT COMPLY WITH U.S. EPA NONROAD EMISSION REQUIREMENTS. SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN TO REPLACE A NONROAD ENGINE BUILT BEFORE JANUARY 1, [Insert appropriate year reflecting when the earliest tier of standards began to apply to engines of that size and type] MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(ii) Add the following statement if the engine being replaced was subject to emission standards:

THIS ENGINE COMPLIES WITH U.S. EPA NONROAD EMISSION REQUIREMENTS FOR [Identify the appropriate emission standards (by model year, tier, or emission levels) for the replaced engine] ENGINES UNDER 40 CFR 1068.240. SELLING OR INSTALLING THIS ENGINE FOR ANY PURPOSE OTHER THAN TO REPLACE A [Identify the appropriate emission standards for the replaced engine, by model year(s), tier(s), or emission levels] ENGINE MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(c) Previous-tier replacement engines without tracking. You may produce a limited number of new replacement engines that are not from a currently certified engine family under the provisions of this paragraph (c). This would apply, for example, for engine configurations that were certified in an earlier model year but are no longer covered by a certificate of conformity. You must comply with the requirements of paragraph (b) of this section for any number of replacement engines you produce in

excess of what we allow under this paragraph (c). The following provisions apply to engines exempted under this paragraph (c):

(1) You may produce a limited number of replacement engines under this paragraph (c) representing 0.5 percent of your annual production volumes for each category and subcategory of engines identified in Table 1 to this section (1.0 percent through 2013). Calculate this number by multiplying your annual U.S.-directed production volume by 0.005 (or 0.01 through 2013) and rounding to the nearest whole number. Determine the appropriate production volume by identifying the highest total annual U.S.-directed production volume of engines from the previous three model years for all your certified engines from each category or subcategory identified in Table 1 to this section, as applicable. In unusual circumstances, you may ask us to base your production limits on U.S.-directed production volume for a model year more than three years prior. Include only those stationary engines from your U.S.-directed production volume that are certified under one of the standard-setting parts identified in Table 1 to this section. Do not include any exempted engines you produce as part of your U.S.-directed production volume, even if those engines must meet emission standards as a condition of the exemption. Include U.S.-directed engines produced by any parent or subsidiary companies and those from any other companies you license to produce engines for you.

(2) Count every exempted new replacement engine from your total U.S.-directed production volume that you produce in a given calendar year under this paragraph (c), including partially complete engines, except for the following:

(i) Engines built to specifications for an earlier model year under paragraph (b) of this section.

(ii) Partially complete engines exempted under paragraph (d) or (e) of this section.

(3) Send the Designated Compliance Officer a report by February 15 of the year following any year in which you produced exempted replacement engines under this paragraph (c). In your report include the total number of replacement engines you produce under this paragraph (c) for each category or subcategory, as appropriate, and the corresponding total production volumes determined under paragraph (c)(1) of this section. If you send us a report under this paragraph (c)(3), you must also include the total number of replacement engines you produced under paragraphs (b), (d), and (e) of this section. You may include this information in production reports required under the standard-setting part.

(4) Add a permanent label as specified in paragraph (b)(6) of this section. For partially complete engines, you may alternatively add a permanent or removable label as specified in paragraph (d) of this section, except that the appropriate regulatory cite is 40 CFR 1068.240(c).

(5) You may not use the provisions of this paragraph (c) for any engines in the following engine categories or subcategories:

(i) Land-based nonroad compression-ignition engines we regulate under 40 CFR part 1039 with a per-cylinder displacement at or above 7.0 liters.

(ii) Marine compression-ignition engines we regulate under 40 CFR part 1042 with a per-cylinder displacement at or above 7.0 liters.

(iii) Locomotive engines we regulate under 40 CFR part 1033.

(d) Current-tier replacement engines for engine-based standards. You may introduce into U.S. commerce short blocks or other partially complete engines from a currently certified engine family as replacement components for in-use equipment powered by engines you originally produced. You must be able to identify all the engine models and model years for which the partially complete engine may properly be used for replacement purposes. You must label the engine as follows:

(1) If you have a reasonable basis to believe that the fully assembled engine will include the original emission control information label, you may add a removable label to the engine with your corporate name and trademark and the statement: "This replacement engine is exempt under 40 CFR 1068.240(d)." This would generally apply if all the engine models that are compatible with the replacement engine were covered by a certificate of conformity and they were labeled in a position on the engine or equipment that is not included as part of the partially complete engine being shipped for replacement purposes. Removable labels must meet the requirements specified in §1068.45.

(2) If you do not qualify for using a removable label in paragraph (d)(1) of this section, you must add a permanent label in a readily visible location, though it may be obscured after installation in a piece

of equipment. Include on the permanent label your corporate name and trademark, the engine's part number (or other identifying information), and the statement: "This replacement engine is exempt under 40 CFR 1068.240(d)." If there is not enough space for this statement, you may alternatively add: "REPLACEMENT" or "SERVICE ENGINE". For purposes of this paragraph (d)(2), engine part numbers permanently stamped or engraved on the engine are considered to be included on the label.

(e) Current-tier replacement engines for equipment-based standards. In the case of equipment subject to equipment-based standards, you may introduce into U.S. commerce engines that are identical to engines covered by a current certificate of conformity demonstrating compliance with currently applicable standards where the engines will be installed as replacement engines. These engines might be fully assembled, but we would consider them to be partially complete engines because they are not yet installed in the equipment. You must be able to identify all the engine and equipment models and model years for which such an engine may properly be used for replacement purposes. Add a permanent or removable label to these engines as described in paragraph (d) of this section, except that the appropriate regulatory cite is 40 CFR 1068.240(e).

(f) Emission credits. Replacement engines exempted under this section may not generate or use emission credits under the standard-setting part nor be part of any associated credit calculations.

(g) Circumvention. The provisions of this section may not be used to circumvent emission standards that apply to new engines under the standard-setting part.

(1) The provisions of this section are intended to allow for replacement of engines that fail prematurely if none of the following is true:

(i) The engine can reasonably be repaired or rebuilt.

(ii) A different used engine (including rebuilt engines) can be used, consistent with applicable regulations. Note that the regulations limit the use of used engines from certain categories, such as converting land-based engines for use in marine vessels.

(iii) A new certified engine is available with the appropriate physical and performance characteristics.

(2) Anyone installing an exempted new replacement engine is deemed to be a manufacturer of a new engine with respect to the prohibitions of §1068.101(a)(1). This applies to all engines exempted under this section.

(3) The stockpiling restrictions specified in §1068.103(f) do not apply for engines that will be introduced into U.S. commerce only as allowed by this section. The model year restrictions specified in §1068.103(f) do not apply for engines produced under paragraphs (d) and (e) of this section if you can demonstrate that the engines will be used only as replacement engines.

Table 1 to §1068.240— Engine categories and subcategories for streamlined compliance provisions for new replacement engines

Engine category	Standard-setting part ¹	Engine subcategories
Highway CI	40 CFR part 86	disp. < 0.6 L/cyl
		$0.6 \leq \text{disp.} < 1.2 \text{ L/cyl}$
		disp. $\geq 1.2 \text{ L/cyl}$
Nonroad CI, Stationary CI, and Marine CI	40 CFR part 1039, or 40 CFR part 1042	disp. < 0.6 L/cyl
		$0.6 \leq \text{disp.} < 1.2 \text{ L/cyl}$
		$1.2 \leq \text{disp.} < 2.5 \text{ L/cyl}$
		$2.5 \leq \text{disp.} < 7.0 \text{ L/cyl}$
Marine SI	40 CFR part 1045	outboard
		personal watercraft
Large SI, Stationary SI, and Marine SI (sterndrive/ inboard only)	40 CFR part 1048 or 40 CFR part 1045	all engines
Recreational vehicles	40 CFR part 1051	off-highway motorcycle
		all-terrain vehicle
		snowmobile
Small SI and Stationary SI	40 CFR part 1054	handheld
		Class I
		Class II

¹ Include an engine as being subject to the identified standard-setting part if it will eventually be subject to emission standards under that part. For example, if you certify marine compression-ignition engines under part 94, count those as if they were already subject to part 1042.

§1068.245 What temporary provisions address hardship due to unusual circumstances?

(a) After considering the circumstances, we may permit you to introduce into U.S. commerce engines/equipment that do not comply with emission-related requirements for a limited time if all the following conditions apply:

- (1) Unusual circumstances that are clearly outside your control prevent you from meeting requirements from this chapter.
- (2) You exercised prudent planning and were not able to avoid the violation; you have taken all reasonable steps to minimize the extent of the nonconformity.
- (3) No other allowances are available under the regulations in this chapter to avoid the impending violation, including the provisions of §1068.250.
- (4) Not having the exemption will jeopardize the solvency of your company

(b) If your unusual circumstances are only related to compliance with the model-year provisions of §1068.103(f), we may grant hardship under this section without a demonstration that the solvency of your company is in jeopardy as follows:

- (1) You must demonstrate that the conditions specified in paragraphs (a)(1) through (3) of this section apply.

- (2) Your engines/equipment must comply with standards and other requirements that would have applied if assembly were completed on schedule.
- (3) You may generally request this exemption only for engines/equipment for which assembly has been substantially completed; you may not begin assembly of any additional engines/equipment under this exemption after the cause for delay has occurred. We may make an exception to this general restriction for secondary engine manufacturers.
- (4) As an example, if your normal production process involves purchase of partially complete engines and a supplier fails to deliver all the ordered engines in time for your assembly according to your previously established schedule as a result of a fire at its factory, you may request that we treat those engine as if they had been completed on the original schedule. Note that we would grant relief only for those engines where you had a reasonable basis for expecting the engines to be delivered on time based on past performance and terms of purchase.
- (c) To apply for an exemption, you must send the Designated Compliance Officer a written request as soon as possible before you are in violation. In your request, show that you meet all the conditions and requirements in paragraph (a) of this section.
- (d) Include in your request a plan showing how you will meet all the applicable requirements as quickly as possible.
- (e) You must give us other relevant information if we ask for it.
- (f) We may include reasonable additional conditions on an approval granted under this section, including provisions to recover or otherwise address the lost environmental benefit or paying fees to offset any economic gain resulting from the exemption. For example, in the case of multiple tiers of emission standards, we may require that you meet the standards from the previous tier whether or not your hardship is granted under paragraph (b) of this section.
- (g) Add a permanent label to all engines/equipment exempted under this section, consistent with §1068.45, with at least the following items:
- (1) The label heading "EMISSION CONTROL INFORMATION".
 - (2) Your corporate name and trademark.
 - (3) Engine displacement (in liters or cubic centimeters), and model year of the engine/equipment, (as applicable); or whom to contact for further information. We may also require that you include maximum engine power.
 - (4) A statement describing the engine's status as an exempted engine:
 - (i) If the engine/equipment does not meet any emission standards, add one of the following statements:
 - (A) "THIS ENGINE IS EXEMPT UNDER 40 CFR 1068.245 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (B) "THIS EQUIPMENT IS EXEMPT UNDER 40 CFR 1068.245 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (ii) If the engines/equipment meet alternate emission standards as a condition of an exemption under this section, we may specify a different statement to identify the alternate emission standards.

§1068.250 What are the provisions for extending compliance deadlines for small businesses under hardship?

- (a) After considering the circumstances, we may extend the compliance deadline for you to meet new or revised emission standards as long as you meet all the conditions and requirements in this section.
- (b) You must be a small business to be eligible for this exemption.
- (c) Send the Designated Compliance Officer a written request for an extension. In your request, show that all the following conditions and requirements apply:
- (1) You have taken all possible business, technical, and economic steps to comply.
 - (i) In the case of importers of engines/equipment produced by other companies, show that you attempted to find a manufacturer capable of supplying complying products as soon as you became aware of the applicable requirements but were unable to do so.

- (ii) For all other manufacturers, show that the burden of compliance costs prevents you from meeting the requirements of this chapter.
- (2) Not having the exemption will jeopardize the solvency of your company.
- (3) No other allowances are available under the regulations in this chapter to avoid the impending violation.
- (d) In describing the steps you have taken to comply under paragraph (c)(1) of this section, include at least the following information:
 - (1) Describe your business plan, showing the range of projects active or under consideration.
 - (2) Describe your current and projected financial status, with and without the burden of complying fully with the applicable regulations in this chapter.
 - (3) Describe your efforts to raise capital to comply with regulations in this chapter (this may not apply for importers).
 - (4) Identify the engineering and technical steps you have taken or those you plan to take to comply with regulations in this chapter.
 - (5) Identify the level of compliance you can achieve. For example, you may be able to produce engines/equipment that meet a somewhat less stringent emission standard than the regulations in this chapter require.
- (e) Include in your request a plan showing how you will meet all the applicable requirements as quickly as possible.
- (f) You must give us other relevant information if we ask for it.
- (g) An authorized representative of your company must sign the request and include the statement: "All the information in this request is true and accurate to the best of my knowledge."
- (h) Send your request for this extension at least nine months before the relevant deadline. If different deadlines apply to companies that are not small-volume manufacturers, do not send your request before the regulations in question apply to the other manufacturers. Otherwise, do not send your request more than three years before the relevant deadline.
- (i) We may include reasonable requirements on an approval granted under this section, including provisions to recover or otherwise address the lost environmental benefit. For example, we may require that you meet a less stringent emission standard or buy and use available emission credits.
- (j) We may approve extensions of the compliance deadlines as reasonable under the circumstances up to one model year at a time, and up to three years total.
- (k) Add a permanent label to all engines/equipment exempted under this section, consistent with §1068.45, with at least the following items:
 - (1) The label heading "EMISSION CONTROL INFORMATION".
 - (2) Your corporate name and trademark.
 - (3) Engine displacement (in liters or cubic centimeters), and model year of the engine/equipment (as applicable); or whom to contact for further information. We may also require that you include maximum engine power.
 - (4) A statement describing the engine's status as an exempted engine:
 - (i) If the engine/equipment does not meet any emission standards, add one of the following statements:
 - (A) "THIS ENGINE IS EXEMPT UNDER 40 CFR 1068.250 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (B) "THIS EQUIPMENT IS EXEMPT UNDER 40 CFR 1068.250 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS."
 - (ii) If the engine/equipment meets alternate emission standards as a condition of an exemption under this section, we may specify a different statement to identify the alternate emission standards.

§1068.255 What are the provisions for exempting engines and fuel-system components for hardship for equipment manufacturers and secondary engine manufacturers?

This section describes how, in unusual circumstances, we may approve an exemption to prevent hardship to an equipment manufacturer or a secondary engine manufacturer. This section does not apply to products that are subject to equipment-based exhaust emission standards.

(a) Equipment exemption. As an equipment manufacturer, you may ask for approval to produce exempted equipment for up to 12 months. We will generally limit this to the first year that new or revised emission standards apply. Send the Designated Compliance Officer a written request for an exemption before you are in violation. In your request, you must show you are not at fault for the impending violation and that you would face serious economic hardship if we do not grant the exemption. This exemption is not available under this paragraph (a) if you manufacture the engine or fuel-system components you need for your own equipment, or if complying engines or fuel-system components are available from other manufacturers that could be used in your equipment, unless we allow it elsewhere in this chapter. We may impose other conditions, including provisions to use products meeting less stringent emission standards or to recover the lost environmental benefit. In determining whether to grant the exemptions, we will consider all relevant factors, including the following:

- (1) The number of engines or fuel-system components involved.
- (2) The size of your company and your ability to endure the hardship.
- (3) The amount of time you had to redesign your equipment to accommodate complying products.
- (4) Whether there was any breach of contract by a supplier.
- (5) The potential for market disruption.

(b) Engine and fuel-system component exemption. As an engine manufacturer or fuel-system component manufacturer, you may produce nonconforming products for the equipment we exempt in paragraph (a) of this section. You do not have to request this exemption but you must have written assurance from equipment manufacturers that they need a certain number of exempted products under this section. Label engines or fuel-system components as follows, consistent with §1068.45:

(1) Engines. Add a permanent label to all engines/equipment exempted under this section with at least the following items:

- (i) The label heading "EMISSION CONTROL INFORMATION".
- (ii) Your corporate name and trademark.
- (iii) Engine displacement (in liters or cubic centimeters) and model year of the engine, or whom to contact for further information. We may also require that you include maximum engine power.
- (iv) If the engine does not meet any emission standards: "THIS ENGINE IS EXEMPT UNDER 40 CFR 1068.255 FROM EMISSION STANDARDS AND RELATED REQUIREMENTS." If the engine meets alternate emission standards as a condition of an exemption under this section, we may specify a different statement to identify the alternate emission standards.

(2) Fuel-system components. Add a permanent label to all engines/equipment exempted under this section with at least the following items:

- (i) Your corporate name and trademark.
- (ii) The statement "EXEMPT UNDER 40 CFR 1068.255".

(c) Secondary engine manufacturers. As a secondary engine manufacturer, you may ask for approval to produce exempted engines under this section for up to 12 months. We may require you to certify your engines to compliance levels above the emission standards that apply. For example, in the case of multiple tiers of emission standards, we may require you to meet the standards from the previous tier.

(1) The provisions in paragraph (a) of this section that apply to equipment manufacturers requesting an exemption apply equally to you except that you may manufacture the engines. Before we approve an exemption under this section, we will generally require that you commit to a plan to make up the lost environmental benefit.

- (i) If you produce uncertified engines under this exemption, we will calculate the lost environmental benefit based on our best estimate of uncontrolled emission rates for your engines.
- (ii) If you produce engines under this exemption that are certified to a compliance level less stringent than the emission standards that would otherwise apply, we will calculate the lost environmental benefit based on the compliance level you select for your engines.

(2) The labeling requirements in paragraph (b) of this section apply to your exempted engines; however, if you certify engines to specific compliance levels, state on the label the compliance levels that apply to each engine.

§1068.260 What general provisions apply for selling or shipping engines that are not yet in their certified configuration?

Except as specified in paragraph (e) of this section, all new engines in the United States are presumed to be subject to the prohibitions of §1068.101, which generally require that all new engines be in a certified configuration before being introduced into U.S. commerce. All emission-related components generally need to be installed on an engine for such an engine to be in its certified configuration. This section specifies clarifications and exemptions related to these requirements for engines. Except for paragraph (c) of this section, the provisions of this section generally apply for engine-based standards but not for equipment-based standards.

(a) You may ship engines with emission-related components that are not yet assembled to the engine in circumstances where the final assembly depends on equipment design parameters and shipment of the fully assembled engine is impractical. For example, you may generally ship aftertreatment devices along with engines rather than installing them on the engine before shipment. You do not need an exemption to ship an engine under this paragraph (a) but we may require you to describe how you plan to use this provision in your application for certification.

(b) You do not need an exemption to ship engines without specific components if they are not emission-related components identified in Appendix I of this part. For example, you may generally ship engines without radiators needed to cool the engine. You may ask us at the time of certification to allow you to ship your engines without other equipment-related components (such as a vehicle speed sensor) that are described in your application for certification. If we allow it, we may specify conditions that we determine are needed to ensure that shipping the engine without such components will not result in the engine being operated outside of its certified configuration.

(c) If you are a certificate holder, you may ask us to provide a temporary exemption to allow you to ship or transport partially complete engines between two of your facilities as long as you maintain ownership and control of the engines until they reach their destination. We may also allow this where you do not maintain actual ownership and control of the engines (such as hiring a shipping company to transport the engines) but only if you demonstrate that the engines will be transported only according to your specifications. See §1068.261(b) for the provisions that apply instead of this paragraph (c) for the special case of integrated manufacturers using the delegated-assembly exemption. Send your request for this exemption to the Designated Compliance Officer in your application for certification, if applicable; in this case, your exemption is approved when we grant your certificate. You may send your request in a separate submission if you will not be the certificate holder for the engines in question. We may require you to take specific steps to ensure that such engines are in a certified configuration before reaching the ultimate purchaser. Note that since this is a temporary exemption, it does not allow you to sell or otherwise distribute to ultimate purchasers an engine in an uncertified configuration. Note also that the exempted engine remains new and subject to emission standards (see definition of “exempted” in §1068.30) until its title is transferred to the ultimate purchaser or it otherwise ceases to be new.

(d) See §1068.261 for delegated-assembly provisions in which certificate-holding manufacturers introduce into U.S. commerce engines that are not yet equipped with certain emission-related components. See §1068.262 for provisions related to manufacturers introducing into U.S. commerce partially complete engines for which a secondary engine manufacturer holds the certificate of conformity.

(e) Engines used in hobby vehicles are not presumed to be engines subject to the prohibitions of §1068.101. Hobby vehicles are reduced-scale models of vehicles that are not capable of transporting a person. Other engines that do not have a valid certificate of conformity or exemption when introduced into U.S. commerce are presumed to be engines subject to the prohibitions of §1068.101 unless we determine that such engines are excluded from the prohibitions of §1068.101.

(f) While we presume that new nonhobby engines are subject to the prohibitions of §1068.101, we may determine that a specific engine is not subject to these prohibitions based on information you provide or other information that is available to us. For example, the provisions of this part 1068 and the standard-

setting parts provide for exemptions in certain circumstances. Also, some engines are subject to separate prohibitions under subchapter C instead of the prohibitions of §1068.101 (see for example, 40 CFR 89.1003).

§1068.261 What provisions apply for selling or shipping certified engines that are not yet in the certified configuration?

This section describes an exemption that allows certificate holders to sell or ship engines that are missing certain emission-related components if those components will be installed by an equipment manufacturer. This section does not apply to equipment subject to equipment-based standards. See the standard-setting part to determine whether and how the provisions of this section apply. (Note: See §1068.262 for provisions related to manufacturers introducing into U.S. commerce partially complete engines for which someone else holds the certificate of conformity.) This exemption is temporary as described in paragraph (f) of this section.

(a) Shipping an engine separately from an aftertreatment component that you have specified as part of its certified configuration will not be a violation of the prohibitions in §1068.101(a)(1) subject to the provisions in this section.

(b) If you manufacture engines and install them in equipment you also produce, you must take steps to ensure that your facilities, procedures, and production records are set up to ensure that equipment and engines are assembled in their proper certified configurations. For example, you may demonstrate compliance with the requirements of this section by maintaining a database showing how you pair aftertreatment components with the appropriate engines such that the final product is in its certified configuration.

(c) If you include the price of all aftertreatment components in the price of the engine and ship the aftertreatment components directly to the equipment manufacturer, or arrange for separate shipment by the component manufacturer to the equipment manufacturer, all the following conditions apply:

(1) Apply for and receive a certificate of conformity for the engine and its emission control system before shipment as described in the standard-setting part. For an existing certificate of conformity, amend the application for certification by describing your plans to use the provisions of this section as described in paragraph (c)(8) of this section.

(2) Provide installation instructions in enough detail to ensure that the engine will be in its certified configuration if someone follows these instructions. Provide the installation instructions in a timely manner, generally directly after you receive an order for shipping engines or earlier. If you apply removable labels as described in paragraph (c)(7)(i) of this section, include an instruction for the equipment manufacturer to remove the label after installing the appropriate aftertreatment component.

(3) Have a contractual agreement with the equipment manufacturer obligating the equipment manufacturer to complete the final assembly of the engine so it is in its certified configuration when final assembly is complete. This agreement must also obligate the equipment manufacturer to provide the affidavits required under paragraph (c)(4) of this section.

(4) Take appropriate additional steps to ensure that all engines will be in a certified configuration when installed by the equipment manufacturer. At a minimum, you must obtain annual affidavits from every equipment manufacturer to which you sell engines under this section. Include engines that you sell to distributors or dealers. The affidavits must list the part numbers of the aftertreatment devices that equipment manufacturers install on each engine they purchase from you under this section and include confirmation that the number of aftertreatment devices received were sufficient for the number of engines involved.

(5) Describe in your application for certification how you plan to use the provisions of this section and any steps you plan to take under paragraph (c)(4) of this section.

(6) Keep records to document how many engines you produce under this exemption. Also, keep records to document your contractual agreements under paragraph (c)(3) of this section. Keep all these records for five years after the end of the applicable model year and make them available to us upon request.

(7) Make sure the engine has the emission control information label we require under the standard-setting part. Include additional labeling using one of the following approaches:

- (i) Apply an additional removable label in a way that makes it unlikely that the engine will be installed in equipment other than in its certified configuration. The label must identify the engine as incomplete and include a clear statement that failing to install the aftertreatment device, or otherwise failing to bring the engine into its certified configuration, is a violation of federal law subject to civil penalty.
 - (ii) Add the statement “DELEGATED ASSEMBLY” to the permanent emission control information label. You may alternatively add the abbreviated statement “DEL ASSY” if there is not enough room on the label.
- (8) Describe the following things in your application for certification:
- (i) How you plan to use the provisions of this section.
 - (ii) A detailed plan for auditing equipment manufacturers, as described in paragraph (d)(3) of this section, if applicable.
 - (iii) All other steps you plan to take under paragraph (c)(4) of this section.
- (9) If one of your engines produced under this section is selected for production-line testing or a selective enforcement audit, you must arrange to get a randomly selected aftertreatment component from either the equipment manufacturer or the equipment manufacturer’s supplier. You may keep an inventory of these randomly selected parts, consistent with good engineering judgment and the intent of this section. You may obtain such aftertreatment components from any point in the normal distribution from the aftertreatment component manufacturer to the equipment manufacturer. Keep records describing how you randomly selected these aftertreatment components, consistent with the requirements specified in the standard-setting part.
- (10) Note that for purposes of importation, you may itemize your invoice to identify separate costs for engines and aftertreatment components that will be shipped separately. A copy of your invoice from the aftertreatment manufacturer may be needed to avoid payment of importation duties for the engine that also include the value of aftertreatment components.
- (d) If you do not include the price of all aftertreatment components in the price of the engine, you must meet all the conditions described in paragraphs (c)(1) through (9) of this section, with the following additional provisions:
- (1) The contractual agreement described in paragraph (c)(3) of this section must include a commitment that the equipment manufacturer will do the following things:
 - (i) Purchase the aftertreatment components you have specified in your application for certification and keep records to document these purchases.
 - (ii) Cooperate with the audits described in paragraph (d)(3) of this section.
 - (2) You must have written confirmation that the equipment manufacturer has ordered the appropriate type of aftertreatment components for an initial shipment of engines under this section. For the purpose of this paragraph (d)(2), initial shipment means the first shipment of engines that are subject to new or more stringent emissions standard (or the first shipment of engines using the provisions of this section) to a given equipment manufacturer for a given engine family. For the purpose of this paragraph (d)(2), you may treat as a single engine family those engine families from different model years that differ only with respect to model year or other characteristics unrelated to emissions. You must receive the written confirmation within 30 days after shipment. If you do not receive written confirmation within 30 days, you may not ship any more engines from that engine family to that equipment manufacturer until you have the written confirmation. Note that it may be appropriate to obtain subsequent written confirmations to ensure compliance with this section, as described in paragraph (c)(4) of this section.
 - (3) You must perform or arrange for audits of equipment manufacturers as follows:
 - (i) If you sell engines to 16 or more equipment manufacturers under the provisions of this section, you must annually perform or arrange for audits of four equipment manufacturers to whom you sell engines under this section. To select individual equipment manufacturers, divide all the affected equipment manufacturers into quartiles based on the number of engines they buy from you; select a single equipment manufacturer from each quartile each model year. Vary the equipment manufacturers selected for auditing from year to year, though you may repeat an audit

in a later model year if you find or suspect that a particular equipment manufacturer is not properly installing aftertreatment devices.

(ii) If you sell engines to fewer than 16 equipment manufacturers under the provisions of this section, set up a plan to perform or arrange for audits of each equipment manufacturer on average once every four model years.

(iii) Starting with the 2019 model year, if you sell engines to fewer than 40 equipment manufacturers under the provisions of this section, you may ask us to approve a reduced auditing rate. We may approve an alternate plan that involves audits of each equipment manufacturer on average once every ten model years as long as you show that you have met the auditing requirements in preceding years without finding noncompliance or improper procedures.

(iv) To meet these audit requirements, you or your agent must at a minimum inspect the assembling companies' procedures and production records to monitor their compliance with your instructions, investigate some assembled engines, and confirm that the number of aftertreatment devices shipped were sufficient for the number of engines produced.

(v) You must keep records of these audits for five years after the end of the applicable model year.

(e) The following provisions apply if you ship engines without air filters or other portions of the air intake system that are specifically identified by part number (or other specific part reference) in the application for certification such that the shipped engine is not in its certified configuration. You do not need an exemption under this section to ship engines without air intake system components if you instead describe in your installation instructions how equipment manufacturers should use components meeting certain functional specifications.

(1) If you are using the provisions of this section to ship an engine without aftertreatment, apply all the provisions of this section to ensure that each engine, including its intake system, is in its certified configuration before it reaches the ultimate purchaser.

(2) If you are not using the provisions of this section to ship an engine without aftertreatment, shipping an engine without air-intake components that you have specified as part of its certified configuration will not be a violation of the prohibitions in §1068.101(a) if you follow the provisions specified in paragraph (b) or paragraphs (c)(1) through (9) of this section. If we find there is a problem, we may require you to perform audits as specified in paragraph (d)(3) of this section.

(f) Once the equipment manufacturer takes possession of an engine exempted under this section and the engine reaches the point of final equipment assembly, the exemption expires and the engine is subject to all the prohibitions in §1068.101. Note that the engine's model year does not change based on the date the equipment manufacturer adds the aftertreatment device and/or air filter under this section.

(g) You may use the provisions of this section for engines you sell to a distributor as described in this paragraph (g) using one of the following approaches:

(1) You may sell engines through a distributor if you comply with the provisions of paragraph (d) of this section with respect to the equipment manufacturer.

(2) You may treat the distributor as the equipment manufacturer as described in this paragraph (g)(2) for all applicable requirements and prohibitions. Such distributors must bring engines into their final certified configuration. This may include shipping the engine with the appropriate aftertreatment device and/or air filter, but without completing the assembly with all the components. The exemptions expire for such engines when the distributor no longer has control of them.

(h) You must notify us within 15 days if you find from an audit or another source that engines produced under this section are not in a certified configuration at the point of final assembly or that an equipment manufacturer has otherwise failed to meet its obligations under this section. If this occurs, send us a report describing the circumstances related to the noncompliance within 75 days after you notify us.

(i) We may suspend, revoke, or void an exemption under this section, as follows:

(1) We may suspend or revoke your exemption for a specific equipment manufacturer if any of the engines are not in a certified configuration after installation in that manufacturer's equipment, or if we determine that the equipment manufacturer has otherwise failed to comply with the requirements of this section. We may also suspend or revoke your exemption for other engine families with respect to the equipment manufacturer unless you demonstrate that the noncompliance is limited to a specific

engine family. You may not use this exemption for future shipments to the affected equipment manufacturer without taking action beyond the minimum steps specified in this section, such as performing on-site audits. We will approve further use of this exemption only if you convince us that you have adequately addressed the factors causing the noncompliance.

(2) We may suspend or revoke your exemption for the entire engine family if we determine that you have failed to comply with the requirements of this section. If we make an adverse decision with respect to the exemption for any of your engine families under this paragraph (i), this exemption will not apply for future certificates unless you convince us that the factors causing the noncompliance do not apply to the other engine families. We may also set additional conditions beyond the provisions specified in this section.

(3) We may void your exemption for the entire engine family if you intentionally submit false or incomplete information or fail to keep and provide to EPA the records required by this section. Note that all records and reports required under this section (whether generated by the engine manufacturer, equipment manufacturer, or others) are subject to the prohibition in §1068.101(a)(2), which prohibits the submission of false or incomplete information. For example, the affidavits required by this section are considered a submission.

(j) You are liable for the in-use compliance of any engine that is exempt under this section.

(k) It is a violation of §1068.101(a)(1) for any person to introduce into U.S. commerce a previously exempted engine, including as part of a piece of equipment, without complying fully with the installation instructions.

§1068.262 What are the provisions for temporarily exempting engines for shipment to secondary engine manufacturers?

This section specifies when manufacturers may introduce into U.S. commerce partially complete engines that have an exemption or a certificate of conformity held by a secondary engine manufacturer and are not yet in a certified configuration. See the standard-setting part to determine whether and how the provisions of this section apply. (Note: See §1068.261 for provisions related to manufacturers introducing into U.S. commerce partially complete engines for which they hold the certificate of conformity.) This exemption is temporary as described in paragraph (g) of this section.

(a) The provisions of this section generally apply where the secondary engine manufacturer has substantial control over the design and assembly of emission controls. In determining whether a manufacturer has substantial control over the design and assembly of emission controls, we would consider the degree to which the secondary engine manufacturer would be able to ensure that the engine will conform to the regulations in its final configuration. Such secondary engine manufacturers may finish assembly of partially complete engines in the following cases:

(1) You obtain an engine that is not fully assembled with the intent to manufacture a complete engine.

(2) You obtain an engine with the intent to modify it before it reaches the ultimate purchaser.

(3) You obtain an engine with the intent to install it in equipment that will be subject to equipment-based standards.

(b) Manufacturers may introduce into U.S. commerce partially complete engines as described in this section if they have a written request for such engines from a secondary engine manufacturer that has certified the engine and will finish the engine assembly. The written request must include a statement that the secondary engine manufacturer has a certificate of conformity for the engine and identify a valid engine family name associated with each engine model ordered (or the basis for an exemption if applicable, as specified in paragraph (e) of this section). The original engine manufacturer must apply a removable label meeting the requirements of §1068.45 that identifies the corporate name of the original manufacturer and states that the engine is exempt under the provisions of §1068.262. The name of the certifying manufacturer must also be on the label or, alternatively, on the bill of lading that accompanies the engines during shipment. The original engine manufacturer may not apply a permanent emission control information label identifying the engine's eventual status as a certified engine.

(c) The manufacturer that will hold the certificate must include the following information in its application for certification:

- (1) Identify the original engine manufacturer of the partially complete engine or of the complete engine you will modify.
 - (2) Describe briefly how and where final assembly will be completed. Specify how you have the ability to ensure that the engines will conform to the regulations in their final configuration. (Note: Paragraph (a) of this section prohibits using the provisions of this section unless you have substantial control over the design and assembly of emission controls.)
 - (3) State unconditionally that you will not distribute the engines without conforming to all applicable regulations.
- (d) If you are a certificate holder, you may receive shipment of partially complete engines after you apply for a certificate of conformity but before the certificate's effective date. In this case, all the provisions of §1068.103(c)(1) through (3) apply. This exemption allows the original manufacturer to ship engines after you have applied for a certificate of conformity. Manufacturers may introduce into U.S. commerce partially complete engines as described in this paragraph (d) if they have a written request for such engines from a secondary engine manufacturer stating that the application for certification has been submitted (instead of the information we specify in paragraph (b) of this section). We may set additional conditions under this paragraph (d) to prevent circumvention of regulatory requirements. Consistent with §1068.103(c), we may also revoke an exemption under this paragraph (d) if we have reason to believe that the application for certification will not be approved or that the engines will otherwise not reach a certified configuration before reaching the ultimate purchaser. This may require that you export the engines.
- (e) The provisions of this section also apply for shipping partially complete engines if the engine is covered by a valid exemption and there is no valid engine family name that could be used to represent the engine model. Unless we approve otherwise in advance, you may do this only when shipping engines to secondary engine manufacturers that are certificate holders. In this case, the secondary engine manufacturer must identify the regulatory cite identifying the applicable exemption instead of a valid engine family name when ordering engines from the original engine manufacturer.
- (f) If secondary engine manufacturers determine after receiving an engine under this section that the engine will not be covered by a certificate or exemption as planned, they may ask us to allow for shipment of the engines back to the original engine manufacturer or to another secondary engine manufacturer. This might occur in the case of an incorrect shipment or excess inventory. We may modify the provisions of this section as appropriate to address these cases.
- (g) Both original and secondary engine manufacturers must keep the records described in this section for at least five years, including the written request for engines and the bill of lading for each shipment (if applicable). The written request is deemed to be a submission to EPA and is thus subject to the reporting requirements of 40 CFR 1068.101(a)(2).
- (h) These provisions are intended only to allow you to obtain or transport engines in the specific circumstances identified in this section so any exemption under this section expires when the engine reaches the point of final assembly identified in accordance paragraph (c)(2) of this section.
- (i) For purposes of this section, an allowance to introduce engines into U.S. commerce includes a conditional allowance to sell, introduce, or deliver such partially complete engines into commerce in the United States or import them into the United States. It does not include a general allowance to offer such partially complete engines for sale because this exemption is intended to apply only for cases in which the certificate holder already has an arrangement to purchase the engines from the original engine manufacturer. This exemption does not allow the original engine manufacturer to subsequently offer the engines for sale to a different manufacturer who will hold the certificate unless that second manufacturer has also complied with the requirements of this part. The exemption does not apply for any individual engines that are not labeled as specified in this section or which are shipped to someone who is not a certificate holder.
- (j) We may suspend, revoke, or void an exemption under this section, as follows:
- (1) We may suspend or revoke your exemption if you fail to meet the requirements of this section. We may suspend or revoke your exemption for a specific secondary engine manufacturer if that manufacturer sells engines that are in not in a certified configuration in violation of the regulations.

We may disallow this exemption for future shipments to the affected secondary engine manufacturer or set additional conditions to ensure that engines will be assembled in the certified configuration.

(2) We may void your exemption for all the affected engines if you intentionally submit false or incomplete information or fail to keep and provide to EPA the records required by this section.

(3) The exemption is void for an engine that is shipped to a company that is not a certificate holder or for an engine that is shipped to a secondary engine manufacturer that is not in compliance with the requirements of this section.

(k) No exemption is needed to import equipment that does not include an engine. No exemption is available under this section for equipment subject to equipment-based standards if the engine has been installed.

§1068.265 What provisions apply to engines/equipment that are conditionally exempted from certification?

In some cases, exempted engines may need to meet alternate emission standards as a condition of the exemption. For example, replacement engines exempted under §1068.240 in many cases need to meet the same standards as the engines they are replacing. The standard-setting part may similarly exempt engines/equipment from all certification requirements, or allow us to exempt engines/equipment from all certification requirements for certain cases, but require the engines/equipment to meet alternate standards. In these cases, all the following provisions apply:

(a) Your engines/equipment must meet the alternate standards we specify in (or pursuant to) the exemption section, and all other requirements applicable to engines/equipment that are subject to such standards.

(b) You need not apply for and receive a certificate for the exempt engines/equipment. However, you must comply with all the requirements and obligations that would apply to the engines/equipment if you had received a certificate of conformity for them unless we specifically waive certain requirements.

(c) You must have emission data from test engines/equipment using the appropriate procedures that demonstrate compliance with the alternate standards unless the engines/equipment are identical in all material respects to engines/equipment that you have previously certified to standards that are the same as, or more stringent than, the alternate standards. Note that “engines/equipment that you have previously certified” does not include any engines/equipment initially covered by a certificate that was later voided or otherwise invalidated, or engines/equipment that we have determined did not fully conform to the regulations.

(d) See the provisions of the applicable exemption for labeling instructions, including those related to the compliance statement and other modifications to the label otherwise required in the standard-setting part. If we do not identify specific labeling requirements for an exempted engine, you must meet the labeling requirements in the standard-setting part, with the following exceptions:

(1) Modify the family designation by eliminating the character that identifies the model year.

(2) We may also specify alternative language to replace the compliance statement otherwise required in the standard-setting part.

(e) You may not generate emission credits for averaging, banking, or trading with engines/equipment meeting requirements under the provisions of this section.

(f) Keep records to show that you meet the alternate standards as follows:

(1) If your exempted engines/equipment are identical to previously certified engines/equipment, keep your most recent application for certification for the certified family.

(2) If you previously certified a similar family, but have modified the exempted engines/equipment in a way that changes them from their previously certified configuration, keep your most recent application for certification for the certified family, a description of the relevant changes, and any test data or engineering evaluations that support your conclusions.

(3) If you have not previously certified a similar family, keep all the records we specify for the application for certification and any additional records the standard-setting part requires you to keep.

(g) We may require you to send us an annual report of the engines/equipment you produce under this section.

Subpart D—Imports

§1068.301 What general provisions apply?

- (a) This subpart applies to you if you import into the United States engines or equipment subject to EPA emission standards or equipment containing engines subject to EPA emission standards.
- (b) In general, engines/equipment that you import must be covered by a certificate of conformity unless they were built before emission standards started to apply. This subpart describes the limited cases where we allow importation of exempt or excluded engines/equipment. For equipment not subject to equipment-based exhaust emission standards, an exemption of the engine allows you to import the equipment.
- (c) U.S. Customs and Border Protection may prevent you from importing engines or equipment if you do not meet the requirements of this subpart. In addition, U.S. Customs and Border Protection regulations may contain other requirements for engines/equipment imported into the United States (see 19 CFR Chapter I).
- (d) Complete the appropriate EPA declaration form before importing any engines or equipment. These forms are available on the Internet at <http://www.epa.gov/OTAQ/imports/> or by phone at 734-214-4100. Importers must keep the forms for five years and make them available promptly upon request.

§1068.305 How do I get an exemption or exclusion for imported engines/equipment?

- (a) You must meet the requirements of the specific exemption or exclusion you intend to use, including any labeling requirements that apply, and complete the appropriate declaration form described in §1068.301(d).
- (b) If we ask for it, prepare a written request in which you do the following:
 - (1) Give your name, address, telephone number, and taxpayer identification number.
 - (2) Give the engine/equipment owner's name, address, telephone number, and taxpayer identification number.
 - (3) Identify the make, model, identification number, and original production year of all engines/equipment.
 - (4) Identify which exemption or exclusion in this subpart allows you to import nonconforming engines/equipment and describe how your engine/equipment qualifies.
 - (5) Tell us where you will keep your engines/equipment if you might need to store them until we approve your request.
 - (6) Authorize us to inspect or test your engines/equipment as the Clean Air Act allows.
- (c) We may ask for more information.
- (d) You may import the nonconforming engines/equipment you identify in your request if you get prior written approval from us. U.S. Customs and Border Protection may require you to present the approval letter. We may temporarily or permanently approve the exemptions or exclusions, as described in this subpart.

§1068.310 What are the exclusions for imported engines/equipment?

If you show us that your engines/equipment qualify under one of the paragraphs of this section, we will approve your request to import such excluded engines/equipment. You must have our approval before importing engines/equipment under paragraph (a) of this section. You may, but are not required to request our approval to import the engines/equipment under paragraph (b) through (c) of this section. The following engines/equipment are excluded:

- (a) Engines/equipment used solely for competition. Engines/equipment that you demonstrate will be used solely for competition are excluded from the restrictions on imports in §1068.301(b), but only if they are properly labeled. See the standard-setting part for provisions related to this demonstration. Section 1068.101(b)(4) prohibits anyone from using these excluded engines/equipment for purposes other than competition.
- (b) Stationary engines. The definition of nonroad engine in §1068.30 does not include certain engines used in stationary applications. Such engines (and equipment containing such engines) may be subject to

the standards of 40 CFR part 60. Engines that are excluded from the definition of nonroad engine in this part and are not required to be certified to standards under 40 CFR part 60 are not subject to the restrictions on imports in §1068.301(b), but only if they are properly labeled and there is clear and convincing evidence that each engine will be used in a stationary application (see paragraph (2)(iii) of the definition of “Nonroad engine”). Section 1068.101 restricts the use of stationary engines for non-stationary purposes unless they are certified under 40 CFR part 60 to the same standards that would apply to nonroad engines for the same model year.

(c) Hobby engines. The standard-setting parts exclude engines used in reduced-scale models of vehicles that are not capable of transporting a person.

(d) Other engines/equipment. The standard-setting parts may exclude engines/equipment used in certain applications. For example, engines used in aircraft are generally excluded. Engines/equipment used in underground mining are excluded if they are regulated by the Mine Safety and Health Administration.

(e) Labeling. For engines/equipment imported under paragraph (a) or (b) of this section, you must add a permanent label, consistent with §1068.45, with at least the following items unless the standard-setting part includes other specific labeling requirements or we approve alternate label language that is more accurate for your engine/equipment:

(1) Include the heading "EMISSION CONTROL INFORMATION".

(2) Include your full corporate name and trademark.

(3) State the engine displacement (in liters or cubic centimeters). We may also require that you include maximum engine power. If the engine's power is not established, state the approximate power.

(4) State: "THIS ENGINE IS EXEMPT FROM THE REQUIREMENTS OF [identify the part referenced in §1068.1(a) that would otherwise apply], AS PROVIDED IN [identify the paragraph authorizing the exemption (for example, “40 CFR 1068.315(a)”)]. INSTALLING THIS ENGINE IN ANY DIFFERENT APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.”

§1068.315 What are the permanent exemptions for imported engines/equipment?

We may approve a permanent exemption from the restrictions on imports under §1068.301(b) under the following conditions:

(a) National security exemption. You may import an engine or piece of equipment under the national security exemption in §1068.225, but only if it is properly labeled.

(b) Manufacturer-owned engine/equipment exemption. You may import manufacturer-owned engines/equipment, as described in §1068.215.

(c) Replacement engine exemption. You may import a nonconforming replacement engine as described in §1068.240. To use this exemption, you must be a certificate holder for a family we regulate under the same part as the replacement engine.

(d) Extraordinary circumstances exemption. You may import a nonconforming engine or piece of equipment if we grant hardship relief as described in §1068.245.

(e) Small-volume manufacturer exemption. You may import a nonconforming engine or piece of equipment if we grant hardship relief for a small-volume manufacturer, as described in §1068.250.

(f) Equipment-manufacturer hardship exemption. You may import a nonconforming engine if we grant an exemption for the transition to new or revised emission standards, as described in §1068.255.

(g) [Reserved]

(h) Identical configuration exemption. Unless specified otherwise in the standard-setting part, you may import nonconforming engines/equipment if they are identical to certified engines/equipment produced by the same manufacturer, subject to the following provisions:

(1) You must meet all the following criteria:

(i) You have owned the engines/equipment for at least six months.

(ii) You agree not to sell, lease, donate, trade, or otherwise transfer ownership of the engines/equipment for at least five years. During this period, the only acceptable way to dispose of the engines/equipment is to destroy or export them.

(iii) You use data or evidence sufficient to show that the engines/equipment are in a configuration that is identical to engines/equipment the original manufacturer has certified to meet emission standards that apply at the time the manufacturer finished assembling or modifying the engines/equipment in question. If you modify the engines/equipment to make them identical, you must completely follow the original manufacturer's written instructions.

(2) We will tell you in writing if we find the information insufficient to show that the engines/equipment are eligible for this exemption. In this case, we will not consider your request further until you address our concerns.

(i) Ancient engine/equipment exemption. If you are not the original engine/equipment manufacturer, you may import nonconforming engines/equipment that are subject to a standard-setting part and were first manufactured at least 21 years earlier, as long as they are still in their original configurations.

§1068.325 What are the temporary exemptions for imported engines/equipment?

You may import engines/equipment under certain temporary exemptions, subject to the conditions in this section. We may ask U.S. Customs and Border Protection to require a specific bond amount to make sure you comply with the requirements of this subpart. You may not sell or lease one of these engines/equipment while it is in the United States. You must eventually export the engine/equipment as we describe in this section unless it conforms to a certificate of conformity or it qualifies for one of the permanent exemptions in §1068.315.

(a) Exemption for repairs or alterations. You may temporarily import nonconforming engines/equipment under bond solely for repair or alteration, subject to our advance approval as described in paragraph (j) of this section. You may operate the engine/equipment in the United States only as necessary to repair it, alter it, or ship it to or from the service location. Export the engine/equipment directly after servicing is complete.

(b) Testing exemption. You may temporarily import nonconforming engines/equipment under bond for testing if you follow the requirements of §1068.210, subject to our advance approval as described in paragraph (j) of this section. You may operate the engines/equipment in the United States only as needed to perform tests. This exemption expires one year after you import the engine/equipment unless we approve an extension. The engine/equipment must be exported before the exemption expires.

(c) Display exemption. You may temporarily import nonconforming engines/equipment under bond for display if you follow the requirements of §1068.220, subject to our advance approval as described in paragraph (j) of this section. This exemption expires one year after you import the engine/equipment, unless we approve your request for an extension. We may approve an extension of up to one more year for each request, but no more than three years total. The engine/equipment must be exported by the time the exemption expires or directly after the display concludes, whichever comes first.

(d) Export exemption. You may temporarily import nonconforming engines/equipment to export them, as described in §1068.230. You may operate the engine/equipment in the United States only as needed to prepare it for export. Label the engine/equipment as described in §1068.230.

(e) Diplomatic or military exemption. You may temporarily import nonconforming engines/equipment without bond if you represent a foreign government in a diplomatic or military capacity. In your request to the Designated Compliance Officer (see §1068.305), include either written confirmation from the U.S. State Department that you qualify for this exemption or a copy of your orders for military duty in the United States. We will rely on the State Department or your military orders to determine when your diplomatic or military status expires, at which time you must export your exempt engines/equipment.

(f) Delegated-assembly exemption. You may import a nonconforming engine for final assembly under the provisions of §1068.261.

(g) Partially complete engine exemption. You may import an engine if another company already has a certificate of conformity and will be modifying the engine to be in its final, certified configuration under the provisions of §1068.262. You may also import a partially complete engine by shipping it from one of your facilities to another under the provisions of §1068.260(c).

(h) [Reserved]

(i) Approvals. For the exemptions in this section requiring our approval, you must send a request to the Designated Compliance Officer before importing the engines/equipment. We will approve your request if

you meet all the applicable requirements and conditions. If another section separately requires that you request approval for the exemption, you may combine the information requirements in a single request. Include the following information in your request:

- (1) Identify the importer of the engine/equipment and the applicable postal address, e-mail address, and telephone number.
- (2) Identify the engine/equipment owner and the applicable postal address, e-mail address, and telephone number.
- (3) Identify the engine/equipment by model number (or name), serial number, and original production year.
- (4) Identify the specific regulatory provision under which you are seeking an exemption.
- (5) Authorize EPA enforcement officers to conduct inspections or testing as allowed under the Clean Air Act.
- (6) Include any additional information we specify for demonstrating that you qualify for the exemption.

§1068.335 What are the penalties for violations?

(a) All imported engines/equipment. Unless you comply with the provisions of this subpart, importation of nonconforming engines/equipment violates sections 203 and 213(d) of the Clean Air Act (42 U.S.C. 7522 and 7547(d)). You may then have to export the engines/equipment, pay civil penalties, or both. U.S. Customs and Border Protection may seize unlawfully imported engines and equipment.

(b) Temporarily imported engines/equipment. If you do not comply with the provisions of this subpart for a temporary exemption under §1068.325, you may forfeit the total amount of the bond in addition to the sanctions we identify in paragraph (a) of this section. We will consider an engine or piece of equipment to be exported if it has been destroyed or delivered to U.S. Customs and Border Protection for export or other disposition under applicable Customs laws and regulations. EPA or U.S. Customs and Border Protection may offer you a grace period to allow you to export temporarily exempted engines/equipment without penalty after the exemption expires.

§1068.360 What restrictions apply to assigning a model year to imported engines and equipment?

This section includes limitations on assigning a model year to engines and equipment that are imported in a year later than the model year in which they were manufactured, except as specified in paragraph (e) of this section.

(a) The term “model year” is defined in each of the standard-setting parts. These definitions may vary slightly to address the different categories of engines and equipment. Except as specified in paragraphs (b) and (c) of this section, the emission standards and other emission-related requirements that apply for an imported engine or piece of equipment are determined by the model year as defined in the applicable standard-setting part and the provisions of 40 CFR 1068.105(a).

(b) This paragraph (b) applies for the importation of new engines and new equipment in any calendar year that is more than one year after the named model year of the engine or equipment when emission control requirements applying to current engines are different than for engines or equipment in the named model year, unless they are imported under special provisions for Independent Commercial Importers as allowed under the standard-setting part. Regardless of what other provisions of this subchapter U specify for the model year of the engine or equipment, such engines and equipment are deemed to have an applicable model year no more than one year earlier than the calendar year in which they are imported. For example, a new engine identified as a 2007 model-year product that is imported on January 31, 2010 will be treated as a 2009 model-year engine; the same engine will be treated as a 2010 model-year engine if it is imported any time in calendar year 2011.

(c) If you claim that an engine or piece of equipment is not subject to standards—or is subject to standards less stringent than those currently in place—based on its original manufacture date because it has already been placed into service, you must provide clear and convincing evidence that it has already been placed into service. Such evidence must generally include, but not be limited to, documentary evidence of purchase and maintenance history and visible wear that is consistent with the reported manufacture date. Importing products for resale or importing more than one engine or piece of equipment

at a time would generally require a greater degree of evidence under this paragraph (c). If you do not satisfactorily demonstrate that the engine or equipment has already been placed into service, the provisions of paragraph (b) of this section apply.

(d) Nothing in this section should be interpreted to allow circumvention of the requirements of this part by mis-stating or mis-labeling the model year of engines or equipment. For example, this section does not permit engines imported in the same year that they are manufactured to be treated as an engine manufactured in the previous year. To verify compliance with the provisions of this section, we may require you to verify the original manufacture date of the engine or equipment based on manufacturing records, title-transfer documents, service records, or other documentation.

(e) If all the current emission control requirements are the same as in the named model year, the provisions of this section do not apply.

Subpart E—Selective Enforcement Auditing

§1068.401 What is a selective enforcement audit?

(a) We may conduct or require you to conduct emission tests on your production engines/equipment in a selective enforcement audit. This requirement is independent of any requirement for you to routinely test production-line engines/equipment. For products subject to equipment-based standards, but tested using engine-based test procedures, this subpart applies to the engines and/or the equipment, as applicable.

Otherwise this subpart applies to engines for products subject to engine-based standards and to equipment for products subject to equipment-based standards.

(b) If we send you a signed test order, you must follow its directions and the provisions of this subpart. We may tell you where to test the engines/equipment. This may be where you produce the engines/equipment or any other emission testing facility.

(c) If we select one or more of your families for a selective enforcement audit, we will send the test order to the person who signed the application for certification or we will deliver it in person.

(d) If we do not select a testing facility, notify the Designated Compliance Officer within one working day of receiving the test order where you will test your engines/equipment.

(e) You must do everything we require in the audit without delay.

§1068.405 What is in a test order?

(a) In the test order, we will specify the following things:

(1) The family and configuration (if any) we have identified for testing.

(2) The engine/equipment assembly plant, storage facility, or (if you import the engines/equipment) port facility from which you must select engines/equipment.

(3) The procedure for selecting engines/equipment for testing, including a selection rate.

(4) The test procedures, duty cycles, and test points, as appropriate, for testing the engines/equipment to show that they meet emission standards.

(b) We may state that we will select the test engines/equipment.

(c) We may identify alternate families or configurations for testing in case we determine the intended engines/equipment are not available for testing or if you do not produce enough engines/equipment to meet the minimum rate for selecting test engines/equipment.

(d) We may include other directions or information in the test order.

(e) We may ask you to show us that you meet any additional requirements that apply to your engines/equipment (closed crankcases, for example).

(f) In anticipation of a potential audit, you may give us a list of your preferred families and the corresponding assembly plants, storage facilities, or (if you import the engines/equipment) port facilities from which we should select engines/equipment for testing. The information would apply only for a single model year so it would be best to include this information in your application for certification. If you give us this list before we issue a test order, we will consider your recommendations, but we may select different engines/equipment.

(g) If you also do routine production-line testing with the selected family in the same time period, the test order will tell you what changes you might need to make in your production-line testing schedule.

§1068.410 How must I select and prepare my engines/equipment?

(a) Selecting engines/equipment. Select engines/equipment as described in the test order. If you are unable to select test engines/equipment this way, you may ask us to approve an alternate plan as long as you make the request before you start selecting engines/equipment.

(b) Assembling engines/equipment. Produce and assemble test engines/equipment using your normal production and assembly process for that family.

(1) Notify us directly if you make any change in your production, assembly, or quality control processes that might affect emissions between the time you receive the test order and the time you finish selecting test engines/equipment.

(2) If you do not fully assemble engines/equipment at the specified location, we will describe in the test order how to select components to finish assembling the engines/equipment. Assemble these components onto the test engines/equipment using your documented assembly and quality control procedures.

(c) Modifying engines/equipment. Once an engine or piece of equipment is selected for testing, you may adjust, repair, prepare, or modify it or check its emissions only if one of the following is true:

(1) You document the need for doing so in your procedures for assembling and inspecting all your production engines/equipment and make the action routine for all the engines/equipment in the family.

(2) This subpart otherwise allows your action.

(3) We approve your action in advance.

(d) Engine/equipment malfunction. If an engine/equipment malfunction prevents further emission testing, ask us to approve your decision to either repair the engine or delete it from the test sequence.

(e) Setting adjustable parameters. Before any test, we may adjust or require you to adjust any adjustable parameter to any setting within its physically adjustable range.

(1) We may adjust or require you to adjust idle speed outside the physically adjustable range as needed until the engine has stabilized emission levels (see paragraph (f) of this section). We may ask you for information needed to establish an alternate minimum idle speed.

(2) We may make or specify adjustments within the physically adjustable range by considering their effect on emission levels. We may also consider how likely it is that someone will make such an adjustment with in-use engines/equipment.

(f) Stabilizing emission levels. (1) Before you test production-line engines/equipment for exhaust emission, you may operate the engine/equipment to stabilize the exhaust emission levels. Using good engineering judgment, operate your engines/equipment in a way that represents the way production engines/equipment will be used. You may operate each engine or piece of equipment for no more than the greater of two periods:

(i) 50 hours.

(ii) The number of hours you operated your emission-data engine/equipment for certifying the family (see 40 CFR part 1065, subpart E).

(2) Use good engineering judgment and follow the standard-setting part to stabilize equipment for evaporative emissions, where appropriate.

(g) Damage during shipment. If shipping the engine/equipment to a remote facility for testing under a selective enforcement audit makes necessary an adjustment or repair, you must wait until after the initial emission test to do this work. We may waive this requirement if the test would be impossible or unsafe or if it would permanently damage the engine/equipment. Report to us, in your written report under §1068.450, all adjustments or repairs you make on test engines/equipment before each test.

(h) Shipping engines/equipment. If you need to ship engines/equipment to another facility for testing, make sure the test engines/equipment arrive at the test facility within 24 hours after being selected. You may ask that we allow more time if you are unable to do this.

(i) Retesting after invalid tests. You may retest an engine or piece of equipment if you determine an emission test is invalid under the standard-setting part. Explain in your written report reasons for

invalidating any test and the emission results from all tests. If you retest an engine or piece of equipment and, within ten days after testing, ask to substitute results of the new tests for the original ones, we will answer within ten days after we receive your information.

(j) Retesting after reaching a fail decision. You may retest your engines/equipment once a fail decision for the audit has been reached based on the first test on each engine or piece of equipment under §1068.420(c). You may test each engine or piece of equipment up to a total of three times, but you must perform the same number of tests on each engine or piece of equipment. You may further operate the engine/equipment to stabilize emission levels before testing, subject to the provisions of paragraph (f) of this section. We may approve retesting at other times if you send us a request with satisfactory justification.

§1068.415 How do I test my engines/equipment?

(a) Use the test procedures specified in the standard-setting part for showing that your engines/equipment meet emission standards. The test order will give further testing instructions.

(b) If no test cells are available at a given facility, you may make alternate testing arrangements with our approval.

(c) Test at least two engines/equipment in each 24-hour period (including void tests). However, if your projected U.S. nonroad sales within the family are less than 7,500 for the year, you may test a minimum of one per 24-hour period. If you request and justify it, we may approve a lower testing rate.

(d) For exhaust emissions, accumulate service on test engines/equipment at a minimum rate of 6 hours per engine or piece of equipment during each 24-hour period. The first 24-hour period for service accumulation begins when you finish preparing an engine or piece of equipment for testing. The minimum service accumulation rate does not apply on weekends or holidays. You may ask us to approve a lower service accumulation rate. We may require you to accumulate hours more rapidly than the minimum rate, as appropriate. Plan your service accumulation to allow testing at the rate specified in paragraph (c) of this section. Select operation for accumulating operating hours on your test engines/equipment to represent normal in-use operation for the family.

(e) Test engines/equipment in the same order you select them.

§1068.420 How do I know when my engine family fails an SEA?

(a) A failed engine or piece of equipment is one whose final deteriorated test results exceed an applicable emission standard for any regulated pollutant.

(b) Continue testing engines/equipment until you reach a pass decision for all pollutants or a fail decision for one pollutant.

(c) You reach a pass decision for the SEA requirements when the number of failed engines/equipment is less than or equal to the pass decision number in Appendix A to this subpart for the total number of engines/equipment tested. You reach a fail decision for the SEA requirements when the number of failed engines/equipment is greater than or equal to the fail decision number in Appendix A to this subpart for the total number of engines/equipment you test. An acceptable quality level of 40 percent is the basis for the pass or fail decision.

(d) Consider test results in the same order as the engine/equipment testing sequence.

(e) If you reach a pass decision for one pollutant, but need to continue testing for another pollutant, we will disregard these later test results for the pollutant with the pass decision.

(f) Appendix A to this subpart lists multiple sampling plans. Use the sampling plan for the projected sales volume you reported in your application for the audited family.

(g) We may choose to stop testing after any number of tests.

(h) If we test some of your engines/equipment in addition to your own testing, we may decide not to include your test results as official data for those engines/equipment if there is substantial disagreement between your testing and our testing. We will reinstate your data as valid if you show us that we made an error and your data are correct.

(i) If we rely on our test data instead of yours, we will notify you in writing of our decision and the reasons we believe your facility is not appropriate for doing the tests we require under this subpart. You

may request in writing that we consider your test results from the same facility for future testing if you show us that you have made changes to resolve the problem.

§1068.425 What happens if one of my production-line engines/equipment exceeds the emission standards?

(a) If one of your production-line engines/equipment fails to meet one or more emission standards (see §1068.420), the certificate of conformity is automatically suspended for that engine or piece of equipment. You must take the following actions before your certificate of conformity can cover that engine or piece of equipment:

(1) Correct the problem and retest the engine/equipment to show it complies with all emission standards.

(2) Include in your written report a description of the test results and the remedy for each engine or piece of equipment (see §1068.450).

(b) You may ask for a hearing at any time to determine whether the tests and sampling methods were proper (see subpart G of this part).

§1068.430 What happens if a family fails an SEA?

(a) We may suspend your certificate of conformity for a family if it fails the SEA under §1068.420. The suspension may apply to all facilities producing engines/equipment from a family even if you find noncompliant engines/equipment only at one facility.

(b) We will tell you in writing if we suspend your certificate in whole or in part. We will not suspend a certificate until at least 15 days after the family fails the SEA. The suspension is effective when you receive our notice.

(c) You may ask for a hearing to determine whether the tests and sampling methods were proper (see subpart G of this part) up to 15 days after we suspend the certificate for a family. If we agree that we used erroneous information in deciding to suspend the certificate before a hearing is held, we will reinstate the certificate.

§1068.435 May I sell engines/equipment from a family with a suspended certificate of conformity?

You may sell engines/equipment that you produce after we suspend the family's certificate of conformity only if one of the following occurs:

(a) You test each engine or piece of equipment you produce and show it complies with emission standards that apply.

(b) We conditionally reinstate the certificate for the family. We may do so if you agree to recall all the affected engines/equipment and remedy any noncompliance at no expense to the owner if later testing shows that engines/equipment in the family still do not comply.

§1068.440 How do I ask EPA to reinstate my suspended certificate?

(a) Send us a written report asking us to reinstate your suspended certificate. In your report, identify the reason for the SEA failure, propose a remedy, and commit to a date for carrying it out. In your proposed remedy include any quality control measures you propose to keep the problem from happening again.

(b) Give us data from production-line testing showing that engines/equipment in the remedied family comply with all the emission standards that apply.

§1068.445 When may EPA revoke my certificate under this subpart and how may I sell these engines/equipment again?

(a) We may revoke your certificate for a family in the following cases:

(1) You do not meet the reporting requirements under this subpart.

(2) Your family fails an SEA and your proposed remedy to address a suspended certificate is inadequate to solve the problem or requires you to change the engine/equipment's design or emission control system.

(b) To sell engines/equipment from a family with a revoked certificate of conformity, you must modify the family and then show it complies with the applicable requirements.

- (1) If we determine your proposed design change may not control emissions for the engine/equipment's full useful life, we will tell you within five working days after receiving your report. In this case we will decide whether production-line testing will be enough for us to evaluate the change or whether you need to do more testing.
- (2) Unless we require more testing, you may show compliance by testing production-line engines/equipment as described in this subpart.
- (3) We will issue a new or updated certificate of conformity when you have met these requirements.

§1068.450 What records must I send to EPA?

- (a) Within 30 days of the end of each audit, send us a report with the following information:
 - (1) Describe any facility used to test production-line engines/equipment and state its location.
 - (2) State the total U.S.-directed production volume and number of tests for each family.
 - (3) Describe your test engines/equipment, including the family's identification and the engine/equipment's model year, build date, model number, identification number, and number of hours of operation before testing for each test engine or piece of equipment.
 - (4) Identify where you accumulated hours of operation on the engines/equipment and describe the procedure and schedule you used.
 - (5) Provide the test number; the date, time and duration of testing; test procedure; initial test results before and after rounding; final test results; and final deteriorated test results for all tests. Provide the emission figures for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.
 - (6) Describe completely and justify any nonroutine adjustment, modification, repair, preparation, maintenance, or test for the test engine/equipment if you did not report it separately under this subpart. Include the results of any emission measurements, regardless of the procedure or type of equipment.
 - (7) Report on each failed engine or piece of equipment as described in §1068.425.
- (b) We may ask you to add information to your written report, so we can determine whether your new engines/equipment conform with the requirements of this subpart.
- (c) An authorized representative of your company must sign the following statement:

We submit this report under Sections 208 and 213 of the Clean Air Act. Our testing conformed completely with the requirements of 40 CFR part 1068. We have not changed production processes or quality-control procedures for the family in a way that might affect the emission control from production engines/equipment. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations.

(Authorized Company Representative)
- (d) Send reports of your testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
- (e) We may post test results on publicly accessible databases and we will send copies of your reports to anyone from the public who asks for them. We will not release information about your sales or production volumes, which is all we will consider confidential.

§1068.455 What records must I keep?

- (a) We may review your records at any time so it is important to keep required information readily available. Organize and maintain your records as described in this section.
- (b) Keep paper records for testing under this subpart for one full year after you complete all the testing required for the selective enforcement audit. For additional storage, you may use any format or media.
- (c) Keep a copy of the written reports described in §1068.450.
- (d) Keep the following additional records:
 - (1) The names of supervisors involved in each test.
 - (2) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test engine/equipment and the names of all supervisors who oversee this work.
 - (3) If you shipped the engine/equipment for testing, the date you shipped it, the associated storage or port facility, and the date the engine/equipment arrived at the testing facility.

- (4) Any records related to your audit that are not in the written report.
- (5) A brief description of any significant events during testing not otherwise described in the written report or in this section.
- (e) If we ask, you must give us projected or actual production for a family. Include each assembly plant if you produce engines/equipment at more than one plant.
- (f) We may ask you to keep or send other information necessary to implement this subpart.

Appendix A to Subpart E of Part 1068—Plans for Selective Enforcement Auditing

The following tables describe sampling plans for selective enforcement audits, as described in §1068.420:

Table A-1—Sampling Plan Code Letter

Projected Family Sales	Code letter ¹	Minimum Number of Tests		Maximum Number of Tests
		To Pass	To Fail	
20 - 50	AA	3	5	20
20 - 99	A	4	6	30
100 - 299	B	5	6	40
300 - 499	C	5	6	50
500 +	D	5	6	60

¹ A manufacturer may optionally use either the sampling plan for code letter "AA" or sampling plan for code letter "A" for Selective Enforcement Audits of families with annual sales between 20 and 50 engines/equipment. Additionally, the manufacturer may switch between these plans during the audit.

Table A-2—Sampling Plans for Different Engine Family Sales Volumes

Stage ^a	AA		A		B		C		D	
	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #
1										
2										
3	0									
4	0		0							
5	1	5	0		0		0		0	
6	1	6	1	6	1	6	0	6	0	6
7	2	6	1	7	1	7	1	7	1	7
8	2	7	2	7	2	7	2	7	2	8
9	3	7	2	8	2	8	2	8	2	8
10	3	8	3	8	3	8	3	9	3	9
11	4	8	3	8	3	9	3	9	3	9
12	4	9	4	9	4	9	4	10	4	10
13	5	9	5	10	4	10	4	10	4	10
14	5	10	5	10	5	10	5	11	5	11
15	6	10	6	11	5	11	5	11	5	11

Stage ^a	AA		A		B		C		D	
	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #
16	6	10	6	11	6	12	6	12	6	12
17	7	10	7	12	6	12	6	12	6	12
18	8	10	7	12	7	13	7	13	7	13
19	8	10	8	13	8	13	7	13	7	13
20	9	10	8	13	8	14	8	14	8	14
21			9	14	9	14	8	14	8	14
22			10	14	9	15	9	15	9	15
23			10	15	10	15	10	15	9	15
24			11	15	10	16	10	16	10	16
25			11	16	11	16	11	16	11	16
26			12	16	11	17	11	17	11	17
27			12	17	12	17	12	17	12	17
28			13	17	12	18	12	18	12	18
29			14	17	13	18	13	18	13	19
30			16	17	13	19	13	19	13	19
31					14	19	14	19	14	20
32					14	20	14	20	14	20
33					15	20	15	20	15	21
34					16	21	15	21	15	21
35					16	21	16	21	16	22
36					17	22	16	22	16	22
37					17	22	17	22	17	23
38					18	22	18	23	17	23
39					18	22	18	23	18	24
40					21	22	19	24	18	24
41							19	24	19	25
42							20	25	19	26
43							20	25	20	26
44							21	26	21	27
45							21	27	21	27
46							22	27	22	28
47							22	27	22	28
48							23	27	23	29
49							23	27	23	29
50							26	27	24	30
51									24	30
52									25	31
53									25	31
54									26	32
55									26	32
56									27	33
57									27	33
58									28	33

Stage ^a	AA		A		B		C		D	
	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #	Pass #	Fail #
59									28	33
60									32	33

^a Stage refers to the cumulative number of engines/equipment tested.

Subpart F—Reporting Defects and Recalling Engines/Equipment

§1068.501 How do I report emission-related defects?

This section addresses the certificate holder's responsibility to investigate and report emission-related defects in design, materials, or workmanship. The provisions of this section do not limit your liability under this part or the Clean Air Act. For example, selling an engine/equipment that does not conform to your application for certification is a violation of §1068.101(a)(1) independent of the requirements of this section. The requirements of this section apply separately to each certificate holder if there is more than one certificate holder for the equipment.

(a) General provisions. As a certifying manufacturer, you must investigate in certain circumstances whether engines/equipment that have been introduced into U.S. commerce under your certificate have incorrect, improperly installed, or otherwise defective emission-related components or systems. This includes defects in design, materials, or workmanship. You must also send us reports as specified by this section.

- (1) This section addresses defects for any of the following emission-related components or systems containing the following components:
 - (i) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, and all sensors associated with any of these components.
 - (ii) For engines and equipment subject to evaporative emission standards, fuel tanks, fuel caps, and fuel lines and connectors.
 - (iii) Any other component whose primary purpose is to reduce emissions.
 - (iv) Any other component whose failure might increase emissions of any regulated pollutant without significantly degrading engine/equipment performance.
- (2) The requirements of this section relate to defects in any of the components or systems identified in paragraph (a)(1) of this section if the defects might affect any of the parameters or specifications in Appendix II of this part or might otherwise affect the emissions of any regulated pollutant.
- (3) For the purposes of this section, defects do not include damage to emission-related components or systems (or maladjustment of parameters) caused by owners improperly maintaining or abusing their engines/equipment.
- (4) The requirements of this section do not apply to emission control information labels. Note however, that §1068.101(a)(1) prohibits the sale of engines/equipment without proper labels, which also applies to misprinted labels.
- (5) You must track the information specified in paragraph (b)(1) of this section. You must assess this data at least every three months to evaluate whether you exceed the thresholds specified in paragraphs (e) and (f) of this section. Where thresholds are based on a percentage of engines/equipment in the family, use actual sales figures for the whole model year when they become available. Use projected sales figures until the actual sales figures become available. You are not required to collect additional information other than that specified in paragraph (b)(1) of this section before reaching a threshold for an investigation specified in paragraph (e) of this section.
- (6) You may ask us to allow you to use alternate methods for tracking, investigating, reporting, and correcting emission-related defects. In your request, explain and demonstrate why you believe your alternate system will be at least as effective in the aggregate in tracking, identifying, investigating, evaluating, reporting, and correcting potential and actual emissions-related defects as the

requirements in this section. In this case, provide all available data necessary to demonstrate why an alternate system is appropriate for your engines/equipment and how it will result in a system at least as effective as that required under this section.

(7) If we determine that emission-related defects result in a substantial number of properly maintained and used engines/equipment not conforming to the regulations of this chapter during their useful life, we may order you to conduct a recall of your engines/equipment (see §1068.505).

(8) Send all reports required by this section to the Designated Enforcement Officer.

(9) This section distinguishes between defects and possible defects. A possible defect exists anytime there is an indication that an emission-related component or system might have a defect, as described in paragraph (b)(1) of this section.

(b) Investigation of possible defects. Investigate possible defects as follows:

(1) If the number of engines/equipment that have a possible defect, as defined by this paragraph (b)(1), exceeds a threshold specified in paragraph (e) of this section, you must conduct an investigation to determine if an emission-related component or system is actually defective. You must classify an engine/equipment component or system as having a possible defect if any of the following sources of information shows there is a significant possibility that a defect exists:

(i) A warranty claim is submitted for the component, whether this is under your emission-related warranty or any other warranty.

(ii) Your quality-assurance procedures suggest that a defect may exist.

(iii) You receive any other information for which good engineering judgment would indicate the component or system may be defective, such as information from dealers, field-service personnel, equipment manufacturers, hotline complaints, or engine diagnostic systems.

(2) If the number of shipped replacement parts for any individual component is high enough that good engineering judgment would indicate a significant possibility that a defect exists, you must conduct an investigation to determine if it is actually defective. Note that this paragraph (b)(2) does not require data-tracking or recording provisions related to shipment of replacement parts.

(3) Your investigation must be prompt, thorough, consider all relevant information, follow accepted scientific and engineering principles, and be designed to obtain all the information specified in paragraph (d) of this section.

(4) Your investigation needs to consider possible defects that occur only within the useful life period, or within five years after the end of the model year, whichever is longer.

(5) You must continue your investigation until you are able to show that there is no emission-related defect or you obtain all the information specified for a defect report in paragraph (d) of this section.

(6) If a component with a possible defect is used in additional families or model years, you must investigate whether the component may be defective when used in these additional families or model years, and include these results in any defect report you send under paragraph (c) of this section.

(7) If your initial investigation concludes that the number of engines/equipment with a defect is fewer than any of the thresholds specified in paragraph (f) of this section, but other information later becomes available that may show that the number of engines/equipment with a defect exceeds a threshold, then you must resume your investigation. If you resume an investigation, you must include the information from the earlier investigation to determine whether to send a defect report.

(c) Reporting defects. You must send us a defect report in either of the following cases:

(1) Your investigation shows that the number of engines/equipment with a defect exceeds a threshold specified in paragraph (f) of this section. Send the defect report within 21 days after the date you identify this number of defective engines/equipment. See paragraph (h) of this section for reporting requirements that apply if the number of engines/equipment with a defect does not exceed any of the thresholds in paragraph (f) of this section.

(2) You know there are emission-related defects for a component or system in a number of engines/equipment that exceeds a threshold specified in paragraph (f) of this section, regardless of how you obtain this information. Send the defect report within 21 days after you learn that the number of defects exceeds a threshold. Send us an updated defect report anytime you have significant additional information.

(d) Contents of a defect report. Include the following information in a defect report:

- (1) Your corporate name and a person to contact regarding this defect.
 - (2) A description of the defect, including a summary of any engineering analyses and associated data, if available.
 - (3) A description of the engines/equipment that have the defect, including families, models, and range of production dates.
 - (4) An estimate of the number and percentage of each class or category of affected engines/equipment that have the defect, and an explanation of how you determined this number. Describe any statistical methods you used under paragraph (g)(6) of this section.
 - (5) An estimate of the defect's impact on emissions, with an explanation of how you calculated this estimate and a summary of any emission data demonstrating the impact of the defect, if available.
 - (6) A description of your plan for addressing the defect or an explanation of your reasons for not believing the defects must be addressed.
- (e) Thresholds for conducting a defect investigation. You must begin a defect investigation based on the following number of engines/equipment that may have the defect:
- (1) For engines/equipment with maximum engine power at or below 560 kW:
 - (i) For families with annual sales below 500 units: 50 or more engines/equipment.
 - (ii) For families with annual sales from 500 to 50,000 units: more than 10.0 percent of the total number of engines/equipment in the family.
 - (iii) For families with annual sales from 50,000 to 550,000 units: more than the total number of engines/equipment represented by the following equation:

$$\text{Investigation threshold} = 5,000 + (\text{Production units} - 50,000) \times 0.04$$
 - (iv) For families with annual sales above 550,000 units: 25,000 or more engines/equipment.
 - (2) For engines/equipment with maximum engine power greater than 560 kW:
 - (i) For families with annual sales below 250 units: 25 or more engines/equipment.
 - (ii) For families with annual sales at or above 250 units: more than 10.0 percent of the total number of engines/equipment in the family.
- (f) Thresholds for filing a defect report. You must send a defect report based on the following number of engines/equipment that have the defect:
- (1) For engines/equipment with maximum engine power at or below 560 kW:
 - (i) For families with annual sales below 1,000 units: 20 or more engines/equipment.
 - (ii) For families with annual sales from 1,000 to 50,000 units: more than 2.0 percent of the total number of engines/equipment in the family.
 - (iii) For families with annual sales from 50,000 to 550,000 units: more than the total number of engines/equipment represented by the following equation:

$$\text{Reporting threshold} = 1,000 + (\text{Production units} - 50,000) \times 0.01$$
 - (iv) For families with annual sales above 550,000 units: 6,000 or more engines/equipment.
 - (2) For engines/equipment with maximum engine power greater than 560 kW:
 - (i) For families with annual sales below 150 units: 10 or more engines/equipment.
 - (ii) For families with annual sales from 150 to 750 units: 15 or more engines/equipment.
 - (iii) For families with annual sales above 750 units: more than 2.0 percent of the total number of engines/equipment in the family.
- (g) How to count defects. (1) Track defects separately for each model year and family as much as possible. If information is not identifiable by model year or family, use good engineering judgment to evaluate whether you exceed a threshold in paragraph (e) or (f) of this section. Consider only your U.S.-directed production volume.
- (2) Within a family, track defects together for all components or systems that are the same in all material respects. If multiple companies separately supply a particular component or system, treat each company's component or system as unique.
 - (3) For engine-based standards, if a possible defect is not attributed to any specific part of the engine, consider the complete engine a distinct component for evaluating whether you exceed a threshold in paragraph (e) of this section. For equipment-based standards, if a possible defect is not attributed to any specific part of the equipment, consider the complete piece of equipment a distinct component for evaluating whether you exceed a threshold in paragraph (e) of this section.

(4) If you correct defects before they reach the ultimate purchaser as a result of your quality-assurance procedures, count these against the investigation thresholds in paragraph (e) of this section unless you routinely check every engine or piece of equipment in the family. Do not count any corrected defects as actual defects under paragraph (f) of this section.

(5) Use aggregated data from all the different sources identified in paragraph (b)(1) of this section to determine whether you exceed a threshold in paragraphs (e) and (f) of this section.

(6) If information is readily available to conclude that the possible defects identified in paragraph (b)(1) of this section are actual defects, count these toward the reporting thresholds in paragraph (f) of this section.

(7) During an investigation, use appropriate statistical methods to project defect rates for engines/equipment that you are not otherwise able to evaluate. For example, if 75 percent of the components replaced under warranty are available for evaluation, it would be appropriate to extrapolate known information on failure rates to the components that are unavailable for evaluation. Take steps as necessary to prevent bias in sampled data. Make adjusted calculations to take into account any bias that may remain.

(h) **Investigation reports.** Once you trigger an investigation threshold under paragraph (e) of this section, you must report your progress and conclusions. In your reports, include the information specified in paragraph (d) of this section, or explain why the information is not relevant. Send us the following reports:

(1) While you are investigating, send us mid-year and end-of-year reports to describe the methods you are using and the status of the investigation. Send these status reports no later than June 30 and December 31 of each year.

(2) If you find that the number of components or systems with an emission-related defect exceeds a threshold specified in paragraph (f) of this section, send us a report describing your findings within 21 days after the date you reach this conclusion.

(3) If you find that the number of components or systems with an emission-related defect does not exceed any of the thresholds specified in paragraph (f) of this section, send us a final report supporting this conclusion. For example, you may exclude warranty claims that resulted from misdiagnosis and you may exclude defects caused by improper maintenance, improper use, or misfueling. Send this report within 21 days after the date you reach this conclusion.

(i) **Future production.** If you identify a design or manufacturing defect that prevents engines/equipment from meeting the requirements of this part, you must correct the defect as soon as possible for future production of engines/equipment in every family affected by the defect. This applies without regard to whether you are required to conduct a defect investigation or submit a defect report under this section.

§1068.505 How does the recall program work?

(a) If we make a determination that a substantial number of properly maintained and used engines/equipment do not conform to the regulations of this chapter during their useful life, you must submit a plan to remedy the nonconformity of your engines/equipment. We will notify you of our determination in writing. Our notice will identify the class or category of engines/equipment affected and describe how we reached our conclusion. If this happens, you must meet the requirements and follow the instructions in this subpart. You must remedy at your expense noncompliant engines/equipment that have been properly maintained and used, as described in §1068.510(a)(7). You may not transfer this expense to a dealer (or equipment manufacturer for engine-based standards) through a franchise or other agreement.

(b) You may ask for a hearing if you disagree with our determination (see subpart G of this part).

(c) Unless we withdraw the determination of noncompliance, you must respond to it by sending a remedial plan to the Designated Compliance Officer by the later of these two deadlines:

(1) Within 60 days after we notify you.

(2) Within 60 days after a hearing.

(d) Once you have sold engines/equipment to the ultimate purchaser, we may inspect or test the engines/equipment only if the purchaser permits it, or if state or local inspection programs separately provide for it.

- (e) You may ask us to allow you to conduct your recall differently than specified in this subpart, consistent with section 207(c) of the Clean Air Act (42 U.S.C. 7541(c)).
- (f) You may do a voluntary recall under §1068.535 unless we have made the determination described in §1068.535(a).
- (g) For purposes of recall, owner means someone who owns an engine or piece of equipment affected by a remedial plan.

§1068.510 How do I prepare and apply my remedial plan?

- (a) In your remedial plan, describe all of the following:
 - (1) The class or category of engines/equipment to be recalled, including the number of engines/equipment involved and the model year or other information needed to identify the engines/equipment.
 - (2) The modifications, alterations, repairs, corrections, adjustments, or other changes you will make to correct the affected engines/equipment.
 - (3) A brief description of the studies, tests, and data that support the effectiveness of the remedy you propose to use.
 - (4) The instructions you will send to those who will repair the engines/equipment under the remedial plan.
 - (5) How you will determine the owners' names and addresses.
 - (6) How you will notify owners; include copies of any notification letters.
 - (7) The proper maintenance or use you will specify, if any, as a condition to be eligible for repair under the remedial plan. Describe how these specifications meet the provisions of paragraph (e) of this section. Describe how the owners should show they meet your conditions.
 - (8) The steps owners must take for you to do the repair. You may set a date or a range of dates, specify the amount of time you need, and designate certain facilities to do the repairs.
 - (9) Which company (or group) you will assign to do or manage the repairs.
 - (10) If your employees or authorized warranty agents will not be doing the work, state who will and describe their qualifications.
 - (11) How you will ensure an adequate and timely supply of parts.
 - (12) The effect of proposed changes on fuel consumption, driveability, and safety of the engines/equipment you will recall; include a brief summary of the information supporting these conclusions.
 - (13) How you intend to label the engines/equipment you repair and where you will place the label on the engine/equipment (see §1068.515).
- (b) We may require you to add information to your remedial plan.
- (c) We may require you to test the proposed repair to show it will remedy the noncompliance.
- (d) Use all reasonable means to locate owners. We may require you to use government or commercial registration lists to get owners' names and addresses so your notice will be effective.
- (e) The maintenance or use that you specify as a condition for eligibility under the remedial plan may include only things you can show would cause noncompliance. Do not require use of a component or service identified by brand, trade, or corporate name unless we approved this approach with your original certificate of conformity. Also, do not place conditions on who maintained the engine/equipment.
- (f) We may require you to adjust your repair plan if we determine owners would be without their engines or equipment for an unreasonably long time.
- (g) We will tell you in writing within 15 days of receiving your remedial plan whether we have approved or disapproved it. We will explain our reasons for any disapproval.
- (h) Begin notifying owners within 15 days after we approve your remedial plan. If we hold a hearing, but do not change our position about the noncompliance, you must begin notifying owners within 60 days after we complete the hearing unless we specify otherwise.

§1068.515 How do I mark or label repaired engines/equipment?

- (a) Attach a label to engines/equipment you repair under the remedial plan. At your discretion, you may label or mark engines/equipment you inspect but do not repair.
- (b) Make the label from a durable material suitable for its planned location. Make sure no one can remove the label without destroying or defacing it.
- (c) On the label, designate the specific recall campaign and state where you repaired or inspected the engine/equipment.
- (d) We may waive or modify the labeling requirements if we determine they are overly burdensome.

§1068.520 How do I notify affected owners?

- (a) Notify owners by first class mail or e-mail unless we say otherwise. We may require you to use certified mail. Include the following in your notice:
 - (1) State: “The U.S. Environmental Protection Agency has determined that your engine/equipment may be emitting pollutants in excess of the federal emission standards as defined in Title 40 of the Code of Federal Regulations. These emission standards were established to protect the public health or welfare from air pollution.”
 - (2) State that you (or someone you designate) will repair these engines/equipment at your expense.
 - (3) If we approved maintenance and use conditions in your remedial plan, state that you will make these repairs only if owners show their engines/equipment meet the conditions for proper maintenance and use. Describe these conditions and how owners should prove their engines/equipment are eligible for repair.
 - (4) Describe the components your repair will affect and say generally how you will repair the engines/equipment.
 - (5) State that the engine/equipment, if not repaired, may fail an emission inspection test if state or local law requires one.
 - (6) Describe any adverse effects on its performance or driveability that would be caused by not repairing the engine/equipment.
 - (7) Describe any adverse effects on the functions of other components that would be caused by not repairing the engine/equipment.
 - (8) Specify the date you will start the repairs, the amount of time you will need to do them, and where you will do them. Include any other information owners may need to know.
 - (9) Allow for the owner to inform you using one of the following methods if they have sold the engine/equipment:
 - (i) Send a self-addressed card that owners can mail back to you; include a space for owners to write the name and address of a buyer.
 - (ii) Provide owners with a toll-free number and an e-mail address or Web site they can use to identify the name and address of a buyer.
 - (10) State that owners should call you at a phone number you give to report any difficulty in obtaining repairs.
 - (11) State: “To ensure your full protection under the emission warranty on your [engine/equipment] by federal law, and your right to participate in future recalls, we recommend you have your [engine/equipment] serviced as soon as possible. We may consider your not servicing it to be improper maintenance.”
- (b) We may require you to add information to your notice or to send more notices.
- (c) You may not in any communication with owners or dealers say or imply that your noncompliance does not exist or that it will not degrade air quality.

§1068.525 What records must I send to EPA?

- (a) Send us a copy of all communications related to the remedial plan you sent to dealers and others doing the repairs. Mail or e-mail us the information at the same time you send it to others.
- (b) From the time you begin to notify owners, send us a report within 25 days of the end of each calendar quarter. Send reports for six consecutive quarters or until all the engines/equipment are inspected, whichever comes first. In these reports, identify the following:

- (1) The range of dates you needed to notify owners.
 - (2) The total number of notices sent.
 - (3) The number of engines/equipment you estimate fall under the remedial plan (explain how you determined this number).
 - (4) The cumulative number of engines/equipment you inspected under the remedial plan.
 - (5) The cumulative number of these engines/equipment you found needed the specified repair.
 - (6) The cumulative number of these engines/equipment you have repaired.
 - (7) The cumulative number of engines/equipment you determined to be unavailable due to exportation, theft, retirement, or other reasons (specify).
 - (8) The cumulative number of engines/equipment you disqualified for not being properly maintained or used.
- (c) If your estimated number of engines/equipment falling under the remedial plan changes, change the estimate in your next report and add an explanation for the change.
- (d) We may ask for more information.
- (e) We may waive reporting requirements or adjust the reporting schedule.
- (f) If anyone asks to see the information in your reports, we will follow the provisions of §1068.10 for handling confidential information.

§1068.530 What records must I keep?

We may review your records at any time so it is important that you keep required information readily available. Keep records associated with your recall campaign for three years after you send the last report we require under §1068.525(b). Organize and maintain your records as described in this section.

- (a) Keep a paper copy of the written reports described in §1068.525.
- (b) Keep a record of the names and addresses of owners you notified. For each engine or piece of equipment, state whether you did any of the following:
 - (1) Inspected the engine/equipment.
 - (2) Disqualified the engine/equipment for not being properly maintained or used.
 - (3) Completed the prescribed repairs.
- (c) You may keep the records in paragraph (b) of this section in any form we can inspect, including computer databases.

§1068.535 How can I do a voluntary recall for emission-related problems?

If we have made a determination that a substantial number of properly maintained and used engines/equipment do not conform to the regulations of this chapter during their useful life, you may not use a voluntary recall or other alternate means to meet your obligation to remedy the noncompliance. Thus, this section applies only if you learn that your family does not meet the requirements of this chapter and we have not made such a determination.

- (a) To do a voluntary recall under this section, first send the Designated Compliance Officer a plan, following the guidelines in §1068.510. Within 15 days, we will send you our comments on your plan.
- (b) Once we approve your plan, start notifying owners and carrying out the specified repairs. Make reasonable efforts to carry out the recall as quickly as possible.
- (c) From the time you start the recall campaign, send us a report within 25 days of the end of each calendar quarter, following the guidelines in §1068.525(b). Send reports for six consecutive quarters or until all the engines/equipment are inspected, whichever comes first.
- (d) Keep your reports and the supporting information as described in §1068.530.

Subpart G—Hearings

§1068.601 What are the procedures for hearings?

If we agree to hold a hearing related to our decision to order a recall under §1068.505, we will hold the hearing according to the provisions of 40 CFR 85.1807. For any other issues, you may request an informal hearing as described in 40 CFR 86.1853-01.

Appendix I to Part 1068—Emission-Related Components

This appendix specifies emission-related components that we refer to for describing such things as emission-related warranty or requirements related to rebuilding engines. Note that inclusion of a component in Section III of this Appendix does not make it an emission-related component for engines/equipment that are not subject to evaporative emission standards.

I. For exhaust emissions, emission-related components include any engine parts related to the following systems:

1. Air-induction system.
2. Fuel system.
3. Ignition system.
4. Exhaust gas recirculation systems.

II. The following parts are also considered emission-related components for exhaust emissions:

1. Aftertreatment devices.
2. Crankcase ventilation valves.
3. Sensors.
4. Electronic control units.

III. The following parts are considered emission-related components for evaporative emissions:

1. Fuel Tank.
2. Fuel Cap.
3. Fuel Line.
4. Fuel Line Fittings.
5. Clamps*.
6. Pressure Relief Valves*.
7. Control Valves*.
8. Control Solenoids*.
9. Electronic Controls*.
10. Vacuum Control Diaphragms*.
11. Control Cables*.
12. Control Linkages*.
13. Purge Valves.
14. Vapor Hoses.
15. Liquid/Vapor Separator.
16. Carbon Canister.
17. Canister Mounting Brackets.
18. Carburetor Purge Port Connector.

*As related to the evaporative emission control system.

IV. Emission-related components also include any other part whose only purpose is to reduce emissions or whose failure will increase emissions without significantly degrading engine/equipment performance.

Appendix II to Part 1068—Emission-Related Parameters and Specifications

This appendix specifies emission-related parameters and specifications that we refer to for describing such things as emission-related defects or requirements related to rebuilding engines.

I. Basic Engine Parameters for Reciprocating Engines.

1. Compression ratio.
2. Type of air aspiration (natural, Roots-blown, supercharged, turbocharged).
3. Valves (intake and exhaust).
 - a. Head diameter dimension.
 - b. Valve lifter or actuator type and valve lash dimension.
4. Camshaft timing.
 - a. Valve opening - intake exhaust (degrees from top-dead center or bottom-dead center).
 - b. Valve closing - intake exhaust (degrees from top-dead center or bottom-dead center).
 - c. Valve overlap (degrees).

5. Ports -- two stroke engines (intake and/or exhaust).
 - a. Flow area.
 - b. Opening timing (degrees from top-dead center or bottom-dead center).
 - c. Closing timing (degrees from top-dead center or bottom-dead center).
- II. Intake Air System.
1. Roots blower/supercharger/turbocharger calibration.
 2. Charge air cooling.
 - a. Type (air-to-air; air-to-liquid).
 - b. Type of liquid cooling (engine coolant, dedicated cooling system).
 - c. Performance.
 3. Temperature control system calibration.
 4. Maximum allowable inlet air restriction.
- III. Fuel System.
1. General.
 - a. Engine idle speed.
 - b. Engine idle mixture.
 2. Carburetion.
 - a. Air-fuel flow calibration.
 - b. Idle mixture.
 - c. Transient enrichment system calibration.
 - d. Starting enrichment system calibration.
 - e. Altitude compensation system calibration.
 - f. Hot idle compensation system calibration.
 3. Fuel injection for spark-ignition engines.
 - a. Control parameters and calibrations.
 - b. Idle mixture.
 - c. Fuel shutoff system calibration.
 - d. Starting enrichment system calibration.
 - e. Transient enrichment system calibration.
 - f. Air-fuel flow calibration.
 - g. Altitude compensation system calibration.
 - h. Operating pressure(s).
 - i. Injector timing calibration.
 4. Fuel injection for compression-ignition engines.
 - a. Control parameters and calibrations.
 - b. Transient enrichment system calibration.
 - c. Air-fuel flow calibration.
 - d. Altitude compensation system calibration.
 - e. Operating pressure(s).
 - f. Injector timing calibration.
- IV. Ignition System for Spark-ignition Engines.
1. Control parameters and calibration.
 2. Initial timing setting.
 3. Dwell setting.
 4. Altitude compensation system calibration.
 5. Spark plug voltage.
- V. Engine Cooling System—thermostat calibration.
- VI. Exhaust System—maximum allowable back pressure.
- VII. System for Controlling Exhaust Emissions.
1. Air injection system.
 - a. Control parameters and calibrations.
 - b. Pump flow rate.
 2. EGR system.

- a. Control parameters and calibrations.
- b. EGR valve flow calibration.
- 3. Catalytic converter system.
 - a. Active surface area.
 - b. Volume of catalyst.
 - c. Conversion efficiency.
- 4. Backpressure.
- VIII. System for Controlling Crankcase Emissions.
 - 1. Control parameters and calibrations.
 - 2. Valve calibrations.
- IX. Auxiliary Emission Control Devices (AECD).
 - 1. Control parameters and calibrations.
 - 2. Component calibration(s).
- X. System for Controlling Evaporative Emissions.
 - 1. Control parameters and calibrations.
 - 2. Fuel tank.
 - a. Volume.
 - b. Pressure and vacuum relief settings.
- XI. Warning Systems Related to Emission Controls.
 - 1. Control parameters and calibrations.
 - 2. Component calibrations.

Appendix III to Part 1068— High-Altitude Counties

In some cases the standard-setting part includes requirements or other specifications that apply for high-altitude counties. The following counties have substantial populated areas above 4,000 feet above sea level and are therefore considered to be high-altitude counties:

STATE OF ARIZONA	Garfield	Routt	Power
Apache	Gilpin	Saguache	Teton
Cochise	Grand	San Juan	Valley
Coconino	Gunnison	San Miguel	STATE OF MONTANA
Navajo	Hinsdale	Summit	Beaverhead
Yavapai	Huerfano	Teller	Deer Lodge
STATE OF COLORADO	Jackson	Washington	Gallatin
Adams	Jefferson	Weld	Jefferson
Alamosa	Kit Carson	STATE OF IDAHO	Judith Basin
Arapahoe	Lake	Bannock	Powell
Archuleta	La Plata	Bear Lake	Madison
Boulder	Larimer	Bingham	Meagher
Chaffee	Las Animas	Blaine	Park
Cheyenne	Lincoln	Bonneville	Silver Bow
Clear Creek	Mesa	Butte	Wheatland
Conejos	Mineral	Camas	STATE OF NEBRASKA
Costilla	Moffat	Caribou	Banner
Crowley	Montezuma	Cassia	Cheyenne
Custer	Montrose	Clark	Kimball
Delta	Morgan	Custer	Sioux
Denver	Otero	Franklin	STATE OF NEVADA
Dolores	Ouray	Fremont	Carson City
Douglas	Park	Jefferson	Douglas
Eagle	Pitkin	Lemhi	Elko
Elbert	Pueblo	Madison	Esmeralda
El Paso	Rio Blanco	Minidoka	Eureka
Fremont	Rio Grande	Oneida	Humboldt

Lander
Lincoln
Lyon
Mineral
Nye
Pershing
Storey
Washoe
White Pine

**STATE OF NEW
MEXICO**

Bernalillo
Catron
Colfax
Curry
De Baca
Grant
Guadalupe
Harding
Hidalgo
Lincoln
Los Alamos
Luna
McKinley
Mora
Otero
Rio Arriba
Roosevelt
Sandoval
San Juan
San Miguel
Santa Fe
Sierra
Socorro
Taos
Torrance
Union
Valencia

STATE OF OREGON

Harney
Lake
Klamath

STATE OF TEXAS

Jeff Davis
Judspeth
Parmer

STATE OF UTAH

Beaver
Box Elder
Cache
Carbon
Daggett
Davis
Duchesne

Emery
Garfield
Grand
Iron
Juab
Kane
Millard
Morgan
Piute
Rich
Salt Lake
San Juan
Sanpete
Sevier
Summit
Tooele
Uintah
Utah
Wasatch
Wayne
Weber

STATE OF WYOMING

Albany
Campbell
Carbon
Converse
Fremont
Goshen
Hot Springs
Johnson
Laramie
Lincoln
Natrona
Niobrara
Park
Platte
Sublette
Sweetwater
Teton
Uinta
Washakie
Weston

246. A new part 1074 is added to subchapter U of chapter I to read as follows:

Part 1074 — PREEMPTION OF STATE STANDARDS AND PROCEDURES FOR WAIVER OF FEDERAL PREEMPTION FOR NONROAD ENGINES AND NONROAD VEHICLES

Subpart A— Applicability and General Provisions

1074.1 Applicability.

1074.5 Definitions.

1074.10 Scope of preemption.

1074.12 Scope of preemption— specific provisions for locomotives and locomotive engines

Subpart B—Procedures for Authorization

1074.101 Procedures for California nonroad authorization requests.

1074.105 Criteria for granting authorization.

1074.110 Adoption of California standards by other states.

1074.115 Relationship of federal and state standards.

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

Subpart A— Applicability and General Provisions

§1074.1 Applicability.

The requirements of this part apply with respect to state and local standards and other requirements relating to the control of emissions from nonroad engines and nonroad vehicles.

§1074.5 Definitions.

The definitions in this section apply to this part. As used in this part, all undefined terms have the meaning the Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401-7671q.

Administrator means the Administrator of the Environmental Protection Agency and any authorized representatives.

Commercial means an activity engaged in as a vocation.

Construction equipment or vehicle means any internal combustion engine-powered machine primarily used in construction and located on commercial construction sites.

Engine used in a locomotive means either an engine placed in a locomotive to move other equipment, freight, or passenger traffic, or an engine mounted on a locomotive to provide auxiliary power.

Farm equipment or vehicle means any internal combustion engine-powered machine primarily used in the commercial production and/or commercial harvesting of food, fiber, wood, or commercial organic products or for the processing of such products for further use on the farm.

Locomotive means a piece of equipment meeting the definition of locomotive in 40 CFR 1033.901 that is propelled by a nonroad engine.

New has the following meanings:

(1) For locomotives, new has the meaning given in 40 CFR 1033.901.

(2) For engines used in locomotives, new means an engine incorporated in (or intended to be incorporated in) in a new locomotive.

(3) For other nonroad engines and equipment, new means a domestic or imported nonroad engine or nonroad vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser. Where the equitable or legal title to an engine or vehicle is not transferred to an ultimate purchaser until after the engine or vehicle is placed into service, then the engine or vehicle will no longer be new once it is placed into service. A nonroad engine or vehicle is placed into service when it is used for its functional purposes. This paragraph (3) does not apply to locomotives or engines used in locomotives.

Nonroad engine has the meaning given in 40 CFR 1068.30

Primarily used means used 51 percent or more.

States and localities means any or all of the states, commonwealths, and territories in the United States including the District of Columbia and any or all of their political subdivisions.

Ultimate purchaser means the first person who in good faith purchases a new nonroad engine or new nonroad vehicle or equipment for purposes other than resale.

United States has the meaning given in 40 CFR 1068.30.

§1074.10 Scope of preemption.

(a) States and localities are preempted from adopting or enforcing standards or other requirements relating to the control of emissions from new engines smaller than 175 horsepower that are primarily used in farm or construction equipment or vehicles, as defined in this part. For equipment that is used in applications in addition to farming or construction activities, if the equipment is primarily used as farm and/or construction equipment or vehicles (as defined in this part), it is considered farm or construction equipment or vehicles.

(b) For nonroad engines or vehicles other than those described in paragraph (a) of this section and §1074.12, States and localities are preempted from enforcing any standards or other requirements relating to control of emissions from nonroad engines or vehicles except as provided in subpart B of this part.

§1074.12 Scope of preemption— specific provisions for locomotives and locomotive engines

(a) States and localities are preempted from adopting or enforcing standards or other requirements relating to the control of emissions from new locomotives and new engines used in locomotives.

(b) During a period equivalent in length to 133 percent of the useful life, expressed as MW-hrs (or miles where applicable), beginning at the point at which the locomotive or engine becomes new, those standards or other requirements which are preempted include, but are not limited to, the following: emission standards, mandatory fleet average standards, certification requirements, retrofit and aftermarket equipment requirements, and nonfederal in-use testing requirements. The standards and other requirements specified in the preceding sentence are preempted whether applicable to new or other locomotives or locomotive engines.

Subpart B—Procedures for Authorization

§1074.101 Procedures for California nonroad authorization requests.

(a) California must request authorization from the Administrator to enforce its adopted standards and other requirements relating to control of emissions from nonroad engines or vehicles that are not preempted by §1074.10(a) or §1074.12. The request must include the record on which the state rulemaking was based.

(b) After receiving the authorization request, the Administrator will provide notice and opportunity for a public hearing regarding such requests.

§1074.105 Criteria for granting authorization.

(a) The Administrator will grant the authorization if California determines that its standards will be, in the aggregate, at least as protective of public health and welfare as otherwise applicable federal standards.

(b) The authorization will not be granted if the Administrator finds that any of the following are true:

(1) California's determination is arbitrary and capricious.

(2) California does not need such standards to meet compelling and extraordinary conditions.

(3) The California standards and accompanying enforcement procedures are not consistent with section 209 of the Act (42 U.S.C. 7543).

(c) In considering any request from California to authorize the state to adopt or enforce standards or other requirements relating to control of emissions from new nonroad spark-ignition engines smaller than 50 horsepower, the Administrator will give appropriate consideration to safety factors (including the potential increased risk of burn or fire) associated with compliance with the California standard.

§1074.110 Adoption of California standards by other states.

(a) Except as described in paragraph (b) of this section, any state other than California that has plan provisions approved under Part D of Title I of the Act (42 U.S.C. 7501 to 7515) may adopt and enforce emission standards for any period for nonroad engines and vehicles subject to the following requirements:

- (1) The state must provide notice to the Administrator that it has adopted such standards.
- (2) Such standards may not apply to new engines smaller than 175 horsepower that are used in farm or construction equipment or vehicles, or to new locomotives or new engines used in locomotives.
- (3) Such standards and implementation and enforcement must be identical, for the period concerned, to the California standards authorized by the Administrator.
- (4) The state must adopt such standards at least two years before the standards first take effect.
- (5) California must have adopted such standards two years before the standards first take effect in the state that is adopting them under this section.

(b) States and localities, other than the State of California, may not adopt or attempt to enforce any standard or other requirement applicable to the control of emissions from spark-ignition engines smaller than 50 horsepower, except standards or other requirements that were adopted by that state before September 1, 2003.

§1074.115 Relationship of federal and state standards.

If state standards apply to a new nonroad engine or vehicle pursuant to authorization granted under section 209 of the Act (42 U.S.C. 7543), compliance with such state standards will be treated as compliance with the otherwise applicable standards of this chapter for engines or vehicles introduced into commerce in that state.