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CODE OF FEDERAL REGULATIONS

Title 40
Protection of Environment

Parts 1000 to 1059

Revised as of July 1, 2016

Containing a codification of documents
of general applicability and future effect

As of July 1, 2016

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As of July 1, 2016

Title 40, Part 1000 to End

Revised as of July 1, 2016

Is Replaced by

Title 40, Parts 1000 to 1059

and

Title 40, Part 1060 to End

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Cite this Code: CFR

To cite the regulations in this volume use title, part and section number. Thus, 40 CFR 1027.101 *refers to title 40, part 1027, section 101.*

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Title 1 through Title 16.....as of January 1
Title 17 through Title 27.....as of April 1
Title 28 through Title 41.....as of July 1
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OLIVER A. POTTS,
Director,
Office of the Federal Register.
July 1, 2016.

THIS TITLE

Title 40—PROTECTION OF ENVIRONMENT is composed of thirty-seven volumes. The parts in these volumes are arranged in the following order: Parts 1–49, parts 50–51, part 52 (52.01–52.1018), part 52 (52.1019–52.2019), part 52 (52.2020–end of part 52), parts 53–59, part 60 (60.1–60.499), part 60 (60.500–end of part 60, sections), part 60 (Appendices), parts 61–62, part 63 (63.1–63.599), part 63 (63.600–63.1199), part 63 (63.1200–63.1439), part 63 (63.1440–63.6175), part 63 (63.6580–63.8830), part 63 (63.8980–end of part 63), parts 64–71, parts 72–79, part 80, part 81, parts 82–86, parts 87–95, parts 96–99, parts 100–135, parts 136–149, parts 150–189, parts 190–259, parts 260–265, parts 266–299, parts 300–399, parts 400–424, parts 425–699, parts 700–722, parts 723–789, parts 790–999, parts 1000–1059, and part 1060 to end. The contents of these volumes represent all current regulations codified under this title of the CFR as of July 1, 2016.

Chapter I—Environmental Protection Agency appears in all thirty-seven volumes. Regulations issued by the Council on Environmental Quality, including an Index to Parts 1500 through 1508, appear in the volume containing parts 1060 to end. The OMB control numbers for title 40 appear in § 9.1 of this chapter.

For this volume, Michele Bugenhagen was Chief Editor. The Code of Federal Regulations publication program is under the direction of John Hyrum Martinez, assisted by Stephen J. Frattini.

Title 40—Protection of Environment

(This book contains parts 1000 to 1059)

Part

CHAPTER I—Environmental Protection Agency (Continued) 1027

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

EDITORIAL NOTE: Nomenclature changes to chapter I appear at 65 FR 47324, 47325, Aug. 2, 2000, and 66 FR 34375, 34376, June 28, 2001.

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SUBCHAPTER U—AIR POLLUTION CONTROLS

PARTS 1000–1026 [RESERVED]

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

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AUTHORITY: 42 U.S.C. 7401–7671q.

SOURCE: 73 FR 59184, Oct. 8, 2008, unless otherwise noted.

§ 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, 1042, or 1043.

(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.

(4) Portable fuel containers we regulate under 40 CFR part 59, subpart F.

(b) This part applies to applications for certification that we receive on or after December 8, 2008. Earlier applications are subject to the provisions of 40 CFR part 85, subpart Y, as that provision read before December 8, 2008.

(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, vehicles, and fuel-system components. 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.

[73 FR 59184, Oct. 8, 2008, as amended at 75 FR 22981, Apr. 30, 2010]

§ 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 EIAPP	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, including portable fuel containers.	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:

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

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.

CPI_{2006} = 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:

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

Where:

CPI_{2002} = 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/cpiai.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:

O_p = $1,106,224
L = $1,625,680
CPI_{2002} = 180.9
CPI_{2004} = 191.0
cert $\#_{2004}$ = 131
cert$\#_{2003}$ = 95
Fee_{06} = [$1,106,224 + $1,625,680 . (191.0/180.9)] . 1.169/[(131 + 95) . 0.5] = $29,200.88
Assessed Fee = $29,201

[73 FR 59184, Oct. 8, 2008, as amended at 74 FR 8423, Feb. 24, 2009; 75 FR 22981, Apr. 30, 2010]

§ 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 EIAPP certificate for the same engine family, a single fee applies for the engine family (*see* 40 CFR parts 94, 1042, and 1043).

(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.

[73 FR 59184, Oct. 8, 2008, as amended at 75 FR 22982, Apr. 30, 2010]

§ 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 part?

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:

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.

[73 FR 59184, Oct. 8, 2008, as amended at 75 FR 22982, Apr. 30, 2010]

§ 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

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SOURCE: 73 FR 37197, June 30, 2008, unless otherwise noted.

Subpart A—Overview and Applicability

§ 1033.1 Applicability.

The regulations in this part 1033 apply for all new locomotives and all locomotives containing a new locomotive engine, except as provided in § 1033.5.

(a) Standards begin to apply each time a locomotive or locomotive engine is originally manufactured or otherwise becomes new (defined in § 1033.901). The requirements of this part continue to apply as specified after locomotives cease to be new.

(b) Standards apply to the locomotive. However, in certain cases, the manufacturer/remanufacturer is allowed to test a locomotive engine instead of a complete locomotive, such as for certification. Also, you are not required to complete assembly of a locomotive to obtain a certificate of conformity for it, provided you meet the definition of ''manufacturer'' or ''remanufacturer'' (as applicable) in § 1033.901. For example, an engine manufacturer may obtain a certificate for locomotives which it does not manufacture, if the locomotives use its engines.

(c) Standards apply based on the year in which the locomotive was originally manufactured. The date of original manufacture is generally the date on which assembly is completed for the first time. For example, all locomotives originally manufactured in calendar years 2002, 2003, and 2004 are subject to the Tier 1 emission standards for their entire service lives.

(d) The following provisions apply when there are multiple persons meeting the definition of manufacturer or remanufacturer in § 1033.901:

(1) Each person meeting the definition of manufacturer must comply with the requirements of this part that apply to manufacturers; and each person meeting the definition of remanufacturer must comply with the requirements of this part that apply to remanufacturers. However, if one person complies with a specific requirement for a given locomotive, then all manufacturers/remanufacturers are deemed to have complied with that specific requirement.

(2) We will apply the requirements of subparts C, D, and E of this part to the manufacturer/remanufacturer that obtains the certificate of conformity for the locomotive. Other manufacturers and remanufacturers are required to comply with the requirements of subparts C, D, and E of this part only when notified by us. In our notification, we will specify a reasonable time period in which you need to comply with the requirements identified in the notice. See § 1033.601 for the applicability of 40 CFR part 1068 to these other manufacturers and remanufacturers.

(3) For example, we may require a railroad that installs certified kits but does not hold the certificate to perform production line auditing of the locomotives that it remanufactures. However, if we did, we would allow the railroad a reasonable amount of time to develop the ability to perform such auditing.

(e) The provisions of this part apply as specified for locomotives manufactured or remanufactured on or after July 7, 2008. See § 1033.102 to determine whether the standards of this part or the standards of 40 CFR part 92 apply for model years 2008 through 2012. For example, for a locomotive that was originally manufactured in 2007 and remanufactured on April 10, 2014, the provisions of this part begin to apply on April 10, 2014.

§ 1033.5 Exemptions and exclusions.

(a) Subpart G of this part exempts certain locomotives from the standards of this part.

(b) The definition of ''locomotive'' in § 1033.901 excludes certain vehicles. In general, the engines used in such excluded equipment are subject to standards under other regulatory parts. For example, see 40 CFR part 1039 for requirements that apply to diesel engines used in equipment excluded from the definition of ''locomotive'' in § 1033.901. The following locomotives are also excluded from the provisions of this part 1033:

(1) Historic locomotives powered by steam engines. For a locomotive that was originally manufactured after January 1, 1973 to be excluded under this paragraph (b)(1), it may not use any internal combustion engines and must be

used only for historical purposes such as at a museum or similar public attraction.

(2) Locomotives powered only by an external source of electricity.

(c) The requirements and prohibitions of this part apply only for locomotives that have become ''new'' (as defined in § 1033.901) on or after July 7, 2008.

(d) The provisions of this part do not apply for any auxiliary engine that only provides hotel power. In general, these engines are subject to the provisions of 40 CFR part 1039. However, depending on the engine cycle, model year and power rating, the engines may be subject to other regulatory parts instead.

(e) Manufacturers and owners of locomotives that operate only on nonstandard gauge rails may ask us to exclude such locomotives from this part by excluding them from the definition of ''locomotive''.

§ 1033.10 Organization of this part.

The regulations in this part 1033 contain provisions that affect locomotive manufacturers, remanufacturers, and others. However, the requirements of this part are generally addressed to the locomotive manufacturer/remanufacturer. The term ''you'' generally means the manufacturer/remanufacturer, as defined in § 1033.901. This part 1033 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of part 1033 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 locomotives under this part. Note that § 1033.150 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 and auditing production locomotives.

(e) Subpart E of this part describes general provisions for testing in-use locomotives.

(f) Subpart F of this part and 40 CFR part 1065 describe how to test locomotives and engines.

(g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, exemptions, and other provisions that apply to locomotive manufacturer/remanufacturers, owners, operators, and all others.

(h) Subpart H of this part describes how you may generate and use emission credits to certify your locomotives.

(i) Subpart I of this part describes provisions for locomotive owners and operators.

(j) Subpart J of this part contains definitions and other reference information.

§ 1033.15 Other regulation parts that apply for locomotives.

(a) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1033 describes how to apply the provisions of part 1065 of this chapter to test locomotives to determine whether they meet the exhaust emission standards in this part.

(b) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, remanufactures, imports, maintains, owns, or operates any of the locomotives subject to this part 1033. See § 1033.601 to determine how to apply the part 1068 regulations for locomotives. Part 1068 of this chapter describes general provisions, including the following areas:

(1) Prohibited acts and penalties for locomotive manufacturer/remanufacturers and others.

(2) Exclusions and exemptions for certain locomotives.

(3) Importing locomotives.

(4) Selective enforcement audits of your production.

(5) Defect reporting and recall.

(6) Procedures for hearings.

(c) Other parts of this chapter apply if referenced in this part.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22982, Apr. 30, 2010]

§ 1033.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to § 1033.925 and 40 CFR 1068.25 regarding recordkeeping

requirements. Unless we specify otherwise, 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 § 1033.255 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* § 1033.901).

(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.

[75 FR 22982, Apr. 30, 2010]

Subpart B—Emission Standards and Related Requirements

§ 1033.101 Exhaust emission standards.

See §§ 1033.102 and 1033.150 to determine how the emission standards of this section apply before 2023.

(a) *Emission standards for line-haul locomotives.* Exhaust emissions from your new locomotives may not exceed the applicable emission standards in Table 1 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 1 TO § 1033.101—LINE-HAUL LOCOMOTIVE EMISSION STANDARDS

Year of original manufacture	Tier of standards	Standards (g/bhp-hr)			
		NO_X	PM	HC	CO
1973–1992 [a]	Tier 0 [b]	8.0	0.22	1.00	5.0
1993 [a]–2004	Tier 1 [b]	7.4	0.22	0.55	2.2
2005–2011	Tier 2 [b]	5.5	[e] 0.10	0.30	1.5
2012–2014	Tier 3 [c]	5.5	0.10	0.30	1.5
2015 or later	Tier 4 [d]	1.3	0.03	0.14	1.5

[a] Locomotive models that were originally manufactured in model years 1993 through 2001, but that were not originally equipped with a separate coolant system for intake air are subject to the Tier 0 rather than the Tier 1 standards.
[b] Line-haul locomotives subject to the Tier 0 through Tier 2 emission standards must also meet switch standards of the same tier.
[c] Tier 3 line-haul locomotives must also meet Tier 2 switch standards.
[d] Manufacturers may elect to meet a combined NO_X + HC standard of 1.4 g/bhp-hr instead of the otherwise applicable Tier 4 NO_X and HC standards, as described in paragraph (j) of this section.
[e] The PM standard for newly remanufactured Tier 2 line-haul locomotives is 0.20 g/bhp-hr until January 1, 2013, except as specified in § 1033.150(a).

(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)			
		NO_X	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	[b] 0.13	0.60	2.4
2011–2014	Tier 3	5.0	0.10	0.60	2.4

TABLE 2 TO § 1033.101—SWITCH LOCOMOTIVE EMISSION STANDARDS—Continued

Year of original manufacture	Tier of standards	Standards (g/bhp-hr)			
		NO_X	PM	HC	CO
2015 or later	Tier 4	[c] 1.3	0.03	[c] 0.14	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 NO_X + HC standard of 1.4 g/bhp-hr instead of the otherwise applicable Tier 4 NO_X and HC standards, as described in paragraph (j) of this section.

(c) *Smoke standards.* The smoke opacity standards specified in Table 3 to this section apply only for locomotives certified to one or more PM standards or FELs greater than 0.05 g/bhp-hr. Smoke emissions, when measured in accordance with the provisions of Subpart F of this part, shall not exceed these standards.

TABLE 3 TO § 1033.101—SMOKE STANDARDS FOR LOCOMOTIVES (PERCENT OPACITY)

	Steady-state	30-sec peak	3-sec peak
Tier 0	30	40	50
Tier 1	25	40	50
Tier 2 and later	20	40	50

(d) *Averaging, banking, and trading.* You may generate or use emission credits under the averaging, banking, and trading (ABT) program as described in subpart H of this part to comply with the NO_X and/or PM standards of this part. You may also use ABT to comply with the Tier 4 HC standards of this part as described in paragraph (j) of this section. Generating or using emission credits requires that you specify a family emission limit (FEL) for each pollutant you include in the ABT program for each engine family. These FELs serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in paragraphs (a) and (b) of this section. FELs may not be higher than the following limits:

(1) FELs for Tier 0 and Tier 1 locomotives originally manufactured before 2002 may have any value.

(2) FELs for Tier 1 locomotives originally manufactured 2002 through 2004 may not exceed 9.5 g/bhp-hr for NO_X emissions or 0.60 g/bhp-hr for PM emissions measured over the line-haul duty cycle. FELs for these locomotives may not exceed 14.4 g/bhp-hr for NO_X emissions or 0.72 g/bhp-hr for PM emissions measured over the switch duty cycle.

(3) FELs for Tier 2 and Tier 3 locomotives may not exceed the Tier 1 standards of this section.

(4) FELs for Tier 4 locomotives may not exceed the Tier 3 standards of this section.

(e) *Notch standards.* (1) Exhaust emissions from locomotives may not exceed the notch standards specified in paragraph (e)(2) of this section, except as allowed in paragraph (e)(3) of this section, when measured using any test procedures under any test conditions.

(2) Except as specified in paragraph (e)(5) of this section, calculate the applicable notch standards for each pollutant for each notch from the certified notch emission rate as follows:

$$\text{Notch standard} = (E_i) \times (1.1 + (1 - ELH_i/\text{std}))$$

Where:

E_i = The deteriorated brake-specific emission rate (for pollutant i) for the notch (i.e., the brake-specific emission rate calculated under subpart F of this part, adjusted by the deterioration factor in the application for certification); where i is NO_X, HC, CO or PM.

ELH_i = The deteriorated line-haul duty-cycle weighted brake-specific emission rate for pollutant i, as reported in the application for certification, except as specified in paragraph (e)(6) of this section.

std = The applicable line-haul duty-cycle standard/FEL, except as specified in paragraph (e)(6) of this section.

(3) Exhaust emissions that exceed the notch standards specified in paragraph (e)(2) of this section are allowed only if one of the following is true:

(i) The same emission controls are applied during the test conditions causing the noncompliance as were applied during certification test conditions (and to the same degree).

(ii) The exceedance result from a design feature that was described (including its effect on emissions) in the approved application for certification, and is:

(A) Necessary for safety;

(B) Addresses infrequent regeneration of an aftertreatment device; or

(C) Otherwise allowed by this part.

(4) Since you are only required to test your locomotive at the highest emitting dynamic brake point, the notch caps that you calculate for the dynamic brake point that you test also apply for other dynamic brake points.

(5) No PM notch caps apply for locomotives certified to a PM standard or FEL of 0.05 g/bhp-hr or lower.

(6) For switch locomotives that are not subject to line-haul standards, ELH^i equals the deteriorated switch duty-cycle weighted brake-specific emission rate for pollutant i and std is the applicable switch cycle standard/FEL.

(f) *Fuels*. The exhaust emission standards in this section apply for locomotives using the fuel type on which the locomotives in the engine family are designed to operate.

(1) You must meet the numerical emission standards for HC in this section based on the following types of hydrocarbon emissions for locomotives powered by the following fuels:

(i) Alcohol-fueled locomotives: THCE emissions for Tier 3 and earlier locomotives and NMHCE for Tier 4.

(ii) Gaseous-fueled locomotives: NMHC emissions.

(iii) Diesel-fueled and other locomotives: THC emissions for Tier 3 and earlier locomotives and NMHC for Tier 4. Note that manufacturers/remanufacturers may choose to not measure NMHC and assume that NMHC is equal to THC multiplied by 0.98 for diesel-fueled locomotives.

(2) You must certify your diesel-fueled locomotives to use the applicable grades of diesel fuel as follows:

(i) Certify your Tier 4 and later diesel-fueled locomotives for operation with only Ultra Low Sulfur Diesel (ULSD) fuel. Use ULSD as the test fuel for these locomotives.

(ii) Certify your Tier 3 and earlier diesel-fueled locomotives for operation with only ULSD fuel if they include sulfur-sensitive technology and you demonstrate compliance using a ULSD test fuel.

(iii) Certify your Tier 3 and earlier diesel-fueled locomotives for operation with either ULSD fuel or Low Sulfur Diesel (LSD) fuel if they do not include sulfur-sensitive technology or if you demonstrate compliance using an LSD test fuel (including commercial LSD fuel).

(iv) For Tier 1 and earlier diesel-fueled locomotives, if you demonstrate compliance using a ULSD test fuel, you must adjust the measured PM emissions upward by 0.01 g/bhp-hr to make them equivalent to tests with LSD. We will not apply this adjustment for our testing.

(g) *Useful life*. The emission standards and requirements in this subpart apply to the emissions from new locomotives for their useful life. The useful life is generally specified as MW-hrs and years, and ends when either of the values (MW-hrs or years) is exceeded or the locomotive is remanufactured.

(1) The minimum useful life in terms of MW-hrs is equal to the product of the rated horsepower multiplied by 7.50. The minimum useful life in terms of years is ten years. For locomotives originally manufactured before January 1, 2000 and not equipped with MW-hr meters, the minimum useful life is equal to 750,000 miles or ten years, whichever is reached first. See § 1033.140 for provisions related to rated power.

(2) You must specify a longer useful life if the locomotive or locomotive engine is designed to last longer than the applicable minimum useful life. Recommending a time to remanufacture that is longer than the minimum useful life is one indicator of a longer design life.

(3) Manufacturers/remanufacturers of locomotives with non-locomotive-specific engines (as defined in §1033.901) may ask us (before certification) to allow a shorter useful life for an engine family containing only non-locomotive-specific engines. We may approve a shorter useful life, in MW-hrs of locomotive operation but not in years, if we determine that these locomotives 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.

(4) Remanufacturers of locomotive or locomotive engine configurations that have been previously certified under paragraph (g)(3) of this section to a useful life that is shorter than the value specified in paragraph (g)(1) of this section may certify to that same shorter useful life value without request.

(5) In unusual circumstances, you may ask us to allow you to certify some locomotives in your engine family to a partial useful life. This allowance is limited to cases in which some or all of the locomotive's power assemblies have been operated previously such that the locomotive will need to be remanufactured prior to the end of the otherwise applicable useful life. Unless we specify otherwise, define the partial useful life based on the total MW-hrs since the last remanufacture to be consistent with other locomotives in the family. For example, this may apply for a previously uncertified locomotive that becomes ''new'' when it is imported, but that was remanufactured two years earlier (representing 25 percent of the normal useful life period). If such a locomotive could be brought into compliance with the applicable standards without being remanufactured, you may ask to include it in your engine family for the remaining 75 percent of its useful life period.

(h) *Applicability for testing.* The emission standards in this subpart apply to all testing, including certification testing, production-line testing, and in-use testing.

(i) *Alternate CO standards.* Manufacturers/remanufacturers may certify Tier 0, Tier 1, or Tier 2 locomotives to an alternate CO emission standard of 10.0 g/bhp-hr instead of the otherwise applicable CO standard if they also certify those locomotives to alternate PM standards less than or equal to one-half of the otherwise applicable PM standard. For example, a manufacturer certifying Tier 1 locomotives to a 0.11 g/bhp-hr PM standard may certify those locomotives to the alternate CO standard of 10.0 g/bhp-hr.

(j) *Alternate* NO_X + HC standards for Tier 4. Manufacturers/remanufacturers may use credits accumulated through the ABT program to certify Tier 4 locomotives to an alternate NO_X + HC emission standard of 1.4 g/bhp-hr (instead of the otherwise applicable NO_X and NMHC standards). You may use NO_X credits to show compliance with this standard by certifying your family to a NO_X + HC FEL. Calculate the NO_X credits needed as specified in subpart H of this part using the NO_X + HC emission standard and FEL in the calculation instead of the otherwise applicable NO_X standard and FEL. You may not generate credits relative to the alternate standard or certify to the standard without using credits.

(k) *Upgrading.* Upgraded locomotives that were originally manufactured prior to January 1, 1973 are subject to the Tier 0 standards. (See the definition of upgrade in §1033.901.)

(l) *Other optional standard provisions.* Locomotives may be certified to a higher tier of standards than would otherwise be required. Tier 0 switch locomotives may be certified to both the line-haul and switch cycle standards. In both cases, once the locomotives become subject to the additional standards, they remain subject to those

standards for the remainder of their service lives.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59188, Oct. 8, 2008; 75 FR 22982, Apr. 30, 2010]

§ 1033.102 Transition to the standards of this part.

(a) Except as specified in § 1033.150(a), the Tier 0 and Tier 1 standards of § 1033.101 apply for new locomotives beginning January 1, 2010, except as specified in § 1033.150(a). The Tier 0 and Tier 1 standards of 40 CFR part 92 apply for earlier model years.

(b) Except as specified in § 1033.150(a), the Tier 2 standards of § 1033.101 apply for new locomotives beginning January 1, 2013. The Tier 2 standards of 40 CFR part 92 apply for earlier model years.

(c) The Tier 3 and Tier 4 standards of § 1033.101 apply for the model years specified in that section.

§ 1033.110 Emission diagnostics—general requirements.

The provisions of this section apply if you equip your locomotives with a diagnostic system that will detect significant malfunctions in their emission-control systems and you choose to base your emission-related maintenance instructions on such diagnostics. See § 1033.420 for information about how to select and maintain diagnostic-equipped locomotives for in-use testing. Notify the owner/operator that the presence of this diagnostic system affects their maintenance obligations under § 1033.815. Except as specified in § 1033.112, this section does not apply for diagnostics that you do not include in your emission-related maintenance instructions. The provisions of this section address diagnostic systems based on malfunction-indicator lights (MILs). You may ask to use other indicators instead of MILs.

(a) The MIL must be readily visible to the operator. When the MIL goes on, it must display ''Check Emission Controls'' or a similar message that we approve. You may use sound in addition to the light signal.

(b) To ensure that owner/operators consider MIL illumination seriously, you may not illuminate it for malfunctions that would not otherwise require maintenance. This section does not limit your ability to display other indicator lights or messages, as long as they are clearly distinguishable from MILs affecting the owner/operator's maintenance obligations under § 1033.815.

(c) Control when the MIL can go out. If the MIL 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 during the next 24 hours, the MIL may stay off during later engine operation.

(d) 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 (e) 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 (from malfunction or tampering). Provide instructions to the owner/operator regarding how to interpret malfunction codes.

(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 locomotive can read and understand the diagnostic trouble codes stored in the onboard computer with generic tools and information.

(f) Follow standard references for formats, codes, and connections.

§ 1033.112 Emission diagnostics for SCR systems.

Engines equipped with SCR systems using separate reductant tanks must also meet the requirements of this section in addition to the requirements of § 1033.110. This section does not apply for SCR systems using the engine's fuel as the reductant.

(a) The diagnostic system must monitor reductant quality and tank levels and alert operators to the need to refill the reductant tank before it is empty, or to replace the reductant if it does

not meet your concentration specifications. Unless we approve other alerts, use a malfunction-indicator light (MIL) as specified in § 1033.110 and an audible alarm. You do not need to separately monitor reductant quality if you include an exhaust NO_X sensor (or other sensor) that allows you to determine inadequate reductant quality. However, tank level must be monitored in all cases.

(b) Your onboard computer must record in nonvolatile computer memory all incidents of engine operation with inadequate reductant injection or reductant quality. It must record the total amount of operation without adequate reductant. It may total the operation by hours, work, or excess NO_X emissions.

§ 1033.115 Other requirements.

Locomotives that are required to meet the emission standards of this part must meet the requirements of this section. These requirements apply when the locomotive is new (for freshly manufactured or remanufactured locomotives) and continue to apply throughout the useful life.

(a) *Crankcase emissions.* Crankcase emissions may not be discharged directly into the ambient atmosphere from any locomotive, except as follows:

(1) Locomotives 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 both of the following things:

(i) Manufacture the locomotives so that all crankcase emissions can be routed into the applicable sampling systems specified in 40 CFR part 1065, consistent with good engineering judgment.

(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.* Locomotives that have adjustable parameters must meet all the requirements of this part for any adjustment in the approved adjustable range. You must specify in your application for certification the adjustable range of each adjustable parameter on a new locomotive or new locomotive engine to:

(1) Ensure that safe locomotive operating characteristics are available within that range, as required by section 202(a)(4) of the Clean Air Act (42 U.S.C. 7521(a)(4)), taking into consideration the production tolerances.

(2) Limit the physical range of adjustability to the maximum extent practicable to the range that is necessary for proper operation of the locomotive or locomotive engine.

(c) *Prohibited controls.* You may not design or produce your locomotives 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 locomotive emits a noxious or toxic substance it would otherwise not emit that contributes to such an unreasonable risk.

(d) *Evaporative and refueling controls.* For locomotives fueled with a volatile fuel you must design and produce them to minimize evaporative emissions during normal operation, including periods when the engine is shut down. You must also design and produce them to minimize the escape of fuel vapors during refueling. Hoses used to refuel gaseous-fueled locomotives may not be designed to be bled or vented to the atmosphere under normal operating conditions. No valves or pressure relief vents may be used on gaseous-fueled locomotives except as emergency safety devices that do not operate at normal system operating flows and pressures.

(e) *Altitude requirements.* All locomotives must be designed to include features that compensate for changes in altitude so that the locomotives will comply with the applicable emission standards when operated at any altitude less than:

(1) 7000 feet above sea level for line-haul locomotives.

(2) 5500 feet above sea level for switch locomotives.

(f) *Defeat devices.* You may not equip your locomotives with a defeat device.

A defeat device is an auxiliary emission control device (AECD) that reduces the effectiveness of emission controls under conditions that the locomotive may reasonably be expected to encounter during normal operation and use.

(1) This does not apply to AECDs you identify in your application for certification if any of the following is true:

(i) The conditions of concern were substantially included in the applicable duty cycle test procedures described in subpart F of this part.

(ii) You show your design is necessary to prevent locomotive damage or accidents.

(iii) The reduced effectiveness applies only to starting the locomotive.

(iv) The locomotive emissions when the AECD is functioning are at or below the notch caps of § 1033.101.

(2) This does not apply to AECDs related to hotel mode that conform to the specifications of this paragraph (f)(2). This provision is intended for AECDs that have the primary function of operating the engine at a different speed than would be done to generate the same propulsive power when not operating in hotel mode. Identify and describe these AECDs in your application for certification. We may allow the AECDs to modify engine calibrations where we determine that such modifications are environmentally beneficial or needed for proper engine function. You must obtain preliminary approval under § 1033.210 before incorporating such modifications. Otherwise, you must apply the same injection timing and intake air cooling strategies in hotel mode and non-hotel mode.

(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.

(h) *Power meters*. Tier 1 and later locomotives must be equipped with MW-hr meters (or the equivalent) consistent with the specifications of § 1033.140.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59189, Oct. 8, 2008; 75 FR 22982, Apr. 30, 2010]

§ 1033.120 Emission-related warranty requirements.

(a) *General requirements*. Manufacturers/remanufacturers must warrant to the ultimate purchaser and each subsequent purchaser that the new locomotive, 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*. 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.

(c) *Components covered.* The emission-related warranty covers all components whose failure would increase a locomotive's emissions of any regulated pollutant. This includes 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 the components you sell even if another company produces the component. Your emission-related warranty does not need to cover components whose failure would not increase a locomotive's emissions of any regulated pollutant. For remanufactured locomotives, your emission-related warranty is required to cover only those parts that you supply or those parts for which you specify allowable part manufacturers. It does not need to cover used parts that are not replaced during the remanufacture.

(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 locomotive.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59189, Oct. 8, 2008; 75 FR 22983, Apr. 30, 2010]

§ 1033.125 Maintenance instructions.

Give the owner of each new locomotive written instructions for properly maintaining and using the locomotive, including the emission-control system. Include in the instructions a notification that owners and operators must comply with the requirements of subpart I of this part 1033. The emission-related maintenance instructions also apply to any service accumulation on your emission-data locomotives, as described in § 1033.245 and in 40 CFR part 1065. If you equip your locomotives with a diagnostic system that will detect significant malfunctions in their emission-control systems, specify the extent to which your emission-related maintenance instructions include such diagnostics.

§ 1033.130 Instructions for engine remanufacturing or engine installation.

(a) If you do not complete assembly of the new locomotive (such as selling a kit that allows someone else to remanufacture a locomotive under your certificate), give the assembler instructions for completing assembly consistent with the requirements of this part. Include all information necessary to ensure that the locomotive will be assembled in its certified configuration.

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

(1) Include the heading: ''Emission-related assembly instructions''

(2) Describe any instructions necessary to make sure the assembled locomotive will operate according to design specifications in your application for certification.

(3) Describe how to properly label the locomotive. This will generally include instructions to remove and destroy the previous Engine Emission Control Information label.

(4) State one of the following as applicable:

(i) ''Failing to follow these instructions when remanufacturing a locomotive or locomotive engine violates federal law (40 CFR 1068.105(b)), and may subject you to fines or other penalties as described in the Clean Air Act.''

(ii) ''Failing to follow these instructions when installing this locomotive engine violates federal law (40 CFR 1068.105(b)), and may subject you to fines or other penalties as described in the Clean Air Act.''

(c) You do not need installation instructions for locomotives you assemble.

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available Web site 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 assembler is informed of the assembly requirements.

(e) Your emission-related assembly instructions may not include specifications for parts unrelated to emissions. For the basic mechanical parts listed in this paragraph (e), you may not specify a part manufacturer unless we determine that such a specification is necessary. You may include design specifications for such parts addressing the dimensions and material constraints as necessary. You may also specify a part number, as long you make it clear that alternate part suppliers may be used. This paragraph (e) covers the following parts or other parts we determine qualify as basic mechanical parts:

(1) Intake and exhaust valves.

(2) Intake and exhaust valve retainers.

(3) Intake and exhaust valve springs.

(4) Intake and exhaust valve rotators.

(5) Oil coolers.

§ 1033.135 Labeling.

As described in this section, each locomotive must have a label on the locomotive and a separate label on the engine. The label on the locomotive stays on the locomotive throughout its service life. It generally identifies the original certification of the locomotive, which is when it was originally manufactured for Tier 1 and later locomotives. The label on the engine is replaced each time the locomotive is remanufactured and identifies the most recent certification.

(a) *Serial numbers.* At the point of original manufacture, assign each locomotive and each locomotive engine a serial number or other unique identification number and permanently affix, engrave, or stamp the number on the locomotive and engine in a legible way.

(b) *Locomotive labels.* (1) Locomotive labels meeting the specifications of paragraph (b)(2) of this section must be applied as follows:

(i) The manufacturer must apply a locomotive label at the point of original manufacture.

(ii) The remanufacturer must apply a locomotive label at the point of original remanufacture, unless the locomotive was labeled by the original manufacturer.

(iii) Any remanufacturer certifying a locomotive to an FEL or standard different from the previous FEL or standard to which the locomotive was previously certified must apply a locomotive label.

(2) The locomotive label must meet all of the following criteria:

(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.

(ii) The label must be lettered in the English language using a color that contrasts with the background of the label.

(iii) The label must include all the following information:

(A) The label heading: ''ORIGINAL LOCOMOTIVE EMISSION CONTROL INFORMATION.'' Manufacturers/remanufacturers may add a subheading

to distinguish this label from the engine label described in paragraph (c) of this section.

(B) Full corporate name and trademark of the manufacturer (or remanufacturer).

(C) The applicable engine family and configuration identification. In the case of locomotive labels applied by the manufacturer at the point of original manufacture, this will be the engine family and configuration identification of the certificate applicable to the freshly manufactured locomotive. In the case of locomotive labels applied by a remanufacturer during remanufacture, this will be the engine family and configuration identification of the certificate under which the remanufacture is being performed.

(D) Date of original manufacture of the locomotive, as defined in § 1033.901.

(E) The standards/FELs to which the locomotive was certified and the following statement: ''THIS LOCOMOTIVE MUST COMPLY WITH THESE EMISSION LEVELS EACH TIME THAT IT IS REMANUFACTURED, EXCEPT AS ALLOWED BY 40 CFR 1033.750.''

(3) Label diesel-fueled locomotives near the fuel inlet to identify the allowable fuels, consistent with § 1033.101. For example, Tier 4 locomotives should be labeled ''ULTRA LOW SULFUR DIESEL FUEL ONLY''. You do not need to label Tier 3 and earlier locomotives certified for use with both LSD and ULSD.

(c) *Engine labels.* (1) For engines not requiring aftertreatment devices, apply engine labels meeting the specifications of paragraph (c)(2) of this section once an engine has been assembled in its certified configuration. For engines that require aftertreatment devices, apply the label after the engine has been fully assembled, which may occur before installing the aftertreatment devices. These labels must be applied by:

(i) The manufacturer at the point of original manufacture; and

(ii) The remanufacturer at the point of each remanufacture (including the original remanufacture and subsequent remanufactures).

(2) The engine label must meet all of the following criteria:

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

(ii) The label must be lettered in the English language using a color that contrasts with the background of the label.

(iii) The label must include all the following information:

(A) The label heading: ''ENGINE EMISSION CONTROL INFORMATION.'' Manufacturers/remanufacturers may add a subheading to distinguish this label from the locomotive label described in paragraph (b) of this section.

(B) Full corporate name and trademark of the manufacturer/remanufacturer.

(C) Engine family and configuration identification as specified in the certificate under which the locomotive is being manufactured or remanufactured.

(D) A prominent unconditional statement of compliance with U.S. Environmental Protection Agency regulations which apply to locomotives, as applicable:

(*1*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 0 + switch locomotives.''

(*2*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 0 + line-haul locomotives.''

(*3*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 1 + locomotives.''

(*4*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 2 + locomotives.''

(*5*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 3 switch locomotives.''

(*6*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 3 line-haul locomotives.''

(*7*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 4 switch locomotives.''

(*8*) ''This locomotive conforms to U.S. EPA regulations applicable to Tier 4 line-haul locomotives.''

(E) The useful life of the locomotive.

(F) The standards/FELS to which the locomotive was certified.

(iv) You may include other critical operating instructions such as specifications for adjustments or reductant use for SCR systems.

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

(1) You may identify other emission standards that the engine/locomotive meets or does not meet (such as international 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 locomotive 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 1033 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.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59189, Oct. 8, 2008]

§ 1033.140 Rated power.

This section describes how to determine the rated power of a locomotive for the purposes of this part.

(a) A locomotive configuration's rated power is the maximum brake power point on the nominal power curve for the locomotive configuration, as defined in this section. See § 1033.901 for the definition of brake power. Round the power value to the nearest whole horsepower. Generally, this will be the brake power of the engine in notch 8.

(b) The nominal power curve of a locomotive configuration is its maximum available brake power at each possible operator demand setpoint or ''notch''. See 40 CFR 1065.1001 for the definition of operator demand. The maximum available power at each operator demand setpoint is based on your design and production specifications for that locomotive. The nominal power curve does not include any operator demand setpoints that are not achievable during in-use operation. For example, for a locomotive with only eight discrete operator demand setpoints, or notches, the nominal power curve would be a series of eight power points versus notch, rather than a continuous curve.

(c) The nominal power curve must be within the range of the actual power curves of production locomotives considering normal production variability. If after production begins it is determined that your nominal power curve does not represent production locomotives, we may require you to amend your application for certification under § 1033.225.

(d) For the purpose of determining useful life, you may need to use a rated power based on power other than brake power according to the provisions of this paragraph (d). The useful life must be based on the power measured by the locomotive's megawatt-hour meter. For example, if your megawatt-hour meter reads and records the electrical work output of the alternator/generator rather than the brake power of the engine, and the power output of the alternator/generator at notch 8 is 4000 horsepower, calculate your useful life as 30,000MW-hrs (7.5×4000).

§ 1033.150 Interim provisions.

The provisions of this section apply instead of other provisions of this part for a limited time. This section describes when these provisions apply.

(a) *Early availability of Tier 0, Tier 1, or Tier 2 systems.* Except as specified in paragraph (a)(2) of this section, for model years 2008 and 2009, you may remanufacture locomotives to meet the applicable standards in 40 CFR part 92 only if no remanufacture system has been certified to meet the standards of

this part and is available at a reasonable cost at least 90 days prior to the completion of the remanufacture as specified in paragraph (a)(3) of this section. This same provision continues to apply after 2009, but only for Tier 2 locomotives. Note that remanufacturers may certify remanufacturing systems that will not be available at a reasonable cost; however such certification does not trigger the requirements of this paragraph (a).

(1) For the purpose of this paragraph (a), ''available at a reasonable cost'' means available for use where all of the following are true:

(i) The total incremental cost to the owner and operators of the locomotive due to meeting the new standards (including initial hardware, increased fuel consumption, and increased maintenance costs) during the useful life of the locomotive is less than $250,000, adjusted as specified in paragraph (a)(4)(i) of this section.

(ii) The initial incremental hardware costs are reasonably related to the technology included in the remanufacturing system and are less than $125,000, adjusted as specified in paragraph (a)(4)(i) of this section.

(iii) The remanufactured locomotive will have reliability throughout its useful life that is similar to the reliability the locomotive would have had if it had been remanufactured without the certified remanufacture system.

(iv) The remanufacturer must demonstrate at the time of certification that the system meets the requirements of this paragraph (a)(1).

(v) The system does not generate or use emission credits.

(2) The number of locomotives that each railroad must remanufacture under this paragraph (a) is capped as follows:

(i) For the period October 3, 2008 to December 31, 2008, the maximum number of locomotives that a railroad must remanufacture under this paragraph (a) is 50 percent of the total number of the railroad's locomotives that are remanufactured during this period under this part or 40 CFR part 92. Include in the calculation both locomotives you own and locomotives you lease.

(ii) For the period January 1, 2009 to December 31, 2009, the maximum number of locomotives that a railroad must remanufacture under this paragraph (a) is 70 percent of the total number of the railroad's locomotives that are remanufactured during this period under this part or 40 CFR part 92. Include in the calculation both locomotives you own and locomotives you lease.

(3) Remanufacturers applying for certificates under this paragraph (a) are responsible to notify owner/operators (and other customers as applicable) that they have requested such certificates. The notification should occur at the same time that the remanufacturer submits its application, and should include a description of the remanufacturing system, price, expected incremental operating costs, and draft copies of your installation and maintenance instructions. The system is considered to be available for a customer 120 days after this notification, or 90 days after the certificate is issued, whichever is later. Where we issue a certificate of conformity under this part based on carryover data from an engine family that we previously considered available for the configuration, the system is considered to be available when we issue the certificate.

(4) Estimate costs as follows:

(i) The cost limits described in paragraph (a)(1) of this section are specified in terms of 2007 dollars. Adjust these values for future years according to the following equation:

$$\text{Actual Limit} = (\text{2007 Limit}) \times [(0.6000) \times (\text{Commodity Index}) + (0.4000) \times (\text{Earnings Index})]$$

Where:

2007 Limit = The value specified in paragraph (a)(1) of this section ($250,000 or $125,000).

Commodity Index = The U.S. Bureau of Labor Statistics Producer Price Index for Industrial Commodities Less Fuel (Series WPU03T15M05) for the month prior to the date you submit your application divided by 173.1.

Earnings Index = The U.S. Bureau of Labor Statistics Estimated Average Hourly Earnings of Production Workers for Durable Manufacturing (Series CES3100000008) for the month prior to the date you submit your application divided by 18.26.

(ii) Calculate all costs in current dollars (for the month prior to the date you submit your application). Calculate fuel costs based on a fuel price

adjusted by the Association of American Railroads' monthly railroad fuel price index (P), which is available at *https://www.aar.org//media/AAR/RailCostIndexes/Index_MonthlyFuelPrices.ashx*. (Use the value for the column in which P equals 539.8 for November 2007.) Calculate a new fuel price using the following equation:

Fuel Price = ($2.76 per gallon) × (P/539.8)

(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.

(c) *Locomotive labels for transition to new standards.* This paragraph (c) applies when you remanufacture a locomotive that was previously certified under 40 CFR part 92. You must remove the old locomotive label and replace it with the locomotive label specified in § 1033.135.

(d) *Small manufacturer/remanufacturer provisions.* The production-line testing requirements and in-use testing requirements of this part do not apply until January 1, 2013 for manufacturers/remanufacturers that qualify as small manufacturers under § 1033.901.

(e) *Producing switch locomotives using certified nonroad engines.* You may use the provisions of this paragraph (e) to produce any number of freshly manufactured or refurbished switch locomotives in model years 2008 through 2017. Locomotives produced under this paragraph (e) are exempt from the standards and requirements of this part and 40 CFR part 92 subject to the following provisions:

(1) All of the engines on the switch locomotive must be covered by a certificate of conformity issued under 40 CFR part 89 or 1039 for model year 2008 or later (or earlier model years if the same standards applied as in 2008). Engines over 750 hp certified to the Tier 4 standards for non-generator set engines are not eligible for this allowance after 2014.

(2) You must reasonably project that more of the engines will be sold and used for non-locomotive use than for use in locomotives.

(3) You may not generate or use locomotive credits under this part for these locomotives.

(4) Include the following statement on a permanent locomotive label: ''THIS LOCOMOTIVE WAS CERTIFIED UNDER 40 CFR 1033.150(e). THE ENGINES USED IN THIS LOCOMOTIVE ARE SUBJECT TO REQUIREMENTS OF 40 CFR PARTS 1039 (or 89) AND 1068.''

(5) The rebuilding requirements of 40 CFR part 1068 apply when remanufacturing engines used in these locomotives.

(f) *In-use compliance limits.* For purposes of determining compliance other than for certification or production-line testing, calculate the applicable in-use compliance limits by adjusting the applicable standards/FELs. The PM adjustment applies only for model year 2017 and earlier locomotives and does not apply for locomotives with a PM FEL higher than 0.03 g/bhp-hr. The NO_X adjustment applies only for model year 2017 and earlier locomotives and does not apply for locomotives with a NO_X FEL higher than 2.0 g/bhp-hr. Add the applicable adjustments in Tables 1 or 2 of this section (which follow) to the otherwise applicable standards (or FELs) and notch caps. You must specify during certification which add-ons, if any, will apply for your locomotives.

TABLE 1 TO § 1033.150—IN-USE ADJUSTMENTS FOR TIER 4 LOCOMOTIVES

Fraction of useful life already used	In-use adjustments (g/bhp-hr)	
	For model year 2017 and earlier Tier 4 NO_X standards	For model year 2017 and earlier Tier 4 PM standards
0 <MW-hrs ≤50% of UL	0.7	0.01

TABLE 1 TO § 1033.150—IN-USE ADJUSTMENTS FOR TIER 4 LOCOMOTIVES—Continued

Fraction of useful life already used	In-use adjustments (g/bhp-hr)	
	For model year 2017 and earlier Tier 4 NO_X standards	For model year 2017 and earlier Tier 4 PM standards
50 <MW-hrs ≤75% of UL	1.0	0.01
MW-hrs >75% of UL	1.3	0.01

TABLE 2 TO § 1033.150—OPTIONAL IN-USE ADJUSTMENTS FOR TIER 4 LOCOMOTIVES

Fraction of useful life already used	In-use adjustments (g/bhp-hr)	
	For model year 2017 and earlier Tier 4 NO_X standards	For model year 2017 and earlier Tier 4 PM standards
0 <MW-hrs ≤50% of UL	0.2	0.03
50 <MW-hrs ≤75% of UL	0.3	0.03
MW-hrs >75% of UL	0.4	0.03

(g) Optional interim Tier 4 compliance provisions for NO_X emissions. For model years 2015 through 2022, manufacturers may choose to certify some or all of their Tier 4 line-haul engine families according to the optional compliance provisions of this paragraph (g). The following provisions apply to all locomotives in those families:

(1) The provisions of this paragraph (g) apply instead of the deterioration factor requirements of §§ 1033.240 and 1033.245 for NO_X emissions. You must certify that the locomotives in the engine family will conform to the requirements of this paragraph (g) for their full useful lives.

(2) The applicable NO_X emission standard for locomotives certified under this paragraph (g) is:

(i) 1.3 g/bhp-hr for locomotives that have accumulated less than 50 hours of operation.

(ii) 1.3 plus 0.6 g/bhp-hr for locomotives that have accumulated 50 hours or more of operation.

(3) The engine family may not generate NO_X emission credits.

(4) The design certification provisions of § 1033.240(c) do not apply for these locomotives for the next remanufacture.

(5) Manufacturers must comply with the production-line testing program in subpart D of this part for these engine families or the following optional program:

(i) You are not required to test locomotives in the family under subpart D of this part if you comply with the requirements of this paragraph (g)(5).

(ii) Test the locomotives as specified in subpart E of this part, with the following exceptions:

(A) The minimum test sample size is one percent of the number of locomotives in the family or five, whichever is less.

(B) The locomotives must be tested after they have accumulated 50 hours or more of operation but before they have reached 50 percent of their useful life.

(iii) The standards in this part for pollutants other than NO_X apply as specified for testing conducted under this optional program.

(6) The engine family may use NO_X emission credits to comply with this paragraph (g). However, a 1.5 g/bhp-hr NO_X FEL cap applies for engine families certified under this paragraph (g). The applicable standard for locomotives that have accumulated 50 hours or more of operation is the FEL plus 0.6 g/bhp-hr.

(7) The in-use NO_X add-ons specified in paragraph (f) of this section do not apply for these locomotives.

(8) All other provisions of this part apply to such locomotives, except as specified otherwise in this paragraph (g).

(h) *Test procedures*. You are generally required to use the test procedures

specified in subpart F of this part (including the applicable test procedures in 40 CFR part 1065). As specified in this paragraph (h), you may use a combination of the test procedures specified in this part and the test procedures specified in 40 CFR part 92 prior to January 1, 2015. After this date, you must use only the test procedures specified in this part.

(1) Prior to January 1, 2015, you may ask to use some or all of the procedures specified in 40 CFR part 92 for locomotives certified under this part 1033.

(2) If you ask to rely on a combination of procedures under this paragraph (h), we will approve your request only if you show us that it does not affect your ability to demonstrate compliance with the applicable emission standards. Generally this requires that the combined procedures would result in emission measurements at least as high as those that would be measured using the procedures specified in this part. Alternatively, you may demonstrate that the combined effects of the different procedures is small relative to your compliance margin (the degree to which your emissions are below the applicable standards).

(i) *Certification testing*. Prior to model year 2014, you may use the simplified steady-state engine test procedure specified in this paragraph (i) for certification testing. The normal certification procedures and engine testing procedures apply, except as specified in this paragraph (i).

(1) Use good engineering judgment to operate the engine consistent with its expected operation in the locomotive, to the extent practical. You are not required to exactly replicate the transient behavior of the engine.

(2) You may delay sampling during notch transition for up to 20 seconds after you begin the notch change.

(3) We may require you provide additional information in your application for certification to support the expectation that production locomotives will meet all applicable emission standards when tested as locomotives.

(4) You may not use this simplified procedure for production-line or in-use testing.

(j) *Administrative requirements*. For model years 2008 and 2009, you may use a combination of the administrative procedures specified in this part and the test procedures specified in 40 CFR part 92. For example, this would allow you to use the certification procedures of 40 CFR part 92 to apply for certificates under this part 1033.

(k) *Test fuels*. Testing performed during calendar years 2008 and 2009 may be performed using test fuels that meet the specifications of 40 CFR 92.113. If you do, adjust PM emissions downward by 0.04 g/bhp-hr to account for the difference in sulfur content of the fuel.

(l) *Refurbished switch locomotives*. In 2008 and 2009 remanufactured Tier 0 switch locomotives that are deemed to be refurbished may be certified as remanufactured switch locomotives under 40 CFR part 92.

(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.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59189, Oct. 8, 2008; 74 FR 8423, Feb. 24, 2009; 75 FR 22983, Apr. 30, 2010; 75 FR 68460, Nov. 8, 2010]

Subpart C—Certifying Engine Families

§ 1033.201 General requirements for obtaining a certificate of conformity.

Certification is the process by which you demonstrate to us that your freshly manufactured or remanufactured locomotives will meet the applicable emission standards throughout their useful lives (explaining to us how you plan to manufacture or remanufacture locomotives, and providing test data showing that such locomotives will comply with all applicable emission

standards). Anyone meeting the definition of manufacturer in § 1033.901 may apply for a certificate of conformity for freshly manufactured locomotives. Anyone meeting the definition of remanufacturer in § 1033.901 may apply for a certificate of conformity for remanufactured locomotives.

(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 § 1033.255).

(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 § 1033.250.

(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 § 1033.255 for provisions describing how we will process your application.

(g) We may require you to deliver your test locomotives to a facility we designate for our testing (see § 1033.235(c)).

(h) By applying for a certificate of conformity, you are accepting responsibility for the in-use emission performance of all properly maintained and used locomotives covered by your certificate. This responsibility applies without regard to whether you physically manufacture or remanufacture the entire locomotive. If you do not physically manufacture or remanufacture the entire locomotive, you must take reasonable steps (including those specified by this part) to ensure that the locomotives produced under your certificate conform to the specifications of your application for certification. Note that this paragraph does not limit any liability under this part or the Clean Air Act for entities that do not obtain certificates. This paragraph also does not prohibit you from making contractual arrangements with noncertifiers related to recovering damages for noncompliance.

(i) The provisions of this subpart describe how to obtain a certificate that covers all standards and requirements. Manufacturer/remanufacturers may ask to obtain a certificate of conformity that does not cover the idle control requirements of § 1033.115 or one that only covers the idle control requirements of § 1033.115. Remanufacturers obtaining such partial certificates must include a statement in their installation instructions that two certificates and labels are required for a locomotive to be in a fully certified configuration. We may modify the certification requirements for certificates that will only cover idle control systems.

§ 1033.205 Applying for a certificate of conformity.

(a) Send the Designated Compliance Officer a complete application for each engine family for which you are requesting a certificate of conformity.

(b) [Reserved]

(c) You must update and correct your application to accurately reflect your production, as described in § 1033.225.

(d) Include the following information in your application:

(1) A description of the basic engine design including, but not limited to, the engine family specifications listed in § 1033.230. For freshly manufactured locomotives, a description of the basic locomotive design. For remanufactured locomotives, a description of the basic locomotive designs to which the remanufacture system will be applied. Include in your description, a list of distinguishable configurations to be included in the engine family. Note whether you are requesting a certificate that will or will not cover idle controls.

(2) An explanation of how the emission control system operates, including detailed descriptions of:

(i) All emission control system components.

(ii) Injection or ignition timing for each notch (i.e., degrees before or after top-dead-center), and any functional

dependence of such timing on other operational parameters (e.g., engine coolant temperature).

(iii) Each auxiliary emission control device (AECD).

(iv) All fuel system components to be installed on any production or test locomotives.

(v) Diagnostics.

(3) A description of the test locomotive.

(4) A description of the test equipment and fuel used. Identify any special or alternate test procedures you used.

(5) A description of the operating cycle and the period of operation necessary to accumulate service hours on the test locomotive and stabilize emission levels. You may also include a Green Engine Factor that would adjust emissions from zero-hour engines to be equivalent to stabilized engines.

(6) A description of all adjustable operating parameters (including, but not limited to, injection timing and fuel rate), including the following:

(i) The nominal or recommended setting and the associated production tolerances.

(ii) The intended adjustable range, and the physically adjustable range.

(iii) The limits or stops used to limit adjustable ranges.

(iv) Production tolerances of the limits or stops used to establish each physically adjustable range.

(v) Information relating to why the physical limits or stops used to establish the physically adjustable range of each parameter, or any other means used to inhibit adjustment, are the most effective means possible of preventing adjustment of parameters to settings outside your specified adjustable ranges on in-use engines.

(7) Projected U.S. production information for each configuration. If you are projecting substantially different sales of a configuration than you had previously, we may require you to explain why you are projecting the change.

(8)(i) All test data you obtained for each test engine or locomotive. As described in §1033.235, we may allow you to demonstrate compliance based on results from previous emission tests, development tests, or other testing information. Include data for NOx, PM, HC, CO, and CO_2.

(ii) Report measured CO_2, N_2O, and CH_4 as described in §1033.235. Small manufacturers/remanufacturers may omit reporting N_2O and CH_4.

(9) The intended deterioration factors for the engine family, in accordance with §1033.245. If the deterioration factors for the engine family were developed using procedures that we have not previously approved, you should request preliminary approval under §1033.210.

(10) The intended useful life period for the engine family, in accordance with §1033.101(g). If the useful life for the engine family was determined using procedures that we have not previously approved, you should request preliminary approval under §1033.210.

(11) Copies of your proposed emission control label(s), maintenance instructions, and installation instructions (where applicable).

(12) An unconditional statement declaring that all locomotives included in the engine family comply with all requirements of this part and the Clean Air Act.

(e) If we request it, you must supply such additional information as may be required to evaluate the application.

(f) Provide the information to read, record, and interpret all the information broadcast by a locomotive'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. You may reference any appropriate publicly released standards that define conventions for these messages and parameters. Format your information consistent with publicly released standards.

(g) Include the information required by other subparts of this part. For example, include the information required by §1033.725 if you participate in the ABT program.

(h) Include other applicable information, such as information specified in this part or part 1068 of this chapter related to requests for exemptions.

(i) 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.

(j) For imported locomotives, we may require you to describe your expected importation process.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008; 74 FR 56508, Oct. 30, 2008]

§ 1033.210 Preliminary approval.

(a) If you send us information before you finish the application, we will review it and make any appropriate determinations for questions related to engine family definitions, auxiliary emission-control devices, deterioration factors, testing for service accumulation, maintenance, and useful lives.

(b) 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.

(c) If you request preliminary approval related to the upcoming model year or the model year after that, we will make best-efforts to make the appropriate determinations as soon as practicable. We will generally not provide preliminary approval related to a future model year more than three years ahead of time.

(d) You must obtain preliminary approval for your plan to develop deterioration factors prior to the start of any service accumulation to be used to develop the factors.

§ 1033.220 Amending maintenance instructions.

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 § 1033.125. 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 owners/operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those locomotives from in-use testing or deny a warranty claim.

(a) If you are decreasing or eliminating any of the 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 locomotives in severe-duty applications.

(c) You do not need to 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).

[73 FR 37197, June 30, 2008, as amended at 75 FR 22983, Apr. 30, 2010]

§ 1033.225 Amending applications for certification

Before we issue you a certificate of conformity, you may amend your application to include new or modified locomotive 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 locomotive configurations within the scope of the certificate, subject to the provisions of this section. You must also amend your application if any changes occur with respect to any information that is included or should be included in your application. For example, you must

amend your application if you determine that your actual production variation for an adjustable parameter exceeds the tolerances specified in your application.

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

(1) Add a locomotive configuration to an engine family. In this case, the locomotive added must be consistent with other locomotives in the engine family with respect to the criteria listed in § 1033.230. For example, you must amend your application if you want to produce 12-cylinder versions of the 16-cylinder locomotives you described in your application.

(2) Change a locomotive 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 locomotive's lifetime. For example, you must amend your application if you want to change a part supplier if the part was described in your original application and is different in any material respect than the part you described.

(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 relevant information to the Designated Compliance Officer.

(1) Describe in detail the addition or change in the locomotive 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 locomotive is still appropriate for showing that the amended family complies with all applicable requirements.

(3) If the original emission-data locomotive for the engine family is not appropriate to show compliance for the new or modified locomotive, include new test data showing that the new or modified locomotive 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 locomotive. You may ask for a hearing if we deny your request (see § 1033.920).

(e) For engine families already covered by a certificate of conformity, you may start producing the new or modified locomotive 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 locomotives do not meet applicable requirements, we will notify you to cease production of the locomotives and may require you to recall the locomotives at no expense to the owner. Choosing to produce locomotives under this paragraph (e) is deemed to be consent to recall all locomotives 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 locomotives.

(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 locomotives 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 locomotives 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 locomotive, 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 locomotives showing that emissions are below the proposed lower FEL. The lower FEL applies only to engines or fuel-system components 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.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22983, Apr. 30, 2010]

§ 1033.230 Grouping locomotives into engine families.

(a) Divide your product line into engine families of locomotives that are expected to have similar emission characteristics throughout the useful life. Your engine family is limited to a single model year. Freshly manufactured locomotives may not be included in the same engine family as remanufactured locomotives, except as allowed by paragraph (f) of this section. Paragraphs (b) and (c) of this section specify default criteria for dividing locomotives into engine families. Paragraphs (d) and (e) of this section allow you deviate from these defaults in certain circumstances.

(b) This paragraph (b) applies for all locomotives other than Tier 0 locomotives. Group locomotives in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle (e.g., diesel cycle).

(2) The type of engine cooling employed and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fan(s), radiator shutters, etc.).

(3) The nominal bore and stroke dimensions.

(4) The approximate intake and exhaust event timing and duration (valve or port).

(5) The location of the intake and exhaust valves (or ports).

(6) The size of the intake and exhaust valves (or ports).

(7) The overall injection or ignition timing characteristics (i.e., the deviation of the timing curves from the optimal fuel economy timing curve must be similar in degree).

(8) The combustion chamber configuration and the surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions.

(9) The location of the piston rings on the piston.

(10) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown).

(11) The general performance characteristics of the turbocharger or supercharger (e.g., approximate boost pressure, approximate response time, approximate size relative to engine displacement).

(12) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled).

(13) The intake manifold induction port size and configuration.

(14) The type of fuel and fuel system configuration.

(15) The configuration of the fuel injectors and approximate injection pressure.

(16) The type of fuel injection system controls (i.e., mechanical or electronic).

(17) The type of smoke control system.

(18) The exhaust manifold port size and configuration.

(19) The type of exhaust aftertreatment system (oxidation catalyst, particulate trap), and characteristics of the aftertreatment system (catalyst loading, converter size vs. engine size).

(c) Group Tier 0 locomotives in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle (e.g., diesel cycle).

(2) The type of engine cooling employed and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fan(s), radiator shutters, etc.).

(3) The approximate bore and stroke dimensions.

(4) The approximate location of the intake and exhaust valves (or ports).

(5) The combustion chamber general configuration and the approximate surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions.

(6) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown).

(7) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled).

(8) The type of fuel and general fuel system configuration.

(9) The general configuration of the fuel injectors and approximate injection pressure.

(10) The type of fuel injection system control (electronic or mechanical).

(d) You may subdivide a group of locomotives that is identical under paragraph (b) or (c) of this section into different engine families if you show the expected emission characteristics are different during the useful life. This allowance also covers locomotives for which only calculated emission rates differ, such as locomotives with and without energy-saving design features. For the purposes of determining whether an engine family is a small engine family in §1033.405(a)(2), we will consider the number of locomotives that could have been classed together under paragraph (b) or (c) of this section, instead of the number of locomotives that are included in a subdivision allowed by this paragraph (d).

(e) In unusual circumstances, you may group locomotives that are not identical with respect to the things listed in paragraph (b) or (c) of this section in the same engine family if you show that their emission characteristics during the useful life will be similar.

(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.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008]

§ 1033.235 Emission testing required for certification.

This section describes the emission testing you must perform to show compliance with the emission standards in §1033.101.

(a) Select an emission-data locomotive (or engine) from each engine family for testing. It may be a low mileage locomotive, or a development engine (that is equivalent in design to the engines of the locomotives being certified), or another low hour engine. Use good engineering judgment to select the locomotive configuration that is most likely to exceed (or have emissions nearest to) an applicable emission standard or FEL. In making this selection, consider all factors expected to affect emission control performance and compliance with the standards, including emission levels of all exhaust constituents, especially NO_X and PM.

(b) Test your emission-data locomotives using the procedures and equipment specified in subpart F of this part.

(c) We may measure emissions from any of your emission-data locomotives or other locomotives from the engine family.

(1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the locomotive to a test facility we designate. 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 from one of your locomotives, the results of that testing become the official emission results for the locomotive. Unless we later invalidate these data, we may decide not to consider your data in determining if your engine family meets applicable requirements.

(3) Before we test one of your locomotives, we may set its adjustable parameters to any point within the adjustable ranges (*see* §1033.115(b)).

(4) Before we test one of your locomotives, 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 §1033.901) 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 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 factors not related to emissions. You may include additional configurations subject to the provisions of § 1033.225.

(2) The emission-data locomotive from the previous model year remains the appropriate emission-data locomotive under paragraph (b) of this section.

(3) The data show that the emission-data locomotive would meet all the requirements that apply to the engine family covered by the application for certification.

(e) You may ask to use emission data from a different engine family you have already certified instead of testing a locomotive in the second engine family if all the following are true:

(1) The same engine is used in both engine families.

(2) You demonstrate to us that the differences in the two families are sufficiently small that the locomotives in the untested family will meet the same applicable notch standards calculated from the test data.

(f) We may require you to test a second locomotive of the same or different configuration in addition to the locomotive tested under paragraph (b) of this section.

(g) 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.

(h) The requirement to measure smoke emissions is waived for certification and production line testing, except where there is reason to believe your locomotives do not meet the applicable smoke standards.

(i) Measure CO_2 with each test. Measure CH_4 with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2012 model year. Also measure N_2O with each low-hour certification test using the procedures specified in 40 CFR part 1065 for any engine family that depends on NOx aftertreatment to meet emission standards. Small manufacturers/remanufacturers may omit measurement of N_2O and CH_4. Use the same units and modal calculations as for your other results to report a single weighted value for CO_2, N_2O, and CH_4. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/bhp-hr.

(2) Round N_2O to the nearest 0.001 g/bhp-hr.

(3) Round CH_4 to the nearest 0.001g/bhp-hr.

[73 FR 37197, June 30, 2008, as amended at 74 FR 56508, Oct. 30, 2008; 75 FR 22984, Apr. 30, 2010]

§ 1033.240 Demonstrating compliance with exhaust emission standards.

(a) For purposes of certification, your engine family is considered in compliance with the applicable numerical emission standards in § 1033.101 if all emission-data locomotives representing that family have test results showing official emission results and deteriorated emission levels at or below these standards.

(1) If you include your locomotive 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.

(2) If you do not include your remanufactured locomotive in the ABT program in subpart H of this part, but it was previously included in the ABT program in subpart H of this part, the previous 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 locomotive representing that family has test results showing an official emission result or a deteriorated emission level for any pollutant that is above an applicable emission standard. Use the following steps to determine the deteriorated emission level for the test locomotive:

(1) Collect emission data using measurements with enough significant figures to calculate the cycle-weighted

emission rate to at least one more decimal place than the applicable standard. Apply any applicable humidity corrections before weighting emissions.

(2) Apply the regeneration factors if applicable. At this point the emission rate is generally considered to be an official emission result.

(3) Apply the deterioration factor to the official emission result, as described in § 1033.245, then round the adjusted figure to the same number of decimal places as the emission standard. This adjusted value is the deteriorated emission level. Compare these emission levels from the emission-data locomotive with the applicable emission standards. In the case of NO_X + NMHC standards, apply the deterioration factor to each pollutant and then add the results before rounding.

(4) The highest deteriorated emission levels for each pollutant are considered to be the certified emission levels.

(c) An owner/operator remanufacturing its locomotives to be identical to their previously certified configuration may certify by design without new emission test data. To do this, submit the application for certification described in § 1033.205, but instead of including test data, include a description of how you will ensure that your locomotives will be identical in all material respects to their previously certified condition. You may use reconditioned parts consistent with good engineering judgment. You have all of the liabilities and responsibilities of the certificate holder for locomotives you certify under this paragraph.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22984, Apr. 30, 2010]

§ 1033.245 Deterioration factors.

Establish deterioration factors for each pollutant to determine, as described in § 1033.240, whether your locomotives will meet emission standards for each pollutant throughout the useful life. Determine deterioration factors as described in this section, either with an engineering analysis, with preexisting test data, or with new emission measurements. The deterioration factors are intended to reflect the deterioration expected to result during the useful life of a locomotive maintained as specified in § 1033.125. If you perform durability testing, the maintenance that you may perform on your emission-data locomotive is limited to the maintenance described in § 1033.125.

(a) Your deterioration factors must take into account any available data from in-use testing with similar locomotives, consistent with good engineering judgment. For example, it would not be consistent with good engineering judgment to use deterioration factors that predict emission increases over the useful life of a locomotive or locomotive engine that are significantly less than the emission increases over the useful life observed from in-use testing of similar locomotives.

(b) Deterioration factors may be additive or multiplicative.

(1) *Additive deterioration factor for exhaust emissions.* Except as specified in paragraph (b)(2) of this section, use an additive deterioration factor for exhaust emissions. An additive deterioration factor for a pollutant is the difference between 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 locomotive at the selected test point by adding the factor to the measured emissions. The deteriorated emission level is intended to represent the highest emission level during the useful life. Thus, if the factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable standard.

(2) *Multiplicative deterioration factor for exhaust emissions.* Use a multiplicative deterioration factor if good engineering judgment calls for the deterioration factor for a pollutant to be the ratio of exhaust emissions at the end of the useful life to exhaust emissions at the low-hour test point. For example, if you use aftertreatment technology that controls emissions of a pollutant proportionally to engine-out emissions, it is often appropriate to use a multiplicative deterioration factor. Adjust the official emission results for each tested locomotive at the selected test point by multiplying the measured emissions by the deterioration factor.

The deteriorated emission level is intended to represent the highest emission level during the useful life. Thus, if the factor is less than one, use one. A multiplicative deterioration factor may not be appropriate in cases where testing variability is significantly greater than locomotive-to-locomotive variability. Multiplicative deterioration factors must be specified to one more significant figure than the applicable standard.

(c) Deterioration factors for smoke are always additive.

(d) If your locomotive vents crankcase emissions to the exhaust or to the atmosphere, you must account for crankcase emission deterioration, using good engineering judgment. You may use separate deterioration factors for crankcase emissions of each pollutant (either multiplicative or additive) or include the effects in combined deterioration factors that include exhaust and crankcase emissions together for each pollutant.

(e) 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 determine your deterioration factors based on engineering analysis, explain why this is appropriate and include a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

(3) If you do testing to determine deterioration factors, describe the form and extent of service accumulation, including a rationale for selecting the service-accumulation period and the method you use to accumulate hours.

§ 1033.250 Reporting and recordkeeping.

(a) Within 45 days after the end of the model year, send the Designated Compliance Officer a report describing the following information about locomotives you produced during the model year:

(1) Report the total number of locomotives you produced in each engine family by locomotive model and engine model.

(2) If you produced exempted locomotives, report the number of exempted locomotives you produced for each locomotive model and identify the buyer or shipping destination for each exempted locomotive. You do not need to report under this paragraph (a)(2) locomotives that were temporarily exempted, exported locomotives, locomotives exempted as manufacturer/remanufacturer-owned locomotives, or locomotives exempted as test locomotives.

(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 § 1033.205 that you were not required to include in your application.

(3) A detailed history of each emission-data locomotive. For each locomotive, describe all of the following:

(i) The emission-data locomotive's construction, including its origin and buildup, steps you took to ensure that it represents production locomotives, any components you built specially for it, and all the components you include in your application for certification.

(ii) How you accumulated locomotive 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 locomotive or emission control performance, giving the date and time of each and the reasons for the test.

(vi) Any other significant events.

(4) If you test a development engine for certification, you may omit information otherwise required by paragraph (b)(3) of this section that is unrelated to emissions and emission-related components.

(5) Production figures for each engine family divided by assembly plant.

(6) Keep a list of locomotive identification numbers for all the locomotives 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 paragraph (a) of 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.

(e) Send us copies of any locomotive maintenance instructions or explanations if we ask for them.

§ 1033.255 EPA decisions.

(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. This includes a failure to provide reasonable assistance.

(5) Produce locomotives 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 locomotives 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 § 1033.920).

[73 FR 37197, June 30, 2008, as amended at 75 FR 22984, Apr. 30, 2010]

Subpart D—Manufacturer and Remanufacturer Production Line Testing and Audit Programs

§ 1033.301 Applicability.

The requirements of this part apply to manufacturers/remanufacturers of locomotives certified under this part, with the following exceptions:

(a) The requirements of §§ 1033.310 1033.315, 1033.320, and 1033.330 apply only to manufacturers of freshly manufactured locomotives or locomotive engines (including those used for repowering). We may also apply these requirements to remanufacturers of any locomotives for which there is reason to believe production problems exist that could affect emission performance. When we make a determination that production problems may exist that could affect emission performance, we will notify the remanufacturer(s). The requirements of §§ 1033.310, 1033.315, 1033.320, and 1033.330 will apply as specified in the notice.

(b) The requirements of § 1033.335 apply only to remanufacturers.

(c) As specified in § 1033.1(d), we may apply the requirements of this subpart to manufacturers/remanufacturers that do not certify the locomotives. However, unless we specify otherwise, the requirements of this subpart apply to manufacturers/remanufacturers that hold the certificates for the locomotives.

§ 1033.305 General requirements.

(a) Manufacturers (and remanufacturers, where applicable) are required to test production line locomotives using the test procedures specified in § 1033.315. While this subpart refers to locomotive testing, you may ask to test locomotive engines instead of testing locomotives.

(b) Remanufacturers are required to conduct audits according to the requirements of § 1033.335 to ensure that remanufactured locomotives comply with the requirements of this part.

(c) If you certify an engine family with carryover emission data, as described in § 1033.235, 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. 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 locomotives that have failed emission tests.

(d) You may ask to use an alternate program or measurement method for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your engines meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate program.

§ 1033.310 Sample selection for testing.

(a) At the start of each model year, begin randomly selecting locomotives from each engine family for production line testing at a rate of one percent. Make the selection of the test locomotive after it has been assembled. Perform the testing throughout the entire model year to the extent possible, unless we specify a different schedule for your tests. For example, we may require you to disproportionately select locomotives from the early part of a model year for a new locomotive model that has not been subject to PLT previously.

(1) The required sample size for an engine family (provided that no locomotive tested fails to meet applicable emission standards) is the lesser of five tests per model year or one percent of projected annual production, with a minimum sample size for an engine family of one test per model year. See paragraph (d) of this section to determine the required number of test locomotives if any locomotives fail to comply with any standards.

(2) You may elect to test additional locomotives. All additional locomotives must be tested in accordance with the applicable test procedures of this part.

(b) You must assemble the test locomotives using the same production process that will be used for locomotives to be introduced into commerce. You may ask us to allow special assembly procedures for catalyst-equipped locomotives.

(c) Unless we approve it, you may not use any quality control, testing, or assembly procedures that you do not use during the production and assembly of all other locomotives of that family. This applies for any test locomotive or any portion of a locomotive, including engines, parts, and subassemblies.

(d) If one or more locomotives fail a production line test, then you must test two additional locomotives from the next fifteen produced in that engine family for each locomotive that fails. These two additional locomotives do not count towards your minimum number of locomotives. For example, if you are required to test a minimum of four locomotives under paragraph (a) of this section and the second locomotive fails to comply with one or more standards, then you must test two additional locomotives from the next fifteen produced in that engine family. If both of those locomotives pass all standards, you are required to test two additional locomotives to complete the original minimum number of four. If they both pass, you are done with testing for that family for the year since you tested six locomotives (the four originally required plus the two additional locomotives).

§ 1033.315 Test procedures.

(a) *Test procedures.* Use the test procedures described in subpart F of this part, except as specified in this section.

(1) You may ask to use other test procedures. We will approve your request if we determine that it is not possible to perform satisfactory testing using the specified procedures. We may also approve alternate test procedures under § 1033.305(d).

(2) If you used test procedures other than those in subpart F of this part during certification for the engine family (other than alternate test procedures necessary for testing a development engine or a low hour engine instead of a low mileage locomotive), use the same test procedures for production line testing that you used in certification.

(b) *Modifying a test locomotive.* Once an engine is selected for testing, you may adjust, repair, maintain, 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) *Adjustable parameters.* (1) Confirm that adjustable parameters are set to values or positions that are within the range recommended to the ultimate purchaser.

(2) We may require to be adjusted any adjustable parameter to any setting within the specified adjustable range of that parameter prior to the performance of any test.

(d) *Stabilizing emissions.* You may stabilize emissions from the locomotives to be tested through service accumulation by running the engine through a typical duty cycle. Emissions are considered stabilized after 300 hours of operation. You may accumulate fewer hours, consistent with good engineering judgment. You may establish a Green Engine Factor for each regulated pollutant for each engine family, instead of (or in combination with) accumulating actual operation, to be used in calculating emissions test results. You must obtain our approval prior to using a Green Engine Factor. For catalyst-equipped locomotives, you may operate the locomotive for up to 1000 hours (in revenue or other service) prior to testing.

(e) *Adjustment after shipment.* If a locomotive is shipped to a facility other than the production facility for production line testing, and an adjustment or repair is necessary because of such shipment, you may perform the necessary adjustment or repair only after the initial test of the locomotive, unless we determine that the test would be impossible to perform or would permanently damage the locomotive.

(f) *Malfunctions.* If a locomotive cannot complete the service accumulation or an emission test because of a malfunction, you may request that we authorize either the repair of that locomotive or its deletion from the test sequence.

(g) *Retesting.* If you determine that any production line emission test of a locomotive is invalid, you must retest it in accordance with the requirements of this subpart. Report emission results from all tests to us, including test results you determined are invalid. You must also include a detailed explanation of the reasons for invalidating any test in the quarterly report required in § 1033.320(e). In the event a retest is performed, you may ask us within ten days of the end of the production quarter for permission to substitute the after-repair test results for the original test results. We will respond to the request within ten working days of our receipt of the request.

§ 1033.320 Calculation and reporting of test results.

(a) Calculate initial test results using the applicable test procedure specified in § 1033.315(a). Include applicable nondeterioration adjustments such as a Green Engine Factor or regeneration adjustment factor. Round the results to one more decimal place than the applicable emission standard.

(b) If you conduct multiple tests on any locomotives, calculate final test results by summing the initial test results derived in paragraph (a) of this section for each test locomotive, dividing by the number of tests conducted on the locomotive, and rounding to one more decimal place than the applicable emission standard. For catalyst-equipped locomotives, you may ask us

to allow you to exclude an initial failed test if all of the following are true:

(1) The catalyst was in a green condition when tested initially.

(2) The locomotive met all emission standards when retested after degreening the catalyst.

(3) No additional emission-related maintenance or repair was performed between the initial failed test and the subsequent passing test.

(c) Calculate the final test results for each test locomotive by applying the appropriate deterioration factors, derived in the certification process for the engine family, to the final test results, and rounding to one more decimal place than the applicable emission standard.

(d) If, subsequent to an initial failure of a production line test, the average of the test results for the failed locomotive and the two additional locomotives tested, is greater than any applicable emission standard or FEL, the engine family is deemed to be in noncompliance with applicable emission standards, and you must notify us within ten working days of such noncompliance.

(e) Within 45 calendar days of the end of each quarter, you must send to the Designated Compliance Officer a report with the following information:

(1) The location and description of the emission test facilities which you used to conduct your testing.

(2) Total production and sample size for each engine family tested.

(3) The applicable standards against which each engine family was tested.

(4) For each test conducted, include all of the following:

(i) A description of the test locomotive, including:

(A) Configuration and engine family identification.

(B) Year, make, and build date.

(C) Engine identification number.

(D) Number of megawatt-hours (or miles if applicable) of service accumulated on locomotive prior to testing.

(E) Description of Green Engine Factor; how it is determined and how it is applied.

(ii) Location(s) where service accumulation was conducted and description of accumulation procedure and schedule, if applicable. If the locomotive was introduced into service between assembly and testing, you are only required to summarize the service accumulation, rather than identifying specific locations.

(iii) Test number, date, test procedure used, initial test results before and after rounding, and final test results for all production line emission tests conducted, whether valid or invalid, and the reason for invalidation of any test results, if applicable.

(iv) A complete description of any adjustment, modification, repair, preparation, maintenance, and testing which was performed on the test locomotive, has not been reported pursuant to any other paragraph of this subpart, and will not be performed on other production locomotives.

(v) Any other information we may ask you to add to your written report so we can determine whether your new engines conform with the requirements of this part.

(6) For each failed locomotive as defined in § 1033.330(a), a description of the remedy and test results for all retests as required by § 1033.340(g).

(7) The following signed statement and endorsement by an authorized representative of your company:

> 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 1033. We have not changed production processes or quality-control procedures for the test locomotives 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)

§ 1033.325 Maintenance of records; submittal of information.

(a) You must establish, maintain, and retain the following adequately organized and indexed test records:

(1) A description of all equipment used to test locomotives. The equipment requirements in subpart F of this part apply to tests performed under this subpart. Maintain these records for each test cell that can be used to perform emission testing under this subpart.

(2) Individual test records for each production line test or audit including:

(i) The date, time, and location of each test or audit.

(ii) The method by which the Green Engine Factor was calculated or the number of hours of service accumulated on the test locomotive when the test began and ended.

(iii) The names of all supervisory personnel involved in the conduct of the production line test or audit;

(iv) A record and description of any adjustment, repair, preparation or modification performed on test locomotives, giving the date, associated time, justification, name(s) of the authorizing personnel, and names of all supervisory personnel responsible for the conduct of the action.

(v) If applicable, the date the locomotive was shipped from the assembly plant, associated storage facility or port facility, and the date the locomotive was received at the testing facility.

(vi) A complete record of all emission tests or audits performed under this subpart (except tests performed directly by us), including all individual worksheets and/or other documentation relating to each test, or exact copies thereof, according to the record requirements specified in subpart F of this part and 40 CFR part 1065.

(vii) A brief description of any significant events during testing not otherwise described under this paragraph (a)(2), commencing with the test locomotive selection process and including such extraordinary events as engine damage during shipment.

(b) Keep all records required to be maintained under this subpart for a period of eight years after completion of all testing. Store these records in any format and on any media, as long as you can promptly provide to us organized, written records in English if we ask for them and all the information is retained.

(c) Send us the following information with regard to locomotive production if we ask for it:

(1) Projected production for each configuration within each engine family for which certification has been requested and/or approved.

(2) Number of locomotives, by configuration and assembly plant, scheduled for production.

(d) Nothing in this section limits our authority to require you to establish, maintain, keep or submit to us information not specified by this section. We may also ask you to send less information.

(e) Send all reports, submissions, notifications, and requests for approval made under this subpart to the Designated Compliance Officer using an approved format.

(f) You must keep a copy of all reports submitted under this subpart.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22984, Apr. 30, 2010]

§ 1033.330 Compliance criteria for production line testing.

There are two types of potential failures: failure of an individual locomotive to comply with the standards, and a failure of an engine family to comply with the standards.

(a) A failed locomotive is one whose final test results pursuant to § 1033.320(c), for one or more of the applicable pollutants, exceed an applicable emission standard or FEL.

(b) An engine family is deemed to be in noncompliance, for purposes of this subpart, if at any time throughout the model year, the average of an initial failed locomotive and the two additional locomotives tested, is greater than any applicable emission standard or FEL.

§ 1033.335 Remanufactured locomotives: installation audit requirements.

The section specifies the requirements for certifying remanufacturers to audit the remanufacture of locomotives covered by their certificates of conformity for proper components, component settings and component installations on randomly chosen locomotives in an engine family.

(a) You must ensure that all emission related components are properly installed on the locomotive and are set to the proper specification as indicated in your instructions. You may submit audits performed by the owners/operators of the locomotives, provided the audits are performed in accordance with the provisions of this section. We may require that you obtain affidavits

for audits performed by owners/operators.

(b) Audit at least five percent of your annual production per model year per installer or ten per engine family per installer, whichever is less. You must perform more audits if there are any failures. Randomly select the locomotives to be audited after the remanufacture is complete. We may allow you to select locomotives prior to the completion of the remanufacture, if the preselection would not have the potential to affect the manner in which the locomotive was remanufactured (e.g., where the installer is not aware of the selection prior to the completion of the remanufacture). Unless we specify otherwise, you are not required to audit installers that remanufacture fewer than 10 locomotives per year under your certificates (combined for all of your engine families).

(c) The audit should be completed as soon as is practical after the remanufacture is complete. In no case may the remanufactured locomotive accumulate more than 45,000 miles prior to an audit.

(d) A locomotive fails if any emission related components are found to be improperly installed, improperly adjusted or incorrectly used.

(e) If a remanufactured locomotive fails an audit, then you must audit two additional locomotives from the next ten remanufactured in that engine family by that installer.

(f) An engine family is determined to have failed an audit, if at any time during the model year, you determine that the three locomotives audited are found to have had any improperly installed, improperly adjusted or incorrectly used components. You must notify us within 2 working days of a determination of an engine family audit failure.

(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:

(1) The location and description of your audit facilities which were utilized to conduct auditing reported pursuant to this section;

(2) Total production and sample size for each engine family;

(3) The applicable standards and/or FELs against which each engine family was audited;

(4) For each audit conducted:

(i) A description of the audited locomotive, including:

(A) Configuration and engine family identification;

(B) Year, make, build date, and remanufacture date; and

(C) Locomotive and engine identification numbers;

(ii) Any other information we request relevant to the determination whether the new locomotives being remanufactured do in fact conform with the regulations with respect to which the certificate of conformity was issued;

(5) For each failed locomotive as defined in paragraph (d) of this section, a description of the remedy as required by § 1033.340(g);

(6) The following signed statement and endorsement by your authorized representative:

We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line auditing conformed completely with the requirements of 40 CFR part 1033. We have not changed production processes or quality-control procedures for the audited locomotives 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)

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008]

§ 1033.340 Suspension and revocation of certificates of conformity.

(a) A certificate can be suspended for an individual locomotive as follows:

(1) The certificate of conformity is automatically suspended for any locomotive that fails a production line test pursuant to § 1033.330(a), effective from the time the testing of that locomotive is completed.

(2) The certificate of conformity is automatically suspended for any locomotive that fails an audit pursuant to § 1033.335(d), effective from the time that auditing of that locomotive is completed.

(b) A certificate can be suspended for an engine family as follows:

(1) We may suspend the certificate of conformity for an engine family that is

in noncompliance pursuant to §1033.330(b), thirty days after the engine family is deemed to be in noncompliance.

(2) We may suspend the certificate of conformity for an engine family that is determined to have failed an audit pursuant to §1033.335(f). This suspension will not occur before thirty days after the engine family is deemed to be in noncompliance.

(c) If we suspend your certificate of conformity for an engine family, the suspension may apply to all facilities producing engines from an engine family, even if you find noncompliant engines only at one facility.

(d) We may revoke a certificate of conformity for any engine family in whole or in part if:

(1) You fail to comply with any of the requirements of this subpart.

(2) You submit false or incomplete information in any report or information provided to us under this subpart.

(3) You render inaccurate any test data submitted under this subpart.

(4) An EPA enforcement officer is denied the opportunity to conduct activities authorized in this subpart.

(5) An EPA enforcement officer is unable to conduct authorized activities for any reason.

(e) We will notify you in writing of any suspension or revocation of a certificate of conformity in whole or in part; a suspension or revocation is effective upon receipt of such notification or thirty days from the time a locomotive or engine family is deemed to be in noncompliance under §§1033.320(d), 1033.330(a), 1033.330(b), or 1033.335(f) is made, whichever is earlier, except that the certificate is immediately suspended with respect to any failed locomotives as provided for in paragraph (a) of this section.

(f) We may revoke a certificate of conformity for an engine family when the certificate has been suspended under paragraph (b) or (c) of this section if the remedy is one requiring a design change or changes to the locomotive, engine and/or emission control system as described in the application for certification of the affected engine family.

(g) Once a certificate has been suspended for a failed locomotive, as provided for in paragraph (a) of this section, you must take all the following actions before the certificate is reinstated for that failed locomotive:

(1) Remedy the nonconformity.

(2) Demonstrate that the locomotive conforms to applicable standards or family emission limits by retesting, or reauditing if applicable, the locomotive in accordance with this part.

(3) Submit a written report to us after successful completion of testing (or auditing, if applicable) on the failed locomotive, which contains a description of the remedy and testing (or auditing) results for each locomotive in addition to other information that may be required by this part.

(h) Once a certificate for a failed engine family has been suspended pursuant to paragraph (b) or (c) of this section, you must take the following actions before we will consider reinstating the certificate:

(1) Submit a written report to us identifying the reason for the noncompliance of the locomotives, describing the remedy, including a description of any quality control measures you will use to prevent future occurrences of the problem, and stating the date on which the remedies will be implemented.

(2) Demonstrate that the engine family for which the certificate of conformity has been suspended does in fact comply with the regulations of this part by testing (or auditing) locomotives selected from normal production runs of that engine family. Such testing (or auditing) must comply with the provisions of this subpart. If you elect to continue testing (or auditing) individual locomotives after suspension of a certificate, the certificate is reinstated for any locomotive actually determined to be in conformance with the applicable standards or family emission limits through testing (or auditing) in accordance with the applicable test procedures, provided that we have not revoked the certificate under paragraph (f) of this section.

(i) If the certificate has been revoked for an engine family, you must take the following actions before we will issue a certificate that would allow you

to continue introduction into commerce of a modified version of that family:

(1) If we determine that the change(s) in locomotive design may have an effect on emission deterioration, we will notify you within five working days after receipt of the report in paragraph (h) of this section, whether subsequent testing/auditing under this subpart will be sufficient to evaluate the change(s) or whether additional testing (or auditing) will be required.

(2) After implementing the change or changes intended to remedy the nonconformity, you must demonstrate that the modified engine family does in fact conform with the regulations of this part by testing locomotives (or auditing for remanufactured locomotives) selected from normal production runs of that engine family. When both of these requirements are met, we will reissue the certificate or issue a new certificate. If this subsequent testing (or auditing) reveals failing data the revocation remains in effect.

(j) At any time subsequent to an initial suspension of a certificate of conformity for a test or audit locomotive pursuant to paragraph (a) of this section, but not later than 30 days (or such other period as may we allow) after the notification our decision to suspend or revoke a certificate of conformity in whole or in part pursuant to this section, you may request a hearing as to whether the tests or audits have been properly conducted or any sampling methods have been properly applied. (See § 1033.920.)

(k) Any suspension of a certificate of conformity under paragraphs (a) through (d) of this section will be made only after you have been offered an opportunity for a hearing conducted in accordance with § 1033.920. It will not apply to locomotives no longer in your possession.

(l) If we suspend, revoke, or void a certificate of conformity, and you believe that our decision was based on erroneous information, you may ask us to reconsider our decision before requesting a hearing. If you demonstrate to our satisfaction that our decision was based on erroneous information, we will reinstate the certificate.

(m) We may conditionally reinstate the certificate for that family so that you do not have to store non-test locomotives while conducting subsequent testing or auditing of the noncomplying family subject to the following condition: you must commit to recall all locomotives of that family produced from the time the certificate is conditionally reinstated if the family fails subsequent testing, or auditing if applicable, and must commit to remedy any nonconformity at no expense to the owner.

Subpart E—In-use Testing

§ 1033.401 Applicability.

The requirements of this subpart are applicable to certificate holders for locomotives subject to the provisions of this part. These requirements may also be applied to other manufacturers/remanufacturers as specified in § 1033.1(d).

§ 1033.405 General provisions.

(a) Each year, we will identify engine families and configurations within families that you must test according to the requirements of this section.

(1) We may require you to test one engine family each year for which you have received a certificate of conformity. If you are a manufacturer that holds certificates of conformity for both freshly manufactured and remanufactured locomotive engine families, we may require you to test one freshly manufactured engine family and one remanufactured engine family. We may require you to test additional engine families if we have reason to believe that locomotives in such families do not comply with emission standards in use.

(2) For engine families of less than 10 locomotives per year, no in-use testing will be required, unless we have reason to believe that those engine families are not complying with the applicable emission standards in use.

(b) Test a sample of in-use locomotives from an engine family, as specified in § 1033.415. We will use these data, and any other data available to us, to determine the compliance status of classes of locomotives, including for purposes of recall under 40 CFR part

1068, and whether remedial action is appropriate.

§ 1033.410 In-use test procedure.

(a) You must test the complete locomotives; you may not test engines that are not installed in locomotives at the time of testing.

(b) Test the locomotive according to the test procedures outlined in subpart F of this part, except as provided in this section.

(c) Use the same test procedures for in-use testing as were used for certification, except for cases in which certification testing was not conducted with a locomotive, but with a development engine or other engine. In such cases, we will specify deviations from the certification test procedures as appropriate. We may allow or require other alternate procedures, with advance approval.

(d) Set all adjustable locomotive or engine parameters to values or positions that are within the range specified in the certificate of conformity. We may require you to set these parameters to specific values.

(e) We may waive a portion of the applicable test procedure that is not necessary to determine in-use compliance.

§ 1033.415 General testing requirements.

(a) *Number of locomotives to be tested.* Determine the number of locomotives to be tested by the following method:

(1) Test a minimum of 2 locomotives per engine family, except as provided in paragraph (a)(2) of this section. You must test additional locomotives if any locomotives fail to meet any standard. Test 2 more locomotives for each failing locomotive, but stop testing if the total number of locomotives tested equals 10.

(2) If an engine family has been certified using carryover emission data from a family that has been previously tested under paragraph (a)(1) of this section (and we have not ordered or begun to negotiate remedial action of that family), you need to test only one locomotive per engine family. If that locomotive fails to meet applicable standards for any pollutant, testing for that engine family must be conducted as outlined under paragraph (a)(1) of this section.

(3) You may ask us to allow you to test more locomotives than the minimum number described above or you may concede failure before testing 10 locomotives.

(b) *Compliance criteria.* We will consider failure rates, average emission levels and the existence of any defects among other factors in determining whether to pursue remedial action. We may order a recall pursuant to 40 CFR part 1068 before testing reaches the tenth locomotive.

(c) *Collection of in-use locomotives.* Procure in-use locomotives that have been operated for 50 to 75 percent of the locomotive's useful life for testing under this subpart. Complete testing required by this section for any engine family before useful life of the locomotives in the engine family passes. (NOTE: § 1033.820 specifies that railroads must make reasonable efforts to enable you to perform this testing.)

§ 1033.420 Maintenance, procurement and testing of in-use locomotives.

(a) A test locomotive must have a maintenance history that is representative of actual in-use conditions, and identical or equivalent to your recommended emission-related maintenance requirements.

(1) When procuring locomotives for in-use testing, ask the end users about the accumulated usage, maintenance, operating conditions, and storage of the test locomotives.

(2) Your selection of test locomotives is subject to our approval. Maintain the information you used to procure locomotives for in-use testing in the same manner as is required in § 1033.250.

(b) You may perform minimal set-to-spec maintenance on a test locomotive before conducting in-use testing. Maintenance may include only that which is listed in the owner's instructions for locomotives with the amount of service and age of the acquired test locomotive. Maintain documentation of all maintenance and adjustments.

(c) If the locomotive selected for testing is equipped with emission diagnostics meeting the requirements in § 1033.110 and the MIL is illuminated, you may read the code and repair the

malfunction according to your emission-related maintenance instructions, but only to the degree that an owner/operator would be required to repair the malfunction under § 1033.815.

(d) Results of at least one valid set of emission tests using the test procedure described in subpart F of this part is required for each in-use locomotive.

(e) If in-use testing results show that an in-use locomotive fails to comply with any applicable emission standards, you must determine the reason for noncompliance and report your findings in the quarterly in-use test result report described in § 1033.425.

§ 1033.425 In-use test program reporting requirements.

(a) Within 90 days of completion of testing, send us all emission test results generated from the in-use testing program. Report all of the following information for each locomotive tested:

(1) Engine family, and configuration.

(2) Locomotive and engine models.

(3) Locomotive and engine serial numbers.

(4) Date of manufacture or remanufacture, as applicable.

(5) Megawatt-hours of use (or miles, as applicable).

(6) Date and time of each test attempt.

(7) Results of all emission testing.

(8) Results (if any) of each voided or failed test attempt.

(9) Summary of all maintenance and/or adjustments performed.

(10) Summary of all modifications and/or repairs.

(11) Determinations of noncompliance.

(12) The following signed statement and endorsement by an authorized representative of your company.

We submit this report under sections 208 and 213 of the Clean Air Act. Our in-use testing conformed completely with the requirements of 40 CFR part 1033. 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)

(b) Report to us within 90 days of completion of testing the following information for each engine family tested:

(1) The serial numbers of all locomotive that were excluded from the test sample because they did not meet the maintenance requirements of § 1033.420.

(2) The owner of each locomotive identified in paragraph (b)(1) of this section (or other entity responsible for the maintenance of the locomotive).

(3) The specific reasons why the locomotives were excluded from the test sample.

(c) Submit the information outlined in paragraphs (a) and (b) of this section electronically using an approved format. We may exempt you from this requirement upon written request with supporting justification.

(d) Send all testing reports and requests for approvals to the Designated Compliance Officer.

Subpart F—Test Procedures

§ 1033.501 General provisions.

(a) Except as specified in this subpart, use the equipment and procedures for compression-ignition engines in 40 CFR part 1065 to determine whether your locomotives meet the duty-cycle emission standards in § 1033.101. Use the applicable duty cycles specified in this subpart. Measure emissions of all the pollutants we regulate in § 1033.101 plus CO_2. Measure N_2O, and CH_4 as described in § 1033.235. The general test procedure is the procedure specified in 40 CFR part 1065 for steady-state discrete-mode cycles. However, if you use the optional ramped modal cycle in § 1033.520, follow the procedures for ramped modal testing in 40 CFR part 1065. The following exceptions from the 1065 procedures apply:

(1) You must average power and emissions over the sampling periods specified in this subpart for both discrete-mode testing and ramped modal testing.

(2) The test cycle is considered to be steady-state with respect to operator demand rather than engine speed and load.

(3) The provisions related to engine mapping and duty cycle generation (40

CFR 1065.510 and 1065.512) are not applicable to testing of complete locomotives or locomotive engines because locomotive operation and locomotive duty cycles are based on operator demand via locomotive notch settings rather than engine speeds and loads. The cycle validation criteria (40 CFR 1065.514) are not applicable to testing of complete locomotives but do apply for dynamometer testing of engines.

(b) You may use special or alternate procedures to the extent we allow as them under 40 CFR 1065.10. In some cases, we allow you to use procedures that are less precise or less accurate than the specified procedures if they do not affect your ability to show that your locomotives comply with the applicable emission standards. This generally requires emission levels to be far enough below the applicable emission standards so that any errors caused by greater imprecision or inaccuracy do not affect your ability to state unconditionally that the locomotives meet all applicable emission standards.

(c) This part allows (with certain limits) testing of either a complete locomotive or a separate uninstalled engine. When testing a locomotive, you must test the complete locomotive in its in-use configuration, except that you may disconnect the power output and fuel input for the purpose of testing. To calculate power from measured alternator/generator output, use an alternator/generator efficiency curve that varies with speed/load, consistent with good engineering judgment.

(d) Unless smoke standards do not apply for your locomotives or the testing requirement is waived, measure smoke emissions using the procedures in § 1033.525.

(e) Use the applicable fuel listed in 40 CFR part 1065, subpart H, to perform valid tests.

(1) For diesel-fueled locomotives, use the appropriate diesel fuel specified in 40 CFR part 1065, subpart H, for emission testing. The applicable diesel test fuel is either the ultra low-sulfur diesel or low-sulfur diesel fuel, as specified in § 1033.101. Identify the test fuel in your application for certification and ensure that the fuel inlet label is consistent with your selection of the test fuel (see §§ 1033.101 and 1033.135).

(2) You may ask to use as a test fuel commercially available diesel fuel similar but not identical to the applicable fuel specified in 40 CFR part 1065, subpart H; we will approve your request if you show us that it does not affect your ability to demonstrate compliance with the applicable emission standards. If your locomotive uses sulfur-sensitive technology, you may not use an in-use fuel that has a lower sulfur content than the range specified for the otherwise applicable test fuel in 40 CFR part 1065. If your locomotive does not use sulfur-sensitive technology, we may allow you to use an in-use fuel that has a lower sulfur content than the range specified for the otherwise applicable test fuel in 40 CFR part 1065, but may require that you correct PM emissions to account for the sulfur differences.

(3) For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use locomotives will use.

(f) See § 1033.505 for information about allowable ambient testing conditions for testing.

(g) This subpart is addressed to you as a manufacturer/remanufacturer, but it applies equally to anyone who does testing for you, and to us when we perform testing to determine if your locomotives meet emission standards.

(h) We may also perform other testing as allowed by the Clean Air Act.

(i) For passenger locomotives that can generate hotel power from the main propulsion engine, the locomotive must comply with the emission standards when in non-hotel setting. For hotel mode, the locomotive is subject to the notch cap provisions of § 1033.101 and the defeat device prohibition of § 1033.115.

[73 FR 37197, June 30, 2008, as amended at 74 FR 56508, Oct. 30, 2008; 75 FR 22984, Apr. 30, 2010]

§ 1033.505 Ambient conditions.

This section specifies the allowable ambient conditions (including temperature and pressure) under which testing may be performed to determine compliance with the emission standards of § 1068.101. Manufacturers/remanufacturers may ask to perform testing at conditions other than those

allowed by this section. We will allow such testing provided it does not affect your ability to demonstrate compliance with the applicable standards. See §§ 1033.101 and 1033.115 for more information about the requirements that apply at other conditions.

(a) *Temperature.* (1) Testing may be performed with ambient temperatures from 15.5 °C (60 °F) to 40.5 °C (105 °F). Do not correct emissions for temperature effects within this range.

(2) It is presumed that combustion air will be drawn from the ambient air. Thus, the ambient temperature limits of this paragraph (a) apply for intake air upstream of the engine. If you do not draw combustion air from the ambient air, use good engineering judgment to ensure that any temperature difference (between the ambient air and combustion air) does not cause the emission measurement to be unrepresentative of in-use emissions.

(3) If we allow you to perform testing at ambient temperatures below 15.5 °C, you must correct NO_X emissions for temperature effects, consistent with good engineering judgment. For example, if the intake air temperature (at the manifold) is lower at the test temperature than it would be for equivalent operation at an ambient temperature of 15.5 °C, you generally will need to adjust your measured NO_X emissions to account for the effect of the lower intake air temperature. However, if you maintain a constant manifold air temperature, you will generally not need to correct emissions.

(b) *Altitude/pressure.* Testing may be performed with ambient pressures from 88.000 kPa (26.0 in Hg) to 103.325 kPa (30.5 in Hg). This is intended to correspond to altitudes up to 4000 feet above sea level. Do not correct emissions for pressure effects within this range.

(c) *Humidity.* Testing may be performed with any ambient humidity level. Correct NO_X emissions as specified in 40 CFR 1065.670. Do not correct any other emissions for humidity effects.

(d) *Wind.* If you test outdoors, use good engineering judgment to ensure that excessive wind does not affect your emission measurements. Winds are excessive if they disturb the size, shape, or location of the exhaust plume in the region where exhaust samples are drawn or where the smoke plume is measured, or otherwise cause any dilution of the exhaust. Tests may be conducted if wind shielding is placed adjacent to the exhaust plume to prevent bending, dispersion, or any other distortion of the exhaust plume as it passes through the optical unit or through the sample probe.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22984, Apr. 30, 2010]

§ 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.

(a) Adjust the locomotive main engine's idle emission rate (g/hr) as specified in § 1033.530. Add the APU emission rate (g/hr) that you determine under paragraph (b) of this section. Use the locomotive main engine's idle power as specified in § 1033.530.

(b) Determine the representative emission rate for the APU using one of the following methods.

(1) *Installed APU tested separately.* If you separately measure emission rates (g/hr) for each pollutant from the APU installed in the locomotive, you may use the measured emissions rates (g/hr) as the locomotive's idle emissions rates when the locomotive is shutdown and the APU is operating. For all testing other than in-use testing, apply appropriate deterioration factors to the measured emission rates. You may ask to carryover APU emission data for a previous test, or use data for the same APU installed on locomotives in another engine family.

(2) *Uninstalled APU tested separately.* If you separately measure emission rates (g/hr) over an appropriate duty-cycle for each pollutant from the APU when it is not installed in the locomotive, you may use the measured emissions rates (g/hr) as the locomotive's idle emissions rates when the locomotive is shutdown and the APU is

operating. For the purpose of this paragraph (b)(2), an appropriate duty-cycle is one that approximates the APU engine's cycle-weighted power when operating in the locomotive. Apply appropriate deterioration factors to the measured emission rates. You may ask to carryover APU emission data for a previous test, or use data for the same APU installed on locomotives in another engine family.

(3) *APU engine certification data*. If the engine used for the APU has been certified to EPA emission standards you may calculate the APU's emissions based upon existing EPA-certification information about the APU's engine. In this case, calculate the APU's emissions as follows:

(i) For each pollutant determine the brake-specific standard/FEL to which the APU engine was originally EPA-certified.

(ii) Determine the APU engine's cycle-weighted power when operating in the locomotive.

(iii) Multiply each of the APU's applicable brake-specific standards/FELs by the APU engine's cycle-weighted power. The results are the APU's emissions rates (in g/hr).

(iv) Use these emissions rates as the locomotive's idle emissions rates when the locomotive is shutdown and the APU is running. Do not apply a deterioration factor to these values.

(4) *Other*. You may ask us to approve an alternative means to account for APU emissions.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008]

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

This section describes how to test locomotives at each notch setting so that emissions can be weighted according to either the line-haul duty cycle or the switch duty cycle. The locomotive test cycle consists of a warm-up followed by a sequence of nominally steady-state discrete test modes, as described in Table 1 to this section. The test modes are steady-state with respect to operator demand, which is the notch setting for the locomotive. Engine speeds and loads are not necessarily steady-state.

(a) Follow the provisions of 40 CFR part 1065, subpart F for general pre-test procedures (including engine and sampling system pre-conditioning which is included as engine warm-up). You may operate the engine in any way you choose to warm it up prior to beginning the sample preconditioning specified in 40 CFR part 1065.

(b) Begin the test by operating the locomotive over the pre-test portion of the cycle specified in Table 1 to this section. For locomotives not equipped with catalysts, you may begin the test as soon as the engine reaches its lowest idle setting. For catalyst-equipped locomotives, you may begin the test in normal idle mode if the engine does not reach its lowest idle setting within 15 minutes. If you do start in normal idle, run the low idle mode after normal idle, then resume the specified mode sequence (without repeating the normal idle mode).

(c) Measure emissions during the rest of the test cycle.

(1) Each test mode begins when the operator demand to the locomotive or engine is set to the applicable notch setting.

(2) Start measuring gaseous emissions, power, and fuel consumption at the start of the test mode A and continue until the completion of test mode 8. You may zero and span analyzers between modes (or take other actions consistent with good engineering judgment).

(i) The sample period over which emissions for the mode are averaged generally begins when the operator demand is changed to start the test mode and ends within 5 seconds of the minimum sampling time for the test mode is reached. However, you need to shift the sampling period to account for sample system residence times. Follow the provisions of 40 CFR 1065.308 and 1065.309 to time align emission and work measurements.

(ii) The sample period is 300 seconds for all test modes except mode 10. The sample period for test mode 8 is 600 seconds.

(3) If gaseous emissions are sampled using a batch-sampling method, begin proportional sampling at the beginning of each sampling period and terminate

sampling once the minimum time in each test mode is reached, ±5 seconds.

(4) If applicable, begin the smoke test at the start of the test mode A. Continue collecting smoke data until the completion of test mode 8. Refer to § 1033.101 to determine applicability of smoke testing and § 1033.525 for details on how to conduct a smoke test.

(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 not 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) Group the modes in the same manner as the phases of the ramped modal cycle and use three different dilution settings for the groups. Use one setting for both idle modes, one for dynamic brake through notch 5, and one for notches 6 through 8. For each group, ensure that the mode with the highest exhaust flow (typically normal idle, notch 5, and notch 8) meets the criteria for minimum dilution ratio in 40 CFR part 1065.

(6) Proceed through each test mode in the order specified in Table 1 to this section until the locomotive test cycle is completed.

(7) At the end of each numbered test mode, you may continue to operate sampling and dilution systems to allow corrections for the sampling system's response time.

(8) Following the completion of Mode 8, conduct the post sampling procedures in § 1065.530. Note that cycle validation criteria do not apply to testing of complete locomotives.

TABLE 1 TO § 1033.515—LOCOMOTIVE TEST CYCLE

Test mode	Notch setting	Time in mode (minutes) [1]	Sample averaging period for emissions [1]
Pre-test idle	Lowest idle setting	10 to 15 [3]	Not applicable
A	Low idle [2]	5 to 10	300 ±5 seconds
B	Normal idle	5 to 10	300 ±5 seconds
C	Dynamic brake [2]	5 to 10	300 ±5 seconds
1	Notch 1	5 to 10	300 ±5 seconds
2	Notch 2	5 to 10	300 ±5 seconds
3	Notch 3	5 to 10	300 ±5 seconds
4	Notch 4	5 to 10	300 ±5 seconds
5	Notch 5	5 to 10	300 ±5 seconds
6	Notch 6	5 to 10	300 ±5 seconds
7	Notch 7	5 to 10	300 ±5 seconds
8	Notch 8	10 to 15	600 ±5 seconds

[1] The time in each notch and sample averaging period may be extended as needed to allow for collection of a sufficiently large PM sample.
[2] Omit if not so equipped.
[3] See paragraph (b) of this section for alternate pre-test provisions.

(d) Use one of the following approaches for sampling PM emissions during discrete-mode steady-state testing:

(1) *Engines certified to a PM standard/FEL at or above 0.05 g/bhp-hr.* Use a separate PM filter sample for each test mode of the locomotive test cycle according to the procedures specified in paragraph (a) through (c) of this section. You may ask to use a shorter sampling period if the total mass expected to be collected would cause unacceptably high pressure drop across the filter before reaching the end of the required sampling time. We will not allow sampling times shorter than 60 seconds. When we conduct locomotive emission tests, we will adhere to the time limits for each of the numbered modes in Table 1 to this section.

(2) *Engines certified to a PM standard/FEL below 0.05 g/bhp-hr.* (i) You may use separate PM filter samples for each test mode as described in paragraph (d)(1) of this section; however, we recommend that you do not. The low rate of sample filter loading will result in very long sampling times and the large number of filter samples may induce uncertainty stack-up that will lead to unacceptable PM measurement accuracy. Instead, we recommend that you

measure PM emissions as specified in paragraph (d)(2)(ii) of this section.

(ii) You may use a single PM filter for sampling PM over all of the test modes of the locomotive test cycle as specified in this paragraph (d)(2). Vary the sample time to be proportional to the applicable line-haul or switch weighting factors specified in § 1033.530 for each mode. The minimum sampling time for each mode is 400 seconds multiplied by the weighting factor. For example, for a mode with a weighting factor of 0.030, the minimum sampling time is 12.0 seconds. PM sampling in each mode must be proportional to engine exhaust flow as specified in 40 CFR part 1065. Begin proportional sampling of PM emissions at the beginning of each test mode as is specified in paragraph (c) of this section. End the sampling period for each test mode so that sampling times are proportional to the weighting factors for the applicable duty cycles. If necessary, you may extend the time limit for each of the test modes beyond the sampling times in Table 1 to this section to increase the sampled mass of PM emissions or to account for proper weighting of the PM emission sample over the entire cycle, using good engineering judgment.

(e) This paragraph (e) describes how to test locomotive engines when not installed in a locomotive. Note that the test procedures for dynamometer engine testing of locomotive engines are intended to produce emission measurements that are the same as emission measurements produced during testing of complete locomotives using the same engine configuration. The following requirements apply for all engine tests:

(1) Specify a second-by-second set of engine speed and load points that are representative of in-use locomotive operation for each of the set-points of the locomotive test cycle described in Table 1 to this section, including transitions from one notch to the next. This is your reference cycle for validating your cycle. You may ignore points between the end of the sampling period for one mode and the point at which you change the notch setting to begin the next mode.

(2) Keep the temperature of the air entering the engine after any charge air cooling to within 5 °C of the typical intake manifold air temperature when the engine is operated in the locomotive under similar ambient conditions.

(3) Proceed as specified in paragraphs (a) through (d) of this section for testing complete locomotives.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008; 74 FR 8424, Feb. 24, 2009; 75 FR 22985, Apr. 30, 2010]

§ 1033.520 Alternative ramped modal cycles.

(a) Locomotive testing over a ramped modal cycle is intended to improve measurement accuracy at low emission levels by allowing the use of batch sampling of PM and gaseous emissions over multiple locomotive notch settings. Ramped modal cycles combine multiple test modes of a discrete-mode steady-state into a single sample period. Time in notch is varied to be proportional to weighting factors. The ramped modal cycle for line-haul locomotives is shown in Table 1 to this section. The ramped modal cycle for switch locomotives is shown in Table 2 to this section. Both ramped modal cycles consist of a warm-up followed by three test phases that are each weighted in a manner that maintains the duty cycle weighting of the line-haul and switch locomotive duty cycles in § 1033.530. You may use ramped modal cycle testing for any locomotives certified under this part.

(b) Ramped modal testing requires continuous gaseous analyzers and three separate PM filters (one for each phase). You may collect a single batch sample for each test phase, but you must also measure gaseous emissions continuously to allow calculation of notch caps as required under § 1033.101.

(c) You may operate the engine in any way you choose to warm it up. Then follow the provisions of 40 CFR part 1065, subpart F for general pre-test procedures (including engine and sampling system pre-conditioning).

(d) Begin the test by operating the locomotive over the pre-test portion of the cycle. For locomotives not equipped with catalysts, you may begin the test as soon as the engine reaches

its lowest idle setting. For catalyst-equipped locomotives, you may begin the test in normal idle mode if the engine does not reach its lowest idle setting within 15 minutes. If you do start in normal idle, run the low idle mode after normal idle, then resume the specified mode sequence (without repeating the normal idle mode).

(e) Start the test according to 40 CFR 1065.530.

(1) Each test phase begins when operator demand is set to the first operator demand setting of each test phase of the ramped modal cycle. Each test phase ends when the time in mode is reached for the last mode in the test phase.

(2) For PM emissions (and other batch sampling), the sample period over which emissions for the phase are averaged generally begins within 10 seconds after the operator demand is changed to start the test phase and ends within 5 seconds of the sampling time for the test mode is reached. (see Table 1 to this section). You may ask to delay the start of the sample period to account for sample system residence times longer than 10 seconds.

(3) Use good engineering judgment when transitioning between phases.

(i) You should come as close as possible to simultaneously:

(A) Ending batch sampling of the previous phase.

(B) Starting batch sampling of the next phase.

(C) Changing the operator demand to the notch setting for the first mode in the next phase.

(ii) Avoid the following:

(A) Overlapping batch sampling of the two phases.

(B) An unnecessarily long delay before starting the next phase.

(iii) For example, the following sequence would generally be appropriate:

(A) End batch sampling for phase 2 after 240 seconds in notch 7.

(B) Switch the operator demand to notch 8 one second later.

(C) Begin batch sampling for phase 3 one second after switching to notch 8.

(4) If applicable, begin the smoke test at the start of the first test phase of the applicable ramped modal cycle. Continue collecting smoke data until the completion of final test phase. Refer to § 1033.101 to determine applicability of the smoke standards and § 1033.525 for details on how to conduct a smoke test.

(5) Proceed through each test phase of the applicable ramped modal cycle in the order specified until the test is completed.

(6) If you must void a test phase you may repeat the phase. To do so, begin with a warm engine operating at the notch setting for the last mode in the previous phase. You do not need to repeat later phases if they were valid. (NOTE: you must report test results for all voided tests and test phases.)

(7) Following the completion of the third test phase of the applicable ramped modal cycle, conduct the post sampling procedures specified in 40 CFR 1065.530.

(f) Calculate your cycle-weighted brake-specific emission rates as follows:

(1) For each test phase j:

(i) Calculate emission rates (E_{ij}) for each pollutant i as the total mass emissions divided by the total time in the phase.

(ii) Calculate average power (P_j) as the total work divided by the total time in the phase.

(2) For each pollutant, calculate your cycle-weighted brake-specific emission rate using the following equation, where w_j is the weighting factor for phase j:

$$E_{ij} = \frac{w_1 E_{i1} + w_2 E_{i2} + w_3 E_{i3}}{w_1 P_1 + w_2 P_2 + w_3 P_3}$$

(g) The following tables define applicable ramped modal cycles for line-haul and switch locomotives:

TABLE 1 TO § 1033.520—LINE-HAUL LOCOMOTIVE RAMPED MODAL CYCLE

RMC test phase	Weighting factor	RMC mode	Time in mode (seconds)	Notch setting
Pre-test idle	NA	NA	600 to 900	Lowest idle setting [1]
Phase 1		A	600	Low Idle.[2]

TABLE 1 TO § 1033.520—LINE-HAUL LOCOMOTIVE RAMPED MODAL CYCLE—Continued

RMC test phase	Weighting factor	RMC mode	Time in mode (seconds)	Notch setting
Pre-test idle	NA	NA	600 to 900	Lowest idle setting [1]
(Idle test)	0.380	B	600	Normal Idle.
Phase Transition				
Phase 2	0.389	C	1000	Dynamic Brake.[3]
		1	520	Notch 1.
		2	520	Notch 2.
		3	416	Notch 3.
		4	352	Notch 4.
		5	304	Notch 5.
Phase Transition				
Phase 3	0.231	6	144	Notch 6.
		7	111	Notch 7.
		8	600	Notch 8.

[1] See paragraph (d) of this section for alternate pre-test provisions.
[2] Operate at normal idle for modes A and B if not equipped with multiple idle settings.
[3] Operate at normal idle if not equipped with a dynamic brake.

TABLE 2 TO § 1033.520—SWITCH LOCOMOTIVE RAMPED MODAL CYCLE

RMC test phase	Weighting factor	RMC mode	Time in mode (seconds)	Notch setting
Pre-test idle	NA	NA	600 to 900	Lowest idle setting [1]
Phase 1	0.598	A	600	Low Idle.[2]
(Idle test)		B	600	Normal Idle.
Phase Transition				
Phase 2	0.377	1	868	Notch 1.
		2	861	Notch 2.
		3	406	Notch 3.
		4	252	Notch 4.
		5	252	Notch 5.
Phase Transition				
Phase 3	0.025	6	1080	Notch 6.
		7	144	Notch 7.
		8	576	Notch 8.

[1] See paragraph (d) of this section for alternate pre-test provisions.
[2] Operate at normal idle for modes A and B if not equipped with multiple idle settings.

[73 FR 37197, June 30, 2008, as amended at 74 FR 8424, Feb. 24, 2009]

§ 1033.525 Smoke testing.

This section describes the equipment and procedures for testing for smoke emissions when is required.

(a) This section specifies how to measure smoke emissions using a full-flow, open path light extinction smokemeter. A light extinction meter consists of a built-in light beam that traverses the exhaust smoke plume that issues from exhaust the duct. The light beam must be at right angles to the axis of the plume. Align the light beam to go through the plume along the hydraulic diameter (defined in 1065.1001) of the exhaust stack. Where it is difficult to align the beam to have a path length equal to the hydraulic diameter (such as a long narrow rectangular duct), you may align the beam to have a different path length and correct it to be equivalent to a path length equal to the hydraulic diameter. The light extinction meter must meet the requirements of paragraph (b) of this section and the following requirements:

(1) Use an incandescent light source with a color temperature range of 2800K to 3250K, or a light source with a spectral peak between 550 and 570 nanometers.

(2) Collimate the light beam to a nominal diameter of 3 centimeters and an angle of divergence within a 6 degree included angle.

(3) Use a photocell or photodiode light detector. If the light source is an incandescent lamp, use a detector that has a spectral response similar to the photopic curve of the human eye (a maximum response in the range of 550 to 570 nanometers, to less than four percent of that maximum response below 430 nanometers and above 680 nanometers).

(4) Attach a collimating tube to the detector with apertures equal to the beam diameter to restrict the viewing angle of the detector to within a 16 degree included angle.

(5) Amplify the detector signal corresponding to the amount of light.

(6) You may use an air curtain across the light source and detector window assemblies to minimize deposition of smoke particles on those surfaces, provided that it does not measurably affect the opacity of the plume.

(7) Minimize distance from the optical centerline to the exhaust outlet; in no case may it be more than 3.0 meters. The maximum allowable distance of unducted space upstream of the optical centerline is 0.5 meters. Center the full flow of the exhaust stream between the source and detector apertures (or windows and lenses) and on the axis of the light beam.

(8) You may use light extinction meters employing substantially identical measurement principles and producing substantially equivalent results, but which employ other electronic and optical techniques.

(b) All smokemeters must meet the following specifications:

(1) A full-scale deflection response time of 0.5 second or less.

(2) You may attenuate signal responses with frequencies higher than 10 Hz with a separate low-pass electronic filter with the following performance characteristics:

(i) Three decibel point: 10 Hz.

(ii) Insertion loss: 0.0 ±0.5 dB.

(iii) Selectivity: 12 dB down at 40 Hz minimum.

(iv) Attenuation: 27 dB down at 40 Hz minimum.

(c) Perform the smoke test by continuously recording smokemeter response over the entire locomotive test cycle in percent opacity to within one percent resolution and also simultaneously record operator demand set point (e.g., notch position). Compare the recorded opacities to the smoke standards applicable to your locomotive.

(d) You may use a partial flow sampling smokemeter if you correct for the path length of your exhaust plume. If you use a partial flow sampling meter, follow the instrument manufacturer's installation, calibration, operation, and maintenance procedures.

§ 1033.530 Duty cycles and calculations.

This section describes how to apply the duty cycle to measured emission rates to calculate cycle-weighted average emission rates.

(a) *Standard duty cycles and calculations.* Tables 1 and 2 of this section show the duty cycle to use to calculate cycle-weighted average emission rates for locomotives equipped with two idle settings, eight propulsion notches, and at least one dynamic brake notch and tested using the Locomotive Test Cycle. Use the appropriate weighting factors for your locomotive application and calculate cycle-weighted average emissions as specified in 40 CFR part 1065, subpart G.

TABLE 1 TO § 1033.530—STANDARD DUTY CYCLE WEIGHTING FACTORS FOR CALCULATING EMISSION RATES FOR LOCOMOTIVES WITH MULTIPLE IDLE SETTINGS

Notch setting	Test mode	Line-haul weighting factors	Line-haul weighting factors (no dynamic brake)	Switch weighting factors
Low Idle	A	0.190	0.190	0.299

TABLE 1 TO § 1033.530—STANDARD DUTY CYCLE WEIGHTING FACTORS FOR CALCULATING EMISSION RATES FOR LOCOMOTIVES WITH MULTIPLE IDLE SETTINGS—Continued

Notch setting	Test mode	Line-haul weighting factors	Line-haul weighting factors (no dynamic brake)	Switch weighting factors
Normal Idle	B	0.190	0.315	0.299
Dynamic Brake	C	0.125	(1)	0.000
Notch 1	1	0.065	0.065	0.124
Notch 2	2	0.065	0.065	0.123
Notch 3	3	0.052	0.052	0.058
Notch 4	4	0.044	0.044	0.036
Notch 5	5	0.038	0.038	0.036
Notch 6	6	0.039	0.039	0.015
Notch 7	7	0.030	0.030	0.002
Notch 8	8	0.162	0.162	0.008

[1] Not applicable.

TABLE 2 TO § 1033.530—STANDARD DUTY CYCLE WEIGHTING FACTORS FOR CALCULATING EMISSION RATES FOR LOCOMOTIVES WITH A SINGLE IDLE SETTING

Notch setting	Test mode	Line-haul	Line-haul (no dynamic brake)	Switch
Normal Idle	A	0.380	0.505	0.598
Dynamic Brake	C	0.125	(1)	0.000
Notch 1	1	0.065	0.065	0.124
Notch 2	2	0.065	0.065	0.123
Notch 3	3	0.052	0.052	0.058
Notch 4	4	0.044	0.044	0.036
Notch 5	5	0.038	0.038	0.036
Notch 6	6	0.039	0.039	0.015
Notch 7	7	0.030	0.030	0.002
Notch 8	8	0.162	0.162	0.008

[1] Not applicable.

(b) *Idle and dynamic brake notches.* The test procedures generally require you to measure emissions at two idle settings and one dynamic brake, as follows:

(1) If your locomotive is equipped with two idle settings and one or more dynamic brake settings, measure emissions at both idle settings and the worst case dynamic brake setting, and weight the emissions as specified in the applicable table of this section. Where it is not obvious which dynamic brake setting represents worst case, do one of the following:

(i) You may measure emissions and power at each dynamic brake point and average them together.

(ii) You may measure emissions and power at the dynamic brake point with the lowest power.

(2) If your locomotive is equipped with two idle settings and is not equipped with dynamic brake, use a normal idle weighting factor of 0.315 for the line-haul cycle. If your locomotive is equipped with only one idle setting and no dynamic brake, use an idle weighting factor of 0.505 for the line-haul cycle.

(c) *Nonstandard notches or no notches.* If your locomotive is equipped with more or less than 8 propulsion notches, recommend an alternate test cycle based on the in-use locomotive configuration. Unless you have data demonstrating that your locomotive will be operated differently from conventional locomotives, recommend weighting factors that are consistent with the power weightings of the specified duty cycle. For example, the average load factor for your recommended cycle (cycle-weighted power divided by rated power) should be equivalent to those of conventional locomotives. We may also allow the use of the standard power levels shown in Table 3 to this section for nonstandard locomotive testing subject to our prior approval.

This paragraph (c) does not allow engines to be tested without consideration of the actual notches that will be used.

TABLE 3 TO § 1033.530—STANDARD NOTCH POWER LEVELS EXPRESSED AS A PERCENTAGE OF RATED POWER

	Percent
Normal Idle	0.00
Dynamic Brake	0.00
Notch 1	4.50
Notch 2	11.50
Notch 3	23.50
Notch 4	35.00
Notch 5	48.50
Notch 6	64.00
Notch 7	85.00
Notch 8	100.00

(d) *Optional Ramped Modal Cycle Testing.* Tables 1 and 2 of § 1033.520 show the weighting factors to use to calculate cycle-weighted average emission rates for the applicable locomotive ramped modal cycle. Use the weighting factors for the ramped modal cycle for your locomotive application and calculate cycle-weighted average emissions as specified in 40 CFR part 1065, subpart G.

(e) *Automated Start-Stop.* For a 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.

(f) *Multi-engine locomotives.* This paragraph (f) applies for locomotives using multiple engines where all engines are identical in all material respects. In cases where we allow engine dynamometer testing, you may test a single engine consistent with good engineering judgment, as long as you test it at the operating points at which the engines will operate when installed in the locomotive (excluding stopping and starting). Weigh the results to reflect the power demand/power-sharing of the in-use configuration for each notch setting.

(g) *Representative test cycles for freshly manufactured locomotives.* As specified in this paragraph (g), manufacturers may be required to use an alternate test cycle for freshly manufactured Tier 3 and later locomotives.

(1) If you determine that you are adding design features that will make the expected average in-use duty cycle for any of your freshly manufactured locomotive engine families significantly different from the otherwise applicable test cycle (including weighting factors), you must notify us and recommend an alternate test cycle that represents the expected average in-use duty cycle. You should also obtain preliminary approval before you begin collecting data to support an alternate test cycle. We will specify whether to use the default duty cycle, your recommended cycle, or a different cycle, depending on which cycle we believe best represents expected in-use operation.

(2) The provisions of this paragraph (g) apply differently for different types of locomotives, as follows:

(i) For Tier 4 and later line-haul locomotives, use the cycle required by (g)(1) of this section to show compliance with the line-haul cycle standards.

(ii) For Tier 3 and later switch locomotives, use the cycle required by (g)(1) of this section to show compliance with the switch cycle standards.

(iii) For Tier 3 line-haul locomotives, if we specify an alternate cycle, use it to show compliance with the line-haul cycle standards. If you include the locomotives in the ABT program of subpart H of this part, calculate line-haul cycle credits (positive or negative) using the alternate cycle and the line-haul cycle standards. Your locomotive is deemed to also generate an equal amount of switch cycle credits.

(3) For all locomotives certified using an alternate cycle, include a description of the cycle in the owners manual such that the locomotive can be remanufactured using the same cycle.

(4) For example, if your freshly manufactured line-haul locomotives are

equipped with load control features that modify how the locomotive will operate when it is in a consist, and such features will cause the locomotives to operate differently from the otherwise applicable line-haul cycle, we may require you to certify using an alternate cycle.

(5) See paragraph (h) of this section for cycle-changing design features that also result in energy savings.

(h) *Calculation adjustments for energy-saving design features.* The provisions of this paragraph (h) apply for locomotives equipped with new energy-saving locomotive design features. They do not apply for features that only improve the engine's brake-specific fuel consumption. They also do not apply for features that were commonly incorporated in locomotives before 2008. *See* paragraph (h)(6) of this section for provisions related to determining whether certain features are considered to have been commonly incorporated in locomotives before 2008.

(1) Manufacturers/remanufacturers choosing to adjust emissions under this paragraph (h) must do all of the following for certification:

(i) Describe the energy-saving features in your application for certification.

(ii) Describe in your installation instruction and/or maintenance instructions all steps necessary to utilize the energy-saving features.

(2) If your design feature will also affect the locomotives' duty cycle, you must comply with the requirements of paragraph (g) of this section.

(3) Calculate the energy savings as follows:

(i) Estimate the expected mean in-use fuel consumption rate (on a BTU per ton-mile basis) with and without the energy saving design feature, consistent with the specifications of paragraph (h)(4) of this section. The energy savings is the ratio of fuel consumed from a locomotive operating with the new feature to fuel consumed from a locomotive operating without the feature under identical conditions. Include an estimate of the 80 percent confidence interval for your estimate of the mean and other statistical parameters we specify.

(ii) Your estimate must be based on in-use operating data, consistent with good engineering judgment. Where we have previously certified your design feature under this paragraph (h), we may require you to update your analysis based on all new data that are available. You must obtain approval before you begin collecting operational data for this purpose.

(iii) We may allow you to consider the effects of your design feature separately for different route types, regions, or railroads. We may require that you certify these different locomotives in different engine families and may restrict their use to the specified applications.

(iv) Design your test plan so that the operation of the locomotives with and without is as similar as possible in all material aspects (other than the design feature being evaluated). Correct all data for any relevant differences, consistent with good engineering judgment.

(v) Do not include any brake-specific energy savings in your calculated values. If it is not possible to exclude such effects from your data gathering, you must correct for these effects, consistent with good engineering judgment.

(4) Calculate adjustment factors as described in this paragraph (h)(4). If the energy savings will apply broadly, calculate and apply the adjustment on a cycle-weighted basis. Otherwise, calculate and apply the adjustment separately for each notch. To apply the adjustment, multiply the emissions (either cycle-weighted or notch-specific, as applicable) by the adjustment. Use the lower bound of the 80 percent confidence interval of the estimate of the mean as your estimated energy savings rate. We may cap your energy savings rate for this paragraph (h)(4) at 80 percent of the estimate of the mean. Calculate the emission adjustment factors as:

$$AF = 1.000 - (\text{energy savings rate})$$

(5) We may require you to collect and report data from locomotives we allow you to certify under this paragraph (h) and to recalculate the adjustment factor for future model years based on such data.

(6) Features that are considered to have not been commonly incorporated in locomotives before 2008 include but are not limited to those identified in this paragraph (h)(6).

(i) Electronically controlled pneumatic (ECP) brakes, computerized throttle management control, and advanced hybrid technology were not commonly incorporated in locomotives before 2008. Manufacturers may claim full credit for energy savings that result from applying these features to freshly manufactured and/or remanufactured locomotives.

(ii) Distributed power systems that use radio controls to optimize operation of locomotives in the middle and rear of a train were commonly incorporated in some but not all locomotives in 2008. Manufacturers may claim credit for incorporating these features into locomotives as follows:

(A) Manufacturers may claim prorated credit for incorporating distributed power systems in freshly manufactured locomotives. Multiply the energy saving rate by 0.50 when calculating the adjustment factor:

$$AF = 1.000 - (\text{energy savings rate}) \times (0.50)$$

(B) Manufacturers may claim full credit for retrofitting distributed power systems in remanufactured locomotives.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008; 75 FR 22985, Apr. 30, 2010]

§ 1033.535 Adjusting emission levels to account for infrequently regenerating aftertreatment devices.

This section describes how to adjust emission results from locomotives using aftertreatment technology with infrequent regeneration events that occur during testing. See paragraph (e) of this section for how to adjust ramped modal testing. See paragraph (f) of this section for how to adjust discrete-mode testing. For this section, ''regeneration'' means an intended event during which emission levels change while the system restores aftertreatment performance. For example, hydrocarbon emissions may increase temporarily while oxidizing accumulated particulate matter in a trap. Also for this section, ''infrequent'' refers to regeneration events that are expected to occur on average less than once per sample period.

(a) *Developing adjustment factors.* Develop an upward adjustment factor and a downward adjustment factor for each pollutant based on measured emission data and observed regeneration frequency. Adjustment factors should generally apply to an entire engine family, but you may develop separate adjustment factors for different configurations within an engine family. If you use adjustment factors for certification, you must identify the frequency factor, F, from paragraph (b) of this section in your application for certification and use the adjustment factors in all testing for that engine family. You may use carryover or carryacross data to establish adjustment factors for an engine family, as described in § 1033.235, consistent with good engineering judgment. All adjustment factors for regeneration are additive. Determine adjustment factors separately for different test segments as described in paragraphs (e) and (f) of this section. You may use either of the following different approaches for locomotives that use aftertreatment with infrequent regeneration events:

(1) You may disregard this section if you determine that regeneration does not significantly affect emission levels for an engine family (or configuration) or if it is not practical to identify when regeneration occurs. If you do not use adjustment factors under this section, your locomotives must meet emission standards for all testing, without regard to regeneration.

(2) You may ask us to approve an alternate methodology to account for regeneration events. We will generally limit approval to cases in which your locomotives use aftertreatment technology with extremely infrequent regeneration and you are unable to apply the provisions of this section.

(b) *Calculating average emission factors.* Calculate the average emission factor (EF_A) based on the following equation:

$$EF_A = (F)(EF_H) + (1\text{-}F)(EF_L)$$

Where:

F = the frequency of the regeneration event during normal in-use operation, expressed in terms of the fraction of equivalent tests during which the regeneration occurs. You may determine F from in-use operating data or running replicate tests. For example, if you observe that the regeneration occurs 125 times during 1000 MW-hrs of operation, and your locomotive typically accumulates 1 MW-hr per test, F would be (125) ÷ (1000) × (1) = 0.125.

EF_H = measured emissions from a test segment in which the regeneration occurs.

EF_L = measured emissions from a test segment in which the regeneration does not occur.

(c) *Applying adjustment factors.* Apply adjustment factors based on whether regeneration occurs during the test run. You must be able to identify regeneration in a way that is readily apparent during all testing.

(1) If regeneration does not occur during a test segment, add an upward adjustment factor to the measured emission rate. Determine the upward adjustment factor (UAF) using the following equation:

$$UAF = EF_A - EF_L$$

(2) If regeneration occurs or starts to occur during a test segment, subtract a downward adjustment factor from the measured emission rate. Determine the downward adjustment factor (DAF) using the following equation:

$$DAF = EF_H - EF_A$$

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

EF_A = (0.10)(0.50 g/bhp-hr) + (1.00 − 0.10)(0.10 g/bhp-hr) = 0.14 g/bhp-hr.

UAF = 0.14 g/bhp-hr − 0.10 g/bhp-hr = 0.04 g/bhp-hr.

DAF = 0.50 g/bhp-hr − 0.14 g/bhp-hr = 0.36 g/bhp-hr

(e) *Ramped modal testing.* Develop separate adjustment factors for each test phase. If a regeneration has started but has not been completed when you reach the end of a test phase, use good engineering judgment to reduce your downward adjustments to be proportional to the emission impact that occurred in the test phases.

(f) *Discrete-mode testing.* Develop separate adjustment factors for each test mode. If a regeneration has started but has not been completed when you reach the end of the sampling time for a test mode extend the sampling period for that mode until the regeneration is completed.

Subpart G—Special Compliance Provisions

§ 1033.601 General compliance provisions.

Locomotive manufacturer/remanufacturers, as well as owners and operators of locomotives 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. The provisions of 40 CFR part 1068 apply for locomotives as specified in that part, except as otherwise specified in this section.

(a) *Meaning of terms.* When used in 40 CFR part 1068, apply meanings for specific terms as follows:

(1) ''Manufacturer'' means manufacturer and/or remanufacturer.

(2) ''Date of manufacture'' means date of original manufacture for freshly manufactured locomotives and the date on which a remanufacture is completed for remanufactured engines.

(b) *Engine rebuilding.* The provisions of 40 CFR 1068.120 do not apply when remanufacturing locomotives under a certificate of conformity issued under this part.

(c) *Exemptions.* (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.)

(2) The exemption provisions of 40 CFR 1068.250 and 1068.255 (i.e., exemptions for hardship relief) do not apply for domestic or imported locomotives. See § 1033.620 for provisions related to hardship relief.

(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.

(4) The provisions for importing engines and equipment under the identical configuration exemption of 40 CFR 1068.315(i) do not apply for locomotives.

(5) The provisions for importing engines and equipment under the ancient engine exemption of 40 CFR 1068.315(j) do not apply for locomotives.

(d) *SEAs, defect reporting, and recall.* The provisions of 40 CFR part 1068, subpart E (i.e., SEA provisions) do not apply for locomotives. Except as noted in this paragraph (d), the provisions of 40 CFR part 1068, subpart F, apply to certificate holders for locomotives as specified for manufacturers in that part.

(1) When there are multiple persons meeting the definition of manufacturer or remanufacturer, each person meeting the definition of manufacturer or remanufacturer must comply with the requirements of 40 CFR part 1068, subpart F, as needed so that the certificate holder can fulfill its obligations under those subparts.

(2) The defect investigation requirements of 40 CFR 1068.501(a)(5), (b)(1) and (b)(2) do not apply for locomotives. Instead, use good engineering judgment to investigate emission-related defects consistent with normal locomotive industry practice for investigating defects. You are not required to track parts shipments as indicators of possible defects.

(e) *Introduction into commerce.* The placement of a new locomotive or new locomotive engine back into service following remanufacturing is a violation of 40 CFR 1068.101(a)(1), unless it has a valid certificate of conformity for its model year and the required label.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008; 75 FR 22986, Apr. 30, 2010]

§ 1033.610 Small railroad provisions.

In general, the provisions of this part apply for all locomotives, including those owned by Class II and Class III railroads. This section describes how these provisions apply for railroads meeting the definition of ''small railroad'' in § 1033.901. (NOTE: The term ''small railroad'' excludes all Class II railroads and some Class III railroads, such as those owned by large parent companies.)

(a) Locomotives become subject to the provisions of this part when they become ''new'' as defined in § 1033.901. Under that definition, a locomotive is ''new'' when first assembled, and generally becomes ''new'' again when remanufactured. As an exception to this general concept, locomotives that are owned and operated by railroads meeting the definition of ''small railroad'' in § 1033.901 do not become ''new'' when remanufactured, unless they were previously certified to EPA emission standards. Certificate holders may require written confirmation from the owner/operator that the locomotive qualifies as a locomotive that is owned and operated by a small railroad. Such written confirmation to a certificate holder is deemed to also be a submission to EPA and is thus subject to the reporting requirements of 40 CFR 1068.101.

(b) The provisions of subpart I of this part apply to all owners and operators of locomotives subject to this part 1033. However, the regulations of that subpart specify some provisions that apply only for Class I freight railroads, and others that apply differently to Class I freight railroads and other railroads.

(c) We may exempt new locomotives that are owned or operated by small railroads from the prohibition against remanufacturing a locomotive without a certificate of conformity as specified in this paragraph (c). This exemption is only available in cases where no certified remanufacturing system is available for the locomotive. For example, it is possible that no remanufacturer will certify a system for very old locomotive models that comprise a tiny fraction of the fleet and that are remanufactured infrequently. We will grant the exemption in all cases in which no remanufacturing system has been certified for the applicable engine family and model year. We may also grant an exemption where we determine that a certified system is unavailable. We may consider the issue of

excessive costs in determining the availability of certified systems. If we grant this exemption for a previously certified locomotive, you are required to return the locomotive to its previously certified configuration. Send your request for such exemptions to the Designated Compliance Officer.

(d) Non-Class I railroads that do not meet the definition of ''small railroad'' in § 1033.901 may ask that their remanufactured locomotives be excluded from the definition of ''new'' in § 1033.901 in cases where no certified remanufacturing system is available for the locomotive. We will grant the exemption in all cases in which no remanufacturing system has been certified for the applicable engine family and model year. If we grant this exemption for a previously certified locomotive, you are required to return the locomotive to its previously certified configuration. Send your request for such exemptions to the Designated Compliance Officer.

§ 1033.615 Voluntarily subjecting locomotives to the standards of this part.

The provisions of this section specify the cases in which an owner or manufacturer of a locomotive or similar piece of equipment can subject it to the standards and requirements of this part. Once the locomotive or equipment becomes subject to the locomotive standards and requirements of this part, it remains subject to the standards and requirements of this part for the remainder of its service life.

(a) *Equipment excluded from the definition of ''locomotive''.* (1) Manufacturers/remanufacturers of equipment that is excluded from the definition of ''locomotive'' because of its total power, but would otherwise meet the definition of locomotive may ask to have it considered to be a locomotive. To do this, submit an application for certification as specified in subpart C of this part, explaining why it should be considered to be a locomotive. If we approve your request, it will be deemed to be a locomotive for the remainder of its service life.

(2) In unusual circumstances, we may deem other equipment to be locomotives (at the request of the owner or manufacturer/remanufacturer) where such equipment does not conform completely to the definition of locomotive, but is functionally equivalent to a locomotive.

(b) *Locomotives excluded from the definition of ''new''.* Owners of remanufactured locomotives excluded from the definition of ''new'' in § 1033.901 under paragraph (2) of that definition may choose to upgrade their locomotives to subject their locomotives to the standards and requirements of this part by complying with the specifications of a certified remanufacturing system, including the labeling specifications of § 1033.135.

§ 1033.620 Hardship provisions for manufacturers and remanufacturers.

(a) If you qualify for the economic hardship provisions specified in 40 CFR 1068.245, we may approve a period of delayed compliance for up to one model year total.

(b) The provisions of this paragraph (b) are intended to address problems that could occur near the date on which more stringent emission standards become effective, such as the transition from the Tier 2 standards to the Tier 3 standards for line-haul locomotives on January 1, 2012.

(1) In appropriate extreme and unusual circumstances that are clearly outside the control of the manufacturer and could not have been avoided by the exercise of prudence, diligence, and due care, we may permit you, for a brief period, to introduce into commerce locomotives which do not comply with the applicable emission standards if all of the following conditions apply:

(i) You cannot reasonably manufacture the locomotives in such a manner that they would be able to comply with the applicable standards.

(ii) The manufacture of the locomotives was substantially completed prior to the applicability date of the standards from which you seek the relief. For example, you may not request relief for a locomotive that has been ordered, but for which you will not begin the assembly process prior to the applicability date of the standards. On the other hand, we would generally

consider completion of the underframe weldment to be a substantial part of the manufacturing process.

(iii) Manufacture of the locomotives was previously scheduled to be completed at such a point in time that locomotives would have been included in the previous model year, such that they would have been subject to less stringent standards, and that such schedule was feasible under normal conditions.

(iv) You demonstrate that the locomotives comply with the less stringent standards that applied to the previous model year's production described in paragraph (b)(1)(iii) of this section, as prescribed by subpart C of this part (i.e., that the locomotives are identical to locomotives certified in the previous model year).

(v) You exercised prudent planning, were not able to avoid the violation, and have taken all reasonable steps to minimize the extent of the nonconformity.

(vi) We approve your request before you introduce the locomotives into commerce.

(2) You must notify us as soon as you become aware of the extreme or unusual circumstances.

(3)(i) Include locomotives for which we grant relief under this section in the engine family for which they were originally intended to be included.

(ii) Where the locomotives are to be included in an engine family that was certified to an FEL above the applicable standard, you must reserve credits to cover the locomotives covered by this allowance and include the required information for these locomotives in the end-of-year report required by subpart H of this part.

(c) In granting relief under this section, we may also set other conditions as appropriate, such as requiring payment of fees to negate an economic gain that such relief would otherwise provide.

§ 1033.625 Special certification provisions for non-locomotive-specific engines.

You may certify freshly manufactured or remanufactured locomotives using non-locomotive-specific engines (as defined in § 1033.901) using the normal certification procedures of this part. Locomotives certified in that way are generally treated the same as other locomotives, except where specified otherwise. The provisions of this section provide for design certification to the locomotive standards in this part for locomotives using engines included in engine families certified under 40 CFR part 1039 (or part 89) in limited circumstances.

(a) Remanufactured or freshly manufactured switch locomotives powered by non-locomotive-specific engines may be certified by design without the test data required by § 1033.235 if all of the following are true:

(1) Before being installed in the locomotive, the engines were covered by a certificate of conformity issued under 40 CFR Part 1039 (or part 89) that is effective for the calendar year in which the manufacture or remanufacture occurs. You may use engines certified during the previous years if they were subject to the same standards. You may not make any modifications to the engines unless we approve them.

(2) The engines were certified to PM, NO_X, and hydrocarbon standards that are numerically lower than the applicable locomotive standards of this part.

(3) More engines are reasonably projected to be sold and used under the certificate for non-locomotive use than for use in locomotives.

(4) The number of such locomotives certified under this section does not exceed 30 in any three-year period. We may waive this sales limit for locomotive models that have previously demonstrated compliance with the locomotive standards of § 1033.101 in-use.

(5) We approved the application as specified in paragraph (d) of this section.

(b) To certify your locomotives by design under this section, submit your application as specified in § 1033.205, with the following exceptions:

(1) Include the following instead of the locomotive test data otherwise required by § 1033.205:

(i) A description of the engines to be used, including the name of the engine manufacturer and engine family identifier for the engines.

(ii) A brief engineering analysis describing how the engine's emission controls will function when installed in the locomotive throughout the locomotive's useful life.

(iii) The emission data submitted under 40 CFR part 1039 (or part 89).

(2) You may separately submit some of the information required by § 1033.205, consistent with the provisions of § 1033.1(d). For example, this may be an appropriate way to submit detailed information about proprietary engine software. Note that this allowance to separately submit some of the information required by § 1033.205 is also available for applications not submitted under this section.

(c) Locomotives certified under this section are subject to all the requirements of this part except as specified in paragraph (b) of this section. The engines used in such locomotives are not considered to be included in the otherwise applicable engines family of 40 CFR part 1039 (or part 89).

(d) We will approve or deny the application as specified in subpart C of this part. For example, we will deny your application for certification by design under this section in any case where we have evidence that your locomotives will not conform to the requirements of this part throughout their useful lives.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22986, Apr. 30, 2010; 76 FR 53780, Sept. 15, 2011]

§ 1033.630 Staged-assembly and delegated assembly exemptions.

(a) *Staged assembly*. You may ask us to provide a temporary exemption to allow you to complete production of your engines and locomotives at different facilities, as long as you maintain control of the engines until they are in their certified configuration. We may require you to take specific steps to ensure that such locomotives are in their certified configuration before reaching the ultimate purchaser. You may request an exemption under this paragraph (a) 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. Note that no exemption is needed to ship an engine that has been assembled in its certified configuration, is properly labeled, and will not require an aftertreatment device to be attached when installed in the locomotive.

(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.

(1) In cases where an engine has been assembled in its certified configuration, properly labeled, and will not require an aftertreatment device to be attached when installed in the locomotive, no exemption is needed to ship the engine. You do not need an exemption to ship engines without specific components if they are not emission-related components identified in appendix I of 40 CFR part 1068.

(2) In cases where an engine has been properly labeled by the certificate holder and assembled in its certified configuration except that it does not yet have a required aftertreatment device, an exemption is required to ship the engine. You may ask for this exemption if you do all of the following:

(i) You note on the Engine Emission Control Information label that the locomotive must include the aftertreatment device to be covered by the certificate.

(ii) You make clear in your emission-related installation instructions that installation of the aftertreatment device is required for the locomotive to be covered by the certificate.

(3) In cases where an engine will be shipped to the certificate holder in an uncertified configuration, an exemption is required to ship the engine. You

may ask for this exemption under 40 CFR 1068.262.

(c) *Other exemptions.* In unusual circumstances, you may ask us to provide an exemption for an assembly process that is not covered by the provisions of paragraphs (a) and (b) of this section. We will make the exemption conditional based on you complying with requirements that we determine are necessary to ensure that the locomotives are assembled in their certified configuration before being placed (back) into service.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008]

§ 1033.640 Provisions for repowered and refurbished locomotives.

(a) The provisions of this section apply for locomotives that are produced from an existing locomotive so that the new locomotive contains both previously used parts and parts that have never been used before.

(1) Repowered locomotives are used locomotives in which a freshly manufactured propulsion engine is installed. As described in this section, a repowered locomotive is deemed to be either remanufactured or freshly manufactured, depending on the total amount of unused parts on the locomotive. It may also be deemed to be a refurbished locomotive.

(2) Refurbished locomotives are locomotives that contain more unused parts than previously used parts. As described in this section, a locomotive containing more unused parts than previously used parts may be deemed to be either remanufactured or freshly manufactured, depending on the total amount of unused parts on the locomotive. Note that § 1033.901 defines refurbishment of a pre-1973 locomotive to be an upgrade of the locomotive.

(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.

(c) You may determine the relative amount of previously used parts consistent with the specifications of the Federal Railroad Administration. Otherwise, determine the relative amount of previously used parts as follows:

(1) Identify the parts in the fully assembled locomotive that have been previously used and those that have never been used before.

(2) Weight the unused parts and previously used parts by the dollar value of the parts. For example, a single part valued at $1200 would count the same as six parts valued at $200 each. Group parts by system where possible (such as counting the engine as one part) if either all the parts in that system are used or all the parts in that system are unused. Calculate the used part values using dollar values from the same year as the new parts.

(3) Sum the values of the unused parts. Also sum the values of the previously used parts. The relative fraction of used parts is the total value of previously used parts divided by the combined value of the unused parts and previously used parts.

(c) If the weighted fraction of the locomotive that is comprised of previously used parts is greater than or equal to 25 percent, then the locomotive is considered to be a remanufactured locomotive and retains its original date of manufacture. Note, however, that if the weighted fraction of the locomotive that is comprised of previously used parts is less than 50 percent, then the locomotive is also considered to be a refurbished locomotive.

(d) If the weighted fraction of the locomotive that is comprised of previously used parts is less than 25 percent, then the locomotive is deemed to be a freshly manufactured locomotive and the date of original manufacture is the most recent date on which the locomotive was assembled using less than 25 percent previously used parts. For example:

(1) If you produce a new locomotive that includes a used frame, but all other parts are unused, then the locomotive would likely be considered to be a freshly manufactured locomotive because the value of the frame would likely be less than 25 percent of the

total value of the locomotive. Its date of original manufacture would be the date on which you complete its assembly.

(2) If you produce a new locomotive by replacing the engine in a 1990 locomotive with a freshly manufactured engine, but all other parts are used, then the locomotive would likely be considered to be a remanufactured locomotive and its date of original manufacture is the date on which assembly was completed in 1990. (NOTE: such a locomotive would also be considered to be a repowered locomotive.)

(e) Locomotives containing used parts that are deemed to be freshly manufactured locomotives are subject to the same provisions as all other freshly manufactured locomotives. Other refurbished locomotives are subject to the same provisions as other remanufactured locomotives, with the following exceptions:

(1) *Switch locomotives.* (i) Prior to January 1, 2015, remanufactured Tier 0 switch locomotives that are deemed to be refurbished are subject to the Tier 0 line-haul cycle and switch cycle standards. Note that this differs from the requirements applicable to other Tier 0 switch locomotives, which are not subject to the Tier 0 line-haul cycle standards.

(ii) Beginning January 1, 2015, remanufactured Tier 3 and earlier switch locomotives that are deemed to be refurbished are subject to the Tier 3 switch standards.

(2) *Line-haul locomotives.* Remanufactured line-haul locomotives that are deemed to be refurbished are subject to the same standards as freshly manufactured line-haul locomotives, except that line-haul locomotives with rated power less than 3000 hp that are refurbished before January 1, 2015 are subject to the same standards as refurbished switch locomotives under paragraph (e)(1)(i) of this section. However, line-haul locomotives less than 3000 hp may not generate emission credits relative to the standards specified in paragraph (e)(1)(i) of this section.

(3) *Labels for switch and line-haul locomotives.* Remanufacturers that refurbish a locomotive must add a secondary locomotive label that includes the following:

(i) The label heading: ''REFURBISHED LOCOMOTIVE EMISSION CONTROL INFORMATION.''

(ii) The statement identifying when the locomotive was refurbished and what standards it is subject to, as follows: ''THIS LOCOMOTIVE WAS REFURBISHED IN [year of refurbishment] AND MUST COMPLY WITH THE TIER [applicable standard level] EACH TIME THAT IT IS REMANUFACTURED, EXCEPT AS ALLOWED BY 40 CFR 1033.750.''.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008; 74 FR 8425, Feb. 24, 2009]

EDITORIAL NOTE: At 73 FR 37197, June 30, 2008, § 1033.640 was added. This amendment included two paragraphs (c) in the original text.

§ 1033.645 Non-OEM component certification program.

This section describes a voluntary program that allows you to get EPA approval of components you manufacture for use during remanufacturing.

(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.

(1) The following components are eligible for approval under this section:

(i) Cylinder liners.

(ii) Pistons.

(iii) Piston rings.

(iv) Heads

(v) Fuel injectors.

(vi) Turbochargers

(vii) Aftercoolers and intercoolers.

(2) Catalysts and electronic controls are not eligible for approval under this section.

(3) We may determine that other types of components can be certified under this section, consistent with good engineering judgment.

(b) *Approval.* To obtain approval, submit your request to the Designated Compliance Officer.

(1) Include all of the following in your request:

(i) A description of the component(s) for which you are requesting approval.

(ii) A list of all engine/locomotive models and engine families for which your component would be used. You may exclude models that are not subject to our standards or will otherwise not be remanufactured under a certificate of conformity.

(iii) A copy of the maintenance instructions for engines using your component. You may reference the other certificate holder's maintenance instructions in your instructions. For example, your instructions may specify to follow the other certificate holder's instructions in general, but list one or more exceptions to address the specific maintenance needs of your component.

(iv) An engineering analysis (including test data in some cases) demonstrating to us that your component will not cause emissions to increase. The analysis must address both low-hour and end-of-useful life emissions. The amount of information required for this analysis is less than is required to obtain a certificate of conformity under subpart C of this part and will vary depending on the type of component being certified.

(v) The following statement signed by an authorized representative of your company: We submit this request under 40 CFR 1033.645. 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)

(2) If we determine that there is reasonable technical basis to believe that your component is sufficiently equivalent that it will not increase emissions, we will approve your request and you will be a certificate holder for your components with respect to actual emissions performance for all locomotives that use those components (in accordance with this section).

(c) *Liability*. Being a certificate holder under this section means that if in-use testing indicates that a certified locomotive using one or more of your approved components does not comply with an applicable emission standard, we will presume that you and other certificate holders are liable for the noncompliance. However, we will not hold you liable in cases where you convince us that your components did not cause the noncompliance. Conversely, we will not hold other certificate holders liable for noncompliance caused solely by your components. You are also subject to the warranty and defect reporting requirements of this part for your certified components. Other requirements of this part apply as specified in § 1033.1.

(d) *In-use testing*. Locomotives containing your components must be tested according to the provisions of this paragraph (d).

(1) Except as specified in paragraph (d)(5) of this section, you must test at least one locomotive if 250 locomotives use your component under this section. You must test one additional locomotive for the next additional 500 locomotives that use your component under this section. After that, we may require you to test one additional locomotive for each additional 1000 locomotives that use your component under this section. These numbers apply across model years. For example, if your component is used in 125 remanufactures per year under this section, you must test one of the first 250 locomotives, one of the next 500 locomotives, and up to one every eight years after that. Do not count locomotives that use your components but are not covered by this section.

(2) Except for the first locomotive you test for a specific component under this section, locomotives tested under this paragraph (d) must be past the half-way point of the useful life in terms of MW-hrs. For the first locomotive you test, select a locomotive that has operated between 25 and 50 percent of its useful life.

(3) Unless we approve a different schedule, you must complete testing and report the results to us within 180 days of the earliest point at which you could complete the testing based on the hours of operation accumulated by the locomotives. For example, if 250 or more locomotives use your part under this section, and the first of these to reach 25 percent of its useful life does so on March 1st of a given year, you must complete testing of one of the first 250 locomotives and report to us by August 28th of that year.

(4) Unless we approve different test procedures, you must test the locomotive according to the procedures specified in subpart F of this part.

(5) If any locomotives fail to meet all standards, we may require you to test one additional locomotive for each locomotive that fails. You may choose to accept that your part is causing an emission problem rather than continuing testing. You may also test additional locomotives at any time. We will consider failure rates, average emission levels and the existence of any defects among other factors in determining whether to pursue remedial action. We may order a recall pursuant to 40 CFR part 1068 before you complete testing additional locomotives.

(6) You may ask us to allow you to rely on testing performed by others instead of requiring you to perform testing. For example, if a railroad tests a locomotive with your component as part of its testing under § 1033.810, you may ask to submit those test data as fulfillment of your test obligations under this paragraph (d). If a given test locomotive uses different components certified under this section that were manufactured by different manufacturers (such as rings from one manufacturer and cylinder liners from another manufacturer), a single test of it may be counted towards both manufacturers' test obligations. In unusual circumstances, you may also ask us to grant you hardship relief from the testing requirements of this paragraph (d). In determining whether to grant you relief, we will consider all relevant factors including the extent of the financial hardship to your company and whether the test data are available from other sources, such as testing performed by a railroad.

(e) Components certified under this section may be used when remanufacturing Category 2 engines under 40 CFR part 1042.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59190, Oct. 8, 2008; 74 FR 8425, Feb. 24, 2009]

§ 1033.650 Incidental use exemption for Canadian and Mexican locomotives.

You may ask us to exempt from the requirements and prohibitions of this part locomotives that are operated primarily outside of the United States and that enter the United States temporarily from Canada or Mexico. We will approve this exemption only where we determine that the locomotive's operation within the United States will not be extensive and will be incidental to its primary operation. For example, we would generally exempt locomotives that will not operate more than 25 miles from the border and will operate in the United States less than 5 percent of their operating time. For existing operations, you must request this exemption before January 1, 2011. In your request, identify the locomotives for which you are requesting an exemption, and describe their projected use in the United States. We may grant the exemption broadly or limit the exemption to specific locomotives and/or specific geographic areas. However, we will typically approve exemptions for specific rail facilities rather than specific locomotives. In unusual circumstances, such as cases in which new rail facilities are created, we may approve requests submitted after January 1, 2011.

§ 1033.652 Special provisions for exported locomotives.

(a) *Uncertified locomotives.* Locomotives covered by an export exemption under 40 CFR 1068.230 may be introduced into U.S. commerce prior to being exported, but may not be used in any revenue generating service in the United States. Locomotives covered by this paragraph (a) may not include any EPA emission control information label. Such locomotives may include emission control information labels for the country to which they are being exported.

(b) *Locomotives covered by export-only certificates.* Locomotives may be certified for export under 40 CFR 1068.230. Such locomotives may be introduced into U.S. commerce prior to being exported, but may not be used in any revenue generating service in the United States.

(c) *Locomotives included in a certified engine family.* Except as specified in paragraph (d) of this section, locomotives included in a certified engine

family may be exported without restriction. Note that § 1033.705 requires that exported locomotives be excluded from emission credit calculations in certain circumstances.

(d) *Locomotives certified to FELs above the standards.* The provisions of this paragraph (d) apply for locomotive configurations included in engine families certified to one or more FELs above any otherwise applicable standard. Individual locomotives that will be exported may be excluded from an engine family if they are unlabeled. For locomotives that were labeled during production, you may remove the emission control information labels prior to export. All unlabeled locomotives that will be exported are subject to the provisions of paragraph (a) of this section. Locomotives that are of a configuration included in an engine family certified to one of more FELs above any otherwise applicable standard that include an EPA emission control information label when exported are considered to be part of the engine family and must be included in credit calculations under § 1033.705. Note that this requirement does not apply for locomotives that do not have an EPA emission control information label, even if they have other labels (such as an export-only label).

[75 FR 22986, Apr. 30, 2010]

§ 1033.655 Special provisions for certain Tier 0/Tier 1 locomotives.

(a) The provisions of this section apply only for the following locomotives (and locomotives in the same engine families as these locomotives):

(1) Locomotives listed in Table 1 of this section originally manufactured 1986–1994 by General Electric Company that have never been equipped with separate loop aftercooling. The section also applies for the equivalent passenger locomotives.

TABLE 1 TO § 1033.655

8–40C	P32ACDM
8–40B	P42DC
8–32B	8–40BPH
8–40CW	P40DC
8–40BW	8–32BWH
8–40CM	C39–8
8–41CW	B39–8E
8–44CW	

(2) SD70MAC and SD70IAC locomotives originally manufactured 1996–2000 by EMD.

(b) Any certifying remanufacturer may request relief for the locomotives covered by this section.

(c) You may ask us to allow these locomotives to exceed otherwise applicable line-haul cycle NO_X standard for high ambient temperatures and/or altitude because of limitations of the cooling system. However, the NO_X emissions may exceed the otherwise applicable standard only to the extent necessary. Relief is limited to the following conditions:

(1) For General Electric locomotives, you may ask for relief for ambient temperatures above 23 °C and/or barometric pressure below 97.5 kPa (28.8 in. Hg). NO_X emissions may not exceed 9.5 g/bhp-hr over the line-haul cycle for any temperatures up to 105 °F and any altitude up to 7000 feet above sea level.

(2) For EMD locomotives, you may ask for relief for ambient temperatures above 30 °C and/or barometric pressure below 97.5 kPa (28.8 in. Hg). NO_X emissions may not exceed 8.0 g/bhp-hr over the line-haul cycle for any temperatures up to 105 °F and any altitude up to 7000 feet above sea level.

(d) All other standards and requirements in this part apply as specified.

(e) To request this relief, submit to the Designated Compliance Officer along with your application for certification an engineering analysis showing how your emission controls operate for the following conditions:

(1) Temperatures 23–40 °C at any altitude up to 7000 feet above sea level.

(2) Altitudes 1000–7000 feet above sea level for any temperature from 15–40 °C.

Subpart H—Averaging, Banking, and Trading for Certification

§ 1033.701 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. Participation in this program is voluntary.

(b) Section 1033.740 restricts the use of emission credits to certain averaging sets.

(c) The definitions of Subpart J 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) *Applicable emission standard* means an emission standard that is specified in subpart B of this part. Note that for other subparts, ''applicable emission standard'' is defined to also include FELs.

(3) *Averaging set* means a set of locomotives in which emission credits may be exchanged only with other locomotives in the same averaging set.

(4) *Broker* means any entity that facilitates a trade of emission credits between a buyer and seller.

(5) *Buyer* means the entity that receives emission credits as a result of a trade.

(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) *Trade* means to exchange emission credits, either as a buyer or seller.

(9) *Transfer* means to convey control of credits generated for an individual locomotive to the purchaser, owner, or operator of the locomotive at the time of manufacture or remanufacture; or to convey control of previously generated credits from the purchaser, owner, or operator of an individual locomotive to the manufacturer/remanufacturer at the time of manufacture/remanufacture.

(d) 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 emissions from a locomotive exceed an FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FEL that applies only to future production.

(e) Engine families that use emission credits for one or more pollutants may not generate positive emission credits for another pollutant.

(f) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under §1033.225. The new FEL may apply only to locomotives you have not already introduced into commerce. Each locomotive's emission control information label must include the applicable FELs. You must conduct production line testing to verify that the emission levels are achieved.

(h) Credits may be generated by any certifying manufacturer/remanufacturer and may be held by any of the following entities:

(1) Locomotive or engine manufacturers.

(2) Locomotive or engine remanufacturers.

(3) Locomotive owners.

(4) Locomotive operators.

(5) Other entities after notification to EPA.

(i) All locomotives that are certified to an FEL that is different from the emission standard that would otherwise apply to the locomotives are required to comply with that FEL for the remainder of their service lives, except as allowed by §1033.750.

(1) Manufacturers must notify the purchaser of any locomotive that is certified to an FEL that is different from the emission standard that would otherwise apply that the locomotive is required to comply with that FEL for the remainder of its service life.

(2) Remanufacturers must notify the owner of any locomotive or locomotive engine that is certified to an FEL that is different from the emission standard that would otherwise apply that the locomotive (or the locomotive in which the engine is used) is required to comply with that FEL for the remainder of its service life.

(j) The FEL to which the locomotive is certified must be included on the locomotive label required in §1033.135.

This label must include the notification specified in paragraph (i) of this section.

§ 1033.705 Calculating emission credits.

The provisions of this section apply separately for calculating emission credits for NO_X or PM.

(a) Calculate positive emission credits for an engine family that has an FEL below the otherwise applicable emission standard. Calculate negative emission credits for an engine family that has an FEL above the otherwise applicable emission standard. Do not round until the end of year report.

(b) For each participating engine family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. For the end of year report, round the sum of emission credits to the nearest one hundredth of a megagram (0.01 Mg). Round your end of year emission credit balance to the nearest megagram (Mg). Use consistent units throughout the calculation. When useful life is expressed in terms of megawatt-hrs, calculate credits for each engine family from the following equation:

$$\text{Emission credits} = (\text{Std} - \text{FEL}) \times (1.341) \times (\text{UL}) \times (\text{Production}) \times (F_p) \times (10^{-3}\ \text{kW-Mg/MW-g})$$

Where:

Std = the applicable NO_X or PM emission standard in g/bhp-hr (except that Std = previous FEL in g/bhp-hr for locomotives that were certified under this part to an FEL other than the standard during the previous useful life).

FEL = the family emission limit for the engine family in g/bhp-hr.

UL = the sales-weighted average useful life in megawatt-hours (or the subset of the engine family for which credits are being calculated), as specified in the application for certification.

Production = the number of locomotives participating in the averaging, banking, and trading program within the given engine family during the calendar year (or the number of locomotives in the subset of the engine family for which credits are being calculated). Quarterly production projections are used for initial certification. Actual applicable production/sales volumes are used for end-of-year compliance determination.

F_p = the proration factor as determined in paragraph (d) of this section.

(c) When useful life is expressed in terms of miles, calculate the useful life in terms of megawatt-hours (UL) by dividing the useful life in miles by 100,000, and multiplying by the sales-weighted average rated power of the engine family. For example, if your useful life is 800,000 miles for a family with an average rated power of 3,500 hp, then your equivalent MW-hr useful life would be 28,000 MW-hrs. Credits are calculated using this UL value in the equations of paragraph (b) of this section.

(d) The proration factor is an estimate of the fraction of a locomotive's service life that remains as a function of age. The proration factor is 1.00 for freshly manufactured locomotives.

(1) The locomotive's age is the length of time in years from the date of original manufacture to the date at which the remanufacture (for which credits are being calculated) is completed, rounded to the next higher year.

(2) The proration factors for line-haul locomotives ages 1 through 20 are specified in Table 1 to this section. For line-haul locomotives more than 20 years old, use the proration factor for 20 year old locomotives. The proration factors for switch locomotives ages 1 through 40 are specified in Table 2 to this section. For switch locomotives more than 40 years old, use the proration factor for 40 year old locomotives.

(3) For repower engines, the proration factor is based on the age of the locomotive chassis, not the age of the engine, except for remanufactured locomotives that qualify as refurbished. The minimum proration factor for remanufactured locomotives that meet the definition of refurbished but not freshly manufactured is 0.60. (NOTE: The proration factor is 1.00 for all locomotives that meet the definition of freshly manufactured.)

TABLE 1 TO § 1033.705—PRORATION FACTORS FOR LINE-HAUL LOCOMOTIVES

Locomotive age (years)	Proration factor (F_p)
1	0.96
2	0.92
3	0.88
4	0.84
5	0.81
6	0.77
7	0.73

TABLE 1 TO § 1033.705—PRORATION FACTORS FOR LINE-HAUL LOCOMOTIVES—Continued

Locomotive age (years)	Proration factor (F_p)
8	0.69
9	0.65
10	0.61
11	0.57
12	0.54
13	0.50
14	0.47
15	0.43
16	0.40
17	0.36
18	0.33
19	0.30
20	0.27

TABLE 2 TO § 1033.705—PRORATION FACTORS FOR SWITCH LOCOMOTIVES

Locomotive age (years)	Proration factor (F_p)
1	0.98
2	0.96
3	0.94
4	0.92
5	0.90
6	0.88
7	0.86
8	0.84
9	0.82
10	0.80
11	0.78
12	0.76
13	0.74
14	0.72
15	0.70
16	0.68
17	0.66
18	0.64
19	0.62
20	0.60
21	0.58
22	0.56
23	0.54
24	0.52
25	0.50
26	0.48
27	0.46
28	0.44
29	0.42
30	0.40
31	0.38
32	0.36
33	0.34
34	0.32
35	0.30
36	0.28
37	0.26
38	0.24
39	0.22
40	0.20

(e) In your application for certification, base your showing of compliance on projected production volumes for locomotives that will be placed into service in the United States. As described in § 1033.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for locomotives that will be placed into service in the United States. Do not include any of the following locomotives to calculate emission credits:

(1) Locomotives permanently exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported locomotives. You may ask to include locomotives sold to Mexican or Canadian railroads if they will likely operate within the United States and you include all such locomotives (both credit using and credit generating locomotives).

(3) Locomotives not subject to the requirements of this part, such as those excluded under § 1033.5.

(4) Any other locomotives, where we indicate elsewhere in this part 1033 that they are not to be included in the calculations of this subpart.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22987, Apr. 30, 2010]

§ 1033.710 Averaging emission credits.

(a) Averaging is the exchange of emission credits among your engine families. You may average emission credits only as allowed by § 1033.740.

(b) You may certify one or more engine families to an FEL above the applicable 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 an engine family to an FEL that exceeds the otherwise applicable emission standard, you must obtain enough emission credits to offset the engine family's deficit by the due date for the final report required in § 1033.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model year, from emission credits you have banked, or from emission credits you obtain through trading or by transfer.

§ 1033.715 Banking emission credits.

(a) Banking is the retention of emission credits by the manufacturer/remanufacturer generating the emission credits (or owner/operator, in the case of transferred credits) for use in future model years for averaging, trading, or transferring. You may use banked emission credits only as allowed by § 1033.740.

(b) You may designate any emission credits you plan to bank in the reports you submit under § 1033.730 as reserved credits. During the model year and before the due date for the final report, you may designate your reserved emission credits for averaging, trading, or transferring.

(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.

[75 FR 22987, Apr. 30, 2010]

§ 1033.720 Trading emission credits.

(a) Trading is the exchange of emission credits between certificate holders. You may use traded emission credits for averaging, banking, or further trading transactions. Traded emission credits may be used only as allowed by § 1033.740.

(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.

(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 § 1033.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer/remanufacturer having a negative balance of emission credits. See § 1033.745.

§ 1033.722 Transferring emission credits.

(a) Credit transfer is the conveying of control over credits, either:

(1) From a certifying manufacturer/remanufacturer to an owner/operator.

(2) From an owner/operator to a certifying manufacturer/remanufacturer.

(b) Transferred credits can be:

(1) Used by a certifying manufacturer/remanufacturer in averaging.

(2) Transferred again within the model year.

(3) Reserved for later banking. Transferred credits may not be traded unless they have been previously banked.

(c) Owners/operators participating in credit transfers must submit the reports specified in § 1033.730.

§ 1033.725 Requirements for your application for certification.

(a) You must declare in your application for certification your intent to use the provisions of this subpart for each engine family that will be certified using the ABT program. You must also declare the FELs you select for the engine 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 applicable emission standards.

(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.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22987, Apr. 30, 2010]

§ 1033.730 ABT reports.

(a) If any of your engine 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 engine family participating in the ABT program:

(1) Engine family designation.

(2) The emission standards that would otherwise apply to the engine 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 as specified in § 1033.225.

(4) The projected and actual production volumes for the model year that will be placed into service in the United States as described in § 1033.705. If you changed an FEL during the model year, identify the actual production volume associated with each FEL.

(5) Rated power for each locomotive configuration, and the average locomotive power weighted by U.S.-directed production volumes for the engine family.

(6) Useful life.

(7) Calculated positive or negative emission credits for the whole engine family. Identify any emission credits that you traded or transferred, as described in paragraph (d)(1) or (e) 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 engine 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 engine 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 engine family (if known).

(e) If you transfer emission credits, you must send us a report within 90 days after the first transfer to an owner/operator, as follows:

(1) Include the following information:

(i) The corporate names of the owner/operator receiving the credits.

(ii) A copy of any contracts related to the trade.

(iii) The serial numbers and engine families for the locomotive that generated the transferred emission credits and the number of emission credits from each family.

(2) The requirements of this paragraph (e) apply separately for each owner/operator.

(3) We may require you to submit additional 90-day reports under this paragraph (e).

(f) 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.

(g) 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 (g)(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.

(h) We may modify these requirements for owners/operators required to submit reports because of their involvement in credit transferring.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22987, Apr. 30, 2010]

§ 1033.735 Required records.

(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 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 § 1033.730.

(d) Keep records of the engine identification number for each locomotive you produce that generates or uses emission credits under the ABT program. 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. You must also be able to identify the purchaser and destination for each engine you produce.

(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.

[73 FR 37197, June 30, 2008, as amended at 75 FR 22987, Apr. 30, 2010]

§ 1033.740 Credit restrictions.

Use of emission credits generated under this part 1033 or 40 CFR part 92 is restricted depending on the standards against which they were generated.

(a) *Credits from 40 CFR part 92.* NO_X and PM credits generated under 40 CFR part 92 may be used under this part in the same manner as NO_X and PM credits generated under this part.

(b) *General cycle restriction.* Locomotives subject to both switch cycle standards and line-haul cycle standards (such as Tier 2 locomotives) may generate both switch and line-haul credits. Except as specified in paragraph (c) of this section, such credits may only be used to show compliance with standards for the same cycle for which they were generated. For example, a Tier 2 locomotive that is certified to a switch cycle NO_X FEL below the applicable switch cycle standard and a line-haul cycle NO_X FEL below the applicable line-haul cycle standard may generate switch cycle NO_X credits for use in complying with switch cycle NO_X standards and a line-haul cycle NO_X credits for use in complying with line-haul cycle NO_X standards.

(c) *Single cycle locomotives.* As specified in § 1033.101, Tier 0 switch locomotives, Tier 3 and later switch locomotives, and Tier 4 and later line-haul locomotives are not subject to both switch cycle and line-haul cycle standards.

(1) When using credits generated by locomotives covered by paragraph (b) of this section for single cycle locomotives covered by this paragraph (c), you must use both switch and line-haul credits as described in this paragraph (c)(1).

(i) For locomotives subject only to switch cycle standards, calculate the negative switch credits for the credit using locomotive as specified in § 1033.705. Such locomotives also generate an equal number of negative line-haul cycle credits (in Mg).

(ii) For locomotives subject only to line-haul cycle standards, calculate the negative line-haul credits for the credit

using locomotive as specified in § 1033.705. Such locomotives also generate an equal number of negative switch cycle credits (in Mg).

(2) Credits generated by Tier 0, Tier 3, or Tier 4 switch locomotives may be used to show compliance with any switch cycle or line-haul cycle standards.

(3) Credits generated by any line-haul locomotives may not be used by Tier 3 or later switch locomotives.

(d) *Tier 4 credit use*. The number of Tier 4 locomotives that can be certified using credits in any year may not exceed 50 percent of the total number of Tier 4 locomotives you produce in that year for U.S. sales.

(e) *Other restrictions*. Other sections of this part may specify additional restrictions for using emission credits under certain special provisions.

§ 1033.745 Compliance with the provisions of this subpart.

The provisions of this section apply to certificate holders.

(a) For each engine 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 an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FEL above an applicable emission standard based on a projection that you will have enough emission credits to offset the deficit for the engine 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 an engine family.

(c) We may void the certificate of conformity for an engine 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 § 1033.920).

§ 1033.750 Changing a locomotive's FEL at remanufacture.

Locomotives are generally required to be certified to the previously applicable emission standard or FEL when remanufactured. This section describes provisions that allow a remanufactured locomotive to be certified to a different FEL (higher or lower).

(a) A remanufacturer may choose to certify a remanufacturing system to change the FEL of a locomotive from a previously applicable FEL or standard. Any locomotives remanufactured using that system are required to comply with the revised FEL for the remainder of their service lives, unless it is changed again under this section during a later remanufacture. Remanufacturers changing an FEL must notify the owner of the locomotive that it is required to comply with that FEL for the remainder of its service life.

(b) Calculate the credits needed or generated as specified in § 1033.705, except as specified in this paragraph. If the locomotive was previously certified to an FEL for the pollutant, use the previously applicable FEL as the standard.

Subpart I—Requirements for Owners and Operators

§ 1033.801 Applicability.

The requirements of this subpart are applicable to railroads and all other owners and operators of locomotives subject to the provisions of this part, except as otherwise specified. The prohibitions related to maintenance in § 1033.815 also applies to anyone performing maintenance on a locomotive subject to the provisions of this part.

§ 1033.805 Remanufacturing requirements.

(a) See the definition of ''remanufacture'' in § 1033.901 to determine if you are remanufacturing your locomotive or engine. (NOTE: Replacing power assemblies one at a time may qualify as remanufacturing, depending on the interval between replacement.)

(b) See the definition of ''new'' in § 1033.901 to determine if remanufacturing your locomotive makes it subject to the requirements of this part. If

the locomotive is considered to be new, it is subject to the certification requirements of this part, unless it is exempt under subpart G of this part. The standards to which your locomotive is subject will depend on factors such as the following:

(1) Its date of original manufacture.

(2) The FEL to which it was previously certified, which is listed on the ''Locomotive Emission Control Information'' label.

(3) Its power rating (whether it is above or below 2300 hp).

(4) The calendar year in which it is being remanufactured.

(c) You may comply with the certification requirements of this part for your remanufactured locomotive by either obtaining your own certificate of conformity as specified in subpart C of this part or by having a certifying remanufacturer include your locomotive under its certificate of conformity. In either case, your remanufactured locomotive must be covered by a certificate before it is reintroduced into service.

(d) If you do not obtain your own certificate of conformity from EPA, contact a certifying remanufacturer to have your locomotive included under its certificate of conformity. Confirm with the certificate holder that your locomotive's model, date of original manufacture, previous FEL, and power rating allow it to be covered by the certificate. You must do all of the following:

(1) Comply with the certificate holder's emission-related installation instructions, which should include the following:

(i) A description of how to assemble and adjust the locomotive so that it will operate according to design specifications in the certificate. See paragraph (e) of this section for requirements related to the parts you must use.

(ii) Instructions to remove the Engine Emission Control Information label and replace it with the certificate holder's new label.

NOTE: In most cases, you must not remove the Locomotive Emission Control Information label.

(2) Provide to the certificate holder the information it identifies as necessary to comply with the requirements of this part. For example, the certificate holder may require you to provide the information specified by § 1033.735.

(e) For parts unrelated to emissions and emission-related parts not addressed by the certificate holder in the emission-related installation instructions, you may use parts from any source. For emission-related parts listed by the certificate holder in the emission-related installation instructions, you must either use the specified parts or parts certified under § 1033.645 for remanufacturing. If you believe that the certificate holder has included as emission-related parts, parts that are actually unrelated to emissions, you may ask us to exclude such parts from the emission-related installation instructions.

NOTE: This paragraph (e) does not apply with respect to parts for maintenance other than remanufacturing; see § 1033.815 for provisions related to general maintenance.

(f) Failure to comply with this section is a violation of 40 CFR 1068.101(a)(1).

§ 1033.810 In-use testing program.

(a) *Applicability*. This section applies to all Class I freight railroads. It does not apply to other owner/operators.

(b) *Testing requirements*. Annually test a sample of locomotives in your fleet. For purposes of this section, your fleet includes both the locomotives that you own and the locomotives that you are leasing. Use the test procedures in subpart F of this part, unless we approve different procedures.

(1) Except for the cases described in paragraph (b)(2) of this section, test at least 0.075 percent of the average number of locomotives in your fleet during the previous calendar year (i.e., determine the number to be tested by multiplying the number of locomotives in the fleet by 0.00075 and rounding up to the next whole number).

(2) We may allow you to test a smaller number of locomotives if we determine that the number of tests otherwise required by this section is not necessary.

(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.

(1) *Option 1.* To the extent possible, select locomotives from each manufacturer and remanufacturer, and from each tier level (e.g., Tier 0, Tier 1 and Tier 2) in proportion to their numbers in the your fleet. Exclude locomotives tested during the previous year. If possible, select locomotives that have been operated for at least 100 percent of their useful lives. Where there are multiple locomotives meeting the requirements of this paragraph (c)(1), randomly select the locomotives to be tested from among those locomotives. If the number of certified locomotives that have been operated for at least 100 percent of their useful lives is not large enough to fulfill the testing requirement, test locomotives still within their useful lives as follows:

(i) Test locomotives in your fleet that are nearest to the end of their useful lives. You may identify such locomotives as a range of values representing the fraction of the useful life already used up for the locomotives.

(ii) For example, you may determine that 20 percent of your fleet has been operated for at least 75 percent of their useful lives. In such a case, select locomotives for testing that have been operated for at least 75 percent of their useful lives.

(2) *Option 2.* If you hold a certificate for some of your locomotives, you may ask us to allow you to select up to two locomotives as specified in subpart E of this part, and count those locomotives toward both your testing obligations of that subpart and this section.

(3) *Option 3.* You may ask us to allow you to test locomotives that use parts covered under §1033.645. If we do, it does not change the number of locomotives that you must test.

(4) *Option 4.* We may require that you test specific locomotives, including locomotives that do not meet the criteria specified in any of the options in this section. If we do, we will specify which locomotives to test by January 1 of the calendar year for which testing is required.

(d) *Reporting requirements.* Report all testing done in compliance with the provisions of this section to us within 45 calendar days after the end of each calendar year. At a minimum, include the following:

(1) Your full corporate name and address.

(2) For each locomotive tested, all the following:

(i) Corporate name of the manufacturer and last remanufacturer(s) of the locomotive (including both certificate holder and installer, where different), and the corporate name of the manufacturer or last remanufacturer(s) of the engine if different than that of the manufacturer/remanufacturer(s) of the locomotive.

(ii) Year (and month if known) of original manufacture of the locomotive and the engine, and the manufacturer's model designation of the locomotive and manufacturer's model designation of the engine, and the locomotive identification number.

(iii) Year (and month if known) that the engine last underwent remanufacture, the engine remanufacturer's designation that reflects (or most closely reflects) the engine after the last remanufacture, and the engine family identification.

(iv) The number of MW-hrs and miles (where available) the locomotive has been operated since its last remanufacture.

(v) The emission test results for all measured pollutants.

(e) You do not have to submit a report for any year in which you performed no emission testing under this section.

(f) You may ask us to allow you to submit equivalent emission data collected for other purposes instead of some or all of the test data required by this section. If we allow it in advance, you may report emission data collected using other testing or sampling procedures instead of some or all of the data specified by this section.

(g) Submit all reports to the Designated Compliance Officer.

(h) Failure to comply fully with this section is a violation of 40 CFR 1068.101(a)(2).

[73 FR 37197, June 30, 2008, as amended at 73 FR 59191, Oct. 8, 2008]

§ 1033.815 Maintenance, operation, and repair.

All persons who own, operate, or maintain locomotives are subject to this section, except where we specify that a requirement applies to the owner.

(a) Unless we allow otherwise, all owners of locomotives subject to the provisions of this part must ensure that all emission-related maintenance is performed on the locomotives, as specified in the maintenance instructions provided by the certifying manufacturer/remanufacturer in compliance with § 1033.125 (or maintenance that is equivalent to the maintenance specified by the certifying manufacturer/remanufacturer in terms of maintaining emissions performance).

(b) Perform unscheduled maintenance in a timely manner. This includes malfunctions identified through the locomotive's emission control diagnostics system and malfunctions discovered in components of the diagnostics system itself. For most repairs, this paragraph (b) requires that the maintenance be performed no later than the locomotive's next periodic (92-day) inspection. See paragraph (e) of this section, for reductant replenishment requirements in a locomotive equipped with an SCR system.

(c) Use good engineering judgment when performing maintenance of locomotives subject to the provisions of this part. You must perform all maintenance and repair such that you have a reasonable technical basis for believing the locomotive will continue (after the maintenance or repair) to meet the applicable emission standards and FELs to which it was certified.

(d) The owner of the locomotive must keep records of all maintenance and repairs that could reasonably affect the emission performance of any locomotive subject to the provisions of this part. Keep these records for eight years.

(e) For locomotives equipped with emission controls requiring the use of specific fuels, lubricants, or other fluids, proper maintenance includes complying with the manufacturer/remanufacturer's specifications for such fluids when operating the locomotives. This requirement applies without regard to whether misfueling permanently disables the emission controls. The following additional provisions apply for locomotives equipped with SCR systems requiring the use of urea or other reductants:

(1) You must plan appropriately to ensure that reductant will be available to the locomotive during operation.

(2) If the SCR diagnostic indicates (or you otherwise determine) that either reductant supply or reductant quality in the locomotive is inadequate, you must replace the reductant as soon as practical.

(3) If you operate a locomotive without the appropriate urea or other reductant, you must report such operation to us within 30 days. Note that such operation violates the requirement of this paragraph (e); however, we may consider mitigating factors (such as how long the locomotive was operated without the appropriate urea or other reductant) in determining whether to assess penalties for such violations.

(f) Failure to fully comply with this section is a violation of 40 CFR 1068.101(b).

§ 1033.820 In-use locomotives.

(a) We may require you to supply in-use locomotives to us for testing. We will specify a reasonable time and place at which you must supply the locomotives and a reasonable period during which we will keep them for testing. We will make reasonable allowances for you to schedule the supply of locomotives to minimize disruption of your operations. The number of locomotives that you must supply is limited as follows:

(1) We will not require a Class I railroad to supply more than five locomotives per railroad per calendar year.

(2) We will not require a non-Class I railroad (or other entity subject to the provisions of this subpart) to supply more than two locomotives per railroad per calendar year. We will request locomotives under this paragraph (a)(2) only for purposes that cannot be accomplished using locomotives supplied under paragraph (a)(1) of this section.

(b) You must make reasonable efforts to supply manufacturers/remanufacturers with the test locomotives needed to

fulfill the in-use testing requirements in subpart E of this part.

(c) Failure to fully comply with this section is a violation of 40 CFR 1068.101(a)(2).

§ 1033.825 Refueling requirements.

(a) If your locomotive operates using a volatile fuel, your refueling equipment must be designed and used to minimize the escape of fuel vapors. This means you may not use refueling equipment in a way that renders any refueling emission controls inoperative or reduces their effectiveness.

(b) If your locomotive operates using a gaseous fuel, the hoses used to refuel it may not be designed to be bled or vented to the atmosphere under normal operating conditions.

(c) Failing to fully comply with the requirements of this section is a violation of 40 CFR 1068.101(b).

Subpart J—Definitions and Other Reference Information

§ 1033.901 Definitions.

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 locomotive 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 if you 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 reduce emissions in the locomotive exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR) is not aftertreatment.

Alcohol fuel means a fuel consisting primarily (more than 50 percent by weight) of one or more alcohols: e.g., methyl alcohol, ethyl alcohol.

Alcohol-fueled locomotive means a locomotive 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.

Alternator/generator efficiency means the ratio of the electrical power output from the alternator/generator to the mechanical power input to the alternator/generator at the operating point. Note that the alternator/generator efficiency may be different at different operating points. For example, the Institute of Electrical and Electronic Engineers Standard 115 (''Test Procedures for Synchronous Machines'') is an appropriate test procedure for determining alternator/generator efficiency. Other methods may also be used consistent with good engineering judgment.

Applicable emission standard or *applicable standard* means a standard to which a locomotive is subject; or, where a locomotive has been or is being certified to another standard or FEL, the FEL or other standard to which the locomotive has been or is being certified is the applicable standard. This definition does not apply to Subpart H of this part.

Auxiliary emission control device means any element of design that senses temperature, locomotive 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.

Auxiliary engine means a nonroad engine that provides hotel power or power during idle, but does not provide power to propel the locomotive.

Averaging means the exchange of emission credits among engine families within a given manufacturer's, or remanufacturer's product line.

Banking means the retention of emission credits by a credit holder for use in future calendar year averaging or trading as permitted by the regulations in this part.

Brake power means the sum of the alternator/generator input power and the mechanical accessory power, excluding any power required to circulate engine coolant, circulate engine lubricant, supply fuel to the engine, or operate aftertreatment devices.

Calibration means the set of specifications, including tolerances, specific to a particular design, version, or application of a component, or components, 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 § 1033.235(d).

Certification means the process of obtaining a certificate of conformity for an engine family that complies with the emission standards and requirements in this part, or relating to that process.

Certified emission level means the highest deteriorated emission level in an engine family for a given pollutant from a given test cycle.

Class I freight railroad means a Class I railroad that primarily transports freight rather than passengers.

Class I railroad means a railroad that has been classified as a Class I railroad by the Surface Transportation Board.

Class II railroad means a railroad that has been classified as a Class II railroad by the Surface Transportation Board.

Class III railroad means a railroad that has been classified as a Class III railroad by the Surface Transportation Board.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

Configuration means a unique combination of locomotive hardware and calibration within an engine family. Locomotives within a single configuration differ only with respect to normal production variability (or factors unrelated to engine performance or emissions).

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the locomotive crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

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.

Design certify or *certify by design* means to certify a locomotive based on inherent design characteristics rather than your test data, such as allowed under § 1033.625. All other requirements of this part apply for such locomotives.

Designated Compliance Officer means the Manager, Heavy Duty and Nonroad Engine Group (6403–J), 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 locomotive.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point, 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 § 1033.515.

Emission control system means any device, system, or element of design that controls or reduces the regulated emissions from a locomotive.

Emission credits represent the amount of emission reduction or exceedance, by a locomotive engine family, below or above the emission standard, respectively. Emission reductions below the standard are considered as ''positive credits,'' while emission exceedances above the standard are considered as ''negative credits.'' In addition, ''projected credits'' refer to emission credits based on the projected applicable production/sales volume of the engine family. ''Reserved credits'' are emission credits generated within a calendar year waiting to be reported to EPA at the end of the calendar year. ''Actual credits'' refer to emission

credits based on actual applicable production/sales volume as contained in the end-of-year reports submitted to EPA.

Emission-data locomotive means a locomotive or engine that is tested for certification. This includes locomotives tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine family has the meaning given in § 1033.230.

Engine used in a locomotive means an engine incorporated into a locomotive or intended for incorporation into a locomotive (whether or not it is used for propelling the locomotive).

Engineering analysis means a summary of scientific and/or engineering principles and facts that support a conclusion made by a manufacturer/remanufacturer, with respect to compliance with the provisions of this part.

EPA Enforcement Officer means any officer or employee of the Environmental Protection Agency so designated in writing by the Administrator or his/her designee.

Exempted means relating to a locomotive that is not required to meet otherwise applicable standards. Exempted locomotives must conform to regulatory conditions specified for an exemption in this part 1033 or in 40 CFR part 1068. Exempted locomotives are deemed to be ''subject to'' the standards of this part, even though they are not required to comply with the otherwise applicable requirements. Locomotives 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, locomotives exempted with respect to Tier 3 standards may be required to comply with Tier 2 standards.

Excluded means relating to a locomotive that either has been determined not to be a locomotive (as defined in this section) or otherwise excluded under section § 1033.5. Excluded locomotives are not subject to the standards of this part.

Exhaust emissions means substances (i.e., gases and particles) emitted to the atmosphere from any opening downstream from the exhaust port or exhaust valve of a locomotive engine.

Exhaust-gas recirculation means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the locomotive 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.

Freshly manufactured locomotive means a new locomotive that contains fewer than 25 percent previously used parts (weighted by the dollar value of the parts) as described in § 1033.640.

Freshly manufactured engine means a new engine that has not been remanufactured. An engine becomes freshly manufactured when it is originally manufactured.

Family emission limit (FEL) means an emission level declared by the manufacturer/remanufacturer 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 with respect to all required testing.

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 diesel fuel or natural gas. There can be multiple grades within a single fuel type, such as high-sulfur or low-sulfur diesel fuel.

Gaseous fuel means a fuel which is a gas at standard temperature and pressure. This includes both natural gas and liquefied petroleum gas.

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.

Green Engine Factor means a factor that is applied to emission measurements from a locomotive or locomotive engine that has had little or no service accumulation. The Green Engine Factor adjusts emission measurements to be equivalent to emission measurements from a locomotive or locomotive engine that has had approximately 300 hours of use.

High-altitude means relating to an altitude greater than 4000 feet (1220 meters) and less than 7000 feet (2135 meters), or equivalent observed barometric test conditions (approximately 79 to 88 kPa).

High-sulfur diesel fuel means one of the following:

(1) For in-use fuels, high-sulfur diesel fuel means a diesel fuel with a maximum sulfur concentration greater than 500 parts per million.

(2) For testing, high-sulfur diesel fuel has the meaning given in 40 CFR part 1065.

Hotel power means the power provided by an engine on a locomotive to operate equipment on passenger cars of a train; e.g., heating and air conditioning, lights, etc.

Hydrocarbon (HC) means the hydrocarbon group (THC, NMHC, or THCE) on which the emission standards are based for each fuel type as described in § 1033.101.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular locomotive from other similar locomotives.

Idle speed means the speed, expressed as the number of revolutions of the crankshaft per unit of time (e.g., rpm), at which the engine is set to operate when not under load for purposes of propelling the locomotive. There are typically one or two idle speeds on a locomotive as follows:

(1) *Normal idle speed* means the idle speed for the idle throttle-notch position for locomotives that have one throttle-notch position, or the highest idle speed for locomotives that have two idle throttle-notch positions.

(2) *Low idle speed* means the lowest idle speed for locomotives that have two idle throttle-notch positions.

Inspect and qualify means to determine that a previously used component or system meets all applicable criteria listed for the component or system in a certificate of conformity for remanufacturing (such as to determine that the component or system is functionally equivalent to one that has not been used previously).

Installer means an individual or entity that assembles remanufactured locomotives or locomotive engines.

Line-haul locomotive means a locomotive that does not meet the definition of switch locomotive. Note that this includes both freight and passenger locomotives.

Liquefied petroleum gas means the commercial product marketed as propane or liquefied petroleum gas.

Locomotive means a self-propelled piece of on-track equipment designed for moving or propelling cars that are designed to carry freight, passengers or other equipment, but which itself is not designed or intended to carry freight, passengers (other than those operating the locomotive) or other equipment. The following other equipment are not locomotives (see 40 CFR parts 86, 89, and 1039 for this diesel-powered equipment):

(1) Equipment designed for operation both on highways and rails is not a locomotive.

(2) Specialized railroad equipment for maintenance, construction, post-accident recovery of equipment, and repairs; and other similar equipment, are not locomotives.

(3) Vehicles propelled by engines with total rated power of less than 750 kW (1006 hp) are not locomotives, unless the owner (which may be a manufacturer) chooses to have the equipment certified to meet the requirements of this part (under § 1033.615). Where equipment is certified as a locomotive pursuant to this paragraph (3), it is subject to the requirements of this part for the remainder of its service life. For locomotives propelled by two or

more engines, the total rated power is the sum of the rated power of each engine.

Locomotive engine means an engine that propels a locomotive.

Low-hour means relating to a locomotive with stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 300 hours of operation.

Low mileage locomotive means a locomotive during the interval between the time that normal assembly operations and adjustments are completed and the time that either 10,000 miles of locomotive operation or 300 additional operating hours have been accumulated (including emission testing if performed). Note that we may deem locomotives with additional operation to be low mileage locomotives, consistent with good engineering judgment.

Low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *low-sulfur diesel fuel* means a diesel fuel market as low-sulfur diesel fuel having a maximum sulfur concentration of 500 parts per million.

(2) For testing, *low-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

Malfunction means a condition in which the operation of a component in a locomotive or locomotive engine occurs in a manner other than that specified by the certifying manufacturer/remanufacturer (e.g., as specified in the application for certification); or the operation of the locomotive or locomotive engine in that condition.

Manufacture means the physical and engineering process of designing, constructing, and assembling a locomotive or locomotive engine.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act with respect to freshly manufactured locomotives or engines. In general, this term includes any person who manufactures a locomotive or engine for sale in the United States or otherwise introduces a new locomotive or engine into commerce in the United States. This includes importers who import locomotives or engines for resale.

Manufacturer/remanufacturer means the manufacturer of a freshly manufactured locomotive or engine or the remanufacturer of a remanufactured locomotive or engine, as applicable.

Model year means a calendar year in which a locomotive is manufactured or remanufactured.

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:

(1) A locomotive or engine is new if its equitable or legal title has never been transferred to an ultimate purchaser. Where the equitable or legal title to a locomotive or engine is not transferred prior to its being placed into service, the locomotive or engine ceases to be new when it is placed into service. A locomotive or engine also becomes new if it is remanufactured or refurbished (as defined in this section). A remanufactured locomotive or engine ceases to be new when placed back into service. With respect to imported locomotives or locomotive engines, the term ''new locomotive'' or ''new locomotive engine'' also means a locomotive or locomotive engine that is not covered by a certificate of conformity under this part or 40 CFR part 92 at the time of importation, and that was manufactured or remanufactured after the effective date of the emission standards in 40 CFR part 92 which would have been applicable to such locomotive or engine had it been manufactured or remanufactured for importation into the United States. Note that replacing an engine in one locomotive with an unremanufactured used engine from a different locomotive does not make a locomotive new.

(2) The provisions of paragraph (1) of this definition do not apply for the following cases:

(i) Locomotives and engines that were originally manufactured before January 1, 1973 are not considered to become new when remanufactured unless they have been upgraded (as defined in this section). The provisions of paragraph (1) of this definition apply for locomotives that have been upgraded.

(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.

(iii) Locomotives originally certified under §1033.150(e) do not become new when remanufactured, except as specified in §1033.615.

(iv) Locomotives that operate only on non-standard gauge rails do not become new when remanufactured if no certified remanufacturing system is available for them.

Nonconforming means relating to a locomotive that is not covered by a certificate of conformity prior to importation or being offered for importation (or for which such coverage has not been adequately demonstrated to EPA); or a locomotive which was originally covered by a certificate of conformity, but which is not in a certified configuration, or otherwise does not comply with the conditions of that certificate of conformity. (NOTE: Domestic locomotives and locomotive engines not covered by a certificate of conformity prior to their introduction into U.S. commerce are considered to be noncomplying locomotives and locomotive engines.)

Non-locomotive-specific engine means an engine that is sold for and used in non-locomotive applications much more than for locomotive applications.

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 as defined in 40 CFR 1068.30.

Official emission result means the measured emission rate for an emission-data locomotive on a given duty cycle before the application of any deterioration factor, but after the application of regeneration adjustment factors, Green Engine Factors, and/or humidity correction factors.

Opacity means the fraction of a beam of light, expressed in percent, which fails to penetrate a plume of smoke, as measured by the procedure specified in §1033.525.

Original manufacture means the event of freshly manufacturing a locomotive or locomotive engine. The date of original manufacture is the date of final assembly, except as provided in §1033.640. Where a locomotive is manufactured under §1033.620(b), the date of original manufacture is the date on which the final assembly of locomotive was originally scheduled.

Original remanufacture means the first remanufacturing of a locomotive at which the locomotive is subject to the emission standards of this part.

Owner/operator means the owner and/or operator of a locomotive.

Owners manual means a written or electronic collection of instructions provided to ultimate purchasers to describe the basic operation of the locomotive.

Oxides of nitrogen has the meaning given in 40 CFR part 1065.

Particulate trap means a filtering device that is designed to physically trap all particulate matter above a certain size.

Passenger locomotive means a locomotive designed and constructed for the primary purpose of propelling passenger trains, and providing power to the passenger cars of the train for such functions as heating, lighting and air conditioning.

Petroleum fuel means gasoline or diesel fuel or another liquid fuel primarily derived from crude oil.

Placed into service means put into initial use for its intended purpose after becoming new.

Power assembly means the components of an engine in which combustion of fuel occurs, and consists of the cylinder, piston and piston rings, valves and ports for admission of charge air and discharge of exhaust gases, fuel injection components and controls, cylinder head and associated components.

Primary fuel means the type of fuel (e.g., diesel fuel) that is consumed in the greatest quantity (mass basis) when the locomotive is operated in use.

Produce means to manufacture or remanufacture. Where a certificate holder does not actually assemble the locomotives or locomotive engines that it manufactures or remanufactures, produce means to allow other entities to assemble locomotives under the certificate holder's certificate.

Railroad means a commercial entity that operates locomotives to transport passengers or freight.

Ramped-modal means relating to the ramped-modal type of testing in subpart F of this part.

Rated power has the meaning given in § 1033.140.

Refurbish has the meaning given in § 1033.640.

Remanufacture means one of the following:

(1)(i) To replace, or inspect and qualify, each and every power assembly of a locomotive or locomotive engine, whether during a single maintenance event or cumulatively within a five-year period.

(ii) To upgrade a locomotive or locomotive engine.

(iii) To convert a locomotive or locomotive engine to enable it to operate using a fuel other than it was originally manufactured to use.

(iv) To install a remanufactured engine or a freshly manufactured engine into a previously used locomotive.

(v) To repair a locomotive engine that does not contain power assemblies to a condition that is equivalent to or better than its original condition with respect to reliability and fuel consumption.

(2) Remanufacture also means the act of remanufacturing.

Remanufacture system or *remanufacturing system* means all components (or specifications for components) and instructions necessary to remanufacture a locomotive or locomotive engine in accordance with applicable requirements of this part or 40 CFR part 92.

Remanufactured locomotive means either a locomotive powered by a remanufactured locomotive engine, a repowered locomotive, or a refurbished locomotive.

Remanufactured locomotive engine means a locomotive engine that has been remanufactured.

Remanufacturer has the meaning given to ''manufacturer'' in section 216(1) of the Clean Air Act with respect to remanufactured locomotives. (See §§ 1033.1 and 1033.601 for applicability of this term.) This term includes:

(1) Any person that is engaged in the manufacture or assembly of remanufactured locomotives or locomotive engines, such as persons who:

(i) Design or produce the emission-related parts used in remanufacturing.

(ii) Install parts in an existing locomotive or locomotive engine to remanufacture it.

(iii) Own or operate the locomotive or locomotive engine and provide specifications as to how an engine is to be remanufactured (i.e., specifying who will perform the work, when the work is to be performed, what parts are to be used, or how to calibrate the adjustable parameters of the engine).

(2) Any person who imports remanufactured locomotives or remanufactured locomotive engines.

Repower means replacement of the engine in a previously used locomotive with a freshly manufactured locomotive engine. See § 1033.640.

Repowered locomotive means a locomotive that has been repowered with a freshly manufactured engine.

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 means to round numbers as specified in 40 CFR 1065.1001.

Service life means the total life of a locomotive. Service life begins when the locomotive is originally manufactured and continues until the locomotive is permanently removed from service.

Small manufacturer/remanufacturer means a manufacturer/remanufacturer with 1,000 or fewer employees. For purposes of this part, the number of employees includes all employees of the manufacturer/remanufacturer's parent company, if applicable.

Small railroad means a railroad meeting the criterion of paragraph (1) of this definition, but not either of the criteria of paragraphs (2) and (3) of this definition.

(1) To be considered a small railroad, a railroad must qualify as a small business under the Small Business Administration's regulations in 13 CFR part 121.

(2) Class I and Class II railroads (and their subsidiaries) are not small railroads.

(3) Intercity passenger and commuter railroads are excluded from this definition of small railroad. Note that this paragraph (3) does not exclude tourist railroads.

Specified adjustable range means the range of allowable settings for an adjustable component specified by a certificate of conformity.

Specified by a certificate of conformity or *specified in a certificate of conformity* means stated or otherwise specified in a certificate of conformity or an approved application for certification.

Sulfur-sensitive technology means an emission-control technology that would experience a significant drop in emission control performance or emission-system durability when a locomotive is operated on low-sulfur fuel with a sulfur concentration of 300 to 500 ppm as compared to when it is operated on ultra low-sulfur fuel (i.e., fuel with a sulfur concentration less than 15 ppm). Exhaust-gas recirculation is not a sulfur-sensitive technology.

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.

Switch locomotive means a locomotive that is powered by an engine with a maximum rated power (or a combination of engines having a total rated power) of 2300 hp or less. Include auxiliary engines in your calculation of total power if the engines are permanently installed on the locomotive and can be operated while the main propulsion engine is operating. Do not count the power of auxiliary engines that operate only to reduce idling time of the propulsion engine.

Test locomotive means a locomotive or engine in a test sample.

Test sample means the collection of locomotives or 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.

Tier 0 or *Tier 0* + means relating to the Tier 0 emission standards, as shown in § 1033.101.

Tier 1 or *Tier 1* + means relating to the Tier 1 emission standards, as shown in § 1033.101.

Tier 2 or *Tier 2* + means relating to the Tier 2 emission standards, as shown in § 1033.101.

Tier 3 means relating to the Tier 3 emission standards, as shown in § 1033.101.

Tier 4 means relating to the Tier 4 emission standards, as shown in § 1033.101.

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 an atomic hydrogen-to-carbon 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 locomotives. The atomic hydrogen-to-carbon mass ratio of the equivalent hydrocarbon is 1.85:1.

Ultimate purchaser means the first person who in good faith purchases a new locomotive for purposes other than resale.

Ultra low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *ultra low-sulfur diesel fuel* means a diesel fuel marketed as ultra low-sulfur diesel fuel having a maximum sulfur concentration of 15 parts per million.

(2) For testing, *ultra low-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

Upcoming model year means for an engine family the model year after the one currently in production.

Upgrade means one of the following types of remanufacturing.

(1) Repowering a locomotive that was originally manufactured prior to January 1, 1973.

(2) Refurbishing a locomotive that was originally manufactured prior to January 1, 1973 in a manner that is not freshly manufacturing.

(3) Modifying a locomotive that was originally manufactured prior to January 1, 1973 (or a locomotive that was originally manufactured on or after

January 1, 1973, and that is not subject to the emission standards of this part), such that it is intended to comply with the Tier 0 standards. See § 1033.615.

Useful life means the period during which the locomotive engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as work output or miles. It is the period during which a locomotive is required to comply with all applicable emission standards. *See* § 1033.101(g).

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 fuel means a volatile liquid fuel or any fuel that is a gas at atmospheric pressure. Gasoline, natural gas, and LPG are volatile fuels.

Volatile liquid fuel means any liquid 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.

[73 FR 37197, June 30, 2008, as amended at 73 FR 59191, Oct. 8, 2008; 75 FR 22987, Apr. 30, 2010]

§ 1033.905 Symbols, acronyms, and abbreviations.

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

ABT averaging, banking, and trading.
AECD auxiliary emission control device.
AESS automatic engine stop/start
AF adjustment factor (*see* § 1033.530).
CFR Code of Federal Regulations.
CH_4 methane.
CO carbon monoxide.
CO_2 carbon dioxide.
EPA Environmental Protection Agency.
FEL Family Emission Limit.
g/bhp-hr grams per brake horsepower-hour.
HC hydrocarbon.
hp horsepower.
LPG liquefied petroleum gas.
LSD low sulfur diesel.
MW megawatt.
N_2O nitrous oxide.
NIST National Institute of Standards and Technology.
NMHC nonmethane hydrocarbons.
NO_X oxides of nitrogen.
PM particulate matter.
rpm revolutions per minute.
SAE Society of Automotive Engineers.
SCR selective catalytic reduction.
SEA Selective Enforcement Audit.
THC total hydrocarbon.
THCE total hydrocarbon equivalent.
UL useful life.
ULSD ultra low sulfur diesel.
U.S. United States.
U.S.C. United States Code.

[73 FR 37197, June 30, 2008, as amended at 74 FR 56508, Oct. 30, 2008; 75 FR 22987, Apr. 30, 2010]

§ 1033.915 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.

§ 1033.920 How to 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.

§ 1033.925 Reporting and recordkeeping requirements.

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. Failing to properly report information and

keep the records we specify violates 40 CFR 1068.101(a)(2), which may involve civil or criminal penalties. The following items illustrate the kind of reporting and recordkeeping we require for engines regulated under this part:

(a) We specify the following requirements related to engine certification in this part 1033:

(1) In §1033.150 we state the requirements for interim provisions.

(2) In subpart C of this part we identify a wide range of information required to certify engines.

(3) In §1033.325 we specify certain records related to production-line testing.

(4) 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.

(5) In §§1033.725, 1033.730, and 1033.735 we specify certain records related to averaging, banking, and trading.

(6) In subpart I of this part we specify certain records related to meeting requirements for remanufactured engines.

(b) 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 the specific information and data items to record when measuring emissions.

(c) 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.

[75 FR 22987, Apr. 30, 2010]

PART 1036—CONTROL OF EMISSIONS FROM NEW AND IN-USE HEAVY-DUTY HIGHWAY ENGINES

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SOURCE: 76 FR 57381, Sept. 15, 2011, unless otherwise noted.

Subpart A—Overview and Applicability

§ 1036.1 Does this part apply for my engines?

(a) Except as specified in § 1036.5, the provisions of this part apply to all new 2014 model year and later heavy-duty engines. This includes engines fueled by conventional and alternative fuels.

(b) This part does not apply with respect to exhaust emission standards for HC, CO, NO_X, or PM except that the provisions of § 1036.601 apply.

§ 1036.2 Who is responsible for compliance?

The regulations in this part 1036 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, especially for issues related to certification.

§ 1036.5 Which engines are excluded from this part's requirements?

(a) The provisions of this part do not apply to engines used in medium-duty passenger vehicles that are subject to regulation under 40 CFR part 86, subpart S, except as specified in 40 CFR part 86, subpart S, and § 1036.108(a)(4). For example, this exclusion applies for engines used in vehicles certified to the standards of 40 CFR 1037.104.

(b) Engines installed in heavy-duty vehicles that do not provide motive power are nonroad engines. The provisions of this part therefore do not apply to these engines. See 40 CFR part 1039, 1048, or 1054 for other requirements that apply for these auxiliary

engines. See 40 CFR part 1037 for requirements that may apply for vehicles using these engines.

(c) The provisions of this part do not apply to aircraft or aircraft engines. Standards apply separately to certain aircraft engines, as described in 40 CFR part 87.

(d) The provisions of this part do not apply to engines that are not internal combustion engines. For example, the provisions of this part do not apply to fuel cells.

(e) The provisions of this part do not apply to engines used in heavy-duty vehicles that are subject to light-duty greenhouse gas standards under 40 CFR part 86, subpart S, except as specified in 40 CFR part 86, subpart S, and § 1036.108(a)(4).

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36389, June 17, 2013]

§ 1036.10 How is this part organized?

This part 1036 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of this part 1036 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 § 1036.150 describes 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) [Reserved]

(e) Subpart E of this part describes 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 describes requirements, prohibitions, and other provisions that apply to engine manufacturers, vehicle manufacturers, owners, operators, rebuilders, and all others.

(h) Subpart H of this part describes how you may generate and use emission credits to certify your engines.

(i) Subpart I of this part contains definitions and other reference information.

§ 1036.15 Do any other regulation parts apply to me?

(a) Part 86 of this chapter describes additional requirements that apply to engines that are subject to this part 1036. This part extensively references portions of 40 CFR part 86. For example, the regulations of part 86 specify emission standards and certification procedures related to criteria pollutants.

(b) Part 1037 of this chapter describes requirements for controlling evaporative emissions and greenhouse gas emissions from heavy-duty vehicles, whether or not they use engines certified under this part. It also includes standards and requirements that apply instead of the standards and requirements of this part in some cases.

(c) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1036 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the exhaust emission standards in this part.

(d) Certain provisions of part 1068 of this chapter apply as specified in § 1036.601 to everyone, including anyone who manufactures, imports, installs, owns, operates, or rebuilds any of the engines subject to this part 1036, or vehicles containing these engines. Part 1068 of this chapter describes general provisions that apply broadly, but do not necessarily apply for all engines or all persons. The issues addressed by these provisions include these seven areas:

(1) Prohibited acts and penalties for engine manufacturers, vehicle 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) Recall.

(7) Procedures for hearings.

(e) Other parts of this chapter apply if referenced in this part.

§ 1036.30 Submission of information.

Send all reports and requests for approval to the Designated Compliance

Officer (see § 1036.801). See § 1036.825 for additional reporting and recordkeeping provisions.

Subpart B—Emission Standards and Related Requirements

§ 1036.100 Overview of exhaust emission standards.

Engines used in vehicles certified to the applicable chassis standards for greenhouse gas pollutants described in 40 CFR 1037.104 are not subject to the standards specified in this part. All other engines subject to this part must meet the greenhouse gas standards in § 1036.108 in addition to the criteria pollutant standards of 40 CFR part 86.

§ 1036.108 Greenhouse gas emission standards.

This section contains standards and other regulations applicable to the emission of the air pollutant defined as the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perflurocarbons, and sulfur hexafluoride. This section describes the applicable CO_2, N_2O, and CH_4 standards for engines. Except as specified in paragraph (a)(4) of this section, these standards do not apply for engines used in vehicles subject to (or voluntarily certified to) the CO_2, N_2O, and CH_4 standards for vehicles specified in 40 CFR 1037.104.

(a) *Emission standards.* Emission standards apply for engines measured using the test procedures specified in subpart F of this part as follows:

(1) CO_2 emission standards apply as specified in this paragraph (a)(1). The applicable test cycle for measuring CO_2 emissions differs depending on the engine family's primary intended service class and the extent to which the engines will be (or were designed to be) used in tractors. For medium and heavy heavy-duty engines certified as tractor engines, measure CO_2 emissions using the steady-state duty cycle specified in 40 CFR 86.1362 (referred to as the SET cycle). This is intended for engines designed to be used primarily in tractors and other line-haul applications. Note that the use of some SET-certified tractor engines in vocational applications does not affect your certification obligation under this paragraph (a)(1); see other provisions of this part and 40 CFR part 1037 for limits on using engines certified to only one cycle. For medium and heavy heavy-duty engines certified as both tractor and vocational engines, measure CO_2 emissions using the steady-state duty cycle and the transient duty cycle (sometimes referred to as the FTP engine cycle), both of which are specified in 40 CFR part 86, subpart N. This is intended for engines that are designed for use in both tractor and vocational applications. For all other engines (including all spark-ignition engines), measure CO_2 emissions using the transient duty cycle specified in 40 CFR part 86, subpart N.

(i) The CO_2 standard for model year 2016 and later spark-ignition engines is 627 g/hp-hr.

(ii) The following CO_2 standards apply for compression-ignition engines and all other engines (in g/hp-hr):

Model years	Light heavy-duty	Medium heavy-duty—vocational	Heavy heavy-duty—vocational	Medium heavy-duty—tractor	Heavy heavy-duty—tractor
2014–2016	600	600	567	502	475
2017 and later	576	576	555	487	460

(2) The CH_4 emission standard is 0.10 g/hp-hr when measured over the transient duty cycle specified in 40 CFR part 86, subpart N. This standard begins in model year 2014 for compression ignition engines and in model year 2016 for spark-ignition engines. Note that this standard applies for all fuel types just as the other standards of this section do.

(3) The N_2O emission standard for all model year 2014 and later engines is 0.10 g/hp-hr when measured over the transient duty cycle specified in 40 CFR part 86, subpart N. This standard

begins in model year 2014 for compression ignition engines and in model year 2016 for spark-ignition engines.

(4) This paragraph (a)(4) describes alternate emission standards for engines certified under 40 CFR 1037.150(m). The standards of paragraphs (a)(1) through (3) of this section do not apply for these engines. The standards in this paragraph (a)(4) apply for emissions measured with the engine installed in a complete vehicle consistent with the provisions of 40 CFR 1037.150(m)(6). The CO_2 standard for the engines equals the test result specified in 40 CFR 1037.150(m)(6) multiplied by 1.10 and rounded to the nearest 0.1 g/mile. The N_2O and CH_4 standards are both 0.05 g/mile (or any alternate standards that apply to the corresponding vehicle test group). The only requirements of this part that apply to these engines are those in this paragraph (a)(4) and those in §§ 1036.115 through 1036.135.

(b) *Family certification levels.* You must specify a CO_2 Family Certification Level (FCL) for each engine family. The FCL may not be less than the certified emission level for the engine family. The CO_2 Family Emission Limit (FEL) for the engine family is equal to the FCL multiplied by 1.03.

(c) *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 CO_2 emission standards. Credits (positive and negative) are calculated from the difference between the FCL and the applicable emission standard. As described in § 1036.705, you may use CO_2 credits to certify your engine families to FELs for N_2O and/or CH_4, instead of the N_2O/CH_4 standards of this section that otherwise apply. Except as specified in §§ 1036.150 and 1036.705, you may not generate or use credits for N_2O or CH_4 emissions.

(d) *Useful life.* Your engines must meet the exhaust emission standards of this section throughout their full useful life, expressed in service miles or calendar years, whichever comes first. The useful life values applicable to the criteria pollutant standards of 40 CFR part 86 apply for the standards of this section.

(e) *Applicability for testing.* The emission standards in this subpart apply as specified in this paragraph (e) to all duty-cycle testing (according to the applicable test cycles) of testable configurations, including certification, selective enforcement audits, and in-use testing. The CO_2 FCLs serve as the CO_2 emission standards for the engine family with respect to certification and confirmatory testing instead of the standards specified in paragraph (a)(1) of this section. The FELs serve as the emission standards for the engine family with respect to all other testing. See §§ 1036.235 and 1036.241 to determine which engine configurations within the engine family are subject to testing.

(f) *Multi-fuel engines.* For dual-fuel, multi-fuel, and flexible-fuel engines, perform exhaust testing on each fuel type (for example, gasoline and E85).

(1) This paragraph (f)(1) applies where you demonstrate the relative amount of each fuel type that your engines consume in actual use. Based on your demonstration, we will specify a weighting factor and allow you to submit the weighted average of your emission results. For example, if you certify an E85 flexible-fuel engine and we determine the engine will produce one-half of its work from E85 and one-half of its work from gasoline, you may average your E85 and gasoline emission results.

(2) If you certify your engine family to N_2O and/or CH_4 FELs the FELs apply for testing on all fuel types for which your engine is designed, to the same extent as criteria emission standards apply.

§ 1036.115 Other requirements.

(a) The warranty and maintenance requirements, adjustable parameter provisions, and defeat device prohibition of 40 CFR part 86 apply with respect to the standards of this part.

(b) You must design and produce your engines to comply with evaporative emission standards as follows:

(1) For complete heavy-duty vehicles you produce, you must certify the vehicles to emission standards as specified in 40 CFR 1037.103.

(2) For incomplete heavy-duty vehicles, and for engines used in vehicles you do not produce, you do not need to

certify your engines to evaporative emission standards or otherwise meet those standards. However, vehicle manufacturers certifying their vehicles with your engines may depend on you to produce your engines according to their specifications. Also, your engines must meet applicable exhaust emission standards in the installed configuration.

[76 FR 57381, Sept. 15, 2011, as amended at 79 FR 23748, Apr. 28, 2014]

§ 1036.130 Installation instructions for vehicle manufacturers.

(a) If you sell an engine for someone else to install in a vehicle, 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 these 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 heavy-duty motor vehicle violates federal law, subject to fines or other penalties as described in the Clean Air Act.''

(3) Provide all instructions needed to properly install the exhaust system and any other components.

(4) Describe any necessary steps for installing any diagnostic system required under 40 CFR part 86.

(5) Describe how your certification is limited for any type of application. For example, if you certify heavy heavy-duty engines to the CO_2 standards using only steady-state testing, you must make clear that the engine may be installed only in tractors.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

(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 vehicle, as described in 40 CFR 1068.105.''

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

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available Web site 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.

§ 1036.135 Labeling.

Label your engines as described in 40 CFR 86.007–35(a)(3), with the following additional information:

(a) [Reserved]

(b) Identify the emission control system. Use terms and abbreviations as described in 40 CFR 1068.45 or other applicable conventions.

(c) Identify any limitations on your certification. For example, if you certify heavy heavy-duty engines to the CO_2 standards using only transient cycle testing, include the statement ''VOCATIONAL VEHICLES ONLY''.

(d) You may ask us to approve modified labeling requirements in this part 1036 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. We may also specify modified labeling requirement to be consistent with the intent of 40 CFR part 1037.

§ 1036.140 Primary intended service class.

You must identify a single primary intended service class for each compression-ignition engine family. Select the class that best describes vehicles for which you design and market the engine. The three primary intended service classes are light heavy-duty, medium heavy-duty, and heavy heavy-duty. Note that provisions that apply based on primary intended service class often treat spark-ignition engines as if they were a separate service class.

(a) Light heavy-duty engines usually are not designed for rebuild and do not have cylinder liners. Vehicle body types in this group might include any

heavy-duty vehicle built for a light-duty truck chassis, van trucks, multi-stop vans, motor homes and other recreational vehicles, and some straight trucks with a single rear axle. Typical applications would include personal transportation, light-load commercial delivery, passenger service, agriculture, and construction. The GVWR of these vehicles is normally below 19,500 pounds.

(b) Medium heavy-duty engines may be designed for rebuild and may have cylinder liners. Vehicle body types in this group would typically include school buses, straight trucks with dual rear axles, city tractors, and a variety of special purpose vehicles such as small dump trucks, and refuse trucks. Typical applications would include commercial short haul and intra-city delivery and pickup. Engines in this group are normally used in vehicles whose GVWR ranges from 19,500 to 33,000 pounds.

(c) Heavy heavy-duty engines are designed for multiple rebuilds and have cylinder liners. Vehicles in this group are normally tractors, trucks, and buses used in inter-city, long-haul applications. These vehicles normally exceed 33,000 pounds GVWR.

§ 1036.150 Interim provisions.

The provisions in this section apply instead of other provisions in this part.

(a) *Early banking of greenhouse gas emissions.* You may generate CO_2 emission credits for engines you certify in model year 2013 (2015 for spark-ignition engines) to the standards of § 1036.108.

(1) Except as specified in paragraph (a)(2) of this section, to generate early credits, you must certify your entire U.S.-directed production volume within that averaging set to these standards. This means that you may not generate early credits while you produce engines in the averaging set that are certified to the criteria pollutant standards but not to the greenhouse gas standards. Calculate emission credits as described in subpart H of this part relative to the standard that would apply for model year 2014 (2016 for spark-ignition engines).

(2) You may generate early credits for an individual compression-ignition engine family where you demonstrate that you have improved a model year 2013 engine model's CO_2 emissions relative to its 2012 baseline level and certify it to an FCL below the applicable standard. Calculate emission credits as described in subpart H of this part relative to the lesser of the standard that would apply for model year 2014 engines or the baseline engine's CO_2 emission rate. Use the smaller U.S.-directed production volume of the 2013 engine family or the 2012 baseline engine family. We will not allow you to generate emission credits under this paragraph (a)(2) unless we determine that your 2013 engine is the same engine as the 2012 baseline or that it replaces it.

(3) You may bank credits equal to the surplus credits you generate under this paragraph (a) multiplied by 1.50. For example, if you have 10 Mg of surplus credits for model year 2013, you may bank 15 Mg of credits. Credit deficits for an averaging set prior to model year 2014 (2016 for spark-ignition engines) do not carry over to model year 2014 (2016 for spark-ignition engines). We recommend that you notify us of your intent to use this provision before submitting your applications.

(b) *Model year 2014 N_2O standards.* In model year 2014 and earlier, manufacturers may show compliance with the N_2O standards using an engineering analysis. This allowance also applies for later families certified using carry-over CO_2 data from model 2014 consistent with § 1036.235(d).

(c) *Engine cycle classification.* Engines meeting the definition of spark-ignition, but regulated as diesel engines under 40 CFR part 86, must be certified to the requirements applicable to compression-ignition engines under this part. Such engines are deemed to be compression-ignition engines for purposes of this part. Similarly, engines meeting the definition of compression-ignition, but regulated as Otto-cycle under 40 CFR part 86 must be certified to the requirements applicable to spark-ignition engines under this part. Such engines are deemed to be spark-ignition engines for purposes of this part.

(d) *Small manufacturers.* Manufacturers meeting the small business criteria specified for ''Gasoline Engine and Engine Parts Manufacturing'' or ''Other

Engine Equipment Manufacturers'' in 13 CFR 121.201 are not subject to the greenhouse gas emission standards in § 1036.108. Qualifying manufacturers must notify the Designated Compliance Officer before importing or introducing into U.S. commerce excluded engines. This notification must include a description of the manufacturer's qualification as a small business under 13 CFR 121.201. You must label your excluded engines with the statement: ''THIS ENGINE IS EXCLUDED UNDER 40 CFR 1036.150(d).''

(e) *Alternate phase-in standards.* Where a manufacturer certifies all of its model year 2013 compression-ignition engines within a given primary intended service class to the applicable alternate standards of this paragraph (e), its compression-ignition engines within that primary intended service class are subject to the standards of this paragraph (e) for model years 2013 through 2016. This means that once a manufacturer chooses to certify a primary intended service class to the standards of this paragraph (e), it is not allowed to opt out of these standards. Engines certified to these standards are not eligible for early credits under paragraph (a) of this section.

Tractors	LHD Engines	MHD Engines	HHD Engines
Model Years 2013–2015.	NA	512 g/hp-hr	485 g/hp-hr.
Model Years 2016 and later [a].	NA	487 g/hp-hr	460 g/hp-hr.
Vocational	**LHD Engines**	**MHD Engines**	**HHD Engines**
Model Years 2013–2015.	618 g/hp-hr	618 g/hp-hr	577 g/hp-hr.
Model Years 2016 and later [a].	576 g/hp-hr	576 g/hp-hr	555 g/hp-hr.

[a] **Note:** These alternate standards for 2016 and later are the same as the otherwise applicable standards for 2017 and later.

(f) *Separate OBD families.* This paragraph (f) applies where you separately certify engines for the purpose of applying OBD requirements (for engines used in vehicles under 14,000 pounds GVWR) from non-OBD engines that could be certified as a single engine family. You may treat the two engine families as a single engine family in certain respects for the purpose of this part, as follows:

(1) This paragraph applies only where the two families are identical in all respects except for the engine ratings offered and the inclusion of OBD.

(2) For purposes of this part and 40 CFR part 86, the two families remain two separate families except for the following:

(i) Specify the testable configurations of the non-OBD engine family as the testable configurations for the OBD family.

(ii) Submit the same CO_2, N_2O, and CH_4 emission data for both engine families.

(g) *Assigned deterioration factors.* You may use assigned deterioration factors (DFs) without performing your own durability emission tests or engineering analysis as follows:

(1) You may use an assigned additive DF of 0.0 g/hp-hr for CO_2 emissions from engines that do not use advanced or innovative technologies. If we determine it to be consistent with good engineering judgment, we may allow you to use an assigned additive DF of 0.0 g/hp-hr for CO_2 emissions from your engines with advanced or innovative technologies.

(2) You may use an assigned additive DF of 0.020 g/hp-hr for N_2O emissions from any engine.

(3) You may use an assigned additive DF of 0.020 g/hp-hr for CH_4 emissions from any engine.

(h) *Advanced technology credits.* If you generate credits from engines certified for advanced technology you may multiply these credits by 1.5, except that you may not apply this multiplier and the early-credit multiplier of paragraph (a) of this section.

(i) *CO_2 credits for low N_2O emissions.* If you certify your model year 2014, 2015, or 2016 engines to an N_2O FEL less than 0.04 g/hp-hr (provided you measure N_2O emissions from your emission-data engines), you may generate additional CO_2 credits under this paragraph (i). Calculate the additional CO_2 credits from the following equation instead of the equation in § 1036.705:

$$CO_2\ \text{Credits (Mg)} = (0.04 - FEL_{N2O}) \cdot (CF) \cdot (\text{Volume}) \cdot (UL) \cdot (10^{-6}) \cdot (298)$$

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36389, June 17, 2013]

Subpart C—Certifying Engine Families

§ 1036.205 What must I include in my application?

Submit an application for certification as described in 40 CFR 86.007–21, with the following additional information:

(a) Describe the engine family's specifications and other basic parameters of the engine's design and emission controls with respect to compliance with the requirements of this part. Describe in detail all system components for controlling greenhouse gas 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 (a), treat as separate AECDs any devices that modulate or activate differently from each other.

(b) Describe any test equipment and procedures that you used if you performed any tests that did not also involve measurement of criteria pollutants. Describe any special or alternate test procedures you used (see 40 CFR 1065.10(c)).

(c) Include the emission-related installation instructions you will provide if someone else installs your engines in their vehicles (see § 1036.130).

(d) Describe the label information specified in § 1036.135. We may require you to include a copy of the label.

(e) Identify the CO_2 FCLs with which you are certifying engines in the engine family; also identify any FELs that apply for CH_4 and N_2O. The actual U.S.-directed production volume of configurations that have CO_2 emission rates at or below the FCL and CH_4 and N_2O emission rates at or below the applicable standards or FELs must be at least one percent of your actual (not projected) U.S.-directed production volume for the engine family. Identify configurations within the family that have emission rates at or below the FCL and meet the one percent requirement. For example, if your U.S.-directed production volume for the engine family is 10,583 and the U.S.-directed production volume for the tested rating is 75 engines, then you can comply with this provision by setting your FCL so that one more rating with a U.S.-directed production volume of at least 31 engines meets the FCL. Where applicable, also identify other testable configurations required under § 1036.230(b)(2).

(f) Identify the engine family's deterioration factors and describe how you developed them (see § 1036.241). Present any test data you used for this.

(g) Present emission data to show that you meet emission standards, as follows:

(1) Present exhaust emission data for CO_2, CH_4, and N_2O on an emission-data engine to show that your engines meet the applicable emission standards we specify in § 1036.108. Show emission figures before and after applying deterioration factors for each engine. In addition to the composite results, show individual measurements for cold-start testing and hot-start testing over the transient test cycle.

(2) Note that § 1036.235 allows you to submit an application in certain cases without new emission data.

(h) State whether your certification is limited for certain engines. For example, if you certify heavy heavy-duty engines to the CO_2 standards using only transient testing, the engines may be installed only in vocational vehicles.

(i) 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. Note that § 1036.235 specifies which engines to test to show that engines in the entire family comply with the requirements of this part.

(j) Include the information required by other subparts of this part. For example, include the information required by § 1036.725 if you participate in the ABT program.

(k) Include the warranty statement and maintenance instructions if we request them.

(l) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(m) For imported engines or equipment, identify the following:

(1) Describe your normal practice for importing engines. For example, this

may include identifying the names and addresses of any agents you have authorized to import your engines. Engines imported by nonauthorized agents are not covered by your certificate.

(2) 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.

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36389, June 17, 2013]

§ 1036.210 Preliminary approval before certification.

If you send us information before you finish the application, we may review it and make any appropriate determinations, especially for questions related to engine family definitions, auxiliary emission control devices, adjustable parameters, deterioration factors, testing for service accumulation, and maintenance. 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 best-efforts to 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.

§ 1036.225 Amending my application for certification.

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, but before the end of the model year, 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 that is included or should be 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 § 1036.230.

(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 and FCL for an engine family as described in paragraph (f) of this section.

(b) To amend your application for certification, send the relevant information to the Designated Compliance Officer.

(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 § 1036.820).

(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, but before the end of the model year. If you change an FEL for CO_2, your FCL for CO_2 is automatically set to your new FEL divided by 1.03. The changed FEL may not apply to engines you have already introduced into U.S. commerce, except as described in this paragraph (f). 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. Use the appropriate FELs/FCLs with corresponding production volumes to calculate emission credits for the model year, as described in 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 (or below the proposed FCL for CO_2). The lower FEL/FCL applies only to engines you produce after we approve the new FEL/FCL. Use the appropriate FELs/FCLs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36389, June 17, 2013]

§ 1036.230 Selecting engine families.

See 40 CFR 86.001–24 for instructions on how to divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life. You must certify your engines to the standards of § 1036.108 using the same engine families you use for criteria pollutants under 40 CFR part 86. The following provisions also apply:

(a) Engines certified as hybrid engines or power packs may not be included in an engine family with engines with conventional powertrains. Note that this does not prevent you from including engines in a conventional family if they are used in hybrid vehicles, as long as you certify them conventionally.

(b) If you certify engines in the family for use as both vocational and tractor engines, you must split your family into two separate subfamilies. Indicate in the application for certification that the engine family is to be split.

(1) Calculate emission credits relative to the vocational engine standard for the number of engines sold into vocational applications and relative to the tractor engine standard for the number of engines sold into non-vocational tractor applications. You may assign the numbers and configurations of engines within the respective subfamilies at any time before submitting the end-of-year report required by § 1036.730. If the family participates in averaging, banking, or trading, you must identify the type of vehicle in which each engine is installed; we may alternatively allow you to use statistical methods to determine this for a fraction of your engines. Keep records to document this determination.

(2) If you restrict use of the test configuration for your split family to only tractors, or only vocational vehicles, you must identify a second testable configuration for the other type of vehicle (or an unrestricted configuration). Identify this configuration in your application for certification. The FCL for the engine family applies for

this configuration as well as the primary test configuration.

(c) If you certify in separate engine families engines that could have been certified in vocational and tractor engine subfamilies in the same engine family, count the two families as one family for purposes of determining your obligations with respect to the OBD requirements and in-use testing requirements of 40 CFR part 86. Indicate in the applications for certification that the two engine families are covered by this paragraph (c).

(d) Engine configurations within an engine family must use equivalent greenhouse gas emission controls. Unless we approve it, you may not produce nontested configurations without the same emission control hardware included on the tested configuration. We will only approve it if you demonstrate that the exclusion of the hardware does not increase greenhouse gas emissions.

§ 1036.235 Testing requirements for certification.

This section describes the emission testing you must perform to show compliance with the greenhouse gas emission standards in § 1036.108.

(a) Select a single emission-data engine from each engine family as specified in 40 CFR part 86. The standards of this part apply only with respect to emissions measured from this tested configuration and other configurations identified in § 1036.205(e). Note that configurations identified in § 1036.205(e) are considered to be ''tested configurations'' whether or not you actually tested them for certification. However, you must apply the same (or equivalent) emission controls to all other engine configurations in the engine family.

(b) Test your emission-data engines using the procedures and equipment specified in subpart F of this part. In the case of dual-fuel and flexible-fuel engines, measure emissions when operating with each type of fuel for which you intend to certify the engine. Measure CO_2, CH_4, and N_2O emissions using the specified duty cycle(s), including cold-start and hot-start testing as specified in 40 CFR part 86, subpart N. If you are certifying the engine for use in tractors, you must measure CO_2 emissions using the SET cycle and measure CH_4, and N_2O emissions using the transient cycle. If you are certifying the engine for use in vocational applications, you must measure CO_2, CH_4, and N_2O emissions using the specified transient duty cycle, including cold-start and hot-start testing as specified in 40 CFR part 86, subpart N. Engines certified for use in tractors may also be used in vocational vehicles; however, you may not knowingly circumvent the intent of this part (to reduce in-use emissions of CO_2) by certifying engines designed for vocational vehicles (and rarely used in tractors) to the SET and not the transient cycle. For example, we would generally not allow you to certify all your engines to the SET without certifying any to the transient cycle. You may certify your engine family for both tractor and vocational use by submitting CO_2 emission data from both SET and transient cycle testing and specifying FCLs for both.

(c) We may measure emissions from any of your emission-data engines.

(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 your engine, 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) Before we test one of your engines, we may set its adjustable parameters to any point within the physically adjustable ranges.

(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 for an engine parameter that is subject to production variability because it is adjustable during production, but is not considered an adjustable parameter (as defined in § 1036.801) because it is permanently sealed.

(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.

(e) We may require you to test a second engine of the same configuration in addition to the engine tested under paragraph (a) 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.

§ 1036.241 Demonstrating compliance with greenhouse gas pollutant standards.

(a) For purposes of certification, your engine family is considered in compliance with the emission standards in § 1036.108 if all emission-data engines representing the tested configuration of that engine family have test results showing official emission results and deteriorated emission levels at or below the standards. Note that your FCLs are considered to be the applicable emission standards with which you must comply for certification.

(b) Your engine family is deemed not to comply if any emission-data engine representing the tested configuration of that engine family has test results showing an official emission result or a deteriorated emission level for any pollutant that is above an applicable emission standard (generally the FCL). Note that you may increase your FCL if any certification test results exceed your initial FCL.

(c) Apply deterioration factors to the measured emission levels for each pollutant to show compliance with the applicable emission standards. Your deterioration factors must take into account any available data from in-use testing with similar engines. Apply deterioration factors as follows:

(1) *Additive deterioration factor for greenhouse gas emissions.* Except as specified in paragraph (c)(2) of this section, use an additive deterioration factor for exhaust emissions. An additive deterioration factor is the difference between 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 engine at the selected test point by adding the factor to the measured emissions. If the factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable standard.

(2) *Multiplicative deterioration factor for greenhouse gas emissions.* Use a multiplicative deterioration factor for a pollutant if good engineering judgment calls for the deterioration factor for that pollutant to be the ratio of exhaust emissions at the end of the 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. A multiplicative deterioration factor may not be appropriate in cases where testing variability is significantly greater than engine-to-engine variability. Multiplicative deterioration factors must be specified to one more significant figure than the applicable standard.

(3) *Sawtooth deterioration patterns.* The deterioration factors described in paragraphs (c)(1) and (2) of this section assume that the highest useful life emissions occur either at the end of useful life or at the low-hour test point. The provisions of this paragraph

(c)(3) apply where good engineering judgment indicates that the highest useful life emissions will occur between these two points. For example, emissions may increase with service accumulation until a certain maintenance step is performed, then return to the low-hour emission levels and begin increasing again. Such a pattern may occur with battery-based electric hybrid engines. Base deterioration factors for engines with such emission patterns on the difference between (or ratio of) the point at which the highest emissions occur and the low-hour test point. Note that this applies for maintenance-related deterioration only where we allow such critical emission-related maintenance.

(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.

(e) If you identify more than one configuration in §1036.205(e), we may test (or require you to test) any of the identified configurations. We may also require you to provide an engineering analysis that demonstrates that untested configurations listed in §1036.205(e) comply with their FCL.

§1036.250 Reporting and recordkeeping for certification.

(a) Within 90 days after the end of the model year, send the Designated Compliance Officer a report including the total U.S.-directed production volume of engines you produced in each engine family during the model year (based on information available at the time of the report). Report the production by serial number and engine configuration. Small manufacturers may omit this requirement. You may combine this report with reports required under subpart H of this part.

(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 §1036.205 that you were not required to include in your application.

(c) Keep routine data from emission tests required by this part (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.

§1036.255 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 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). This includes doing anything after submission of your application to render any of the submitted information false or incomplete.

(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. However,

you may ask us to reconsider our decision by showing that your failure under this paragraph (c)(4) did not involve engines related to the certificate or application in question to a degree that would justify our decision.

(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 Act or this part, with respect to your engine family.

(d) We may void the certificate of conformity for an engine family if you fail to keep records, send reports, or give us information as required under this part or the Act. Note that these are also violations of 40 CFR 1068.101(a)(2).

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

(f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see § 1036.820).

Subpart D [Reserved]

Subpart E—In-use Testing

§ 1036.401 In-use testing.

We may perform in-use testing of any engine family subject to the standards of this part, consistent with the provisions of § 1036.235. Note that this provisions does not affect your obligation to test your in-use engines as described in 40 CFR part 86, subpart T.

Subpart F—Test Procedures

§ 1036.501 How do I run a valid emission test?

(a) Use the equipment and procedures specified in 40 CFR 86.1305 to determine whether engines meet the emission standards in § 1036.108.

(b) You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10.

(c) 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.

(d) For engines that use aftertreatment technology with infrequent regeneration events, invalidate any test interval in which such a regeneration event occurs with respect to CO_2, N_2O, and CH_4 measurements.

(e) Test hybrid engines as described in 40 CFR part 1065 and § 1036.525.

(f) [Reserved]

(g) If your engine requires special components for proper testing, you must provide any such components to us if we ask for them.

§ 1036.525 Hybrid engines.

(a) If your engine system includes features that recover and store energy during engine motoring operation test the engine as described in paragraph (d) of this section. For purposes of this section, features that recover energy between the engine and transmission are considered related to engine motoring.

(b) If you produce a hybrid engine designed with power take-off capability and sell the engine coupled with a transmission, you may calculate a reduction in CO_2 emissions resulting from the power take-off operation as described in 40 CFR 1037.525. Use good engineering judgment to use the vehicle-based procedures to quantify the CO_2 reduction for your engines.

(c) The hardware that must be included in these tests is the engine, the hybrid electric motor, the rechargeable energy storage system (RESS) and the power electronics between the hybrid electric motor and the RESS. You may ask us to modify the provisions of this section to allow testing non-electric hybrid vehicles, consistent with good engineering judgment.

(d) Measure emissions using the same procedures that apply for testing non-hybrid engines under this part, except as specified otherwise in this part and/or 40 CFR part 1065. If you test hybrid engines using the SET, deactivate the

hybrid features unless we have specified otherwise. The five differences that apply under this section are related to engine mapping, engine shutdown during the test cycle, calculating work, limits on braking energy, and state of charge constraints.

(1) Map the engine as specified in 40 CFR 1065.510. This requires separate torque maps for the engine with and without the hybrid features active. For transient testing, denormalize the test cycle using the map generated with the hybrid feature active. For steady-state testing, denormalize the test cycle using the map generated with the hybrid feature inactive.

(2) If the engine will be configured in actual use to shut down automatically during idle operation, you may let the engine shut down during the idle portions of the test cycle.

(3) Follow 40 CFR 1065.650(d) to calculate the work done over the cycle except as specified in this paragraph (d)(3). For the positive work over the cycle set negative power from hybrid to zero. For the negative work over the cycle set the positive power to zero and set the non-hybrid power to zero.

(4)(i) Calculate brake energy fraction, x_b, as the integrated negative work over the cycle divided by the integrated positive work over the cycle according to Equation 1036.525–1. Calculate the brake energy limit for the engine, x_{bl}, according to Equation 1036.525–2. If x_b is less than x_{bl}, use the integrated positive work for your emission calculations. If the x_b is greater than x_{bl} use Equation 1036.525–3 to calculate the positive work done over the cycle. Use W_{cycle} as the integrated positive work when calculating brake-specific emissions. To avoid the need to delete extra brake work from positive work you may set an instantaneous brake target that will prevent x_b from being larger than x_{bl},

$$x_b = \left| \frac{W_{neg}}{W_{pos}} \right|$$

Eq. 1036.525-1

$$x_{bl} = 4.158 \cdot 10^{-4} \cdot P_{max} + 0.2247$$

Eq. 1036.525-2

$$W_{cycle} = W_{pos} - \left(\left| W_{neg} \right| - x_{bl} \cdot W_{pos} \right)$$

Eq. 1036.525-3

(ii) The following definitions of terms apply for this paragraph (d)(4):

x_b = the brake energy fraction.

W_{neg} = the negative work over the cycle.

W_{pos} = the positive work over the cycle.

x_{bl} = the brake energy fraction limit.

P_{max} = the maximum power of the engine with the hybrid system engaged (kW).

W_{cycle} = the work over the cycle when x_b is greater than x_{bl}.

(iii) Note that these calculations are specified with SI units (such as kW),

consistent with 40 CFR part 1065. Emission results are converted to g/hp-hr at the end of the calculations.

(5) Correct for the net energy change of the energy storage device as described in 40 CFR 1066.501.

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36389, June 17, 2013]

§ 1036.530 Calculating greenhouse gas emission rates.

This section describes how to calculate official emission results for CO_2, CH_4, and N_2O.

(a) Calculate brake-specific emission rates for each applicable duty cycle as specified in 40 CFR 1065.650. Do not apply infrequent regeneration adjustment factors to your results.

(b) Adjust CO_2 emission rates calculated under paragraph (a) of this section for measured test fuel properties as specified in this paragraph (b) to obtain the official emission results. You are not required to apply this adjustment for fuels containing at least 75 percent pure alcohol, such as E85. The purpose of this adjustment is to make official emission results independent of differences in test fuels within a fuel type. Use good engineering judgment to develop and apply testing protocols to minimize the impact of variations in test fuels.

(1) For liquid fuels, determine the net energy content (Btu per pound of fuel) according to ASTM D4809 or ASTM D240 (both incorporated by reference in § 1036.810) and carbon weight fraction (dimensionless) of your test fuel according to ASTM D5291 (incorporated by reference in § 1036.810). (Note that we recommend using ASTM D4809.) For gaseous fuels, use good engineering judgment to determine the fuel's net energy content and carbon weight fraction. (Note: Net energy content is also sometimes known as lower heating value.) Calculate the test fuel's carbon-specific net energy content (Btu/lbC) by dividing the net energy content by the carbon fraction, expressed to at least five significant figures. You may perform these calculations using SI units with the following conversion factors: one Btu equals 1055.06 Joules and one Btu/lb equals 0.0023260 MJ/kg.

(2) If you control test fuel properties so that variations in the actual carbon-specific energy content are the same as or smaller than the repeatability of measuring carbon-specific energy content, you may use a constant value equal to the average carbon-specific energy content of your test fuel. Otherwise, use the measured value for the specific test fuel used for a given test. If you use a constant value, you must update or verify the value at least once per year, or after changes in test fuel suppliers or specifications.

(3) Calculate the adjustment factor for carbon-specific net energy content by dividing the carbon-specific net energy content of your test fuel by the reference level in the following table, expressed to at least five decimal places. Note that as used in this section, the unit lbC means pound of carbon and kgC means kilogram of carbon.

Fuel type	Reference carbon-specific net energy content (Btu/lbC)	Reference carbon-specific net energy content (MJ/kgC)
Diesel fuel	21,200	49.3112
Gasoline	21,700	50.4742
Natural Gas	28,500	66.2910
LPG	24,300	56.5218

(4) Your official emission result equals your calculated brake-specific emission rate multiplied by the adjustment factor specified in paragraph (b)(2) of this section. For example, if the net energy content and carbon fraction of your diesel test fuel are 18,400 Btu/lb and 0.870, the carbon-specific net energy content of the test fuel would be 21,149 Btu/lbC. The adjustment factor in the example above would be 0.99759 (21,149/21,200). If your brake-specific CO_2 emission rate was 630.0 g/hp-hr, your official emission result would be 628.5 g/hp-hr.

Subpart G—Special Compliance Provisions

§ 1036.601 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 provisions of the Clean Air Act, and the following provisions of 40 CFR part 1068:

(1) The exemption and importation provisions of 40 CFR part 1068, subparts C and D, apply for engines subject to this part 1036, except that the hardship exemption provisions of 40 CFR 1068.245, 1068.250, and 1068.255 do not apply for motor vehicle engines.

(2) Manufacturers may comply with the defect reporting requirements of 40 CFR 1068.501 instead of the defect reporting requirements of 40 CFR part 85.

(b) Engines exempted from the applicable standards of 40 CFR part 86 are exempt from the standards of this part without request.

§ 1036.610 Innovative technology credits and adjustments for reducing greenhouse gas emissions.

(a) You may ask us to apply the provisions of this section for CO_2 emission reductions resulting from powertrain technologies that were not in common use with heavy-duty vehicles before model year 2010 that are not reflected in the specified test procedure. We will apply these provisions only for technologies that will result in a measurable, demonstrable, and verifiable real-world CO_2 reduction.

(b) The provisions of this section may be applied as either an improvement factor (used to adjust emission results) or as a separate credit, consistent with good engineering judgment. We recommend that you base your credit/adjustment on A to B testing of pairs of engines/vehicles differing only with respect to the technology in question.

(1) Calculate improvement factors as the ratio of in-use emissions with the technology divided by the in-use emissions without the technology. Adjust the emission results by multiplying by the improvement factor. Use the improvement-factor approach where good engineering judgment indicates that the actual benefit will be proportional to emissions measured over the test procedures specified in this part. For example, the benefits from technologies that reduce engine operation would generally be proportional to the engine's emission rate.

(2) Calculate separate credits based on the difference between the in-use emission rate (g/ton-mile) with the technology and the in-use emission rate without the technology. Multiply this difference by the number of engines, standard payload, and useful life. We may also allow you to calculate the credits based on g/hp-hr emission rates. Use the separate-credit approach where good engineering judgment indicates that the actual benefit will not be proportional to emissions measured over the test procedures specified in this part.

(3) We may require you to discount or otherwise adjust your improvement factor or credit to account for uncertainty or other relevant factors.

(c) Send your request to the Designated Compliance Officer. Include a detailed description of the technology and a recommended test plan. Also state whether you recommend applying these provisions using the improvement-factor method or the separate-credit method. We recommend that you do not begin collecting test data (for submission to EPA) before contacting us. For technologies for which the vehicle manufacturer could also claim credits (such as transmissions in certain circumstances), we may require you to include a letter from the vehicle manufacturer stating that it will not seek credits for the same technology.

(d) We may seek public comment on your request, consistent with the provisions of 40 CFR 86.1866–12(d)(3). However, we will generally not seek public comment on credits/adjustments based on A to B engine dynamometer testing, chassis testing, or in-use testing.

§ 1036.615 Engines with Rankine cycle waste heat recovery and hybrid powertrains.

This section specifies how to generate advanced technology-specific emission credits for hybrid powertrains that include energy storage systems and regenerative braking (including regenerative engine braking) and for engines that include Rankine-cycle (or other bottoming cycle) exhaust energy recovery systems.

(a) *Pre-transmission hybrid powertrains.* Test pre-transmission hybrid powertrains with the hybrid engine test procedures of 40 CFR part 1065 or with the post-transmission test procedures in 40 CFR 1037.550. Pre-transmission hybrid powertrains are those engine systems that include features to

recover and store energy during engine motoring operation but not from the vehicle's wheels.

(1) Pre-transmission hybrid powertrains are those engine systems that include features that recover and store energy during engine motoring operation but not from the vehicle wheels. These powertrains are tested using the hybrid engine test procedures of 40 CFR part 1065 or using the post-transmission test procedures in 40 CFR 1037.550.

(2) Post-transmission hybrid powertrains are those powertrains that include features that recover and store energy from braking but that cannot function as hybrids without the transmission. These powertrains must have a single output shaft to the final drive and are tested by simulating the chassis test procedure applicable for hybrid vehicles under 40 CFR 1037.550. You need our approval before you begin testing.

(b) *Rankine engines.* Test engines that include Rankine-cycle exhaust energy recovery systems according to the test procedures specified in subpart F of this part unless we approve alternate procedures.

(c) *Calculating credits.* Calculate credits as specified in subpart H of this part. Credits generated from engines and powertrains certified under this section may be used in other averaging sets as described in § 1036.740(c).

(d) *Innovative technologies.* You may certify using both provisions of this section and the innovative technology provisions of § 1036.610, provided you do not double count emission benefits.

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36389, June 17, 2013]

§ 1036.620 Alternate CO_2 standards based on model year 2011 compression-ignition engines.

For model years 2014 through 2016, you may certify your compression-ignition engines to the CO_2 standards of this section instead of the CO_2 standards in § 1036.108. However, you may not certify engines to these alternate standards if they are part of an averaging set in which you carry a balance of banked credits. You may submit applications for certifications before using up banked credits in the averaging set, but such certificates will not become effective until you have used up (or retired) your banked credits in the averaging set. For purposes of this section, you are deemed to carry credits in an averaging set if you carry credits from advanced technology that are allowed to be used in that averaging set.

(a) The standards of this section are determined from the measured emission rate of the test engine of the applicable baseline 2011 engine family(ies) as described in paragraphs (b) and (c) of this section. Calculate the CO_2 emission rate of the baseline test engine using the same equations used for showing compliance with the otherwise applicable standard. The alternate CO_2 standard for light and medium heavy-duty vocational-certified engines (certified for CO_2 using the transient cycle) is equal to the baseline emission rate multiplied by 0.975. The alternate CO_2 standard for tractor-certified engines (certified for CO_2 using the SET cycle) and all other heavy heavy-duty engines is equal to the baseline emission rate multiplied by 0.970. The in-use FEL for these engines is equal to the alternate standard multiplied by 1.03.

(b) This paragraph (b) applies if you do not certify all your engine families in the averaging set to the alternate standards of this section. Identify separate baseline engine families for each engine family that you are certifying to the alternate standards of this section. For an engine family to be considered the baseline engine family, it must meet the following criteria:

(1) It must have been certified to all applicable emission standards in model year 2011. If the baseline engine was certified to a NO_X FEL above the standard and incorporated the same emission control technologies as the new engine family, you may adjust the baseline CO_2 emission rate to be equivalent to an engine meeting the 0.20 g/hp-hr NO_X standard (or your higher FEL as specified in this paragraph (b)(1)), using certification results from model years 2009 through 2011, consistent with good engineering judgment.

(i) Use the following equation to relate model year 2009–2011 NO_X and CO_2

emission rates (g/hp-hr): $CO_2 = a \times \log(NO_X) + b$.

(ii) For model year 2014–2016 engines certified to NO_X FELs above 0.20 g/hp-hr, correct the baseline CO_2 emissions to the actual NO_X FELs of the 2014–2016 engines.

(iii) Calculate separate adjustments for transient and SET emissions.

(2) The baseline configuration tested for certification must have the same engine displacement as the engines in the engine family being certified to the alternate standards, and its rated power must be within five percent of the highest rated power in the engine family being certified to the alternate standards.

(3) The model year 2011 U.S.-directed production volume of the configuration tested must be at least one percent of the total 2011 U.S.-directed production volume for the engine family.

(4) The tested configuration must have cycle-weighted BSFC equivalent to or better than all other configurations in the engine family.

(c) This paragraph (c) applies if you certify all your engine families in the primary intended service class to the alternate standards of this section. For purposes of this section, you may combine light heavy-duty and medium heavy-duty engines into a single averaging set. Determine your baseline CO_2 emission rate as the production-weighted emission rate of the certified engine families you produced in the 2011 model year. If you produce engines for both tractors and vocational vehicles, treat them as separate averaging sets. Adjust the CO_2 emission rates to be equivalent to an engine meeting the average NO_X FEL of new engines (assuming engines certified to the 0.20 g/hp-hr NO_X standard have a NO_X FEL equal to 0.20 g/hp-hr), as described in paragraph (b)(1) of this section.

(d) Include the following statement on the emission control information label: ''THIS ENGINE WAS CERTIFIED TO AN ALTERNATE CO_2 STANDARD UNDER § 1036.620.''

(e) You may not bank CO_2 emission credits for any engine family in the same averaging set and model year in which you certify engines to the standards of this section. You may not bank any advanced technology credits in any averaging set for the model year you certify under this section (since such credits would be available for use in this averaging set). Note that the provisions of § 1036.745 apply for deficits generated with respect to the standards of this section.

(f) You need our approval before you may certify engines under this section, especially with respect to the numerical value of the alternate standards. We will not approve your request if we determine that you manipulated your engine families or test engine configurations to certify to less stringent standards, or that you otherwise have not acted in good faith. You must keep and provide to us any information we need to determine that your engine families meet the requirements of this section. Keep these records for at least five years after you stop producing engines certified under this section.

§ 1036.625 In-use compliance with family emission limits (FELs).

You may ask us to apply a higher in-use FEL for certain in-use engines, subject to the provisions of this section. Note that § 1036.225 contains provisions related to changing FELs during a model year.

(a) *Purpose*. This section is intended to address circumstances in which it is in the public interest to apply a higher in-use FEL based on forfeiting an appropriate number of emission credits.

(b) *FELs*. When applying higher in-use FELs to your engines, we would intend to accurately reflect the actual in-use performance of your engines, consistent with the specified testing provisions of this part.

(c) *Equivalent families*. We may apply the higher FELs to other families in other model years if they used equivalent emission controls.

(d) *Credit forfeiture*. Where we specify higher in-use FELs under this section, you must forfeit CO_2 emission credits based on the difference between the in-use FEL and the otherwise applicable FEL. Calculate the amount of credits to be forfeited using the applicable equation in § 1036.705, by substituting the otherwise applicable FEL for the standard and the in-use FEL for the otherwise applicable FEL.

(e) *Requests.* Submit your request to the Designated Compliance Officer. Include the following in your request:

(1) The engine family name and model year of the engines affected.

(2) A list of other engine families/model years that may be affected.

(3) The otherwise applicable FEL for the engine families along with your recommendations for higher in-use FELs.

(4) Your source of credits for forfeiture.

(f) *Relation to recall.* You may not request higher in-use FELs for any engine families for which we have made a determination of nonconformance and ordered a recall. You may, however, make such requests for engine families for which you are performing a voluntary emission recall.

(g) *Approval.* We may approve your request if we determine that you meet the requirements of this section and such approval is in the public interest. We may include appropriate conditions with our approval or we may approve your request with modifications.

Subpart H—Averaging, Banking, and Trading for Certification

§ 1036.701 General provisions.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart and in subpart B of this part to show compliance with the standards of § 1036.108. Participation in this program is voluntary. (Note: As described in subpart B of this part, you must assign an FCL to all engine families, whether or not they participate in the ABT provisions of this subpart.)

(b) [Reserved]

(c) 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 in which emission credits may be exchanged. Credits generated by one engine may only be used by other engines in the same averaging set. See § 1036.740.

(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) *Reserved emission credits* means emission credits you have generated that we have not yet verified by reviewing your final report.

(6) *Seller* means the entity that provides emission credits during a trade.

(7) *Standard* means the emission standard that applies under subpart B of this part for engines not participating in the ABT program of this subpart.

(8) *Trade* means to exchange emission credits, either as a buyer or seller.

(d) Emission credits may be exchanged only within an averaging set as specified in § 1036.740.

(e) You may not use emission credits generated under this subpart to offset any emissions that exceed an FCL or standard. This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing. However, if emissions from an engine exceed an FCL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FCL that applies only to future production.

(f) Emission credits may be used in the model year they are generated. Surplus emission credits may be banked for future model years. Surplus emission credits may sometimes be used for past model years, as described in § 1036.745.

(g) You may increase or decrease an FCL during the model year by amending your application for certification under § 1036.225. The new FCL may apply only to engines you have not already introduced into commerce.

(h) You may trade emission credits generated from any number of your engines to the engine purchasers or other parties to retire the credits. Identify any such credits in the reports described in § 1036.730. Engines must comply with the applicable FELs even if you donate or sell the corresponding emission credits under this paragraph (h). Those credits may no longer be

used by anyone to demonstrate compliance with any EPA emission standards.

(i) See § 1036.740 for special credit provisions that apply for credits generated under § 1036.615 or 40 CFR 1037.104(d)(7) or 1037.615.

(j) Unless the regulations explicitly allow it, you may not calculate credits more than once for any emission reduction. For example, if you generate CO_2 emission credits for a hybrid engine under this part for a given vehicle, no one may generate CO_2 emission credits for that same hybrid engine and vehicle under 40 CFR part 1037. However, credits could be generated for identical vehicles using engines that did not generate credits under this part.

§ 1036.705 Generating and calculating emission credits.

(a) The provisions of this section apply separately for calculating emission credits for each pollutant.

(b) For each participating family, calculate positive or negative emission credits relative to the otherwise applicable emission standard based on the engine family's FCL for greenhouse gases. If your engine family is certified to both the vocational and tractor engine standards, calculate credits separately for the vocational engines and the tractor engines (as specified in paragraph (b)(3) of this section). Calculate positive emission credits for a family that has an FCL below the standard. Calculate negative emission credits for a family that has an FCL above the standard.

Sum your positive and negative credits for the model year before rounding. Round the sum of emission credits to the nearest megagram (Mg), using consistent units throughout the following equations:

(1) For vocational engines:

$$\text{Emission credits (Mg)} = (\text{Std} - \text{FCL}) \cdot (\text{CF}) \cdot (\text{Volume}) \cdot (\text{UL}) \cdot (10^{-6})$$

Where:

Std = the emission standard, in g/hp-hr, that applies under subpart B of this part for engines not participating in the ABT program of this subpart (the ''otherwise applicable standard'').

FCL = the Family Certification Level for the engine family, in g/hp-hr, measured over the transient duty cycle, rounded to the same number of decimal places as the emission standard.

CF = a transient cycle conversion factor (hp-hr/mile), calculated by dividing the total (integrated) horsepower-hour over the duty cycle (average of vocational engine configurations weighted by their production volumes) by 6.3 miles for spark-ignition engines and 6.5 miles for compression-ignition engines. This represents the average work performed by vocational engines in the family over the mileage represented by operation over the duty cycle.

Volume = the number of vocational engines eligible to participate in the averaging, banking, and trading program within the given engine family during the model year, as described in paragraph (c) of this section.

UL = the useful life for the given engine family, in miles.

(2) For tractor engines:

$$\text{Emission credits (Mg)} = (\text{Std} - \text{FCL}) \cdot (\text{CF}) \cdot (\text{Volume}) \cdot (\text{UL}) \cdot (10^{-6})$$

Where:

Std = the emission standard, in g/hp-hr, that applies under subpart B of this part for engines not participating in the ABT program of this subpart (the ''otherwise applicable standard'').

FCL = the Family Certification Level for the engine family, in g/hp-hr, measured over the SET duty cycle rounded to the same number of decimal places as the emission standard.

CF = a transient cycle conversion factor (hp-hr/mile), calculated by dividing the total (integrated) horsepower-hour over the duty cycle (average of tractor-engine configurations weighted by their production volumes) by 6.3 miles for spark-ignition engines and 6.5 miles for compression-ignition engines. This represents the average work performed by tractor engines in the family over the mileage represented by operation over the duty cycle. Note that this calculation requires you to use the transient cycle conversion factor even for engines certified to SET-based standards. Volume = the number of tractor engines eligible to participate in the averaging, banking, and trading program within the given engine family during the model year, as described in paragraph (c) of this section.

UL = the useful life for the given engine family, in miles.

(3) For engine families certified to both the vocational and tractor engine standards, we may allow you to use statistical methods to estimate the total production volumes where a small fraction of the engines cannot be tracked precisely.

(4) You may not generate emission credits for tractor engines (*i.e.*, engines not certified to the transient cycle for

CO_2) installed in vocational vehicles (including vocational tractors certified pursuant to 40 CFR 1037.630 or exempted pursuant to 40 CFR 1037.631). We will waive this requirement where you demonstrate that less than five percent of the engines in your tractor family were installed in vocational vehicles. For example, if you know that 96 percent of your tractor engines were installed in non-vocational tractors, but cannot determine the vehicle type for the remaining four percent, you may generate credits for all the engines in the family.

(c) As described in § 1036.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual U.S.-directed production volumes. Keep appropriate records to document these production volumes. Do not include any of the following engines to calculate emission credits:

(1) Engines that you do not certify to the CO_2 standards of this part because they are permanently exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported engines.

(3) Engines not subject to the requirements of this part, such as those excluded under § 1036.5. For example, do not include engines used in vehicles certified to the greenhouse gas standards of 40 CFR 1037.104.

(4) [Reserved]

(5) Any other engines if we indicate elsewhere in this part 1036 that they are not to be included in the calculations of this subpart.

(d) You may use CO_2 emission credits to show compliance with CH_4 and/or N_2O FELs instead of the otherwise applicable emission standards. To do this, calculate the CH_4 and/or N_2O emission credits needed (negative credits) using the equation in paragraph (b) of this section, using the FEL(s) you specify for your engines during certification instead of the FCL. You must use 25 Mg of positive CO_2 credits to offset 1 Mg of negative CH_4 credits. You must use 298 Mg of positive CO_2 credits to offset 1 Mg of negative N_2O credits.

§ 1036.710 Averaging.

(a) Averaging is the exchange of emission credits among your engine families. You may average emission credits only within the same averaging set.

(b) You may certify one or more engine families to an FCL above the applicable standard, subject to any applicable FEL caps and other the 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, or that a negative balance is allowed under § 1036.745.

(c) If you certify an engine family to an FCL that exceeds the otherwise applicable standard, you must obtain enough emission credits to offset the engine family's deficit by the due date for the final report required in § 1036.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model year (or from later model years as specified in § 1036.745), from emission credits you have banked, or from emission credits you obtain through trading.

§ 1036.715 Banking.

(a) Banking is the retention of surplus emission credits by the manufacturer generating the emission credits for use in future model years for averaging or trading.

(b) You may designate any emission credits you plan to bank in the reports you submit under § 1036.730 as reserved credits. 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.

(d) Banked credits retain the designation of the averaging set in which they were generated.

§ 1036.720 Trading.

(a) Trading is the exchange of emission credits between manufacturers, or the transfer of credits to another party to retire them. You may use traded

emission credits for averaging, banking, or further trading transactions. Traded emission credits remain subject to the averaging-set restrictions based on the averaging set in which they were generated.

(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.

(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 § 1036.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer having a negative balance of emission credits. See § 1036.745.

§ 1036.725 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 engine family that will be certified using the ABT program. You must also declare the FELs/FCL you select for the engine 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/FCL must be expressed to the same number of decimal places as the applicable standards.

(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; or a statement that you will have a negative balance of emission credits for one or more averaging sets, but that it is allowed under § 1036.745.

(2) Detailed calculations of projected emission credits (positive or negative) based on projected U.S.-directed production volumes. We may require you to include similar calculations from your other engine families to project your net credit balances 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.

§ 1036.730 ABT reports.

(a) If any of your engine 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.

(b) Your end-of-year and final reports must include the following information for each engine family participating in the ABT program:

(1) Engine-family designation and averaging set.

(2) The emission standards that would otherwise apply to the engine family.

(3) The FCL for each pollutant. If you change the FCL after the start of production, identify the date that you started using the new FCL and/or give the engine identification number for the first engine covered by the new FCL. In this case, identify each applicable FCL and calculate the positive or negative emission credits as specified in § 1036.225.

(4) The projected and actual U.S.-directed production volumes for the model year. If you changed an FCL during the model year, identify the actual production volume associated with each FCL.

(5) The transient cycle conversion factor for each engine configuration as described in § 1036.705.

(6) Useful life.

(7) Calculated positive or negative emission credits for the whole engine 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 engine families in each averaging set in the applicable model year is not negative, except as allowed under § 1036.745.

(2) State whether you will reserve 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 engine 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 engine 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.

§ 1036.735 Recordkeeping.

(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 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 §§ 1036.725 and 1036.730.

(d) Keep records of the engine identification number (usually the serial number) for each engine 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 FCL and the range of engine identification numbers associated with each FCL. You must also identify the purchaser and destination for each engine you produce to the extent this information is available.

(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.

§ 1036.740 Restrictions for using emission credits.

The following restrictions apply for using emission credits:

(a) *Averaging sets.* Except as specified in paragraph (c) of this section, emission credits may be exchanged only within an following averaging sets There are four principal averaging sets for engines subject to this subpart:

(1) Spark-ignition engines.

(2) Compression-ignition light heavy-duty engines.

(3) Compression-ignition medium heavy-duty engines.

(4) Compression-ignition heavy heavy-duty engines.

(b) *Applying credits to prior year deficits.* Where your credit balance for the

previous year is negative, you may apply credits to that credit deficit only after meeting your credit obligations for the current year.

(c) *Credits from hybrid engines and other advanced technologies.* The averaging set restrictions of paragraph (a) of this section do not apply for credits generated under § 1036.615 or 40 CFR 1037.104(d)(7) or 1037.615 from hybrid power systems with regenerative braking, or from other advanced technologies. Such credits may also be used under 40 CFR part 1037.

(1) The maximum amount of credits you may bring into the following service class groups is 60,000 Mg per model year:

(i) Spark-ignition engines, light heavy-duty compression-ignition engines, and light heavy-duty vehicles. This group comprises the averaging sets listed in paragraphs (a)(1) and (2) of this section and the averaging set listed in 40 CFR 1037.740(a)(1).

(ii) Medium heavy-duty compression-ignition engines and medium heavy-duty vehicles. This group comprises the averaging sets listed in paragraph (a)(3) of this section and 40 CFR 1037.740(a)(2).

(iii) Heavy heavy-duty compression-ignition engines and heavy heavy-duty vehicles. This group comprises the averaging sets listed in paragraph (a)(4) of this section and 40 CFR 1037.740(a)(3).

(2) The limit specified in paragraph (c)(1) of this section does not limit the amount of advanced technology credits that can be used within a service class group if they were generated in that same service class group.

(d) *Credit life.* Credits expire after five years.

(e) *Other restrictions.* Other sections of this part specify additional restrictions for using emission credits under certain special provisions.

§ 1036.745 End-of-year CO_2 credit deficits.

Except as allowed by this section, we may void the certificate of any engine family certified to an FCL above the applicable standard for which you do not have sufficient credits by the deadline for submitting the final report.

(a) Your certificate for an engine family for which you do not have sufficient CO_2 credits will not be void if you remedy the deficit with surplus credits within three model years. For example, if you have a credit deficit of 500 Mg for an engine family at the end of model year 2015, you must generate (or otherwise obtain) a surplus of at least 500 Mg in that same averaging set by the end of model year 2018.

(b) You may not bank or trade away CO_2 credits in the averaging set in any model year in which you have a deficit.

(c) You may apply only surplus credits to your deficit. You may not apply credits to a deficit from an earlier model year if they were generated in a model year for which any of your engine families for that averaging set had an end-of-year credit deficit.

(d) If you do not remedy the deficit with surplus credits within three model years, we may void your certificate for that engine family. We may void the certificate based on your end-of-year report. Note that voiding a certificate applies *ab initio*. Where the net deficit is less than the total amount of negative credits originally generated by the family, we will void the certificate only with respect to the number of engines needed to reach the amount of the net deficit. For example, if the original engine family generated 500 Mg of negative credits, and the manufacturer's net deficit after three years was 250 Mg, we would void the certificate with respect to half of the engines in the family.

§ 1036.750 What can happen if I do not comply with the provisions of this subpart?

(a) For each engine family participating in the ABT program, the certificate of conformity is conditioned 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 an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FCL above an applicable standard based on a projection that you will have enough emission credits

to offset the deficit for the engine family. See § 1036.745 for provisions specifying what happens if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in an engine family.

(c) We may void the certificate of conformity for an engine family if you fail to keep records, send reports, or give us information we request. Note that failing to keep records, send reports, or give us information we request is also a violation of 42 U.S.C. 7522(a)(2).

(d) You may ask for a hearing if we void your certificate under this section (see § 1036.820).

§ 1036.755 Information provided to the Department of Transportation.

After receipt of each manufacturer's final report as specified in § 1036.730 and completion of any verification testing required to validate the manufacturer's submitted final data, we will issue a report to the Department of Transportation with CO_2 emission information and will verify the accuracy of each manufacturer's equivalent fuel consumption data that required by NHTSA under 49 CFR 535.8. We will send a report to DOT for each engine manufacturer based on each regulatory category and subcategory, including sufficient information for NHTSA to determine fuel consumption and associated credit values. See 49 CFR 535.8 to determine if NHTSA deems submission of this information to EPA to also be a submission to NHTSA.

Subpart I—Definitions and Other Reference Information

§ 1036.801 Definitions.

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. 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.

Adjustable parameter has the meaning given in 40 CFR part 86.

Advanced technology means technology certified under § 1036.615, 40 CFR 1037.104(d)(7) or 1037.615.

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) and turbochargers are not aftertreatment.

Aircraft means any vehicle capable of sustained air travel above treetop heights.

Alcohol-fueled engine mean 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.

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.

Averaging set has the meaning given in § 1036.740.

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 § 1036.235(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 the applicable transient and/or steady-state testing, rounded to the same number of decimal places as the applicable standard. Note that you may have two certified emission levels for CO_2 if you certify a family for both vocational and tractor use.

Complete vehicle means a vehicle meeting the definition of complete vehicle in 40 CFR 1037.801 when it is first sold as a vehicle. For example, where a

vehicle manufacturer sells an incomplete vehicle to a secondary manufacturer, the vehicle is not a complete vehicle under this part, even after its final assembly.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition 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.

Criteria pollutants means emissions of NO_X, HC, PM, and CO. Note that these pollutants are also sometimes described collectively as ''non-greenhouse gas pollutants'', although they do not necessarily have negligible global warming potentials.

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. Note that where no deterioration factor applies, references in this part to the *deteriorated emission level* mean the official emission result.

Deterioration factor means the relationship between emissions at the end of useful life (or point of highest emissions if it occurs before the end of useful life) and emissions at the low-hour/low-mileage test point, expressed in one of the following ways:

(1) For multiplicative deterioration factors, the ratio of emissions at the end of useful life (or point of highest emissions) to emissions at the low-hour test point.

(2) For additive deterioration factors, the difference between emissions at the end of useful life (or point of highest emissions) and emissions at the low-hour test point.

Dual-fuel means relating to an engine designed for operation on two different types of fuel 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 configuration means a unique combination of engine hardware and calibration (related to the emission standards) within an engine family. Engines within a single engine configuration differ only with respect to normal production variability or factors unrelated to compliance with emission standards.

Engine family has the meaning given in § 1036.230.

Excluded means relating to engines that are not subject to some or all of the requirements of this part as follows:

(1) An engine that has been determined not to be a heavy-duty engine is excluded from this part.

(2) Certain heavy-duty engines are excluded from the requirements of this part under § 1036.5.

(3) Specific regulatory provisions of this part may exclude a heavy-duty engine generally subject to this part from one or more specific standards or requirements of this part.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation 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 certification level (FCL) means a CO_2 emission level declared by the manufacturer that is at or above emission test results for all emission-data engines. The FCL serves as the emission standard for the engine family with respect to certification testing if it is different than the otherwise applicable standard. The FCL must be expressed to the same number of decimal places as the emission standard it replaces.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard (other than CO_2 standards) under the ABT program in subpart H of this part. The FEL must be expressed to the same number of decimal places as the emission standard it replaces. The FEL serves as the emission standard for the engine family with respect to all required testing except certification testing for CO_2. The CO_2 FEL is equal to the CO_2 FCL multiplied by 1.03 and rounded to the same number of decimal places as the standard (*e.g.*, the nearest whole g/hp-hr for the 2016 CO_2 standards).

Flexible-fuel means relating to an engine designed for operation on any mixture of two or more different types of fuels.

Fuel type means a general category of fuels such as diesel fuel, 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.

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.

Greenhouse gas pollutants and *greenhouse gases* means compounds regulated under this part based primarily on their impact on the climate. This includes CO_2, CH_4, and N_2O.

Gross vehicle weight rating (GVWR) means the value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle, consistent with good engineering judgment.

Heavy-duty engine means any engine which the engine manufacturer could reasonably expect to be used for motive power in a heavy-duty vehicle. For purposes of this definition in this part, the term ''engine'' includes internal combustion engines and other devices that convert chemical fuel into motive power. For example, a fuel cell used in a heavy-duty vehicle is a heavy-duty engine.

Heavy-duty vehicle means any motor vehicle above 8,500 pounds GVWR or that has a vehicle curb weight above 6,000 pounds or that has a basic vehicle frontal area greater than 45 square feet. *Curb weight* has the meaning given in 40 CFR 86.1803, consistent with the provisions of 40 CFR 1037.140. *Basic vehicle frontal area* has the meaning given in 40 CFR 86.1803.

Hybrid engine or *hybrid powertrain* means an engine or powertrain that includes energy storage features other than a conventional battery system or conventional flywheel. Supplemental electrical batteries and hydraulic accumulators are examples of hybrid energy storage systems. Note that certain provisions in this part treat hybrid engines and powertrains intended for vehicles that include regenerative braking differently than those intended for vehicles that do not include regenerative braking.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type. For alcohol-fueled engines, HC means nonmethane hydrocarbon equivalent (NMHCE). For all other engines, HC means nonmethane hydrocarbon (NMHC).

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.

Incomplete vehicle means a vehicle meeting the definition of incomplete vehicle in 40 CFR 1037.801 when it is first sold as a vehicle.

Innovative technology means technology certified under § 1036.610.

Liquefied petroleum gas (LPG) means a liquid hydrocarbon fuel that is stored under pressure and is composed primarily of nonmethane compounds that are gases at atmospheric conditions.

Low-hour means relating to an engine that has stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 125 hours of operation.

Manufacture means the physical and engineering process of designing, constructing, and/or assembling a heavy-duty engine or a heavy-duty vehicle.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures an engine, vehicle, or piece of equipment for sale in the United States or otherwise introduces a new engine into commerce in the United States. This includes importers who import engines or vehicles for resale.

Medium-duty passenger vehicle has the meaning given in 40 CFR 86.1803.

Model year means the manufacturer's annual new model production period, except as restricted under this definition. It must include January 1 of the calendar year for which the model year is named, may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year. Manufacturers may not adjust model years to circumvent or delay compliance with emission standards or to avoid the obligation to certify annually.

Motor vehicle has the meaning given in 40 CFR 85.1703.

Natural gas means a fuel whose primary constituent is methane.

New motor vehicle engine means a motor vehicle engine meeting the criteria of either paragraph (1) or (2) of this definition.

(1) A motor vehicle engine for which the ultimate purchaser has never received the equitable or legal title is a *new motor vehicle engine*. This kind of engine might commonly be thought of as ''brand new'' although a *new motor vehicle engine* may include previously used parts. Under this definition, the engine is new from the time it is produced until the ultimate purchaser receives the title or places it into service, whichever comes first.

(2) An imported motor vehicle engine is a *new motor vehicle engine* if it was originally built on or after January 1, 1970.

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 hydrocarbons (NMHC) means the sum of all hydrocarbon species except methane, as measured according to 40 CFR part 1065.

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, but after the applicability of any required regeneration adjustment factors.

Owner's manual means a document or collection of documents prepared by the engine or vehicle 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 owner's manual is typically provided to the ultimate purchaser at the time of sale.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Percent has the meaning given in 40 CFR 1065.1001. Note that this means percentages identified in this part are assumed to be infinitely precise without regard to the number of significant figures. For example, one percent of 1,493 is 14.93.

Petroleum means gasoline or diesel fuel or other fuels normally derived from crude oil. This does not include methane or LPG.

Placed into service means put into initial use for its intended purpose.

Preliminary approval means approval granted by an authorized EPA representative prior to submission of an application for certification, consistent with the provisions of § 1036.210.

Primary intended service class has the meaning given in § 1036.140.

Rated power has the meaning given in 40 CFR part 86.

Rechargeable Energy Storage System (RESS) means the component(s) of a hybrid engine or vehicle that store recovered energy for later use, such as

the battery system in an electric hybrid vehicle.

Revoke has the meaning given in 40 CFR 1068.30.

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 manufacturer means a manufacturer meeting the criteria specified in 13 CFR 121.201. For manufacturers owned by a parent company, the employee and revenue limits apply to the total number of employees and total revenue of the 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 has the meaning given in 40 CFR 1065.1001.

Suspend has the meaning given in 40 CFR 1068.30.

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.

Tractor means a vehicle meeting the definition of ''tractor'' in 40 CFR 1037.801, but not classified as a ''vocational tractor'' under 40 CFR 1037.630, or relating to such a vehicle.

Tractor engine means an engine certified for use in tractors. Where an engine family is certified for use in both tractors and vocational vehicles, ''tractor engine'' means an engine that the engine manufacturer reasonably believes will be (or has been) installed in a tractor. Note that the provisions of this part may require a manufacturer to document how it determines that an engine is a tractor engine.

Ultimate purchaser means, with respect to any new engine or vehicle, the first person who in good faith purchases such new engine or vehicle for purposes other than resale.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for an engine family the model year after the one currently in production.

U.S.-directed production volume means the number of engines, 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. This does not include engines certified to state emission standards that are different than the emission standards in this part.

Vehicle has the meaning given in 40 CFR 1037.801.

Vocational engine means an engine certified for use in vocational vehicles. Where an engine family is certified for use in both tractors and vocational vehicles, ''vocational engine'' means an engine that the engine manufacturer reasonably believes will be (or has been) installed in a vocational vehicle. Note that the provisions of this part may require a manufacturer to document how it determines that an engine is a vocational engine.

Vocational vehicle means a vehicle meeting the definition of ''vocational'' vehicle in 40 CFR 1037.801.

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.

[76 FR 57381, Sept. 15, 2011, as amended at 78 FR 36390, June 17, 2013]

§ 1036.805 Symbols, acronyms, and abbreviations.

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

ABT averaging, banking, and trading.

AECD auxiliary emission control device.

ASTM American Society for Testing and Materials.
BTU British thermal units.
CFR Code of Federal Regulations.
CH_4 methane.
CO carbon monoxide.
CO_2 carbon dioxide.
DF deterioration factor.
DOT Department of Transportation.
E85 gasoline blend including nominally 85 percent ethanol.
EPA Environmental Protection Agency.
FCL Family Certification Level.
FEL Family Emission Limit.
g/hp-hr grams per brake horsepower-hour.
GVWR gross vehicle weight rating.
HC hydrocarbon.
kg kilogram.
kgC kilogram carbon.
kW kilowatts.
lb pound.
lbC pound carbon.
LPG liquefied petroleum gas.
Mg megagrams (10^6 grams, or one metric ton).
MJ megajoules.
N_2O nitrous oxide.
NARA National Archives and Records Administration.
NHTSA National Highway Traffic Safety Administration.
NOx oxides of nitrogen (NO and NO_2).
NTE not-to-exceed.
PM particulate matter.
RESS rechargeable energy storage system.
RPM revolutions per minute.
SET Supplemental Emission Test (see 40 CFR 86.1362).
U.S. United States.
U.S.C. United States Code.

§ 1036.810 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Environmental Protection Agency must publish a notice of the change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460, (202) 202–1744, and is available from the sources listed below. It is also available for inspection 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*.

(b) American Society for Testing and Materials, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA, 19428–2959, (610) 832–9585, *http://www.astm.org/*.

(1) ASTM D 240–09 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, approved July 1, 2009, IBR approved for § 1036.530(b).

(2) ASTM D4809–09a Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), approved September 1, 2009, IBR approved for § 1036.530(b).

(3) ASTM D5291–10 Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants, approved May 1, 2010, IBR approved for § 1036.530(b).

§ 1036.815 Confidential information.

The provisions of 40 CFR 1068.10 apply for information you consider confidential.

§ 1036.820 Requesting 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.

§ 1036.825 Reporting and recordkeeping requirements.

(a) This part includes various requirements to submit and record data or other information. Unless we specify otherwise, store required records in any format and on any media and keep them readily available for eight years after you send an associated application for certification, or eight years after you generate the data if they do not support an application for certification. You may not rely on anyone else to meet recordkeeping requirements on your behalf unless we specifically authorize it. We may review these records at any time. You must promptly send us organized, written records in English if we ask for them. We may require you to submit written records in an electronic format.

(b) The regulations in § 1036.255 and 40 CFR 1068.25 and 1068.101 describe your obligation to report truthful and complete information. This includes information not related to certification. Failing to properly report information and keep the records we specify violates 40 CFR 1068.101(a)(2), which may involve civil or criminal penalties.

(c) Send all reports and requests for approval to the Designated Compliance Officer (see § 1036.801).

(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. Keep these records for eight years unless the regulations specify a different period. We may require you to send us these records whether or not you are a certificate holder.

(e) 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:

(1) We specify the following requirements related to engine certification in this part 1036:

(i) In § 1036.135 we require engine manufacturers to keep certain records related to duplicate labels sent to equipment manufacturers.

(ii) In subpart C of this part we identify a wide range of information required to certify engines.

(iii) 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.

(iv) In §§ 1036.725, 1036.730, and 1036.735 we specify certain records related to averaging, banking, and trading.

(2) We specify the following requirements related to testing in 40 CFR part 1066:

(i) In 40 CFR 1066.2 we give an overview of principles for reporting information.

(ii) [Reserved]

PART 1037—CONTROL OF EMISSIONS FROM NEW HEAVY-DUTY MOTOR VEHICLES

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APPENDIX I TO PART 1037—HEAVY-DUTY TRANSIENT CHASSIS TEST CYCLE
APPENDIX II TO PART 1037—POWER TAKE-OFF TEST CYCLE
APPENDIX III TO PART 1037—EMISSION CONTROL IDENTIFIERS

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SOURCE: 76 FR 57398, Sept. 15, 2011, unless otherwise noted.

Subpart A—Overview and Applicability

§ 1037.1 Applicability

This part contains standards and other regulations applicable to the emission of the air pollutant defined as the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perflurocarbons, and sulfur hexafluoride. The regulations in this part 1037 apply for all new heavy-duty vehicles, except as provided in § 1037.5. This includes electric vehicles and vehicles fueled by conventional and alternative fuels.

§ 1037.5 Excluded vehicles.

Except for the definitions specified in § 1037.801, this part does not apply to the following vehicles:

(a) Vehicles not meeting the definition of ''motor vehicle''.

(b) Vehicles excluded from the definition of ''heavy-duty vehicle'' in § 1037.801 because of vehicle weight, weight rating, and frontal area (such as

light-duty vehicles and light-duty trucks).

(c) Medium-duty passenger vehicles.

(d) Vehicles produced in model years before 2014, unless they are certified under § 1037.150.

(e) Vehicles subject to the light-duty greenhouse gas standards of 40 CFR part 86. See 40 CFR 86.1818 for greenhouse gas standards that apply for these vehicles. An example of such a vehicle would be a vehicle meeting the definition of ''heavy-duty vehicle'' in § 1037.801 and 40 CFR 86.1803, but also meeting the definition of ''light truck'' in 40 CFR 86.1818–12(b)(2).

§ 1037.10 How is this part organized?

This part 1037 is divided into subparts as described in this section. Note that only subparts A, B, and I of this part apply for vehicles subject to the standards of § 1037.104, as described in that section.

(a) Subpart A of this part defines the applicability of part 1037 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 vehicles under this part. Note that § 1037.150 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 for vehicles subject to the standards of § 1037.105 or § 1037.106.

(d) [Reserved]

(e) Subpart E of this part addresses testing of in-use vehicles.

(f) Subpart F of this part describes how to test your vehicles and perform emission modeling (including references to other parts of the Code of Federal Regulations) for vehicles subject to the standards of § 1037.105 or § 1037.106.

(g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to manufacturers, owners, operators, rebuilders, and all others. Section 1037.601 describes how 40 CFR part 1068 applies for heavy-duty vehicles.

(h) Subpart H of this part describes how you may generate and use emission credits to certify vehicles that are subject to the standards of § 1037.105 or § 1037.106.

(i) Subpart I of this part contains definitions and other reference information.

§ 1037.15 Do any other regulation parts apply to me?

(a) Parts 1065 and 1066 of this chapter describe procedures and equipment specifications for testing engines and vehicles to measure exhaust emissions. Subpart F of this part 1037 describes how to apply the provisions of part 1065 and part 1066 of this chapter to determine whether vehicles meet the exhaust emission standards in this part.

(b) As described in § 1037.601, certain 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 vehicles subject to this part 1037. Part 1068 of this chapter describes general provisions that apply broadly, but do not necessarily apply for all vehicles or all persons. The issues addressed by these provisions include these seven areas:

(1) Prohibited acts and penalties for manufacturers and others.

(2) Rebuilding and other aftermarket changes.

(3) Exclusions and exemptions for certain vehicles.

(4) Importing vehicles.

(5) Selective enforcement audits of your production.

(6) Recall.

(7) Procedures for hearings.

(c) Part 86 of this chapter applies for certain vehicles as specified in this part. For example, the test procedures and most of part 86, subpart S, apply for vehicles subject to § 1037.104; including the following paragraphs of 40 CFR 86.1865–12 apply: (a), (h)(1), (h)(3), (j)(1), (j)(4), (k)(1) through (4), (k)(7)(ii), (k)(8), (k)(9), (l)(1), (l)(2)(i), (l)(2)(ii), (l)(2)(vi) through (viii), and (l)(3).

(d) Other parts of this chapter apply if referenced in this part.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36390, June 17, 2013]

§ 1037.30 Submission of information.

Send all reports and requests for approval to the Designated Compliance Officer (see § 1037.801). See § 1037.825 for

additional reporting and recordkeeping provisions.

Subpart B—Emission Standards and Related Requirements

§ 1037.101 Overview of emission standards for heavy-duty vehicles.

(a) This part specifies emission standards for certain vehicles and for certain pollutants. It also summarizes other standards that apply under 40 CFR part 86. This part contains standards and other regulations applicable to the emission of the air pollutant defined as the aggregate group of six greenhouse gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perflurocarbons, and sulfur hexafluoride.

(b) The regulated emissions are addressed in four groups:

(1) Exhaust emissions of NO_X, HC, PM, and CO. These pollutants are sometimes described collectively as ''criteria pollutants'' because they are either criteria pollutants under the Clean Air Act or precursors to the criteria pollutant ozone. These pollutants are also sometimes described collectively as ''non-greenhouse gas pollutants'', although they do not necessarily have negligible global warming potential. As described in § 1037.102, standards for these pollutants are provided in 40 CFR part 86.

(2) Exhaust emissions of CO_2, CH_4, and N_2O. These pollutants are described collectively in this part as ''greenhouse gas pollutants'' because they are regulated primarily based on their impact on the climate. These standards are provided in §§ 1037.104 through 1037.106.

(3) Hydrofluorocarbons. These pollutants are also ''greenhouse gas pollutants'' but are treated separately from exhaust greenhouse gas pollutants listed in paragraph (b)(2) of this section. These standards are provided in § 1037.115.

(4) *Fuel evaporative emissions*. These requirements are described in 40 CFR part 86 and § 1037.103.

(c) The regulated heavy-duty vehicles are addressed in different groups as follows:

(1) For criteria pollutants, vehicles are regulated based on gross vehicle weight rating (GVWR), whether they are considered ''spark-ignition'' or ''compression-ignition,'' and whether they are first sold as complete or incomplete vehicles. These groupings apply as described in 40 CFR part 86.

(2) For greenhouse gas pollutants, vehicles are regulated in the following groups:

(i) Complete and certain incomplete vehicles at or below 14,000 pounds GVWR (see § 1037.104 for further specification). Certain provisions of 40 CFR part 86 apply for these vehicles; see § 1037.104(h) for a list of provisions in this part 1037 that also apply for these vehicles. These provisions may also be optionally applied to certain other vehicles, as described in § 1037.104.

(ii) Tractors above 26,000 pounds GVWR.

(iii) All other vehicles subject to standards under this part. These other vehicles are referred to as ''vocational'' vehicles.

(3) For evaporative and refueling emissions, vehicles are regulated based on the type of fuel they use. Vehicles fueled with volatile liquid fuels or gaseous fuels are subject to evaporative emission standards. Vehicles up to a certain size that are fueled with gasoline, diesel fuel, ethanol, methanol, or LPG are subject to refueling emission standards.

[76 FR 57398, Sept. 15, 2011, as amended at 79 FR 23749, Apr. 28, 2014]

§ 1037.102 Exhaust emission standards for NO_X, HC, PM, and CO.

See 40 CFR part 86 for the exhaust emission standards for NO_X, HC, PM, and CO that apply for heavy-duty vehicles.

§ 1037.103 Evaporative and refueling emission standards.

(a) *Applicability*. Evaporative and refueling emission standards apply to heavy-duty vehicles as follows:

(1) Complete and incomplete heavy-duty vehicles at or below 14,000 pounds GVWR must meet evaporative and refueling emission standards as specified in 40 CFR part 86, subpart S, instead of the requirements specified in this section.

(2) Heavy-duty vehicles above 14,000 pounds GVWR that run on volatile liquid fuel (such as gasoline or ethanol) or gaseous fuel (such as natural gas or LPG) must meet evaporative and refueling emission standards as specified in this section.

(b) *Emission standards.* The evaporative and refueling emission standards and measurement procedures specified in 40 CFR 86.1813 apply for vehicles above 14,000 pounds GVWR, except as described in this section. The evaporative emission standards phase in over model years 2018 through 2022, with provisions allowing for voluntary compliance with the standards as early as model year 2015. Count vehicles subject to standards under this section the same as heavy-duty vehicles at or below 14,000 pounds GVWR to comply with the phase-in requirements specified in 40 CFR 86.1813. These vehicles may generate and use emission credits as described in 40 CFR part 86, subpart S, but only for vehicles that are tested for certification instead of relying on the provisions of paragraph (c) of this section. The following provisions apply instead of what is specified in 40 CFR 86.1813:

(1) The refueling standards in 40 CFR 86.1813(b) apply to complete vehicles starting in model year 2022; they are optional for incomplete vehicles.

(2) The leak standard in 40 CFR 86.1813(a)(4) does not apply.

(3) The FEL cap relative to the diurnal plus hot soak standard for low-altitude testing is 1.9 grams per test.

(4) The diurnal plus hot soak standard for high-altitude testing is 2.3 grams per test.

(5) Testing does not require measurement of exhaust emissions. Disregard references in subpart B of this part to procedures, equipment specifications, and recordkeeping related to measuring exhaust emissions. All references to the exhaust test under 40 CFR part 86, subpart B, are considered the ''dynamometer run'' as part of the evaporative testing sequence under this subpart.

(6) Vehicles not yet subject to the Tier 3 standards in 40 CFR 86.1813 must meet evaporative emission standards as specified in §§ 86.008–10(b)(1) and (2) for Otto-cycle applications and 86.007–11(b)(3)(ii) and (b)(4)(ii) for diesel-cycle applications.

(c) *Compliance demonstration.* You may provide a statement in the application for certification that vehicles above 14,000 pounds GVWR comply with evaporative and refueling emission standards instead of submitting test data if you include an engineering analysis describing how vehicles include design parameters, equipment, operating controls, or other elements of design that adequately demonstrate that vehicles comply with the standards. We would expect emission control components and systems to exhibit a comparable degree of control relative to vehicles that comply based on testing. For example, vehicles that comply under this paragraph (c) should rely on comparable material specifications to limit fuel permeation, and components should be sized and calibrated to correspond with the appropriate fuel capacities, fuel flow rates, purge strategies, and other vehicle operating characteristics. You may alternatively show that design parameters are comparable to those for vehicles at or below 14,000 pounds GVWR certified under 40 CFR part 86, subpart S.

(d) *CNG refueling requirement.* Compressed natural gas vehicles must meet the requirements for fueling connection devices as specified in 40 CFR 86.1813–17(f)(1). Vehicles meeting these requirements are deemed to comply with evaporative and refueling emission standards.

(e) *Incomplete vehicles.* If you sell incomplete vehicles, you must identify the maximum fuel tank capacity for which you designed the vehicle's evaporative emission control system.

(f) *Useful life.* Your vehicles must meet the evaporative emission standards of this section throughout their useful life, expressed in service miles or calendar years, whichever comes first. The useful life values for the standards of this section are described in 40 CFR 86.1805.

(g) *Auxiliary engines and separate fuel systems.* The provisions of this paragraph (g) apply for vehicles with auxiliary engines. This includes any engines installed in the final vehicle configuration that contribute no motive power through the vehicle's transmission.

(1) Auxiliary engines and associated fuel-system components must be installed when testing complete vehicles. If the auxiliary engine draws fuel from a separate fuel tank, you must fill the extra fuel tank before the start of diurnal testing as described for the vehicle's main fuel tank. Use good engineering judgment to ensure that any nonmetal portions of the fuel system related to the auxiliary engine have reached stabilized levels of permeation emissions. The auxiliary engine must not operate during the running loss test or any other portion of testing under this section.

(2) For testing with incomplete vehicles, you may omit installation of auxiliary engines and associated fuel-system components as long as those components installed in the final configuration are certified to meet the applicable emission standards for Small SI equipment described in 40 CFR 1054.112 or for Large SI engines in 40 CFR 1048.105. For any fuel-system components that you do not install, your installation instructions must describe this certification requirement.

[79 FR 23749, Apr. 28, 2014, as amended at 80 FR 9111, Feb. 19, 2015]

§ 1037.104 Exhaust emission standards for CO_2, CH_4, and N_2O for heavy-duty vehicles at or below 14,000 pounds GVWR.

This section applies for heavy-duty vehicles at or below 14,000 pounds GVWR. See paragraph (f) of this section and § 1037.150 of this section for provisions excluding certain vehicles from this section, and allowing other vehicles to be certified under this section.

(a) *Fleet-average CO_2 emission standards.* Fleet-average CO_2 emission standards apply for each manufacturer as follows:

(1) Calculate a work factor, WF, for each vehicle subconfiguration (or group of subconfigurations allowed under paragraph (a)(4) of this section), rounded to the nearest pound, using the following equation:

$$WF = 0.75 \times (GVWR - \text{Curb Weight} + xwd) + 0.25 \times (GCWR - GVWR)$$

Where:

xwd = 500 pounds if the vehicle has four-wheel drive or all-wheel drive; xwd = 0 pounds for all other vehicles.

(2) Using the appropriate work factor, calculate a target value for each vehicle subconfiguration (or group of subconfigurations allowed under paragraph (a)(4) of this section) you produce using one of the following equations, or the phase-in provisions in § 1037.150(b), rounding to the nearest 0.1 g/mile:

(i) For spark-ignition vehicles: CO_2 Target (g/mile) = $0.0440 \times WF + 339$

(ii) For compression-ignition vehicles and vehicles that operate without engines (such as electric vehicles and fuel cell vehicles): CO_2 Target (g/mile) = $0.0416 \times WF + 320$

(3) Calculate a production-weighted average of the target values and round it to the nearest 0.1 g/mile. This is your fleet-average standard. All vehicles subject to the standards of this section form a single averaging set. Use the following equation to calculate your fleet-average standard from the target value for each vehicle subconfiguration ($Target_i$) and U.S.-directed production volume of each vehicle subconfiguration for the given model year ($Volume_i$):

$$\text{Fleet-Average Standard} = \frac{\sum[\text{Target}_i \times \text{Volume}_i]}{\sum[\text{Volume}_i]}$$

(4) You may group subconfigurations within a configuration together for purposes of calculating your fleet-average standard as follows:

(i) You may group together subconfigurations that have the same equivalent test weight (ETW), GVWR, and GCWR. Calculate your work factor and target value assuming a curb

weight equal to two times ETW minus GVWR.

(ii) You may group together other subconfigurations if you use the lowest target value calculated for any of the subconfigurations.

(b) *Production and in-use CO_2 standards.* Each vehicle you produce that is subject to the standards of this section has an ''in-use'' CO_2 standard that is calculated from your test result and that applies for selective enforcement audits and in-use testing. This in-use CO_2 standard for each vehicle is equal to the applicable deteriorated emission level multiplied by 1.10 and rounded to the nearest 0.1 g/mile.

(c) *N_2O and CH_4 standards.* Except as allowed under this paragraph (c), all vehicles subject to the standards of this section must comply with an N_2O standard of 0.05 g/mile and a CH_4 standard of 0.05 g/mile. You may specify CH_4 and/or N_2O alternate standards using CO_2 emission credits instead of these otherwise applicable emission standards for one or more test groups, consistent with the provisions of 40 CFR 86.1818. To do this, calculate the CH_4 and/or N_2O emission credits needed (negative credits) using the equation in this paragraph (c) based on the FEL(s) you specify for your vehicles during certification. You must adjust the calculated emissions by the global warming potential (GWP): GWP equals 25 for CH_4 and 298 for N_2O. This means you must use 25 Mg of positive CO_2 credits to offset 1 Mg of negative CH_4 credits and 298 Mg of positive CO_2 credits to offset 1 Mg of negative N_2O credits. Note that 40 CFR 86.1818–12(f) does not apply for vehicles subject to the standards of this section. Calculate credits using the following equation:

$$CO_2 \text{ Credits Needed (Mg)} = [(\text{FEL—Std}) \times (\text{U.S.-directed production volume}) \times (\text{Useful Life})] \times (\text{GWP}) \div 1{,}000{,}000$$

(d) *Compliance provisions.* Except as specified in this paragraph (d) or elsewhere in this section, the provisions of 40 CFR part 86, describing compliance with the greenhouse gas standards of 40 CFR part 86, subpart S, apply with respect to the standards of paragraphs (a) through (c) of this section.

(1) The CO_2 standards of this section apply with respect to CO_2 emissions, not with respect to carbon-related exhaust emissions (CREE).

(2) The following general credit provisions apply:

(i) Credits you generate under this section may be used only to offset credit deficits under this section. You may bank credits for use in a future model year in which your average CO_2 level exceeds the standard. You may trade credits to another manufacturer according to 40 CFR 86.1865–12(k)(8). Before you bank or trade credits, you must apply any available credits to offset a deficit if the deadline to offset that credit deficit has not yet passed.

(ii) Vehicles subject to the standards of this section are included in a single greenhouse gas averaging set separate from any averaging set otherwise included in 40 CFR part 86.

(iii) Banked CO_2 credits keep their full value for five model years after the year in which they were generated. Unused credits expire at the end of this fifth model year.

(3) Special credit and incentive provisions related to flexible fuel vehicles and air conditioning in 40 CFR part 86 do not apply for vehicles subject to the standards of this section.

(4) The CO_2, N_2O, and CH_4 standards apply for a weighted average of the city (55%) and highway (45%) test cycle results. Note that this differs from the way the criteria pollutant standards apply for heavy-duty vehicles.

(5) Apply an additive deterioration factor of zero to measured CO_2 emissions unless good engineering judgment indicates that emissions are likely to deteriorate in use. Use good engineering judgment to develop separate deterioration factors for N_2O and CH_4.

(6) Credits are calculated using the useful life value (in miles) in place of ''vehicle lifetime miles'' specified in 40 CFR part 86, subpart S. Calculate a total credit or debit balance in a model year by adding credits and debits from 40 CFR 86.1865–12(k)(4), subtracting any CO_2-equivalent debits for N_2O or CH_4 calculated according to §1037.104(c), and adding any of the following credits:

(i) Advanced technology credits according to paragraph (d)(7) of this section and §1037.150(i).

(ii) Innovative technology credits according to paragraph (d)(13) of this section.

(iii) Early credits according to § 1037.150(a)(2).

(7) Credits generated from hybrid vehicles with regenerative braking or from vehicles with other advanced technologies may be used to show compliance with any standards of this part or 40 CFR part 1036, subject to the service class restrictions in § 1037.740. Include these vehicles in a separate fleet-average calculation (and exclude them from your conventional fleet-average calculation). You must first apply these advanced technology vehicle credits to any deficits for other vehicles in the averaging set before applying them to other averaging sets.

(8) The provisions of 40 CFR 86.1818 do not apply.

(9) Calculate your fleet-average emission rate consistent with good engineering judgment and the provisions of 40 CFR 86.1865. The following additional provisions apply:

(i) Unless we approve a lower number, you must test at least ten subconfigurations. If you produce more than 100 subconfigurations in a given model year, you must test at least ten percent of your subconfigurations. For purposes of this paragraph (d)(9)(i), count carryover tests, but do not include analytically derived CO_2 emission rates, data substitutions, or other untested allowances. We may approve a lower number of tests for manufacturers that have limited product offerings, or low sales volumes. Note that good engineering judgment and other provisions of this part may require you to test more subconfigurations than these minimum values.

(ii) The provisions of paragraph (g) of this section specify how you may use analytically derived CO_2 emission rates.

(iii) At least 90 percent of final production volume at the configuration level must be represented by test data (real, data substituted, or analytical).

(iv) Perform fleet-average CO_2 calculations as described in 40 CFR 86.1865 and 40 CFR part 600, with the following exceptions:

(A) Use CO_2 emissions values for all test results, intermediate calculations, and fleet average calculations instead of the carbon-related exhaust emission (CREE) values specified in 40 CFR parts 86 and 600.

(B) Perform intermediate CO_2 calculations for subconfigurations within each configuration using the subconfiguration and configuration definitions in paragraph (d)(12) of this section.

(C) Perform intermediate CO_2 calculations for configurations within each test group and transmission type (instead of configurations within each base level and base levels within each model type). Use the configuration definition in paragraph (d)(12)(i) of this section.

(D) Do not perform intermediate CO_2 calculations for each base level or for each model type. Base level and model type CO_2 calculations are not applicable to heavy-duty vehicles subject to standards in this section.

(E) Determine fleet average CO_2 emissions for heavy-duty vehicles subject to standards in this section as described in 40 CFR 600.510–12(j), except that the calculations must be performed on the basis of test group and transmission type (instead of the model-type basis specified in the light-duty vehicle regulations), and the calculations for dual fuel, multi-fuel, and flexible fuel vehicles must be consistent with the provisions of paragraph (d)(10)(i) of this section.

(10) For dual fuel, multi-fuel, and flexible fuel vehicles, perform exhaust testing on each fuel type (for example, gasoline and E85).

(i) For your fleet-average calculations, use either the conventional-fueled CO_2 emission rate or a weighted average of your emission results as specified in 40 CFR 600.510–12(k) for light-duty trucks.

(ii) If you certify to an alternate standard for N_2O or CH_4 emissions, you may not exceed the alternate standard when tested on either fuel.

(11) Test your vehicles with an equivalent test weight based on its Adjusted Loaded Vehicle Weight (ALVW). Determine equivalent test weight from the ALVW as specified in 40 CFR 86.129, except that you may round values to the nearest 500 pound increment for ALVW above 14,000 pounds).

(12) The following definitions apply for the purposes of this section:

(i) Configuration means a subclassification within a test group based on engine code, transmission type and gear ratios, final drive ratio, and other parameters we designate. Transmission type means the basic type of the transmission (e.g., automatic, manual, automated manual, semi-automatic, or continuously variable) and does not include the drive system of the vehicle (e.g., front-wheel drive, rear- wheel drive, or four-wheel drive). Engine code means the combination of both ''engine code'' and ''basic engine'' as defined in 40 CFR 600.002. Note that this definition differs from the one in 40 CFR 86.1803.

(ii) Subconfiguration means a unique combination within a vehicle configuration (as defined in this paragraph (d)(12)) of equivalent test weight, road-load horsepower, and any other operational characteristics or parameters that we determine may significantly affect CO_2 emissions within a vehicle configuration. Note that for vehicles subject to standards of this section, equivalent test weight (ETW) is based on the ALVW of the vehicle as outlined in paragraph (d)(11) of this section.

(iii) The terms ''complete vehicle'' and ''incomplete vehicle'' have the meanings given for ''complete heavy-duty vehicle'' and ''incomplete heavy-duty vehicle'', respectively, in 40 CFR 86.1803.

(13) This paragraph (d)(13) applies for CO_2 reductions resulting from technologies that were not in common use before 2010 that are not reflected in the specified test procedures. We may allow you to generate emission credits consistent with the provisions of 40 CFR 86.1869–12(c) and (d). You do not need to provide justification for not using the 5-cycle methodology.

(14) You must submit pre-model year reports before you submit your applications for certification for a given model year. Unless we specify otherwise, include the information specified for pre-model year reports in 49 CFR 535.8.

(15) You must submit a final report within 90 days after the end of the model year. Unless we specify otherwise, include applicable information identified in 40 CFR 86.1865–12(l), 40 CFR 600.512, and 49 CFR 535.8(e). The final report must include at least the following information:

(i) Model year.

(ii) Applicable fleet-average CO_2 standard.

(iii) Calculated fleet-average CO_2 value and all the values required to calculate the CO_2 value.

(iv) Number of credits or debits incurred and all values required to calculate those values.

(v) Resulting balance of credits or debits.

(vi) N_2O emissions.

(vii) CH_4 emissions.

(viii) HFC leakage score.

(e) *Useful life.* Your vehicles must meet the exhaust emission standards of this section throughout their full useful life, expressed in service miles or calendar years, whichever comes first. The useful life values for the standards of this section are those that apply to model year 2014 vehicles for criteria pollutants under 40 CFR part 86.1805–12.

(f) *Exclusion of vehicles not certified as complete vehicles.* The standards of this section apply for each vehicle that is chassis-certified with respect to criteria pollutants under 40 CFR part 86, subpart S. The standards of this section do not apply for other vehicles, except as noted in § 1037.150. Note that vehicles excluded under this paragraph (f) are not considered to be ''subject to the standards of this section.'' The vehicle standards and requirements of § 1037.105 apply for the excluded vehicles. The GHG standards of 40 CFR part 1036 also apply for engines used in these excluded vehicles. If you are not the engine manufacturer, you must notify the engine manufacturer that its engines are subject to 40 CFR part 1036 because you intend to use their engines in your excluded vehicles.

(g) Analytically derived CO_2 emission rates (ADCs). This paragraph (g) describes an allowance to use estimated (i.e., analytically derived) CO_2 emission rates based on baseline test data instead of measured emission rates for calculating fleet-average emissions. Note that these ADCs are similar to ADFEs used for light-duty vehicles. Note also that F terms used in this

paragraph (g) represent coefficients from the following road load equation:

$$Force - (\text{mass} \times \text{acceleration}) = F0 + F1 \cdot (velocity) + F2 \cdot (velocity)^2$$

(1) Except as specified in paragraph (g)(2) of this section, use the following equation to calculate the ADC of a new vehicle from road load force coefficients (F0, F1, F2), axle ratio, and test weight:

$$ADC = CO_{2base} + 2.18 \cdot \Delta F0 + 37.4 \cdot \Delta F1 + 2257 \cdot \Delta F2 + 189 \cdot \Delta AR + 0.0222 \cdot \Delta ETW$$

Where:

ADC = Analytically derived combined city/highway CO_2 emission rate (g/mile) for a new vehicle.

CO_{2base} = Combined city/highway CO_2 emission rate (g/mile) of a baseline vehicle.

ΔF0 = F0 of the new vehicle − F0 of the baseline vehicle.

ΔF1 = F1 of the new vehicle − F1 of the baseline vehicle.

ΔF2 = F2 of the new vehicle − F2 of the baseline vehicle.

ΔAR = Axle ratio of the new vehicle − axle ratio of the baseline vehicle.

ΔETW = ETW of the new vehicle − ETW of the baseline vehicle.

(2) The purpose of this section is to accurately estimate CO_2 emission rates.

(i) You must apply the provisions of this section consistent with good engineering judgment. For example, do not use the equation in paragraph (g)(1) of this section where good engineering judgment indicates that it will not accurately estimate emissions. You may ask us to approve alternate equations that allow you to estimate emissions more accurately.

(ii) The analytically derived CO_2 equation in paragraph (g)(1) of this section may be periodically updated through publication of an EPA guidance document to more accurately characterize CO_2 emission levels for example, changes may be appropriate based on new test data, future technology changes, or to changes in future CO_2 emission levels. Any EPA guidance document will determine the model year that the updated equation takes effect. We will issue guidance no later than eight months before the effective model year. For example, for 2014 models, the model year may start January 2, 2013, so guidance would be issued by May 1, 2012 for model year 2014.

(3) You may select, without our advance approval, baseline test data if they meet all the following criteria:

(i) Vehicles considered for the baseline test must comply with all applicable emission standards in the model year associated with the ADC.

(ii) You must include in the pool of tests considered for baseline selection all official tests of the same or equivalent basic engine, transmission class, engine code, transmission code, engine horsepower, dynamometer drive wheels, and compression ratio as the ADC subconfiguration. Do not include tests in which emissions exceed any applicable standard.

(iii) Where necessary to minimize the CO_2 adjustment, you may supplement the pool with tests associated with worst-case engine or transmission codes and carryover or carry-across engine families. If you do, all the data that qualify for inclusion using the elected worst-case substitution (or carryover or carry-across) must be included in the pool as supplemental data (i.e., individual test vehicles may not be selected for inclusion). You must also include the supplemental data in all subsequent pools, where applicable.

(iv) Tests previously used during the subject model year as baseline tests in ten other ADC subconfigurations must be eliminated from the pool.

(v) Select the tested subconfiguration with the smallest absolute difference between the ADC and the test CO_2 emission rate for combined emissions. Use this as the baseline test for the target ADC subconfiguration.

(4) You may ask us to allow you to use baseline test data not fully meeting the provisions of paragraph (g)(3) of this section.

(5) Calculate the ADC rounded to the nearest 0.1 g/mile. Except with our advance approval, the downward adjustment of ADC from the baseline is limited to ADC values 20 percent below the baseline emission rate. The upward adjustment is not limited.

(6) You may not submit an ADC if an actual test has been run on the target

subconfiguration during the certification process or on a development vehicle that is eligible to be declared as an emission-data vehicle.

(7) No more than 40 percent of the subconfigurations tested in your final CO_2 submission may be represented by ADCs.

(8) Keep the following records for at least five years, and show them to us if we ask to see them:

(i) The pool of tests.

(ii) The vehicle description and tests chosen as the baseline and the basis for the selection.

(iii) The target ADC subconfiguration.

(iv) The calculated emission rates.

(9) We may perform or order a confirmatory test of any subconfiguration covered by an ADC.

(10) Where we determine that you did not fully comply with the provisions of this paragraph (g), we may require that you comply based on actual test data and that you recalculate your fleet- average emission rate.

(h) *Applicability of part 1037 provisions.* Except as specified in this section, the requirements of this part do not apply to vehicles certified to the standards of this section. The following provisions are the only provisions of this part that apply to vehicles certified under this section:

(1) The provisions of this section.

(2) The evaporative and refueling emission standards in § 1037.103.

(3) The air conditioning standards in § 1037.115.

(4) The interim provisions of § 1037.150(a), (b), (c), (e)–(i), (l), and (m).

(5) The definitions of § 1037.801, to the extent such terms are used relative to vehicles subject to standards under this section.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 49964, Aug. 16, 2013; 78 FR 56171, Sept. 12, 2013; 79 FR 23750, Apr. 28, 2014; 80 FR 9111, Feb. 19, 2015]

§ 1037.105 Exhaust emission standards for CO_2 for vocational vehicles.

(a) The standards of this section apply for the following vehicles:

(1) Vehicles above 14,000 pounds GVWR and at or below 26,000 pounds GVWR, but not certified to the vehicle standards § 1037.104.

(2) Vehicles above 26,000 pounds GVWR that are not tractors.

(3) Vocational tractors.

(4) Vehicles at or below 14,000 pounds GVWR that are excluded from the standards in § 1037.104 under § 1037.104 (f) or use engines certified under § 1037.150(m).

(b) The CO_2 standards of this section are given in Table 1 to this section. The provisions of § 1037.241 specify how to comply with these standards.

TABLE 1 TO § 1037.105—CO_2 STANDARDS FOR VOCATIONAL VEHICLES

GVWR (pounds)	CO_2 standard (g/ton-mile) for model years 2014–2016	CO_2 standard (g/ton-mile) for model year 2017 and later
GVWR ≤19,500	388	373
19,500 <GVWR ≤33,000	234	225
33,000 <GVWR	226	222

(c) No CH_4 or N_2O standards apply under this section. See 40 CFR part 1036 for CH_4 or N_2O standards that apply to engines used in these vehicles.

(d) You may generate or use emission credits under the ABT program as described in subpart H of this part. This requires that you specify a Family Emission Limit (FEL) for CO_2 for each vehicle subfamily. The FEL may not be less than the result of emission modeling from § 1037.520. These FELs serve as the emission standards for the vehicle subfamily instead of the standards specified in paragraph (b) of this section.

(e) Your vehicles must meet the exhaust emission standards of this section throughout their full useful life, expressed in service miles or calendar years, whichever comes first. The following useful life values apply for the standards of this section:

(1) 110,000 miles or 10 years, whichever comes first, for vehicles at or below 19,500 pounds GVWR.

(2) 185,000 miles or 10 years, whichever comes first, for vehicles above 19,500 pounds GVWR and at or below 33,000 pounds GVWR.

(3) 435,000 miles or 10 years, whichever comes first, for vehicles above 33,000 pounds GVWR.

(f) See § 1037.631 for provisions that exempt certain vehicles used in off-road operation from the standards of this section.

(g) You may optionally certify a vocational vehicle to the standards and useful life applicable to a higher vehicle service class (such as medium heavy-duty instead of light heavy-duty), provided you do not generate credits with the vehicle. If you include smaller vehicles in a credit-generating subfamily (with an FEL below the standard), exclude its production volume from the credit calculation.

§ 1037.106 Exhaust emission standards for CO_2 for tractors above 26,000 pounds GVWR.

(a) The CO_2 standards of this section apply for tractors above 26,000 pounds GVWR. Note that the standards of this section do not apply for vehicles classified as ''vocational tractors'' under § 1037.630,

(b) The CO_2 standards for tractors above 26,000 pounds GVWR are given in Table 1 to this section. The provisions of § 1037.241 specify how to comply with these standards.

TABLE 1 TO § 1037.106—CO_2 STANDARDS FOR TRACTORS ABOVE 26,000 POUNDS GVWR

GVWR (pounds)	Sub-category	CO_2 standard (g/ton-mile) for model years 2014–2016	CO_2 standard (g/ton-mile) for model year 2017 and later
26,000 <GVWR ≤33,000	Low-Roof (all cab styles)	107	104
	Mid-Roof (all cab styles)	119	115
	High-Roof (all cab styles)	124	120
GVWR >33,000	Low-Roof Day Cab	81	80
	Low-Roof Sleeper Cab	68	66
	Mid-Roof Day Cab	88	86
	Mid-Roof Sleeper Cab	76	73
	High-Roof Day Cab	92	89
	High-Roof Sleeper Cab	75	72

(c) No CH_4 or N_2O standards apply under this section. See 40 CFR part 1036 for CH_4 or N_2O standards that apply to engines used in these vehicles.

(d) You may generate or use emission credits under the ABT program, as described in subpart H of this part. This requires that you specify a Family Emission Limit (FEL) for each pollutant you include in the ABT program for each vehicle subfamily. The FEL may not be less than the result of emission modeling from § 1037.520. These FELs serve as the emission standards for the specific vehicle subfamily instead of the standards specified in paragraph (a) of this section.

(e) Your vehicles must meet the exhaust emission standards of this section throughout their full useful life, expressed in service miles or calendar years, whichever comes first. The following useful life values apply for the standards of this section:

(1) 185,000 miles or 10 years, whichever comes first, for vehicles at or below 33,000 pounds GVWR.

(2) 435,000 miles or 10 years, whichever comes first, for vehicles above 33,000 pounds GVWR.

(f) You may optionally certify a tractor to the standards and useful life applicable to a higher vehicle service class (such as heavy heavy-duty instead of medium heavy-duty), provided you do not generate credits with the vehicle. If you include smaller vehicles in a credit-generating subfamily (with an FEL below the standard), exclude its production volume from the credit calculation.

§ 1037.115 Other requirements.

Vehicles required to meet the emission standards of this part must meet the following additional requirements, except as noted elsewhere in this part:

(a) *Adjustable parameters.* Vehicles that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. We may require that you set adjustable parameters to any specification within the adjustable range during any testing. See 40 CFR

part 86 for information related to determining whether or not an operating parameter is considered adjustable. You must ensure safe vehicle operation throughout the physically adjustable range of each adjustable parameter, including consideration of production tolerances. Note that adjustable roof fairings are deemed not to be adjustable parameters.

(b) *Prohibited controls.* You may not design your vehicles 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 vehicle emits a noxious or toxic substance it would otherwise not emit that contributes to such an unreasonable risk.

(c) *Air conditioning leakage.* Loss of refrigerant from your air conditioning systems may not exceed 1.50 percent per year, except as allowed by paragraph (c)(3) of this section. Calculate the total leakage rate in g/year as specified in 40 CFR 86.1867–12(a). Calculate the percent leakage rate as: [total leakage rate (g/yr)] ÷ [total refrigerant capacity (g)] × 100. Round your leakage rate to the nearest one-hundredth of a percent. See § 1037.150 for vocational vehicles.

(1) For purpose of this requirement, ''refrigerant capacity'' is the total mass of refrigerant recommended by the vehicle manufacturer as representing a full charge. Where full charge is specified as a pressure, use good engineering judgment to convert the pressure and system volume to a mass.

(2) [Reserved]

(3) If your total refrigerant capacity is less than 734 grams, your leakage rate may exceed 1.50 percent, as long as the total leakage rate does not exceed 11.0 g/yr. If your system uses a refrigerant other than HFC–134a, you may adjust your leakage rate as specified in paragraph (c)(2) of this section.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36392, June 17, 2013]

§ 1037.120 Emission-related warranty requirements.

(a) *General requirements.* You must warrant to the ultimate purchaser and each subsequent purchaser that the new vehicle, 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 cause the vehicle to fail to conform to the requirements of this part during the applicable warranty period.

(b) *Warranty period.* (1) Your emission-related warranty must be valid for at least:

(i) 5 years or 50,000 miles for spark-ignition vehicles and light heavy-duty vehicles.

(ii) 5 years or 100,000 miles for medium and heavy heavy-duty vehicles.

(iii) 2 years or 24,000 miles for tires.

(2) You may offer an emission-related warranty more generous than we require. The emission-related warranty for the vehicle may not be shorter than any basic mechanical warranty you provide to that owner without charge for the vehicle. Similarly, the emission-related warranty for any component may not be shorter than any warranty you provide to that owner without charge for that component. This means that your warranty for a given vehicle may not treat emission-related and non-emission-related defects differently for any component. The warranty period begins when the vehicle is placed into service.

(c) *Components covered.* The emission-related warranty covers vehicle speed limiters, idle shutdown systems, fairings, and hybrid system components, to the extent such emission-related components are included in the certified emission controls. The emission-related warranty covers all components whose failure would increase a vehicle's emissions of air conditioning refrigerants for vehicles subject to air conditioning leakage standards. The emission-related warranty covers tires and all components whose failure would increase a vehicle's evaporative emissions (for vehicles subject to evaporative emission standards). The emission-related warranty covers these components even if another company produces the component. Your emission-related warranty does not need to

cover components whose failure would not increase a vehicle'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) *Owner's manual*. Describe in the owners manual the emission-related warranty provisions from this section that apply to the vehicle.

§ 1037.125 Maintenance instructions and allowable maintenance.

Give the ultimate purchaser of each new vehicle written instructions for properly maintaining and using the vehicle, including the emission control system. The maintenance instructions also apply to service accumulation on any of your emission-data vehicles. See paragraph (i) of this section for requirements related to tire replacement.

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

(1) You present data showing that, if a lack of maintenance increases emissions, it also unacceptably degrades the vehicle's performance.

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

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

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

(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 vehicles from in-use testing or deny a warranty claim. Do not take these maintenance steps during service accumulation on your emission-data vehicles.

(c) *Special maintenance*. You may specify more frequent maintenance to address problems related to special situations, such as atypical vehicle operation. You must clearly state that this additional maintenance is associated with the special situation you are addressing. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address vehicle operation that is not atypical, or that the maintenance is unlikely to occur in use. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

(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 (that is, 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 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.

(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 vehicles, as long as they are reasonable and technologically necessary. You may perform this non-emission-related maintenance on emission-data vehicles 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 vehicle 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 vehicle will work properly only with the identified component or service.

(g) [Reserved]

(h) *Owner's manual.* Explain the owner's responsibility for proper maintenance in the owner's manual.

(i) *Tire maintenance and replacement.* Include instructions that will enable the owner to replace tires so that the vehicle conforms to the original certified vehicle configuration.

§ 1037.135 Labeling.

(a) Assign each vehicle a unique identification number and permanently affix, engrave, or stamp it on the vehicle in a legible way. The vehicle identification number (VIN) serves this purpose.

(b) At the time of manufacture, affix a permanent and legible label identifying each vehicle. 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 vehicle needed for normal operation and not normally requiring replacement.

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

(4) Written in English.

(c) The label must—

(1) Include the heading ''VEHICLE 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 branding provisions of 40 CFR 1068.45.

(3) Include EPA's standardized designation for the vehicle family.

(4) State the regulatory sub-category that determines the applicable emission standards for the vehicle family (see definition in § 1037.801).

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

(6) Identify the emission control system. Use terms and abbreviations as described in appendix III to this part or other applicable conventions.

(7) Identify any requirements for fuel and lubricants that do not involve fuel-sulfur levels.

(8) State: ''THIS VEHICLE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR] HEAVY–DUTY VEHICLES.''

(9) If you rely on another company to design and install fuel tanks in incomplete vehicles that use an evaporative canister for controlling diurnal emissions, include the following statement: ''THIS VEHICLE IS DESIGNED TO COMPLY WITH EVAPORATIVE EMISSION STANDARDS WITH UP TO x GALLONS OF FUEL TANK CAPACITY.'' Complete this statement by identifying the maximum specified fuel

tank capacity associated with your certification.

(d) You may add information to the emission control information label to identify other emission standards that the vehicle meets or does not meet (such as European standards). You may also add other information to ensure that the vehicle will be properly maintained and used.

(e) You may ask us to approve modified labeling requirements in this part 1037 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.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36392, June 17, 2013; 80 FR 9111, Feb. 19, 2015]

§ 1037.140 Curb weight and roof height.

(a) Where applicable, a vehicle's curb weight and roof height are determined from nominal design specifications, as provided in this section. Round the weight to the nearest pound and height to the nearest inch. Base roof height on fully inflated tires having a static loaded radius equal to the arithmetic mean of the largest and smallest static loaded radius of tires you offer or a standard tire we approve.

(b) The nominal design specifications must be within the range of the actual weights and roof heights of production vehicles considering normal production variability. If after production begins it is determined that your nominal design specifications do not represent production vehicles, we may require you to amend your application for certification under § 1037.225.

(c) If your vehicle is equipped with an adjustable roof fairing, measure the roof height with the fairing in its lowest setting.

§ 1037.150 Interim provisions.

The provisions in this section apply instead of other provisions in this part.

(a) *Incentives for early introduction.* The provisions of this paragraph (a) apply with respect to vehicles produced in model years before 2014. Manufacturers may voluntarily certify in model year 2013 (or earlier model years for electric vehicles) to the greenhouse gas standards of this part.

(1) This paragraph (a)(1) applies for regulatory sub-categories subject to the standards of § 1037.105 or § 1037.106. Except as specified in paragraph (a)(3) of this section, to generate early credits under this paragraph for any vehicles other than electric vehicles, you must certify your entire U.S.-directed production volume within the regulatory sub-category to these standards. Except as specified in paragraph (a)(4) of this section, if some vehicle families within a regulatory sub-category are certified after the start of the model year, you may generate credits only for production that occurs after all families are certified. For example, if you produce three vehicle families in an averaging set and you receive your certificates for those families on January 4, 2013, March 15, 2013, and April 24, 2013, you may not generate credits for model year 2013 production in any of the families that occurs before April 24, 2013. Calculate credits relative to the standard that would apply in model year 2014 using the equations in subpart H of this part. You may bank credits equal to the surplus credits you generate under this paragraph (a) multiplied by 1.50. For example, if you have 1.0 Mg of surplus credits for model year 2013, you may bank 1.5 Mg of credits. Credit deficits for an averaging set prior to model year 2014 do not carry over to model year 2014. These credits may be used to show compliance with the standards of this part for 2014 and later model years. We recommend that you notify EPA of your intent to use this provision before submitting your applications.

(2) This paragraph (a)(2) applies for regulatory sub-categories subject to the standards of § 1037.104. To generate early credits under this paragraph (a)(2) for any vehicles other than electric vehicles, you must certify your entire U.S.-directed fleet to these standards. If you calculate a separate fleet average for advanced-technology vehicles under § 1037.104(c)(7), you must certify your entire U.S.-directed production volume of both advanced and conventional vehicles within the fleet. Except as specified in paragraph (a)(4) of this section, if some test groups are

certified after the start of the model year, you may generate credits only for production that occurs after all test groups are certified. For example, if you produce three test groups in an averaging set and you receive your certificates for those test groups on January 4, 2013, March 15, 2013, and April 24, 2013, you may not generate credits for model year 2013 for vehicles from any of the test groups produced before April 24, 2013. Calculate credits relative to the standard that would apply in model year 2014 using the applicable equations in 40 CFR part 86 and your model year 2013 U.S.-directed production volumes. These credits may be used to show compliance with the standards of this part for 2014 and later model years. We recommend that you notify us of your intent to use this provision before submitting your applications.

(3) You may generate emission credits for the number of additional SmartWay designated tractors (relative to your 2012 production), provided you do not generate credits for those vehicles under paragraph (a)(1) of this section. Calculate credits for each regulatory sub-category relative to the standard that would apply in model year 2014 using the equations in subpart H of this part. Use a production volume equal to the number of designated model year 2013 SmartWay tractors minus the number of designated model year 2012 SmartWay tractors. You may bank credits equal to the surplus credits you generate under this paragraph (a)(3) multiplied by 1.50. Your 2012 and 2013 model years must be equivalent in length.

(4) This paragraph (a)(4) applies where you do not receive your final certificate in a regulatory sub-category within 30 days of submitting your final application for that sub-category. Calculate your credits for all production that occurs 30 days or more after you submit your final application for the sub-category.

(b) *Phase-in provisions.* Each manufacturer must choose one of the following options for phasing in the standards of § 1037.104:

(1) To implement the phase-in under this paragraph (b)(1), the standards in § 1037.104 apply as specified for model year 2018, with compliance for vehicles in model years 2014 through 2017 based on the CO_2 target values specified in the following table:

TABLE 1 TO § 1037.150

Model year and engine cycle	Alternate CO_2 target (g/mile)
2014 Spark-Ignition	[0.0482 × (WF)] + 371
2015 Spark-Ignition	[0.0479 × (WF)] + 369
2016 Spark-Ignition	[0.0469 × (WF)] + 362
2017 Spark-Ignition	[0.0460 × (WF)] + 354
2014 Compression-Ignition	[0.0478 × (WF)] + 368
2015 Compression-Ignition	[0.0474 × (WF)] + 366
2016 Compression-Ignition	[0.0460 × (WF)] + 354
2017 Compression-Ignition	[0.0445 × (WF)] + 343

(2) To implement the phase-in under this paragraph (b)(2), the standards in § 1037.104 apply as specified for model year 2019, with compliance for vehicles in model years 2014 through 2018 based on the CO_2 target values specified in the following table:

TABLE 2 TO § 1037.150

Model year and engine cycle	Alternate CO_2 target (g/mile)
2014 Spark-Ignition	[0.0482 × (WF)] + 371
2015 Spark-Ignition	[0.0479 × (WF)] + 369
2016–2018 Spark-Ignition	[0.0456 × (WF)] + 352
2014 Compression-Ignition	[0.0478 × (WF)] + 368
2015 Compression-Ignition	[0.0474 × (WF)] + 366
2016–2018 Compression-Ignition	[0.0440 × (WF)] + 339

(c) *Provisions for small manufacturers.* Manufacturers meeting the small business criteria specified in 13 CFR 121.201 for ''Heavy Duty Truck Manufacturing'' are not subject to the greenhouse gas standards of §§ 1037.104 through 1037.106, as specified in this paragraph (c). Qualifying manufacturers must notify the Designated Compliance Officer each model year before introducing these excluded vehicles into U.S. commerce. This notification must include a description of the manufacturer's qualification as a small business under 13 CFR 121.201. You must label your excluded vehicles with the following statement: ''THIS VEHICLE IS EXCLUDED UNDER 40 CFR 1037.150(c).''.

(d) *Air conditioning leakage for vocational vehicles.* The air conditioning leakage standard of § 1037.115 does not apply for vocational vehicles.

(e) *Model year 2014 N_2O standards.* In model year 2014 and earlier, manufacturers may show compliance with the N_2O standards using an engineering analysis. This allowance also applies for later test groups families carried over from model 2014 consistent with the provisions of 40 CFR 86.1839. You may not certify to an N_2O FEL different than the standard without measuring N_2O emissions.

(f) *Electric vehicles.* All electric vehicles are deemed to have zero emissions of CO_2, CH_4, and N_2O. No emission testing is required for electric vehicles.

(g) *Compliance date.* Compliance with the standards of this part is optional prior to January 1, 2014. This means that if your 2014 model year begins before January 1, 2014, you may certify for a partial model year that begins on January 1, 2014 and ends on the day your model year would normally end. You must label model year 2014 vehicles excluded under this paragraph (g) with the following statement: ''THIS VEHICLE IS EXCLUDED UNDER 40 CFR 1037.150(g).''

(h) *Off-road vehicle exemption.* In unusual circumstances, vehicle manufacturers may ask us to exempt vehicles under § 1037.631 based on other criteria that are equivalent to those specified in § 1037.631(a). For example, we would normally not grant relief in cases where the vehicle manufacturer had credits or other compliant tires were available.

(i) *Credit multiplier for advanced technology.* If you generate credits from vehicles certified with advanced technology, you may multiply these credits by 1.50, except that you may not apply this multiplier in addition to the early-credit multiplier of paragraph (a) of this section.

(j) *Limited prohibition related to early model year engines.* The prohibition in § 1037.601 against introducing into U.S. commerce a vehicle containing an engine not certified to the standards of this part does not apply for vehicles using model year 2014 or 2015 spark-ignition engines, or any model year 2013 or earlier engines.

(k) *Verifying drag areas from in-use vehicles.* We may measure the drag area of your vehicles after they have been placed into service. Your vehicle conforms to the regulations of this part with respect to aerodynamic performance if we measure its drag area to be at or below the maximum drag area allowed for the bin to which that configuration was certified. To account for measurement variability, your vehicle is also deemed to conform to the regulations of this part with respect to aerodynamic performance if we measure its drag area to at or below the maximum drag area allowed for the bin above the bin to which you certified (for example, Bin II if you certified the vehicle to Bin III), unless we determine that you knowingly produced the vehicle to have a higher drag area than is allowed for the bin to which it was certified.

(l) *Optional certification under § 1037.104.* You may certify certain complete or cab-complete vehicles to the standards of § 1037.104. All vehicles optionally certified under this paragraph (l) are deemed to be subject to the standards of § 1037.104. Note that certification under this paragraph (l) does not affect how you may or may not certify with respect to criteria pollutants. For example, certifying a Class 4 vehicle under this paragraph does not allow you to chassis-certify these vehicles with respect to criteria emissions.

(1) You may certify complete or cab-complete spark-ignition vehicles to the standards of § 1037.104.

(2) You may apply the provisions of § 1037.104 to cab-complete vehicles based on a complete sister vehicle. In unusual circumstances, you may ask us to apply these provisions to Class 2b or 3 incomplete vehicles that do not meet the definition of cab-complete. Except as specified in paragraph (l)(3) of this section, for purposes of § 1037.104, a complete sister vehicle is a complete vehicle of the same vehicle configuration (as defined in § 1037.104) as the cab-complete vehicle. Calculate the target value under § 1037.104(a) based on the same work factor value that applies for the complete sister vehicle. Test these cab-complete vehicles using the same equivalent test weight and other dynamometer settings that apply for the complete vehicle from which you used the work factor value. For certification, you may submit the test data from that complete sister vehicle instead of performing the test on the cab-complete vehicle. You are not required to produce the complete sister vehicle for sale to use the provisions of this paragraph (l)(2). This means the complete sister vehicle may be a carryover vehicle from a prior model year or a vehicle created solely for the purpose of testing.

(3) You may use as complete sister vehicle a complete vehicle that is not of the same vehicle configuration as the cab-complete vehicle as specified in this paragraph (l)(3). This allowance applies where the complete vehicle is not of the same vehicle configuration as the cab-complete vehicle only because of factors unrelated to coastdown performance. If your complete sister vehicle is covered by this paragraph (l)(3), you may not submit the test data from that complete sister vehicle and must perform the test on the cab-complete vehicle.

(m) *Loose engine sales*. This paragraph (m) applies for spark-ignition engines identical to engines used in vehicles certified to the standards of § 1037.104, where you sell such engines as loose engines or as engines installed in incomplete vehicles that are not cab-complete vehicles. For purposes of this paragraph (m), engines would not be considered to be identical if they used different engine hardware. You may include such engines in a test group certified to the standards of § 1037.104, subject to the following provisions:

(1) Engines certified under this paragraph (m) are deemed to be certified to the standards of 40 CFR 1036.108 as specified in 40 CFR 1036.108(a)(4).

(2) The U.S.-directed production volume of engines you sell as loose engines or installed in incomplete heavy-duty vehicles that are not cab-complete vehicles in any given model year may not exceed ten percent of the total U.S.-directed production volume of engines of that design that you produce for heavy-duty applications for that model year, including engines you produce for complete vehicles, cab-complete vehicles, and other incomplete vehicles. The total number of engines you may certify under this paragraph (m), of all engine designs, may not exceed 15,000 in any model year. Engines produced in excess of either of these limits are not covered by your certificate. For example, if you produce 80,000 complete model year 2017 Class 2b pickup trucks with a certain engine and 10,000 incomplete model year 2017 Class 3 vehicles with that same engine, and you do not apply the provisions of this paragraph (m) to any other engine designs, you may produce up to 10,000 engines of that design for sale as loose engines under this paragraph (m). If you produced 11,000 engines of that design for sale as loose engines, the last 1,000 of them that you produced in that model year 2017 would be considered uncertified.

(3) This paragraph (m) does not apply for engines certified to the standards of 40 CFR 1036.108(a)(1).

(4) Label the engines as specified in 40 CFR 1036.135 including the following compliance statement: ''THIS ENGINE WAS CERTIFIED TO THE ALTERNATE GREENHOUSE GAS EMISSION STANDARDS OF 40 CFR 1036.108(a)(4).'' List the test group name instead of an engine family name.

(5) Vehicles using engines certified under this paragraph (m) are subject to the emission standards of § 1037.105.

(6) For certification purposes, your engines are deemed to have a CO_2 target value and test result equal to the CO_2 target value and test result for the complete vehicle in the applicable test group with the highest equivalent test

weight, except as specified in paragraph (m)(6)(ii) of this section. Use these values to calculate your target value, fleet-average emission rate, and in-use emission standard. Where there are multiple complete vehicles with the same highest equivalent test weight, select the CO_2 target value and test result as specified in paragraphs (m)(6)(i) and (ii) of this section:

(i) If one or more of the CO_2 test results exceed the applicable target value, use the CO_2 target value and test result of the vehicle that exceeds its target value by the greatest amount.

(ii) If none of the CO_2 test results exceed the applicable target value, select the highest target value and set the test result equal to it. This means that you may not generate emission credits from vehicles certified under this paragraph (m).

(7) State in your applications for certification that your test group and engine family will include engines certified under this paragraph (m). This applies for your greenhouse gas vehicle test group and your criteria pollutant engine family. List in each application the name of the corresponding test group/engine family.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 49966, Aug. 16, 2013]

Subpart C—Certifying Vehicle families

§ 1037.201 General requirements for obtaining a certificate of conformity.

(a) You must send us a separate application for a certificate of conformity for each vehicle family. A certificate of conformity is valid from the indicated effective date until the end of the model year for which it is issued, which may not extend beyond December 31 of that year. You must renew your certification annually for any vehicles you continue to produce.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see § 1037.255).

(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 § 1037.250.

(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 § 1037.255 for provisions describing how we will process your application.

(g) We may perform confirmatory testing on your vehicles; for example, we may test vehicles to verify drag areas or other GEM inputs. This includes vehicles used to determine $F_{alt\text{-}aero}$ under § 1037.521. We may require you to deliver your test vehicles to a facility we designate for our testing. Alternatively, you may choose to deliver another vehicle that is identical in all material respects to the test vehicle. Where certification is based on testing components such as tires, we may require you to deliver test components to a facility we designate for our testing.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36392, June 17, 2013]

§ 1037.205 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 § 1037.201(c). We may require you to provide additional information to evaluate your application. Note that references to testing and emission-data vehicles refer to testing vehicles to measure aerodynamic drag, assess hybrid vehicle performance, and/or measure evaporative emissions.

(a) Describe the vehicle family's specifications and other basic parameters of the vehicle's design and emission controls. List the fuel type on which your vehicles are designed to operate (for example, ultra low-sulfur diesel fuel).

(b) Explain how the emission control system operates. As applicable, describe in detail all system components for controlling greenhouse gas and evaporative emissions, including all auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production vehicle. 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.

(c) For vehicles subject to air conditioning standards, include:

(1) The refrigerant leakage rates (leak scores).

(2) The refrigerant capacity of the air conditioning systems.

(3) The corporate name of the final installer of the air conditioning system.

(d) Describe any vehicles you selected for testing and the reasons for selecting them.

(e) Describe any test equipment and procedures that you used, including any special or alternate test procedures you used (see § 1037.501).

(f) Describe how you operated any emission-data vehicle before testing, including the duty cycle and the number of vehicle operating miles 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 any test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065.

(h) Identify the vehicle family's useful life.

(i) Include the maintenance instructions and warranty statement you will give to the ultimate purchaser of each new vehicle (see §§ 1037.120 and 1037.125).

(j) Describe your emission control information label (see § 1037.135).

(k) Identify the emission standards or FELs to which you are certifying vehicles in the vehicle family. For families containing multiple subfamilies, this means that you must identify multiple CO_2 FELs. For example, you may identify the highest and lowest FELs to which any of your subfamilies will be certified and also list all possible FELs in between (which will be in 1 g/ton-mile increments).

(l) Where applicable, identify the vehicle family's deterioration factors and describe how you developed them. Present any emission test data you used for this (see § 1037.241(c)).

(m) Where applicable, state that you operated your emission-data vehicles as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.

(n) Present evaporative test data to show your vehicles meet the evaporative emission standards we specify in subpart B of this part, if applicable. Report all valid test results from emission-data vehicles and indicate whether there are test results from invalid tests or from any other tests of the emission-data vehicle, whether or not they were conducted according to the test procedures of subpart F of this part. We may require you to report these additional test results. 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 86.

(o) Report modeling results for ten configurations. Include modeling inputs and detailed descriptions of how they were derived. Unless we specify otherwise, include the configuration with the highest modeling result, the lowest modeling result, and the configurations with the highest projected sales.

(p) Describe all adjustable operating parameters (see § 1037.115), including production tolerances. You do not need to include parameters that do not affect emissions covered by your application. 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 vehicles to settings outside your intended physically adjustable ranges.

(q) [Reserved]

(r) Unconditionally certify that all the vehicles in the vehicle family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(s) Include good-faith estimates of U.S.-directed production volumes by subfamily. We may require you to describe the basis of your estimates.

(t) Include the information required by other subparts of this part. For example, include the information required by § 1037.725 if you participate in the ABT program.

(u) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(v) 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.

§ 1037.210 Preliminary approval before certification.

If you send us information before you finish the application, we may review it and make any appropriate determinations. 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 best-efforts to 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.

§ 1037.220 Amending maintenance instructions.

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 § 1037.125. You must send the Designated Compliance Officer a written request to amend your application for certification for a vehicle 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 vehicles from in-use testing or deny a warranty claim.

(a) If you are decreasing 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 vehicles 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).

§ 1037.225 Amending applications for certification.

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 that is included or should be included in your application.

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

(1) Add a vehicle configuration to a vehicle family. In this case, the vehicle configuration added must be consistent with other vehicle configurations in the vehicle family with respect to the criteria listed in § 1037.230.

(2) Change a vehicle configuration already included in a vehicle 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 vehicle's lifetime.

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

(b) To amend your application for certification, send the relevant information to the Designated Compliance Officer.

(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 vehicle 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 or emission modeling for the vehicle family is not appropriate to show compliance for the new or modified vehicle configuration, include new test data or emission modeling 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 vehicle families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your newly added or modified vehicle. You may ask for a hearing if we deny your request (see § 1037.820).

(e) For vehicle 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 and 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 vehicles.

(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 U.S. commerce, except as described in this paragraph (f). 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 vehicle subfamily 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. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

(2) Where testing applies, you may ask to lower the FEL for your vehicle subfamily only if you have test data from production vehicles showing that emissions are below the proposed lower FEL. Otherwise, you may ask to lower your FEL for your vehicle subfamily at any time. The lower FEL applies only to vehicles 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.

(3) You may ask to add an FEL for your vehicle family at any time.

§ 1037.230 Vehicle families, sub-families, and configurations.

(a) For purposes of certifying your vehicles to greenhouse gas standards, divide your product line into families of vehicles as specified in this section. Your vehicle family is limited to a single model year. Group vehicles in the same vehicle family if they are the same in all the following aspects:

(1) The regulatory sub-category (or equivalent in the case of vocational tractors), as follows:

(i) Vocational vehicles at or below 19,500 pounds GVWR.

(ii) Vocational vehicles (other than vocational tractors) above 19,500 pounds GVWR and at or below 33,000 pounds GVWR.

(iii) Vocational vehicles (other than vocational tractors) above 33,000 pounds GVWR.

(iv) Low-roof tractors above 26,000 pounds GVWR and at or below 33,000 pounds GVWR.

(v) Mid-roof tractors above 26,000 pounds GVWR and at or below 33,000 pounds GVWR.

(vi) High-roof tractors above 26,000 pounds GVWR and at or below 33,000 pounds GVWR.

(vii) Low-roof day cab tractors above 33,000 pounds GVWR.

(viii) Low-roof sleeper cab tractors above 33,000 pounds GVWR.

(ix) Mid-roof day cab tractors above 33,000 pounds GVWR.

(x) Mid-roof sleeper cab tractors above 33,000 pounds GVWR.

(xi) High-roof day cab tractors above 33,000 pounds GVWR.

(xii) High-roof sleeper cab tractors above 33,000 pounds GVWR.

(xiii) Vocational tractors above 26,000 pounds GVWR and at or below 33,000 pounds GVWR. Note that vocational tractor provisions do not apply for vehicles at or below 26,000 pounds GVWR.

(xiv) Vocational tractors above 33,000 pounds GVWR.

(2) Vehicle technology as follows:

(i) Group together vehicles that do not contain advanced or innovative technologies.

(ii) Group together vehicles that contain the same advanced/innovative technologies.

(b) If the vehicles in your family are being certified to more than one FEL, subdivide your greenhouse gas vehicle families into subfamilies that include vehicles with identical FELs. Note that you may add subfamilies at any time during the model year.

(c) Group vehicles into configurations consistent with the definition of ''vehicle configuration'' in § 1037.801. Note that vehicles with hardware or software differences that are related to measured or modeled emissions are considered to be different vehicle configurations even if they have the same GEM inputs and FEL. Note also, that you are not required to separately identify all configurations for certification. See paragraph (g) of this section for provisions allowing you to group certain hardware differences into the same configuration. Note that you are not required to identify all possible configurations for certification; also, you are required to include in your end-of year report only those configurations you produced.

(d) For a vehicle model that straddles a roof-height, cab type, or GVWR division, you may include all the vehicles in the same vehicle family if you certify the vehicle family to the more stringent standards. For roof height, this means you must certify to the taller roof standards. For cab-type and GVWR, this means you must certify to the numerically lower standards.

(e) Divide your vehicles that are subject to evaporative emission standards into groups of vehicles with similar physical features expected to affect evaporative emissions. Group vehicles in the same evaporative emission family if they are the same in all the following aspects, unless we approve a better way of grouping vehicles into families that have similar emission control characteristics:

(1) Method of vapor storage, including the number of vapor storage devices, the working material, and the total working capacity of vapor storage (as determined under 40 CFR 86.132–96(h)(1)(iv)). You may consider the working capacity to be the same if the values differ by 20 grams or less.

(2) Method of purging stored vapors.

(3) Material for liquid and vapor fuel lines.

(f) You may divide your families into more families than specified in this section.

(g) You may ask us to allow you to group into the same configuration vehicles that have very small body hardware differences that do not significantly affect drag areas. Note that this allowance does not apply for substantial differences, even if the vehicles have the same measured drag areas.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36392, June 17, 2013; 79 FR 23750, Apr. 28, 2014]

§ 1037.241 Demonstrating compliance with exhaust emission standards for greenhouse gas pollutants.

(a) For purposes of certification, your vehicle family is considered in compliance with the emission standards in § 1037.105 or § 1037.106 if all vehicle configurations in that family have modeled CO_2 emission rates (as specified in subpart F of this part) at or below the applicable standards. See 40 CFR part 86, subpart S, for showing compliance with the standards of § 1037.104. 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 vehicle family is deemed not to comply if any vehicle configuration in that family has a modeled CO_2 emission rate that is above its FEL.

(c) We may require you to provide an engineering analysis showing that the performance of your emission controls will not deteriorate during the useful life with proper maintenance. If we determine that your emission controls are likely to deteriorate during the useful life, we may require you to develop and apply deterioration factors consistent with good engineering judgment. For example, you may need to apply a deterioration factor to address deterioration of battery performance for an electric hybrid vehicle. Where the highest useful life emissions occur between the end of useful life and at the low-hour test point, base deterioration factors for the vehicles on the difference between (or ratio of) the point at which the highest emissions occur and the low-hour test point.

§ 1037.243 Demonstrating compliance with evaporative emission standards.

(a) For purposes of certification, your vehicle family is considered in compliance with the evaporative emission standards in subpart B of this part if you prepare an engineering analysis showing that your vehicles in the family will comply with applicable standards throughout the useful life, and there are no test results from an emission-data vehicle representing the family that exceed an emission standard.

(b) Your evaporative emission family is deemed not to comply if your engineering analysis is not adequate to show that all the vehicles in the family will comply with applicable emission standards throughout the useful life, or if a test result from an emission-data vehicle representing the family exceeds an emission standard.

(c) To compare emission levels with emission standards, apply deterioration factors to the measured emission levels. Establish an additive deterioration factor based on an engineering analysis that takes into account the expected aging from in-use vehicles.

(d) 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 vehicle.

(e) Your analysis to demonstrate compliance with emission standards must take into account your design strategy for vehicles that require testing. Specifically, vehicles above 14,000 pounds GVWR are presumed to need the same technologies that are required for heavy-duty vehicles at or below 14,000 pounds GVWR. Similarly, your analysis to establish a deterioration factor must take into account your testing to establish deterioration factors for smaller vehicles.

[79 FR 23750, Apr. 28, 2014]

§ 1037.250 Reporting and recordkeeping.

(a) Within 90 days after the end of the model year, send the Designated Compliance Officer a report including the total U.S.-directed production volume of vehicles you produced in each vehicle family during the model year(based on information available at the time of the report). Report by vehicle identification number and vehicle configuration and identify the subfamily identifier. Report uncertified vehicles sold to secondary vehicle manufacturers. Small manufacturers may omit the reporting requirements of this paragraph (a).

(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 § 1037.205 that you were not required to include in your application.

(3) A detailed history of each emission-data vehicle, if applicable.

(4) Production figures for each vehicle family divided by assembly plant.

(5) Keep a list of vehicle identification numbers for all the vehicles you produce under each certificate of conformity.

(c) Keep routine data from emission tests required by this part (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.

§ 1037.255 What decisions may EPA make regarding my certificate of conformity?

(a) If we determine your application is complete and shows that the vehicle family meets all the requirements of this part and the Act, we will issue a certificate of conformity for your vehicle 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 vehicle 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). This includes doing anything after submission of your application to render any of the submitted information false or incomplete.

(3) Render any test data inaccurate.

(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 vehicles 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 vehicles being produced.

(7) Take any action that otherwise circumvents the intent of the Act or this part, with respect to your engine family.

(d) We may void the certificate of conformity for a vehicle family if you fail to keep records, send reports, or give us information as required under this part or the Act. Note that these are also violations of 40 CFR 1068.101(a)(2).

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

(f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see § 1037.820).

Subpart D [Reserved]

Subpart E—In-Use Testing

§ 1037.401 General provisions.

We may perform in-use testing of any vehicle subject to the standards of this part. For example, we may test vehicles to verify drag areas or other GEM inputs.

Subpart F—Test and Modeling Procedures

§ 1037.501 General testing and modeling provisions.

This subpart specifies how to perform emission testing and emission modeling required elsewhere in this part.

(a) Use the equipment and procedures specified in 40 CFR part 1066 to determine whether vehicles meet the evaporative and refueling emission standards specified in § 1037.103.

(b) Where exhaust emission testing is required, use the equipment and procedures in 40 CFR part 1066 to determine whether your vehicles meet the duty-cycle emission standards in subpart B of this part. Measure the emissions of all the exhaust constituents subject to emission standards as specified in 40 CFR part 1066. Use the applicable duty cycles specified in § 1037.510.

(c) [Reserved]

(d) Use the applicable fuels specified 40 CFR part 1065 to perform valid tests.

(1) For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use vehicles will use.

(2) For diesel-fueled vehicles, use the appropriate diesel fuel specified for emission testing. Unless we specify otherwise, the appropriate diesel test fuel is ultra low-sulfur diesel fuel.

(3) For gasoline-fueled vehicles, use the gasoline specified for ''General Testing''.

(e) You may use special or alternate procedures as specified in 40 CFR 1065.10.

(f) 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 vehicles meet emission standards.

(g) Apply this paragraph (g) whenever we specify use of standard trailers. Unless otherwise specified, a tolerance of ±2 inches applies for all nominal trailer dimensions.

(1) The standard trailer for high-roof tractors must meet the following criteria:

(i) It is an unloaded two-axle dry van box trailer 53.0 feet long, 102 inches wide, and 162 inches high (measured from the ground with the trailer level).

(ii) It has a king pin located with its center 36±0.5 inches from the front of the trailer and a minimized trailer gap (no greater than 45 inches).

(iii) It has a smooth surface with nominally flush rivets and does not include any aerodynamic features such as side fairings, boat tails, or gap reducers. It may have a scuff band of no more than 0.13 inches in thickness.

(iv) It includes dual 22.5 inch wheels, standard mudflaps, and standard landing gear. The centerline of the rear tandem axle must be 146 ±4 inches from the rear of the trailer.

(2) The standard trailer for mid-roof tractors is an empty two-axle tanker trailer 42±1 feet long by 140 inches high.

(i) It has a 40±1 feet long cylindrical tank with a 7000±7 gallon capacity, smooth surface, and rounded ends.

(ii) The standard tanker trailer does not include any aerodynamic features such as side fairings, but does include a centered 20 inch manhole, side-centered ladder, and lengthwise walkway. It includes dual 24.5 inch wheels.

(3) The standard trailer for low-roof tractors is an unloaded two-axle flat bed trailer 53±1 feet long and 102 inches wide.

(i) The deck height is 60.0±0.5 inches in the front and 55.0±0.5 inches in the rear. The standard trailer does not include any aerodynamic features such as side fairings.

(ii) It includes an air suspension and dual 22.5 inch wheels on tandem axles spread up to 122 inches apart between axle centerlines, measured along the length of the trailer.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36392, June 17, 2013; 79 FR 23750, Apr. 28, 2014]

§ 1037.510 Duty-cycle exhaust testing.

This section applies where exhaust emission testing is required, such as when applying the provisions of § 1037.615. Note that for most vehicles, testing under this section is not required.

(a) Where applicable, measure emissions by testing the vehicle on a chassis dynamometer with the applicable test cycles. Each test cycle consists of a series of speed commands over time: variable speeds for the transient test and constant speeds for the cruise tests. None of these cycles include vehicle starting or warmup; each test cycle begins with a running, warmed-up vehicle. Start sampling emissions at the start of each cycle. The transient cycle is specified in appendix I to this part. For the 55 mph and 65 mph cruise cycles, sample emissions for 300 second

cycles with constant vehicle speeds of 55.0 mph and 65.0 mph, respectively. The tolerance around these speed setpoints is ±1.0 mph.

(b) Calculate the official emission result from the following equation:

$$Emissions\left(\frac{g}{ton-mile}\right)=\frac{1}{payload\,(tons)}\cdot\left(\frac{w_{transient}\cdot m_{transient}}{D_{transient}}+\frac{w_{55}\cdot m_{55}}{D_{55}}+\frac{w_{65}\cdot m_{65}}{D_{65}}\right)$$

Where:

payload = the standard payload, in tons, as specified in § 1037.705.

w = weighting factor for the appropriate test cycle, as described in paragraph (c) of this section.

m = grams of CO_2 emitted over the appropriate test cycle.

D = miles driven over the appropriate test cycle.

(c) Apply weighting factors specific to each type of vehicle and for each duty cycle as described in the following table:

TABLE 1 TO § 1037.510—WEIGHTING FACTORS FOR DUTY CYCLES

	Transient (%)	55 mph cruise (%)	65 mph cruise (%)
Vocational	42	21	37
Vocational Hybrid Vehicles	75	9	16
Day Cabs	19	17	64
Sleeper Cabs	5	9	86

(d) For transient testing, compare actual second-by-second vehicle speed with the speed specified in the test cycle and ensure any differences are consistent with the criteria as specified in 40 CFR part 1066. If the speeds do not conform to these criteria, the test is not valid and must be repeated.

(e) Run test cycles as specified in 40 CFR part 86. For cruise cycle testing of vehicles equipped with cruise control, use the vehicle's cruise control to control the vehicle speed. For vehicles equipped with adjustable VSLs, test the vehicle with the VSL at its highest setting.

(f) Test the vehicle using its adjusted loaded vehicle weight, unless we determine this would be unrepresentative of in-use operation as specified in 40 CFR 1065.10(c)(1).

(g) For hybrid vehicles, correct for the net energy change of the energy storage device as described in 40 CFR 1066.501.

§ 1037.520 Modeling CO_2 emissions to show compliance.

This section describes how to use the Greenhouse gas Emissions Model (GEM) simulation tool (incorporated by reference in § 1037.810) to show compliance with the CO_2 standards of §§ 1037.105 and 1037.106. Use good engineering judgment when demonstrating compliance using the GEM.

(a) *General modeling provisions.* To run the GEM, enter all applicable inputs as specified by the model. All seven of the following inputs apply for sleeper cab tractors, while some do not apply for other regulatory subcategories:

(1) Regulatory subcategory (such as ''Class 8 Combination—Sleeper Cab—High Roof'').

(2) Coefficient of aerodynamic drag, as described in paragraph (b) of this section. Leave this field blank for vocational vehicles.

(3) Steer tire rolling resistance, as described in paragraph (c) of this section.

(4) Drive tire rolling resistance, as described in paragraph (c) of this section.

(5) Vehicle speed limit, as described in paragraph (d) of this section. Leave this field blank for vocational vehicles.

(6) Vehicle weight reduction, as described in paragraph (e) of this section.

Leave this field blank for vocational vehicles.

(7) Extended idle reduction credit, as described in paragraph (f) of this section. Leave this field blank for vehicles other than Class 8 sleeper cabs.

(b) *Coefficient of aerodynamic drag and drag area.* Determine the appropriate drag area as follows:

(1) Use the recommended method or an alternate method to establish a value for the vehicle's drag area, expressed in m^2 and rounded to two decimal places. Where we allow you to group multiple configurations together, measure the drag area of the worst-case configuration. Measure drag areas specified in § 1037.521.

(2) Determine the bin level for your vehicle based on the drag area from paragraph (b)(1) of this section as shown in the following tables:

TABLE 1 TO § 1037.520—HIGH-ROOF DAY AND SLEEPER CABS

Bin level	If your measured C_DA (m^2) is . . .	Then your C_D input is . . .
High-Roof Day Cabs		
Bin I	≥8.0	0.79
Bin II	7.1–7.9	0.72
Bin III	6.2–7.0	0.63
Bin IV	5.6–6.1	0.56
Bin V	≤5.5	0.51
High-Roof Sleeper Cabs		
Bin I	≥7.6	0.75
Bin II	6.8–7.5	0.68
Bin III	6.3–6.7	0.60
Bin IV	5.6–6.2	0.52
Bin V	≤5.5	0.47

TABLE 2 TO § 1037.520— LOW-ROOF DAY AND SLEEPER CABS

Bin level	If your measured C_DA (m^2) is . . .	Then your C_D input is . . .
Low-Roof Day and Sleeper Cabs		
Bin I	≥5.1	0.77
Bin II	≤5.0	0.71
Mid-Roof Day and Sleeper Cabs		
Bin I	≥5.6	0.87
Bin II	≤5.5	0.82

(3) For low- and mid-roof tractors, you may determine your drag area bin based on the drag area bin of an equivalent high-roof tractor. If the high-roof tractor is in Bin I or Bin II, then you may assume your equivalent low- and mid-roof tractors are in Bin I. If the high-roof tractor is in Bin III, Bin IV, or Bin V, then you may assume your equivalent low- and mid-roof tractors are in Bin II.

(c) *Steer and drive tire rolling resistance.* You must have a tire rolling resistance level (TRRL) for each tire configuration. For purposes of this section, you may consider tires with the same SKU number to be the same configuration.

(1) Measure tire rolling resistance in kg per metric ton as specified in ISO 28580 (incorporated by reference in § 1037.810), except as specified in this paragraph (c). Use good engineering judgment to ensure that your test results are not biased low. You may ask us to identify a reference test laboratory to which you may correlate your test results. Prior to beginning the test procedure in Section 7 of ISO 28580 for a new bias-ply tire, perform a break-in procedure by running the tire at the specified test speed, load, and pressure for 60±2 minutes.

(2) For each tire design tested, measure rolling resistance of at least three different tires of that specific design and size. Perform the test at least once for each tire. Use the arithmetic mean of these results as your test result. You may use this value as your GEM input or select a higher TRRL. You must test at least one tire size for each tire model, and may use engineering analysis to determine the rolling resistance of other tire sizes of that model. Note that for tire sizes that you do not test, we will treat your analytically derived rolling resistances the same as test results, and we may perform our own testing to verify your values. We may

require you to test a small sub-sample of untested tire sizes that we select.

(3) If you obtain your test results from the tire manufacturer or another third party, you must obtain a signed statement from them verifying the tests were conducted according to the requirements of this part. Such statements are deemed to be submissions to EPA.

(4) For tires marketed as light truck tires and that have load ranges C, D, or E, use as the GEM input TRRL at or above the measured rolling resistance multiplied by 0.87.

(d) *Vehicle speed limit*. If the vehicles will be equipped with a vehicle speed limiter, input the maximum vehicle speed to which the vehicle will be limited (in miles per hour rounded to the nearest 0.1 mile per hour) as specified in § 1037.640. Otherwise leave this field blank. Use good engineering judgment to ensure the limiter is tamper resistant. We may require you to obtain preliminary approval for your designs.

(e) *Vehicle weight reduction*. For purposes of this paragraph (e), high-strength steel is steel with tensile strength at or above 350 MPa.

(1) Vehicle weight reduction inputs for wheels are specified relative to dual-wide tires with conventional steel wheels. For purposes of this paragraph (e)(1), a light-weight aluminum wheel is one that weighs at least 21 pounds less than a comparable conventional steel wheel. The inputs are listed in Table 3 to this section. For example, a tractor with aluminum steer wheels and eight (4 × 2) dual-wide aluminum drive wheels would have an input of 210 pounds (2 × 21 + 8 × 21).

TABLE 3 TO § 1037.520—WHEEL-RELATED WEIGHT REDUCTIONS

Weight reduction technology	Weight reduction (lb per tire or wheel)
Single-Wide Drive Tire with	
Steel Wheel	84
Aluminum Wheel	139
Light-Weight Aluminum Wheel	147
Steer Tire or Dual-wide Drive Tire with . . .	
High-Strength Steel Wheel	8
Aluminum Wheel	21
Light-Weight Aluminum Wheel	30

(2) Vehicle weight reduction inputs for components other than wheels are specified relative to mild steel components as specified in the following table:

TABLE 4 TO § 1037.520—NONWHEEL-RELATED WEIGHT REDUCTIONS

Weight reduction technologies	Aluminum weight reduction (lb)	High-strength steel weight reduction (lb)
Door	20	6
Roof	60	18
Cab rear wall	49	16
Cab floor	56	18
Hood Support Structure System	15	3
Fairing Support Structure System	35	6
Instrument Panel Support Structure	5	1
Brake Drums—Drive (4)	140	11
Brake Drums—Non Drive (2)	60	8
Frame Rails	440	87
Crossmember—Cab	15	5
Crossmember—Suspension	25	6
Crossmember—Non Suspension (3)	15	5
Fifth Wheel	100	25
Radiator Support	20	6
Fuel Tank Support Structure	40	12
Steps	35	6
Bumper	33	10
Shackles	10	3
Front Axle	60	15
Suspension Brackets, Hangers	100	30
Transmission Case	50	12
Clutch Housing	40	10
Drive Axle Hubs (8)	160	4
Non Drive Front Hubs (2)	40	5
Driveshaft	20	5
Transmission/Clutch Shift Levers	20	4

(3) You may ask to apply the innovative technology provisions of § 1037.610 for weight reductions not covered by this paragraph (e).

(f) *Extended idle reduction credit.* If your tractor is equipped with idle reduction technology meeting the requirements of § 1037.660 that will automatically shut off the main engine after 300 seconds or less, use 5.0 g/ton-mile as the input (or a lesser value specified in § 1037.660). Otherwise leave this field blank.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36392, June 17, 2013]

§ 1037.521 Aerodynamic measurements.

This section describes how to determine the aerodynamic drag area (C_DA) of your vehicle using the coastdown procedure in 40 CFR part 1066 or an alternative method correlated to it.

(a) *General.* The primary method for measuring the aerodynamic drag area of vehicles is specified in paragraph (b) of this section. You may determine the drag area using an alternate method, consistent with the provisions of this section and good engineering judgment, based on wind tunnel testing, computational fluid dynamic modeling, or constant-speed road load testing. See 40 CFR 1068.5 for provisions describing how we may evaluate your engineering judgment. All drag areas measured using an alternative method (C_DA_{alt}) must be adjusted to be equivalent to the corresponding drag areas that would have been measured using the coastdown procedure as follows:

(1) Unless good engineering judgment requires otherwise, assume that coastdown drag areas are proportional to drag areas measured using alternative methods. This means you may apply a single constant adjustment factor ($F_{alt\text{-}aero}$) for a given alternate drag area method using the following equation:

$$C_DA = C_DA_{alt} \times F_{alt\text{-}aero}$$

(2) Determine $F_{alt\text{-}aero}$ by performing coastdown testing and applying your alternate method on the same vehicle. Unless we approve another vehicle, the vehicle must be a Class 8, high-roof, sleeper cab with a full aerodynamics package, pulling a standards trailer. Where you have more than one model meeting these criteria, use the model with the highest projected sales. If you do not have such a model you may use your most comparable model with prior approval. If good engineering judgment allows the use of a single, constant value of $F_{alt\text{-}aero}$, calculate it from this coastdown drag area (C_DA_{coast}) divided by alternative drag area (C_DA_{alt}):

$$F_{alt\text{-}aero} = C_DA_{coast} \div C_DA_{alt}$$

(3) Calculate $F_{alt\text{-}aero}$ to at least three decimal places. For example, if your coastdown testing results in a drag area of 6.430, but your wind tunnel method results in a drag area of 6.200, $F_{alt\text{-}aero}$ would be 1.037.

(b) *Recommended method.* Perform coastdown testing as described in 40 CFR part 1066, subpart D, subject to the following additional provisions:

(1) The specifications of this paragraph (b)(1) apply when measuring drag areas for tractors. Test high-roof tractors with a standard box trailer. Test low- and mid-roof tractors without a trailer (sometimes referred to as in a ''bobtail configuration''). You may test low- and mid-roof tractors with a trailer to evaluate innovative technologies.

(2) The specifications of this paragraph (b)(2) apply for tractors and standard trailers. Use tires mounted on steel rims in a dual configuration (except for steer tires). The tires must—

(i) Be SmartWay-Verified tires or have a rolling resistance below 5.1 kg/ton.

(ii) Have accumulated at least 2,175 miles of prior use but have no less than 50 percent of their original tread depth (as specified for truck cabs in SAE J1263).

(iii) Not be retreads or have any apparent signs of chunking or uneven wear.

(iv) Be size 295/75R22.5 or 275/80R22.5.

(3) Calculate the drag area (C_DA) in m^2 from the coastdown procedure specified in 40 CFR part 1066.

(c) *Approval.* You must obtain preliminary approval before using any methods other than coastdown testing to determine drag coefficients. Send your request for approval to the Designated Compliance Officer. Keep records of the information specified in this paragraph (c). Unless we specify

otherwise, include this information with your request. You must provide any information we require to evaluate whether you are apply the provisions of this section consistent with good engineering judgment.

(1) Include all of the following for your coastdown results:

(i) The name, location, and description of your test facilities, including background/history, equipment and capability, and track and facility elevation, along with the grade and size/length of the track.

(ii) Test conditions for each test result, including date and time, wind speed and direction, ambient temperature and humidity, vehicle speed, driving distance, manufacturer name, test vehicle/model type, model year, applicable model engine family, tire type and rolling resistance, weight of tractor-trailer (as tested), and driver identifier(s).

(iii) Average drag area result as calculated in 40 CFR 1066, subpart D) and all of the individual run results (including voided or invalid runs).

(2) Identify the name and location of the test facilities for your wind tunnel method (if applicable). Also include the following things to describe the test facility:

(i) Background/history.

(ii) The layout (with diagram), type, and construction (structural and material) of the wind tunnel.

(iii) Wind tunnel design details: corner turning vane type and material, air settling, mesh screen specification, air straightening method, tunnel volume, surface area, average duct area, and circuit length.

(iv) Wind tunnel flow quality: temperature control and uniformity, airflow quality, minimum airflow velocity, flow uniformity, angularity and stability, static pressure variation, turbulence intensity, airflow acceleration and deceleration times, test duration flow quality, and overall airflow quality achievement.

(v) Test/working section information: test section type (*e.g.*, open, closed, adaptive wall) and shape (*e.g.*, circular, square, oval), length, contraction ratio, maximum air velocity, maximum dynamic pressure, nozzle width and height, plenum dimensions and net volume, maximum allowed model scale, maximum model height above road, strut movement rate (if applicable), model support, primary boundary layer slot, boundary layer elimination method, and photos and diagrams of the test section.

(vi) Fan section description: fan type, diameter, power, maximum rotational speed, maximum top speed, support type, mechanical drive, and sectional total weight.

(vii) Data acquisition and control (where applicable): acquisition type, motor control, tunnel control, model balance, model pressure measurement, wheel drag balances, wing/body panel balances, and model exhaust simulation.

(viii) Moving ground plane or rolling road (if applicable): construction and material, yaw table and range, moving ground length and width, belt type, maximum belt speed, belt suction mechanism, platen instrumentation, temperature control, and steering.

(ix) Facility correction factors and purpose.

(3) Include all of the following for your computational fluid dynamics (CFD) method (if applicable):

(i) Official name/title of the software product.

(ii) Date and version number for the software product.

(iii) Manufacturer/company name, address, phone number and Web address for software product.

(iv) Identify if the software code is Navier-Stokes or Lattice-Boltzmann based.

(4) Include all of the following for any other method (if applicable):

(i) Official name/title of the procedure(s).

(ii) Description of the procedure.

(iii) Cited sources for any standardized procedures that the method is based on.

(iv) Modifications/deviations from the standardized procedures for the method and rational for modifications/deviations.

(v) Data comparing this requested procedure to the coastdown reference procedure.

(vi) Information above from the other methods as applicable to this method

(*e.g.*, source location/address, background/history).

(d) *Wind tunnel methods.* (1) You may measure drag areas consistent with the modified SAE procedures described in this paragraph (d) using any wind tunnel recognized by the Subsonic Aerodynamic Testing Association. If your wind tunnel is not capable of testing in accordance with these modified SAE procedures, you may ask us to approve your alternate test procedures if you demonstrate that your procedures produce equivalent data. For purposes of this paragraph (d), data are equivalent if they are the same or better with respect to repeatability and unbiased correlation with coastdown testing. Note that, for wind tunnels not capable of these modified SAE procedures, good engineering judgment may require you to base your alternate method adjustment factor on more than one vehicle. You may not develop your correction factor until we have approved your alternate method. The applicable SAE procedures are SAE J1252, SAE J1594, and SAE J2071 (incorporated by reference in §1037.810). The following modifications apply for SAE J1252:

(i) The minimum Reynold's number (Re_{min}) is 1.0×10^6 instead of the value specified in section 5.2 of the SAE procedure. Your model frontal area at zero yaw angle may exceed the recommended 5 percent of the active test section area, provided it does not exceed 25 percent.

(ii) For full-scale wind tunnel testing, use good engineering judgment to select a test article (tractor and trailer) that is a reasonable representation of the test article used for the reference method testing. For example, where your wind tunnel is not long enough to test the tractor with a standard 53 foot trailer, it may be appropriate to use shorter box trailer. In such a case, the correlation developed using the shorter trailer would only be valid for testing with the shorter trailer.

(iii) For reduced-scale wind tunnel testing, a one-eighth (1/8th) or larger scale model of a heavy-duty tractor and trailer must be used, and the model must be of sufficient design to simulate airflow through the radiator inlet grill and across an engine geometry representative of those commonly used in your test vehicle.

(2) You must perform wind tunnel testing and the coastdown procedure on the same tractor model and provide the results for both methods. Conduct the wind tunnel tests at a zero yaw angle and, if so equipped, utilizing the moving/rolling floor (*i.e.*, the moving/rolling floor should be on during the test, as opposed to static) for comparison to the coastdown procedure, which corrects to a zero yaw angle for the oncoming wind.

(e) *Computational fluid dynamics (CFD).* You may determine drag areas using a CFD method, consistent with good engineering judgment and the requirements of this paragraph (e) using commercially available CFD software code. Conduct the analysis assuming zero yaw angle, and ambient conditions consistent with coastdown procedures. For simulating a wind tunnel test, the analysis should accurately model the particular wind tunnel and assume a wind tunnel blockage ratio consistent with SAE J1252 (incorporated by reference in §1037.810) or one that matches the selected wind tunnel, whichever is lower. For simulation of open road conditions similar to that experienced during coastdown test procedures, the CFD analysis should assume a blockage ratio at or below 0.2 percent.

(1) Take the following steps for CFD code with a Navier-Stokes formula solver:

(i) Perform an unstructured, time-accurate, analysis using a mesh grid size with total volume element count of at least 50 million cells of hexahedral and/or polyhedral mesh cell shape, surface elements representing the geometry consisting of no less than 6 million elements, and a near-wall cell size corresponding to a y + value of less than 300, with the smallest cell sizes applied to local regions of the tractor and trailer in areas of high flow gradients and smaller geometry features.

(ii) Perform the analysis with a turbulence model and mesh deformation enabled (if applicable) with boundary layer resolution of ±95 percent. Once result convergence is achieved, demonstrate the convergence by supplying multiple, successive convergence values for the analysis. The turbulence

model may use k-epsilon (k-ε), shear stress transport k-omega (SST k-ω), or other commercially accepted methods.

(2) For Lattice-Boltzman based CFD code, perform an unstructured, time-accurate analysis using a mesh grid size with total surface elements of at least 50 million cells using cubic volume elements and triangular and/or quadrilateral surface elements with a near wall cell size of no greater than 6 mm on local regions of the tractor and trailer in areas of high flow gradients and smaller geometry features, with cell sizes in other areas of the mesh grid starting at twelve millimeters and increasing in size from this value as the distance from the tractor-trailer model increases.

(3) All CFD analysis should be conducted using the following conditions:

(i) A tractor-trailer combination using the manufacturer's tractor and the standard trailer, as applicable.

(ii) An environment with a blockage ratio at or below 0.2 percent to simulate open road conditions, a zero degree yaw angle between the oncoming wind and the tractor-trailer combination.

(iii) Ambient conditions consistent with the coastdown test procedures specified in this part.

(iv) Open grill with representative back pressures based on data from the tractor model,

(v) Turbulence model and mesh deformation enabled (if applicable).

(vi) Tires and ground plane in motion consistent with and simulating a vehicle moving in the forward direction of travel.

(vii) The smallest cell size should be applied to local regions on the tractor and trailer in areas of high flow gradients and smaller geometry features (*e.g.*, the a-pillar, mirror, visor, grille and accessories, trailer leading and trailing edges, rear bogey, tires, and tractor-trailer gap).

(viii) Simulate a speed of 55 mph.

(4) You may ask us to allow you to perform CFD analysis using parameters and criteria other than those specified in this paragraph (e), consistent with good engineering judgment, if you can demonstrate that the specified conditions are not feasible (*e.g.*, insufficient computing power to conduct such analysis, inordinate length of time to conduct analysis, equivalent flow characteristics with more feasible criteria/parameters) or improved criteria may yield better results (*e.g.*, different mesh cell shape and size). To support this request, we may require that you supply data demonstrating that your selected parameters/criteria will provide a sufficient level of detail to yield an accurate analysis, including comparison of key characteristics between your criteria/parameters and the criteria specified in paragraphs (e)(1) and (2) of this section (*e.g.*, pressure profiles, drag build-up, and/or turbulent/laminar flow at key points on the front of the tractor and/or over the length of the tractor-trailer combination).

(f) *Yaw sweep corrections.* You may optionally apply this paragraph (f) for vehicles with aerodynamic features that are more effective at reducing wind-averaged drag than is predicted by zero-yaw drag. You may correct your zero-yaw drag area as follows if the ratio of the zero-yaw drag area divided by yaw sweep drag area for your vehicle is greater than 0.8065 (which represents the ratio expected for a typical aerodynamic Class 8 high-roof sleeper cab tractor):

(1) Determine the zero-yaw drag area and the yaw sweep drag area for your vehicle using the same alternate method as specified in this subpart. Measure drag area for 0°, −6°, and + 6°. Use the arithmetic mean of the −6° and + 6° drag areas as the ±6° drag area.

(2) Calculate your yaw sweep correction factor (CF_{ys}) using the following equation:

$$CF_{ys} = \frac{(\pm 6^\circ\ Drag\ Area) \times 0.8065}{(Zero\ Yaw\ Drag\ Area)}$$

(3) Calculate your corrected drag area for determining the aerodynamic bin by multiplying the measured zero-yaw drag area by CF_{ys}. The correction factor may be applied to drag areas measured using other procedures. For example, we would apply CF_{ys} to drag areas measured using the recommended coastdown method. If you use an alternative method, you would also need to apply an alternative correction ($F_{alt\text{-}aero}$) and calculate the final drag area using the following equation:

$$C_DA = F_{alt\text{-}aero} \cdot CF_{ys} \cdot (C_DA)_{zero\text{-}alt}$$

(4) You may ask us to apply CF_{ys} to similar vehicles incorporating the same design features.

(5) As an alternative, you may choose to calculate the wind-averaged drag area according to SAE J1252 (incorporated by reference in § 1037.810) and substitute this value into the equation in paragraph (f)(2) of this section for the ±6° yaw-averaged drag area.

§ 1037.525 Special procedures for testing hybrid vehicles with power take-off.

This section describes the procedure for quantifying the reduction in greenhouse gas emissions as a result of running power take-off (PTO) devices with a hybrid powertrain. The procedures are written to test the PTO by ensuring that the engine produces all of the energy with no net change in stored energy. The full test for the hybrid vehicle is from a fully charged renewable energy storage system (RESS) to a depleted RESS and then back to a fully charged RESS. These procedures may be used for testing any hybrid architecture for which you are requesting a vehicle certificate using either chassis testing or powertrain testing. You must include all hardware for the PTO system. You may ask us to modify the provisions of this section to allow testing hybrid vehicles other than electric-battery hybrids, consistent with good engineering judgment.

(a) Select two vehicles for testing as follows:

(1) Select a vehicle with a hybrid powertrain to represent the vehicle family. If your vehicle family includes more than one vehicle model, use good engineering judgment to select the vehicle type with the maximum number of PTO circuits that has the smallest potential reduction in greenhouse gas emissions.

(2) Select an equivalent conventional vehicle as specified in § 1037.615.

(b) Measure PTO emissions from the fully warmed-up conventional vehicle as follows:

(1) Without adding any additional restrictions, instrument the vehicle with pressure transducers at the outlet of the hydraulic pump for each circuit.

(2) Operate the PTO system with no load for at least 15 seconds. Measure the pressure and record the average value over the last 10 seconds (p_{min}). Apply maximum operator demand to the PTO system until the pressure relief valve opens and pressure stabilizes; measure the pressure and record the average value over the last 10 seconds (p_{max}).

(3) Denormalize the PTO duty cycle in appendix II of this part using the following equation:

$$p_{refi} = NP_i \cdot (p_{max} - {}_{min}) + p_{min}$$

Where:

p_{refi} = the reference pressure at each point i in the PTO cycle.

NP_i = the normalized pressure at each point i in the PTO cycle.

p_{max} = the maximum pressure measured in paragraph (b)(2) of this section.

p_{min} = the minimum pressure measured in paragraph (b)(2) of this section.

(4) If the PTO system has two circuits, repeat paragraph (b)(2) and (3) of this section for the second PTO circuit.

(5) Install a system to control pressures in the PTO system during the cycle.

(6) Start the engine.

(7) Operate the vehicle over one or both of the denormalized PTO duty cycles, as applicable. Collect CO_2 emissions during operation over each duty cycle.

(8) Use the provisions of 40 CFR part 1066 to collect and measure emissions. Calculate emission rates in grams per test without rounding.

(9) For each test, validate the pressure in each circuit with the pressure specified from the cycle according to 40 CFR 1065.514. Measured pressures must meet the specifications in the following table for a valid test:

TABLE 1 OF § 1037.525—STATISTICAL CRITERIA FOR VALIDATING DUTY CYCLES

Parameter	Pressure
Slope, $\lvert a_1 \rvert$	$0.950 \leq a_1 \leq 1.030$.
Absolute value of intercept, $\lvert a_0 \rvert$	≤2.0% of maximum mapped pressure.
Standard error of estimate, *SEE*	≤10% of maximum mapped pressure.
Coefficient of determination, r^2	≥0.970.

(10) Continue testing over the three vehicle drive cycles, as otherwise required by this part.

(11) Calculate combined cycle-weighted emissions of the four cycles as specified in paragraph (d) of this section.

(c) Measure PTO emissions from the fully warmed-up hybrid vehicle as follows:

(1) Perform the steps in paragraphs (b)(1) through (5) of this section.

(2) Prepare the vehicle for testing by operating it as needed to stabilize the battery at a full state of charge. For electric hybrid vehicles, we recommend running back-to-back PTO tests until engine operation is initiated to charge the battery. The battery should be fully charged once engine operation stops. The ignition should remain in the ''on'' position.

(3) Turn the vehicle and PTO system off while the sampling system is being prepared.

(4) Turn the vehicle and PTO system on such that the PTO system is functional, whether it draws power from the engine or a battery.

(5) Operate the vehicle over the PTO cycle(s) without turning the vehicle off, until the engine starts and then shuts down. The test cycle is completed once the engine shuts down. Measure emissions as described in paragraphs (b)(2) and (3) of this section. Use good engineering judgment to minimize the variability in testing between the two types of vehicles.

(6) Refer to paragraph (b)(9) of this section for cycle validation.

(7) Continue testing over the three vehicle drive cycles, as otherwise required by this part.

(8) Calculate combined cycle-weighted emissions of the four cycles as specified in paragraph (d) of this section.

(d) Calculate combined cycle-weighted emissions of the four cycles for vocational vehicles as follows:

(1) Calculate the g/ton-mile emission rate for the driving portion of the test specified in § 1037.510.

(2) Calculate the g/hr emission rate for the PTO portion of the test by dividing the total mass emitted over the cycle (grams) by the time of the test (hours). For testing where fractions of a cycle were run (for example, where three cycles are completed and the halfway point of a fourth PTO cycle is reached before the engine starts and shuts down again), use the following procedures to calculate the time of the test:

(i) Add up the time run for all complete tests.

(ii) For fractions of a test, use the following equation to calculate the time:

$$t_{test} = \frac{\sum_{i=1}^{N}\left(NP_{\text{circuit_1,i}} \cdot NP_{\text{circuit_2,i}}\right) \cdot \Delta t}{\sum_{i=1}^{N}\left(NP_{\text{circuit_1,i}} \cdot NP_{\text{circuit_2,i}}\right) \cdot \Delta t} \cdot t_{\text{cycle}}$$

Where:

t_{test} = time of the incomplete test.

i = the number of each measurement interval.

N = the total number of measurement intervals.

$NP_{\text{circuit—1}}$ = Normalized pressure command from circuit 1 of the PTO cycle.

$NP_{circuit—2}$ = Normalized pressure command from circuit 2 of the PTO cycle. Let $NP_{circuit—2}$ = 1 if there is only one circuit.
t_{cycle} = time of a complete cycle.

(iii) Sum the time from complete cycles (paragraph (d)(2)(i) of this section) and from partial cycles (paragraph (d)(2)(ii) of this section).

(3) Convert the g/hr PTO result to an equivalent g/mi value based on the assumed fraction of engine operating time during which the PTO is operating (28 percent) and an assumed average vehicle speed while driving (27.1 mph). The conversion factor is: Factor = (0.280)/(1.000 − 0.280)/(27.1 mph) = 0.0144 hr/mi. Multiply the g/hr emission rate by 0.0144 hr/mi.

(4) Divide the g/mi PTO emission rate by the standard payload and add this value to the g/ton-mile emission rate for the driving portion of the test.

(e) Follow the provisions of § 1037.615 to calculate improvement factors and benefits for advanced technologies.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36393, June 17, 2013]

§ 1037.550 Special procedures for testing hybrid systems.

This section describes the procedure for simulating a chassis test with a pre-transmission or post-transmission hybrid system for A to B testing. These procedures may also be used to perform A to B testing with non-hybrid systems.

(a) Set up the engine according to 40 CFR 1065.110 to account for work inputs and outputs and accessory work.

(b) Collect CO_2 emissions while operating the system over the test cycles specified in § 1037.510.

(c) Collect and measure emissions as described in 40 CFR part 1066. Calculate emission rates in grams per ton-mile without rounding. Determine values for *A*, *B*, *C*, and *M* for the vehicle being simulated as specified in 40 CFR part 1066. If you will apply an improvement factor or test results to multiple vehicle configurations, use values of *A*, *B*, *C*, *M*, k_d, and *r* that represent the vehicle configuration with the smallest potential reduction in greenhouse gas emissions as a result of the hybrid capability.

(d) Calculate the transmission output shaft's angular speed target for the driver model, $f_{nref,driver,}$ from the linear speed associated with the vehicle cycle using the following equation:

$$f_{\text{nrefi,driver}} = \frac{v_{cyclei} \cdot k_{\text{d}}}{2 \cdot \pi \cdot r}$$

Where:

v_{cyclei} = vehicle speed of the test cycle for each point, *i*, starting from *i* = 1.
k_d = final drive ratio (the angular speed of the transmission output shaft divided by the angular speed of the drive axle), as declared by the manufacturer.
r = radius of the loaded tires, as declared by the manufacturer.

(e) Use speed control with a loop rate of at least 100 Hz to program the dynamometer to follow the test cycle, as follows:

(1) Calculate the transmission output shaft's angular speed target for the dynamometer, $f_{nref,dyno,}$ from the measured linear speed at the dynamometer rolls using the following equation:

$$f_{\text{nrefi,dyno}} = \frac{v_{\text{refi}} \cdot k_{\text{d}}}{2 \cdot \pi \cdot r}$$

Where:

$$v_{\mathrm{refi}} = \left(\frac{k_{\mathrm{d}} \cdot T_{\mathrm{i-1}}}{r} - \left(A + B \cdot v_{\mathrm{ref,i-1}} + C \cdot v_{\mathrm{ref,i-1}}{}^{2} \right) - F_{\mathrm{brake,i-1}} \right) \frac{t_{\mathrm{i}} - t_{\mathrm{i-1}}}{M} + v_{\mathrm{ref,i-1}}$$

T = instantaneous measured torque at the transmission output shaft.

F_{brake} = instantaneous brake force applied by the driver model to add force to slow down the vehicle.

t = elapsed time in the driving schedule as measured by the dynamometer, in seconds.

(2) For each test, validate the measured transmission output shaft's speed with the corresponding reference values according to 40 CFR 1065.514(e). You may delete points when the vehicle is stopped. Perform the validation based on speed values at the transmission output shaft. For steady-state tests (55 mph and 65 mph cruise), apply cycle-validation criteria by treating the sampling periods from the two tests as a continuous sampling period. Perform this validation based on the following parameters:

TABLE 1 OF § 1037.550—STATISTICAL CRITERIA FOR VALIDATING DUTY CYCLES

Parameter	Speed control
Slope, a_1	$0.950 \leq a_1 \leq 1.030$.
Absolute value of intercept, $\lvert a_0 \rvert$.	≤2.0% of maximum test speed.
Standard error of estimate, *SEE*.	≤5% of maximum test speed.
Coefficient of determination, r^2.	≥0.970.

(f) Send a brake signal when throttle position is equal to zero and vehicle speed is greater than the reference vehicle speed from the test cycle. Set a delay before changing the brake state to prevent the brake signal from dithering, consistent with good engineering judgment.

(g) The driver model should be designed to follow the cycle as closely as possible and must meet the requirements of § 1037.510 for steady-state testing and 40 CFR 1066.430(e) for transient testing. The driver model should be designed so that the brake and throttle are not applied at the same time.

(h) Correct for the net energy change of the energy storage device as described in 40 CFR 1066.501.

(i) Follow the provisions of § 1037.510 to weight the cycle results and § 1037.615 to calculate improvement factors and benefits for advanced technologies.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36393, June 17, 2013]

Subpart G—Special Compliance Provisions

§ 1037.601 What compliance provisions apply to these vehicles?

(a) Engine and vehicle manufacturers, as well as owners and operators of vehicles subject to the requirements of this part, and all other persons, must observe the provisions of this part, the provisions of the Clean Air Act, and the following provisions of 40 CFR part 1068:

(1) The exemption and importation provisions of 40 CFR part 1068, subparts C and D, apply for vehicles subject to this part 1037, except that the hardship exemption provisions of 40 CFR 1068.245, 1068.250, and 1068.255 do not apply for motor vehicles.

(2) Manufacturers may comply with the defect reporting requirements of 40 CFR 1068.501 instead of the defect reporting requirements of 40 CFR part 85.

(b) Vehicles exempted from the applicable standards of 40 CFR part 86 are exempt from the standards of this part without request. Similarly, vehicles are exempt without request if the installed engine is exempted from the applicable standards in 40 CFR part 86.

(c) The prohibitions of 40 CFR 86.1854 apply for vehicles subject to the requirements of this part. The actions prohibited under this provision include the introduction into U.S. commerce of a complete or incomplete vehicle subject to the standards of this part where the vehicle is not covered by a valid certificate of conformity or exemption.

(d) Except as specifically allowed by this part, it is a violation of section 203(a)(1) of the Clean Air Act (42 U.S.C. 7522(a)(1)) to introduce into U.S. commerce a tractor containing an engine

not certified for use in tractors; or to introduce into U.S. commerce a vocational vehicle containing a light heavy-duty or medium heavy-duty engine not certified for use in vocational vehicles. This prohibition applies especially to the vehicle manufacturer.

(e) A vehicle manufacturer that completes assembly of a vehicle at two or more facilities may ask to use as the date of manufacture for that vehicle the date on which manufacturing is completed at the place of main assembly, consistent with provisions of 49 CFR 567.4. Note that such staged assembly is subject to the provisions of 40 CFR 1068.260(c). Include your request in your application for certification, along with a summary of your staged-assembly process. You may ask to apply this allowance to some or all of the vehicles in your vehicle family. Our approval is effective when we grant your certificate. We will not approve your request if we determine that you intend to use this allowance to circumvent the intent of this part.

§ 1037.610 Vehicles with innovative technologies.

(a) You may ask us to apply the provisions of this section for CO_2 emission reductions resulting from vehicle technologies that were not in common use with heavy-duty vehicles before model year 2010 that are not reflected in the GEM simulation tool. These provisions may be applied for CO_2 emission reductions reflected using the specified test procedures, provided they are not reflected in the GEM. We will apply these provisions only for technologies that will result in measurable, demonstrable, and verifiable real-world CO_2 emission reductions.

(b) The provisions of this section may be applied as either an improvement factor or as a separate credit, consistent with good engineering judgment. We recommend that you base your credit/adjustment on A to B testing of pairs of vehicles differing only with respect to the technology in question.

(1) Calculate improvement factors as the ratio of in-use emissions with the technology divided by the in-use emissions without the technology. Use the improvement-factor approach where good engineering judgment indicates that the actual benefit will be proportional to emissions measured over the test procedures specified in this part.

(2) Calculate separate credits (g/ton-mile) based on the difference between the in-use emission rate with the technology and the in-use emission rate without the technology. Multiply this difference by the number of vehicles, standard payload, and useful life. Use the separate-credit approach where good engineering judgment indicates that the actual benefit will be not be proportional to emissions measured over the test procedures specified in this part.

(3) We may require you to discount or otherwise adjust your improvement factor or credit to account for uncertainty or other relevant factors.

(c) You may perform A to B testing by measuring emissions from the vehicles during chassis testing or from in-use on-road testing. We recommend that you perform on-road testing according to SAE J1321 Joint TMC/SAE Fuel Consumption Test Procedure Type II Reaffirmed 1986–10 or SAE J1526 Joint TMC/SAE Fuel Consumption In-Service Test Procedure Type III Issued 1987–06 (see § 1037.810 for information availability of SAE standards), subject to the following provisions:

(1) The minimum route distance is 100 miles.

(2) The route selected must be representative in terms of grade. We will take into account published and relevant research in determining whether the grade is representative.

(3) The vehicle speed over the route must be representative of the drive-cycle weighting adopted for each regulatory subcategory. For example, if the route selected for an evaluation of a combination tractor with a sleeper cab contains only interstate driving, the improvement factor would apply only to 86 percent of the weighted result.

(4) The ambient air temperature must be between 5 and 35 °C, unless the technology requires other temperatures for demonstration.

(5) We may allow you to use a Portable Emissions Measurement System (PEMS) device for measuring CO_2 emissions during the on-road testing.

(d) Send your request to the Designated Compliance Officer. Include a detailed description of the technology and a recommended test plan. Also state whether you recommend applying these provisions using the improvement-factor method or the separate-credit method. We recommend that you do not begin collecting test data (for submission to EPA) before contacting us. For technologies for which the engine manufacturer could also claim credits (such as transmissions in certain circumstances), we may require you to include a letter from the engine manufacturer stating that it will not seek credits for the same technology.

(e) We may seek public comment on your request, consistent with the provisions of 40 CFR 86.1866. However, we will generally not seek public comment on credits or adjustments based on A to B chassis testing performed according to the duty-cycle testing requirements of this part or in-use testing performed according to paragraph (c) of this section.

§ 1037.615 Hybrid vehicles and other advanced technologies.

(a) This section applies for hybrid vehicles with regenerative braking, vehicles equipped with Rankine-cycle engines, electric vehicles, and fuel cell vehicles. You may not generate credits for engine features for which the engines generate credits under 40 CFR part 1036.

(b) Generate advanced technology emission credits for hybrid vehicles that include regenerative braking (or the equivalent) and energy storage systems, fuel cell vehicles, and vehicles equipped with Rankine-cycle engines as follows:

(1) Measure the effectiveness of the advanced system by chassis testing a vehicle equipped with the advanced system and an equivalent conventional vehicle, or by testing the hybrid systems and the equivalent non-hybrid systems as described in § 1037.550. Test the vehicles as specified in subpart F of this part. For purposes of this paragraph (b), a conventional vehicle is considered to be equivalent if it has the same footprint (as defined in 40 CFR 86.1803), vehicle service class, aerodynamic drag, and other relevant factors not directly related to the hybrid powertrain. If you use § 1037.525 to quantify the benefits of a hybrid system for PTO operation, the conventional vehicle must have the same number of PTO circuits and have equivalent PTO power. If you do not produce an equivalent vehicle, you may create and test a prototype equivalent vehicle. The conventional vehicle is considered Vehicle A and the advanced vehicle is considered Vehicle B. We may specify an alternate cycle if your vehicle includes a power take-off.

(2) Calculate an improvement factor and g/ton-mile benefit using the following equations and parameters:

(i) Improvement Factor = [(Emission Rate A) − (Emission Rate B)] / (Emission Rate A)

(ii) g/ton-mile benefit = Improvement Factor × (GEM Result B)

(iii) Emission Rates A and B are the g/ton-mile CO_2 emission rates of the conventional and advanced vehicles, respectively, as measured under the test procedures specified in this section. GEM Result B is the g/ton-mile CO_2 emission rate resulting from emission modeling of the advanced vehicle as specified in § 1037.520.

(3) If you apply an improvement factor to multiple vehicle configurations using the same advanced technology, use the vehicle configuration with the smallest potential reduction in greenhouse gas emissions resulting from the hybrid capability.

(4) Use the equations of § 1037.705 to convert the g/ton-mile benefit to emission credits (in Mg). Use the g/ton-mile benefit in place of the (Std-FEL) term.

(c) See § 1037.525 for special testing provisions related to hybrid vehicles equipped with power take-off units.

(d) You may use an engineering analysis to calculate an improvement factor for fuel cell vehicles based on measured emissions from the fuel cell vehicle.

(e) For electric vehicles, calculate CO_2 credits using an FEL of 0 g/ton-mile.

(f) As specified in subpart H of this part, credits generated under this section may be used under this part 1037 outside of the averaging set in which they were generated or used under 40 CFR part 1036.

(g) You may certify using both provisions of this section and the innovative technology provisions of § 1037.610, provided you do not double count emission benefits.

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§ 1037.620 Shipment of incomplete vehicles to secondary vehicle manufacturers.

This section specifies how manufacturers may introduce partially complete vehicles into U.S. commerce.

(a) The provisions of this section allow manufacturers to ship partially complete vehicles to secondary vehicle manufacturers or otherwise introduce them into U.S. commerce in the following circumstances:

(1) *Tractors.* Manufacturers may introduce partially complete tractors into U.S. commerce if they are covered by a certificate of conformity for tractors and will be in their certified tractor configuration before they reach the ultimate purchasers. For example, this would apply for sleepers initially shipped without the sleeper compartments attached. Note that delegated assembly provisions may apply (see 40 CFR 1068.261).

(2) *Vocational vehicles.* Manufacturers may introduce partially complete vocational vehicles into U.S. commerce if they are covered by a certificate of conformity for vocational vehicles and will be in their certified vocational configuration before they reach the ultimate purchasers. Note that delegated assembly provisions may apply (see 40 CFR 1068.261).

(3) *Uncertified vehicles that will be certified by secondary vehicle manufacturers.* Manufacturers may introduce into U.S. commerce partially complete vehicles for which they do not hold a certificate of conformity only as allowed by paragraph (b) of this section; however, the requirements of this section do not apply if vehicles produced by a secondary vehicle manufacturer are excluded from the standards of this part under § 1037.150(c).

(b) The provisions of this paragraph (b) generally apply where the secondary vehicle 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 manufacturer would be able to ensure that the engine and vehicle will conform to the regulations in their final configurations.

(1) A secondary manufacturer may finish assembly of partially complete vehicles in the following cases:

(i) It obtains a vehicle that is not fully assembled with the intent to manufacture a complete vehicle in a certified configuration.

(ii) It obtains a vehicle with the intent to modify it to a certified configuration before it reaches the ultimate purchaser. For example, this may apply for converting a gasoline-fueled vehicle to operate on natural gas under the terms of a valid certificate.

(2) Manufacturers may introduce partially complete vehicles into U.S. commerce as described in this paragraph (b) if they have a written request for such vehicles from a secondary vehicle manufacturer that will finish the vehicle assembly and has certified the vehicle (or the vehicle has been exempted or excluded from the requirements of this part). The written request must include a statement that the secondary manufacturer has a certificate of conformity (or exemption/exclusion) for the vehicle and identify a valid vehicle family name associated with each vehicle model ordered (or the basis for an exemption/exclusion). The original vehicle manufacturer must apply a removable label meeting the requirements of 40 CFR 1068.45 that identifies the corporate name of the original manufacturer and states that the vehicle is exempt under the provisions of § 1037.620. The name of the certifying manufacturer must also be on the label or, alternatively, on the bill of lading that accompanies the vehicles during shipment. The original manufacturer may not apply a permanent emission control information label identifying the vehicle's eventual status as a certified vehicle.

(3) If you are the secondary manufacturer and you will hold the certificate, you must include the following information in your application for certification:

(i) Identify the original manufacturer of the partially complete vehicle or of the complete vehicle you will modify.

(ii) Describe briefly how and where final assembly will be completed. Specify how you have the ability to ensure that the vehicles will conform to the regulations in their final configuration. (Note: This section prohibits using the provisions of this paragraph (b) unless you have substantial control over the design and assembly of emission controls.)

(iii) State unconditionally that you will not distribute the vehicles without conforming to all applicable regulations.

(4) If you are a secondary manufacturer and you are already a certificate holder for other families, you may receive shipment of partially complete vehicles after you apply for a certificate of conformity but before the certificate's effective date. This exemption allows the original manufacturer to ship vehicles after you have applied for a certificate of conformity. Manufacturers may introduce partially complete vehicles into U.S. commerce as described in this paragraph (b)(4) if they have a written request for such vehicles from a secondary manufacturer stating that the application for certification has been submitted (instead of the information we specify in paragraph (b)(2) of this section). We may set additional conditions under this paragraph (b)(4) to prevent circumvention of regulatory requirements.

(5) Both original and secondary manufacturers must keep the records described in this section for at least five years, including the written request for exempted vehicles and the bill of lading for each shipment (if applicable). The written request is deemed to be a submission to EPA.

(6) These provisions are intended only to allow secondary manufacturers to obtain or transport vehicles in the specific circumstances identified in this section so any exemption under this section expires when the vehicle reaches the point of final assembly identified in paragraph (b)(3)(ii) of this section.

(7) For purposes of this section, an allowance to introduce partially complete vehicles into U.S. commerce includes a conditional allowance to sell, introduce, or deliver such vehicles into commerce in the United States or import them into the United States. It does not include a general allowance to offer such vehicles for sale because this exemption is intended to apply only for cases in which the certificate holder already has an arrangement to purchase the vehicles from the original manufacturer. This exemption does not allow the original manufacturer to subsequently offer the vehicles 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 vehicles that are not labeled as specified in this section or which are shipped to someone who is not a certificate holder.

(8) We may suspend, revoke, or void an exemption under this section, as follows:

(i) We may suspend or revoke your exemption if you fail to meet the requirements of this section. We may suspend or revoke an exemption related to a specific secondary manufacturer if that manufacturer sells vehicles 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 manufacturer or set additional conditions to ensure that vehicles will be assembled in the certified configuration.

(ii) We may void an exemption for all the affected vehicles if you intentionally submit false or incomplete information or fail to keep and provide to EPA the records required by this section.

(iii) The exemption is void for a vehicle that is shipped to a company that is not a certificate holder or for a vehicle that is shipped to a secondary manufacturer that is not in compliance with the requirements of this section.

(iv) The secondary manufacturer may be liable for penalties for causing a prohibited act where the exemption is voided due to actions on the part of the secondary manufacturer.

(c) Provide instructions along with partially complete vehicles including

all information necessary to ensure that an engine will be installed in its certified configuration.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36394, June 17, 2013]

§ 1037.630 Special purpose tractors.

(a) *General provisions.* This section allows a vehicle manufacturer to reclassify certain tractors as vocational tractors. Vocational tractors are treated as vocational vehicles and are exempt from the standards of § 1037.106. Note that references to ''tractors'' outside of this section mean non-vocational tractors.

(1) This allowance is intended only for vehicles that do not typically operate at highway speeds, or would otherwise not benefit from efficiency improvements designed for line-haul tractors. This allowance is limited to the following vehicle and application types:

(i) Low-roof tractors intended for intra-city pickup and delivery, such as those that deliver bottled beverages to retail stores.

(ii) Tractors intended for off-road operation (including mixed service operation), such as those with reinforced frames and increased ground clearance.

(iii) Tractors with a GCWR over 120,000 pounds.

(2) Where we determine that a manufacturer is not applying this allowance in good faith, we may require the manufacturer to obtain preliminary approval before using this allowance.

(b) *Requirements.* The following requirements apply with respect to tractors reclassified under this section:

(1) The vehicle must fully conform to all requirements applicable to vocational vehicles under this part.

(2) Vehicles reclassified under this section must be certified as a separate vehicle family. However, they remain part of the vocational regulatory subcategory and averaging set that applies for their weight class.

(3) You must include the following additional statement on the vehicle's emission control information label under § 1037.135: ''THIS VEHICLE WAS CERTIFIED AS A VOCATIONAL TRACTOR UNDER 40 CFR 1037.630.''.

(4) You must keep records for three years to document your basis for believing the vehicles will be used as described in paragraph (a)(1) of this section. Include in your application for certification a brief description of your basis.

(c) *Production limit.* No manufacturer may produce more than 21,000 vehicles under this section in any consecutive three model year period. This means you may not exceed 6,000 in a given model year if the combined total for the previous two years was 15,000. The production limit applies with respect to all Class 7 and Class 8 tractors certified or exempted as vocational tractors. Note that in most cases, the provisions of paragraph (a) of this section will limit the allowable number of vehicles to be a number lower than the production limit of this paragraph (c).

(d) *Off-road exemption.* All the provisions of this section apply for vocational tractors exempted under § 1037.631, except as follows:

(1) The vehicles are required to comply with the requirements of § 1037.631 instead of the requirements that would otherwise apply to vocational vehicles. Vehicles complying with the requirements of § 1037.631 and using an engine certified to the standards of 40 CFR part 1036 are deemed to fully conform to all requirements applicable to vocational vehicles under this part.

(2) The vehicles must be labeled as specified under § 1037.631 instead of as specified in paragraph (b)(3) of this section.

§ 1037.631 Exemption for vocational vehicles intended for off-road use.

This section provides an exemption from the greenhouse gas standards of this part for certain vocational vehicles intended to be used extensively in off-road environments such as forests, oil fields, and construction sites. This section does not exempt the engine used in the vehicle from the standards of 40 CFR part 86 or part 1036. Note that you may not include these exempted vehicles in any credit calculations under this part.

(a) *Qualifying criteria.* Vocational vehicles intended for off-road use meeting either the criteria of paragraph (a)(1) or (a)(2) of this section are exempt without request, subject to the provisions of this section.

(1) Vehicles are exempt if the tires installed on the vehicle have a maximum speed rating at or below 55 mph.

(2) Vehicles are exempt if they were primarily designed to perform work off-road (such as in oil fields, forests, or construction sites), and they meet at least one of the criteria of paragraph (a)(2)(i) of this section and at least one of the criteria of paragraph (a)(2)(ii) of this section.

(i) The vehicle must have affixed components designed to work in an off-road environment (*i.e.*, hazardous material equipment or off-road drill equipment) or be designed to operate at low speeds such that it is unsuitable for normal highway operation.

(ii) The vehicle must meet one of the following criteria:

(A) Have an axle that has a gross axle weight rating (GAWR) of 29,000 pounds.

(B) Have a speed attainable in 2 miles of not more than 33 mph.

(C) Have a speed attainable in 2 miles of not more than 45 mph, an unloaded vehicle weight that is not less than 95 percent of its gross vehicle weight rating (GVWR), and no capacity to carry occupants other than the driver and operating crew.

(b) *Tractors*. The provisions of this section may apply for tractors only if each tractor qualifies as a vocational tractor under § 1037.630.

(c) *Recordkeeping and reporting*. (1) You must keep records to document that your exempted vehicle configurations meet all applicable requirements of this section. Keep these records for at least eight years after you stop producing the exempted vehicle model. We may review these records at any time.

(2) You must also keep records of the individual exempted vehicles you produce, including the vehicle identification number and a description of the vehicle configuration.

(3) Within 90 days after the end of each model year, you must send to the Designated Compliance Officer a report with the following information:

(i) A description of each exempted vehicle configuration, including an explanation of why it qualifies for this exemption.

(ii) The number of vehicles exempted for each vehicle configuration.

(d) *Labeling*. You must include the following additional statement on the vehicle's emission control information label under § 1037.135: ''THIS VEHICLE WAS EXEMPTED UNDER 40 CFR 1037.631.''.

§ 1037.640 Variable vehicle speed limiters.

This section specifies provisions that apply for vehicle speed limiters (VSLs) that you model under § 1037.520. This does not apply for VSLs that you do not model under § 1037.520.

(a) *General*. The regulations of this part do not constrain how you may design VSLs for your vehicles. For example, you may design your VSL to have a single fixed speed limit or a soft-top speed limit. You may also design your VSL to expire after accumulation of a predetermined number of miles. However, designs with soft tops or expiration features are subject to proration provisions under this section that do not apply to fixed VSLs that do not expire.

(b) *Definitions*. The following definitions apply for purposes of this section:

(1) Default speed limit means the speed limit that normally applies for the vehicle, except as follows:

(i) The default speed limit for adjustable VSLs must represent the speed limit that applies when the VSL is adjusted to its highest setting under paragraph (c) of this section.

(ii) For VSLs with soft tops, the default speed does not include speeds possible only during soft-top operation.

(iii) For expiring VSLs, the default does not include speeds that are possible only after expiration.

(2) Soft-top speed limit means the highest speed limit that applies during soft-top operation.

(3) Maximum soft-top duration means the maximum amount of time that a vehicle could operate above the default speed limit.

(4) Certified VSL means a VSL configuration that applies when a vehicle is new and until it expires.

(5) Expiration point means the mileage at which a vehicle's certified VSL expires (or the point at which tamper protections expire).

(6) Effective speed limit has the meaning given in paragraph (d) of this section.

(c) *Adjustments.* You may design your VSL to be adjustable; however, this may affect the value you use in the GEM.

(1) Except as specified in paragraph (c)(2) of this section, any adjustments that can be made to the engine, vehicle, or their controls that change the VSL's actual speed limit are considered to be adjustable operating parameters. Compliance is based on the vehicle being adjusted to the highest speed limit within this range.

(2) The following adjustments are not adjustable parameters:

(i) Adjustments made only to account for changing tire size or final drive ratio.

(ii) Adjustments protected by encrypted controls or passwords.

(iii) Adjustments possible only after the VSL's expiration point.

(d) *Effective speed limit.* (1) For VSLs without soft tops or expiration points that expire before 1,259,000 miles, the effective speed limit is the highest speed limit that results by adjusting the VSL or other vehicle parameters consistent with the provisions of paragraph (c) of this section.

(2) For VSLs with soft tops and/or expiration points, the effective speed limit is calculated as specified in this paragraph (d)(2), which is based on 10 hours of operation per day (394 miles per day for day cabs and 551 miles per day for sleeper cabs). Note that this calculation assumes that a fraction of this operation is speed limited (3.9 hours and 252 miles for day cabs, and 7.3 hours and 474 miles for sleeper cabs). Use the following equation to calculate the effective speed limit, rounded to the nearest 0.1 mph:

$$\text{Effective speed} = ExF * [STF * STSL + (1-STF) * DSL] + (1-ExF) * 65 \text{ mph}$$

Where:

ExF = expiration point miles/1,259,000 miles

STF = maximum number of allowable soft top operation hours per day/3.9 hours for day cabs (or maximum miles per day/252)

STF = maximum number of allowable soft top operation hours per day/7.3 hours for sleeper cabs (or maximum miles per day/474)

STSL = the soft top speed limit

DSL = the default speed limit

§ 1037.645 In-use compliance with family emission limits (FELs).

You may ask us to apply a higher in-use FEL for certain in-use vehicles, subject to the provisions of this section. Note that § 1037.225 contains provisions related to changing FELs during a model year.

(a) *Purpose.* This section is intended to address circumstances in which it is in the public interest to apply a higher in-use FEL based on forfeiting an appropriate number of emission credits.

(b) *FELs.* We may apply higher in-use FELs to your vehicles as follows:

(1) Where your vehicle family includes more than one sub-family with different FELs, we may apply a higher FEL within the family than was applied to the vehicle's configuration in your final ABT report. For example, if your vehicle family included three sub-families with FELs of 200 g/ton-mile, 210 g/ton-mile, and 220 g/ton-mile, we may apply a 220 g/ton-mile in-use FEL to vehicles that were originally designated as part of the 200 g/ton-mile or 210 g/ton-mile sub-families.

(2) Without regard to the number of sub-families in your certified vehicle family, we may specify new sub-families with higher FELs than were included in your final ABT report. We may apply these higher FELs as in-use FELs for your vehicles. For example, if your vehicle family included three sub-families with FELs of 200 g/ton-mile, 210 g/ton-mile, and 220 g/ton-mile, we may specify a new 230 g/ton-mile sub-family.

(3) In specifying sub-families and in-use FELs, we would intend to accurately reflect the actual in-use performance of your vehicles, consistent with the specified testing and modeling provisions of this part.

(c) *Equivalent families.* We may apply the higher FELs to other families in other model years if they used equivalent emission controls.

(d) *Credit forfeiture.* Where we specify higher in-use FELs under this section, you must forfeit CO_2 emission credits based on the difference between the in-use FEL and the otherwise applicable FEL. Calculate the amount of credits to be forfeited using the applicable equation in § 1037.705, by substituting the otherwise applicable FEL for the

standard and the in-use FEL for the otherwise applicable FEL.

(e) *Requests.* Submit your request to the Designated Compliance Officer. Include the following in your request:

(1) The vehicle family name, model year, and name/description of the configuration(s) affected.

(2) A list of other vehicle families/configurations/model years that may be affected.

(3) The otherwise applicable FEL for each configuration along with your recommendations for higher in-use FELs.

(4) Your source of credits for forfeiture.

(f) *Relation to recall.* You may not request higher in-use FELs for any vehicle families for which we have made a determination of nonconformance and ordered a recall. You may, however, make such requests for vehicle families for which you are performing a voluntary emission recall.

(g) *Approval.* We may approve your request if we determine that you meet the requirements of this section and such approval is in the public interest. We may include appropriate conditions with our approval or we may approve your request with modifications.

§ 1037.650 Tire manufacturers.

This section describes how the requirements of this part apply with respect to tire manufacturers that choose to provide test data or emission warranties for purposes of this part.

(a) *Testing.* You are responsible as follows for test tires and emission test results that you provide to vehicle manufacturers for the purpose of the manufacturer submitting them to EPA for certification under this part:

(1) Such test results are deemed under § 1037.825 to be submissions to EPA. This means that you may be subject to criminal penalties under 18 U.S.C. 1001 if you knowingly submit false test results to the manufacturer.

(2) You may not cause a vehicle manufacturer to violate the regulations by rendering inaccurate emission test results you provide (or emission test results from testing of test tires you provide) to the vehicle manufacturer.

(3) Your provision of test tires and emission test results to vehicle manufacturers for the purpose of certifying under this part is deemed to be an agreement to provide tires to EPA for confirmatory testing under § 1037.201.

(b) *Warranty.* You may contractually agree to process emission warranty claims on behalf of the manufacturer certifying the vehicle with respect to tires you produce.

(1) Your fulfillment of the warranty requirements of this part is deemed to fulfill the vehicle manufacturer's warranty obligations under this part with respect to tires you warrant.

(2) You may not cause a vehicle manufacturer to violate the regulations by failing to fulfill the emission warranty requirements that you contractually agreed to fulfill.

§ 1037.655 Post-useful life vehicle modifications.

This section specifies vehicle modifications that may occur after a vehicle reaches the end of its regulatory useful life. It does not apply with respect to modifications that occur within the useful life period. It also does not apply with respect to engine modifications or recalibrations. Note that many such modifications to the vehicle during the useful life and to the engine at any time are presumed to violate 42 U.S.C. 7522(a)(3)(A).

(a) *General.* Except as allowed by this section, it is prohibited for any person to remove or render inoperative any emission control device installed to comply with the requirements of this part 1037.

(b) *Allowable modifications.* You may modify a vehicle for the purpose of reducing emissions, provided you have a reasonable technical basis for knowing that such modification will not increase emissions of any other pollutant. Reasonable technical basis has the meaning given in 40 CFR 1068.30. This generally requires you to have information that would lead an engineer or other person familiar with engine and vehicle design and function to reasonably believe that the modifications will not increase emissions of any regulated pollutant.

(c) *Examples of allowable modifications.* The following are examples of allowable modifications:

(1) It is generally allowable to remove tractor roof fairings after the end of the vehicle's useful life if the vehicle will no longer be used primarily to pull box trailers.

(2) Other fairings may be removed after the end of the vehicle's useful life if the vehicle will no longer be used significantly on highways with vehicle speed of 55 miles per hour or higher.

(d) *Examples of prohibited modifications.* The following are examples of modifications that are not allowable:

(1) No person may disable a vehicle speed limiter prior to its expiration point.

(2) No person may remove aerodynamic fairings from tractors that are used primarily to pull box trailers on highways.

§ 1037.660 Automatic engine shutdown systems.

This section specifies requirements that apply for certified automatic engine shutdown (AES) systems modeled under § 1037.520. It does not apply for AES systems you do not model under § 1037.520.

(a) *Minimum requirements.* Your AES system must meet all of the requirements of this paragraph (a) to be modeled under § 1037.520. The system must shut down the engine within 300 seconds when all the following conditions are met:

(1) The transmission is set in neutral with the parking brake engaged (or the transmission is set to park if so equipped).

(2) The operator has not reset the system timer within the 300 seconds by changing the position of the accelerator, brake, or clutch pedal; or by some other mechanism we approve.

(3) None of the override conditions of paragraph (b) of this section are met.

(b) *Override conditions.* The system may delay shutting the engine down while any of the conditions of this paragraph (b) apply. Engines equipped with auto restart may restart during override conditions. Note that these conditions allow the system to delay shutdown or restart, but do not allow it to reset the timer. The system may delay shutdown—

(1) While an exhaust emission control device is regenerating. The period considered to be regeneration for purposes of this allowance must be consistent with good engineering judgment and may differ in length from the period considered to be regeneration for other purposes. For example, in some cases it may be appropriate to include a cool down period for this purpose but not for infrequent regeneration adjustment factors.

(2) If necessary while servicing the vehicle, provided the deactivation of the AES system is accomplished using a diagnostic scan tool. The system must be automatically reactivated when the engine is shutdown for more than 60 minutes.

(3) If the vehicle's main battery state-of-charge is not sufficient to allow the main engine to be restarted.

(4) If the external ambient temperature reaches a level below which or above which the cabin temperature cannot be maintained within reasonable heat or cold exposure threshold limit values for the health and safety of the operator (not merely comfort).

(5) If the vehicle's engine coolant temperature is too low according to the manufacturer's engine protection guidance. This may also apply for fuel or oil temperatures. This allows the engine to continue operating until it reaches a predefined temperature at which the shutdown sequence of paragraph (a) of this section would resume.

(6) The system may delay shutdown while the vehicle's main engine is operating in power take-off (PTO) mode. For purposes of this paragraph (b)(6), an engine is considered to be in PTO mode when a switch or setting designating PTO mode is enabled.

(c) *Adjustments to AES systems.* (1) The AES system may include an expiration point (in miles) after which the AES system may be disabled. If your vehicle is equipped with an AES system that expires before 1,259,000 miles, adjust the model input as follows, rounded to the nearest 0.1 g/ton-mile: AES Input = 5 g CO_2/ton-mile × (miles at expiration/1,259,000 miles)

(2) For AES systems designed to limit idling to a specific number of hours less than 1,800 hours over any 12-month period, calculate an adjusted AES input using the following equation, rounded to the nearest 0.1 g/ton-

mile: AES Input = 5 g CO_2/ton-mile × (1–(maximum allowable number of idling hours per year/1,800 hours)). This is an annual allowance that starts when the vehicle is new and resets every 12 months after that. Manufacturers may propose an alternative method based on operating hours or miles instead of years.

(d) *Adjustable parameters.* Provisions that apply generally with respect to adjustable parameters also apply to the AES system operating parameters, except the following are not considered to be adjustable parameters:

(1) Accelerator, brake, and clutch pedals, with respect to resetting the idle timer. Parameters associated with other timer reset mechanisms we approve are also not adjustable parameters.

(2) Bypass parameters allowed for vehicle service under paragraph (b)(2) of this section.

(3) Parameters that are adjustable only after the expiration point.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36394, June 17, 2013]

Subpart H—Averaging, Banking, and Trading for Certification

§ 1037.701 General provisions.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart and in subpart B of this part to show compliance with the standards of §§ 1037.105 and 1037.106. 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 vehicles in which emission credits may be exchanged. Credits generated by one vehicle may only be used by other vehicles in the same averaging set. Note that an averaging set may comprise more than one regulatory subcategory. See § 1037.740.

(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) *Reserved emission credits* means emission credits you have generated that we have not yet verified by reviewing your final report.

(6) *Seller* means the entity that provides emission credits during a trade.

(7) *Standard* means the emission standard that applies under subpart B of this part for vehicles not participating in the ABT program of this subpart.

(8) *Trade* means to exchange emission credits, either as a buyer or seller.

(c) Emission credits may be exchanged only within an averaging set as specified in § 1037.740.

(d) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard, except as allowed by § 1037.645.

(e) You may trade emission credits generated from any number of your vehicles to the vehicle purchasers or other parties to retire the credits. Identify any such credits in the reports described in § 1037.730. Vehicles must comply with the applicable FELs even if you donate or sell the corresponding emission credits under this paragraph (e). Those credits may no longer be used by anyone to demonstrate compliance with any EPA emission standards.

(f) Emission credits may be used in the model year they are generated. Surplus emission credits may be banked for future model years. Surplus emission credits may sometimes be used for past model years, as described in § 1037.745.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under § 1037.225. The new FEL may apply only to vehicles you have not already introduced into commerce.

(h) See § 1037.740 for special credit provisions that apply for credits generated under § 1037.104(d)(7), § 1037.615 or 40 CFR 1036.615.

(i) Unless the regulations explicitly allow it, you may not calculate credits more than once for any emission reduction. For example, if you generate CO_2

emission credits for a given hybrid vehicle under this part, no one may generate CO_2 emission credits for the hybrid engine under 40 CFR part 1036. However, credits could be generated for identical engine used in vehicles that did not generate credits under this part.

§ 1037.705 Generating and calculating emission credits.

(a) The provisions of this section apply separately for calculating emission credits for each pollutant.

(b) For each participating family or subfamily, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family or subfamily that has an FEL below the standard. Calculate negative emission credits for a family or subfamily 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 megagram (Mg), using consistent units throughout the following equations:

(1) For vocational vehicles:

$$\text{Emission credits (Mg)} = (\text{Std-FEL}) \times (\text{Payload Tons}) \times (\text{Volume}) \times (\text{UL}) \times (10^{-6})$$

Where:

Std = the emission standard associated with the specific tractor regulatory subcategory (g/ton-mile).

FEL = the family emission limit for the vehicle subfamily (g/ton-mile).

Payload tons = the prescribed payload for each class in tons (2.85 tons for light heavy-duty vehicles, 5.6 tons for medium heavy-duty vehicles, and 7.5 tons for heavy heavy-duty vehicles).

Volume = U.S.-directed production volume of the vehicle subfamily. For example, if you produce three configurations with the same FEL, the subfamily production volume would be the sum of the production volumes for these three configurations.

UL = useful life of the vehicle (110,000 miles for light heavy-duty vehicles, 185,000 miles for medium heavy-duty vehicles, and 435,000 miles for heavy heavy-duty vehicles).

(2) For tractors:

$$\text{Emission credits (Mg)} = (\text{Std-FEL}) \times (\text{Payload tons}) \times (\text{Volume}) \times (\text{UL}) \times (10^{-6})$$

Where:

Std = the emission standard associated with the specific tractor regulatory subcategory (g/ton-mile).

FEL = the family emission limit for the vehicle subfamily (g/ton-mile).

Payload tons = the prescribed payload for each class in tons (12.5 tons for Class 7 and 19 tons for Class 8).

Volume = U.S.-directed production volume of the vehicle subfamily.

UL = useful life of the tractor (435,000 miles for Class 8 and 185,000 miles for Class 7).

(c) As described in § 1037.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual U.S.-directed production volumes. Keep appropriate records to document these production volumes. Do not include any of the following vehicles to calculate emission credits:

(1) Vehicles that you do not certify to the CO_2 standards of this part because they are permanently exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported vehicles.

(3) Vehicles not subject to the requirements of this part, such as those excluded under § 1037.5.

(4) Any other vehicles, where we indicate elsewhere in this part 1037 that they are not to be included in the calculations of this subpart.

§ 1037.710 Averaging.

(a) Averaging is the exchange of emission credits among your vehicle families. You may average emission credits only within the same averaging set.

(b) You may certify one or more vehicle families (or subfamilies) to an FEL above the applicable standard, subject to any applicable 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 or that a negative balance is allowed under § 1037.745.

(c) If you certify a vehicle family to an FEL that exceeds the otherwise applicable standard, you must obtain enough emission credits to offset the vehicle family's deficit by the due date for the final report required in § 1037.730. The emission credits used to

address the deficit may come from your other vehicle families that generate emission credits in the same model year (or from later model years as specified in § 1037.745), from emission credits you have banked, or from emission credits you obtain through trading.

§ 1037.715 Banking.

(a) Banking is the retention of surplus emission credits by the manufacturer generating the emission credits for use in future model years for averaging or trading.

(b) You may designate any emission credits you plan to bank in the reports you submit under § 1037.730 as reserved credits. 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.

(d) Banked credits retain the designation of the averaging set in which they were generated.

§ 1037.720 Trading.

(a) Trading is the exchange of emission credits between manufacturers, or the transfer of credits to another party to retire them. You may use traded emission credits for averaging, banking, or further trading transactions. Traded emission credits remain subject to the averaging-set restrictions based on the averaging set in which they were generated.

(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.

(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 § 1037.255(e) for cases involving fraud. We may void the certificates of all vehicle families participating in a trade that results in a manufacturer having a negative balance of emission credits. See § 1037.745.

§ 1037.725 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 vehicle family that will be certified using the ABT program. You must also declare the FELs you select for the vehicle family or subfamily 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 applicable standards.

(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; or a statement that you will have a negative balance of emission credits for one or more averaging sets but that it is allowed under § 1037.745.

(2) Calculations of projected emission credits (positive or negative) based on projected U.S.-directed production volumes. We may require you to include similar calculations from your other vehicle families to project your net credit balances for the model year. If you project negative emission credits for a family or subfamily, state the source of positive emission credits you expect to use to offset the negative emission credits.

§ 1037.730 ABT reports.

(a) If any of your vehicle 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.

(b) Your end-of-year and final reports must include the following information for each vehicle family participating in the ABT program:

(1) Vehicle-family and subfamily designations.

(2) The regulatory subcategory and emission standards that would otherwise apply to the vehicle 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 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 as specified in § 1037.225.

(4) The projected and actual U.S.-directed production volumes for the model year. If you changed an FEL during the model year, identify the actual production volume associated with each FEL.

(5) Useful life.

(6) Calculated positive or negative emission credits for the whole vehicle family. Identify any emission credits that you traded, as described in paragraph (d)(1) of this section.

(7) If you have a negative credit balance for the averaging set in the given model year, specify whether the vehicle family (or certain subfamilies with the vehicle family) have a credit deficit for the year. Consider for example, a manufacturer with three vehicle families (''A'', ''B'', and ''C'') in a given averaging set. If family A generates enough credits to offset the negative credits of family B but not enough to also offset the negative credits of family C (and the manufacturer has no banked credits in the averaging set), the manufacturer may designate families A and B as having no deficit for the model year, provided it designates family C as having a deficit for the model year.

(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 vehicle families in each averaging set in the applicable model year is not negative, except as allowed under § 1037.745.

(2) State whether you will reserve 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 vehicle 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 vehicle 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.

§ 1037.735 Recordkeeping.

(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 vehicles 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 §§ 1037.725 and 1037.730.

(d) Keep records of the vehicle identification number for each vehicle 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 vehicle identification numbers associated with each FEL. You must also identify the purchaser and destination for each vehicle you produce to the extent this information is available.

(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.

§ 1037.740 Restrictions for using emission credits.

The following restrictions apply for using emission credits:

(a) *Averaging sets.* Except as specified in paragraph (b) of this section, emission credits may be exchanged only within an averaging set. There are three principal averaging sets for vehicles subject to this subpart.

(1) Vehicles at or below 19,500 pounds GVWR that are subject to the standards of § 1037.105.

(2) Vehicles above 19,500 pounds GVWR but at or below 33,000 pounds GVWR.

(3) Vehicles over 33,000 pounds GVWR.

(4) Note that other separate averaging sets also apply for emission credits not related to this subpart. For example, under § 1037.104, an additional averaging set comprises all vehicles subject to the standards of that section. Separate averaging sets also apply for engines under 40 CFR part 1036, including engines used in vehicles subject to this subpart.

(b) *Credits from hybrid vehicles and other advanced technologies.* The averaging set restrictions of paragraph (a) of this section do not apply for credits generated under § 1037.104(d)(7), § 1037.615 or 40 CFR 1036.615 from hybrid vehicles with regenerative braking, or from other advanced technologies.

(1) The maximum amount of credits you may bring into the following service class groups is 60,000 Mg per model year:

(i) Spark-ignition engines, light heavy-duty compression-ignition engines, and light heavy-duty vehicles. This group comprises the averaging set listed in paragraphs (a)(1) of this section and the averaging set listed in 40 CFR 1036.740(a)(1) and (2).

(ii) Medium heavy-duty compression-ignition engines and medium heavy-duty vehicles. This group comprises the averaging sets listed in paragraph (a)(2) of this section and 40 CFR 1036.740(a)(3).

(iii) Heavy heavy-duty compression-ignition engines and heavy heavy-duty vehicles. This group comprises the averaging sets listed in paragraph (a)(3) of this section and 40 CFR 1036.740(a)(4).

(2) The limit specified in paragraph (b)(1) of this section does not limit the amount of advanced technology credits that can be used within a service class group if they were generated in that same service class group.

(c) C*redit life.* Credits expire after five years.

(d) *Other restrictions.* Other sections of this part specify additional restrictions for using emission credits under certain special provisions.

§ 1037.745 End-of-year CO_2 credit deficits.

Except as allowed by this section, we may void the certificate of any vehicle family certified to an FEL above the applicable standard for which you do

not have sufficient credits by the deadline for submitting the final report.

(a) Your certificate for a vehicle family for which you do not have sufficient CO_2 credits will not be void if you remedy the deficit with surplus credits within three model years. For example, if you have a credit deficit of 500 Mg for a vehicle family at the end of model year 2015, you must generate (or otherwise obtain) a surplus of at least 500 Mg in that same averaging set by the end of model year 2018.

(b) You may apply only surplus credits to your deficit. You may not apply credits to a deficit from an earlier model year if they were generated in a model year for which any of your vehicle families for that averaging set had an end-of-year credit deficit.

(c) If you do not remedy the deficit with surplus credits within three model years, we may void your certificate for that vehicle family. Note that voiding a certificate applies *ab initio*. Where the net deficit is less than the total amount of negative credits originally generated by the family, we will void the certificate only with respect to the number of vehicles needed to reach the amount of the net deficit. For example, if the original vehicle family generated 500 Mg of negative credits, and the manufacturer's net deficit after three years was 250 Mg, we would void the certificate with respect to half of the vehicles in the family.

(d) For purposes of calculating the statute of limitations, the following actions are all considered to occur at the expiration of the deadline for offsetting debits as specified in paragraph (a) of this section:

(1) Failing to meet the requirements of paragraph (a) of this section.

(2) Failing to satisfy the conditions upon which a certificate was issued relative to offsetting debits.

(3) Selling, offering for sale, introducing or delivering into U.S. commerce, or importing vehicles that are found not to be covered by a certificate as a result of failing to offset debits.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36394, June 17, 2013]

§ 1037.750 What can happen if I do not comply with the provisions of this subpart?

(a) For each vehicle family participating in the ABT program, the certificate of conformity is conditioned 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 vehicle family if you fail to comply with any provisions of this subpart.

(b) You may certify your vehicle family or subfamily to an FEL above an applicable standard based on a projection that you will have enough emission credits to offset the deficit for the vehicle family. See § 1037.745 for provisions specifying what happens if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in a vehicle family.

(c) We may void the certificate of conformity for a vehicle family if you fail to keep records, send reports, or give us information we request. Note that failing to keep records, send reports, or give us information we request is also a violation of 42 U.S.C. 7522(a)(2).

(d) You may ask for a hearing if we void your certificate under this section (see § 1037.820).

§ 1037.755 Information provided to the Department of Transportation.

After receipt of each manufacturer's final report as specified in § 1037.730 and completion of any verification testing required to validate the manufacturer's submitted final data, we will issue a report to the Department of Transportation with CO_2 emission information and will verify the accuracy of each manufacturer's equivalent fuel consumption data required by NHTSA under 49 CFR 535.8. We will send a report to DOT for each vehicle manufacturer based on each regulatory category and subcategory, including sufficient information for NHTSA to determine fuel consumption and associated credit values. See 49 CFR 535.8 to determine if NHTSA deems submission of this information to EPA to also be a submission to NHTSA.

Subpart I—Definitions and Other Reference Information

§ 1037.801 Definitions.

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Act gives to them. The definitions follow:

A to B testing means testing performed in pairs to allow comparison of vehicle A to vehicle B.

Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

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 measured or modeled emissions (as applicable). You may ask us to exclude a parameter that is difficult to access if it cannot be adjusted to affect emissions without significantly degrading vehicle performance, or if you otherwise show us that it will not be adjusted in a way that affects emissions during in-use operation.

Adjusted Loaded Vehicle Weight means the numerical average of vehicle curb weight and GVWR.

Advanced technology means vehicle technology certified under § 1037.615, § 1037.104(d)(7), or 40 CFR 1036.615.

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 vehicle exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR) and turbochargers are not aftertreatment.

Alcohol-fueled vehicle means a vehicle 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.

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.

Averaging set has the meaning given in § 1037.701.

Cab-complete vehicle means a vehicle that is first sold as an incomplete vehicle that substantially includes its cab. Vehicles known commercially as chassis-cabs, cab-chassis, box-deletes, bed-deletes, cut-away vans are considered cab-complete vehicles. For purposes of this definition, a cab includes a steering column and passenger compartment. Note a vehicle lacking some components of the cab is a cab-complete vehicle if it substantially includes the cab.

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.

Carbon-related exhaust emissions (CREE) has the meaning given in 40 CFR 600.002. Note that CREE represents the combined mass of carbon emitted as HC, CO, and CO_2, expressed as having a molecular weight equal to that of CO_2.

Carryover means relating to certification based on emission data generated from an earlier model year.

Certification means relating to the process of obtaining a certificate of conformity for a vehicle family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in a vehicle family for a given pollutant from either transient or steady-state testing.

Class means relating to GVWR classes, as follows:

(1) *Class 2b* means heavy-duty motor vehicles at or below 10,000 pounds GVWR.

(2) *Class 3* means heavy-duty motor vehicles above 10,000 pounds GVWR but at or below 14,000 pounds GVWR.

(3) *Class 4* means heavy-duty motor vehicles above 14,000 pounds GVWR but at or below 16,000 pounds GVWR.

(4) *Class 5* means heavy-duty motor vehicles above 16,000 pounds GVWR but at or below 19,500 pounds GVWR.

(5) *Class 6* means heavy-duty motor vehicles above 19,500 pounds GVWR but at or below 26,000 pounds GVWR.

(6) *Class 7* means heavy-duty motor vehicles above 26,000 pounds GVWR but at or below 33,000 pounds GVWR.

(7) *Class 8* means heavy-duty motor vehicles above 33,000 pounds GVWR.

Complete vehicle has the meaning given in the definition of *vehicle* in this section.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine.

Curb weight has the meaning given in 40 CFR 86.1803, consistent with the provisions of § 1037.140.

Date of manufacture means the date on which the certifying vehicle manufacturer completes its manufacturing operations, except as follows:

(1) Where the certificate holder is an engine manufacturer that does not manufacture the chassis, the date of manufacture of the vehicle is based on the date assembly of the vehicle is completed.

(2) We may approve an alternate date of manufacture based on the date on which the certifying (or primary) manufacturer completes assembly at the place of main assembly, consistent with the provisions of § 1037.601 and 49 CFR 567.4.

Day cab means a type of tractor cab that is not a sleeper cab.

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 vehicle. Note that where no deterioration factor applies, references in this part to the *deteriorated emission level* mean the official emission result.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point, 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.

Driver model means an automated controller that simulates a person driving a vehicle.

Electric vehicle means a vehicle that does not include an engine, and is powered solely by an external source of electricity and/or solar power. Note that this does not include electric hybrid or fuel-cell vehicles that use a chemical fuel such as gasoline, diesel fuel, or hydrogen. Electric vehicles may also be referred to as all-electric vehicles to distinguish them from hybrid vehicles.

Emission control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from a vehicle.

Emission-data vehicle means a vehicle that is tested for certification. This includes vehicle tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Excluded means relating to vehicles that are not subject to some or all of the requirements of this part as follows:

(1) A vehicle that has been determined not to be a motor vehicle is excluded from this part.

(2) Certain vehicles are excluded from the requirements of this part under § 1037.5.

(3) Specific regulatory provisions of this part may exclude a vehicle generally subject to this part from one or more specific standards or requirements of this part.

Exempted has the meaning given in 40 CFR 1068.30.

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. Note that an FEL may apply as a ''subfamily'' emission limit.

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 pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents. It also includes components for controlling evaporative emissions, such as fuel caps, purge valves, and carbon canisters.

Fuel type means a general category of fuels such as diesel fuel or natural gas. There can be multiple grades within a single fuel type, such as high-sulfur or low-sulfur diesel fuel.

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.

Gross combination weight rating (GCWR) means the value specified by the vehicle manufacturer as the maximum weight of a loaded vehicle and trailer, consistent with good engineering judgment. For example, compliance with SAE J2807 is generally considered to be consistent with good engineering judgment, especially for Class 3 and smaller vehicles.

Gross vehicle weight rating (GVWR) means the value specified by the vehicle manufacturer as the maximum design loaded weight of a single vehicle, consistent with good engineering judgment.

Heavy-duty engine means any engine used for (or for which the engine manufacturer could reasonably expect to be used for) motive power in a heavy-duty vehicle.

Heavy-duty vehicle means any motor vehicle above 8,500 pounds GVWR or that has a vehicle curb weight above 6,000 pounds or that has a basic vehicle frontal area greater than 45 square feet.

Hybrid engine or *hybrid powertrain* means an engine or powertrain that includes energy storage features other than a conventional battery system or conventional flywheel. Supplemental electrical batteries and hydraulic accumulators are examples of hybrid energy storage systems. Note that certain provisions in this part treat hybrid engines and powertrains intended for vehicles that include regenerative braking different than those intended for vehicles that do not include regenerative braking.

Hybrid vehicle means a vehicle that includes energy storage features (other than a conventional battery system or conventional flywheel) in addition to an internal combustion engine or other engine using consumable chemical fuel. Supplemental electrical batteries and hydraulic accumulators are examples of hybrid energy storage systems. Note that certain provisions in this part treat hybrid vehicles that include regenerative braking different than those that do not include regenerative braking.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type. For alcohol-fueled vehicles, HC means nonmethane hydrocarbon equivalent (NMHCE) for exhaust emissions and total hydrocarbon equivalent (THCE) for evaporative emissions. For all other vehicles, HC means nonmethane hydrocarbon (NMHC) for exhaust emissions and total hydrocarbon (THC) for evaporative emissions.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular vehicle from other similar vehicles.

Incomplete vehicle has the meaning given in the definition of *vehicle* in this section.

Innovative technology means technology certified under § 1037.610.

Light-duty truck means any motor vehicle rated at or below 8,500 pounds GVWR with a curb weight at or below 6,000 pounds and basic vehicle frontal area at or below 45 square feet, which is:

(1) Designed primarily for purposes of transportation of property or is a derivation of such a vehicle; or

(2) Designed primarily for transportation of persons and has a capacity of more than 12 persons; or

(3) Available with special features enabling off-street or off-highway operation and use.

Light-duty vehicle means a passenger car or passenger car derivative capable of seating 12 or fewer passengers.

Low-mileage means relating to a vehicle with stabilized emissions and represents the undeteriorated emission level. This would generally involve approximately 4000 miles of operation.

Low rolling resistance tire means a tire on a vocational vehicle with a TRRL at or below of 7.7 kg/metric ton, a steer tire on a tractor with a TRRL at or below 7.7 kg/metric ton, or a drive tire on a tractor with a TRRL at or below 8.1 kg/metric ton.

Manufacture means the physical and engineering process of designing, constructing, and/or assembling a vehicle.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a vehicle or vehicle for sale in the United States or otherwise introduces a new motor vehicle into commerce in the United States. This includes importers who import vehicles or vehicles for resale.

Medium-duty passenger vehicle (MDPV) has the meaning given in 40 CFR 86.1803.

Model year means the manufacturer's annual new model production period, except as restricted under this definition and 40 CFR part 85, subpart X. It must include January 1 of the calendar year for which the model year is named, may not begin before January 2 of the previous calendar year, and it must end by December 31 of the named calendar year.

(1) The manufacturer who holds the certificate of conformity for the vehicle must assign the model year based on the date when its manufacturing operations are completed relative to its annual model year period. In unusual circumstances where completion of your assembly is delayed, we may allow you to assign a model year one year earlier, provided it does not affect which regulatory requirements will apply.

(2) Unless a vehicle is being shipped to a secondary manufacturer that will hold the certificate of conformity, the model year must be assigned prior to introduction of the vehicle into U.S. commerce. The certifying manufacturer must redesignate the model year if it does not complete its manufacturing operations within the originally identified model year. A vehicle introduced into U.S. commerce without a model year is deemed to have a model year equal to the calendar year of its introduction into U.S. commerce unless the certifying manufacturer assigns a later date.

Motor vehicle has the meaning given in 40 CFR 85.1703.

New motor vehicle means a motor vehicle meeting the criteria of either paragraph (1) or (2) of this definition. New motor vehicles may be complete or incomplete.

(1) A motor vehicle for which the ultimate purchaser has never received the equitable or legal title is a *new motor vehicle*. This kind of vehicle might commonly be thought of as ''brand new'' although a *new motor vehicle* may include previously used parts. Under this definition, the vehicle is new from the time it is produced until the ultimate purchaser receives the title or places it into service, whichever comes first.

(2) An imported heavy-duty motor vehicle originally produced after the 1969 model year is a *new motor vehicle*.

Noncompliant vehicle means a vehicle 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 vehicle means a vehicle not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonmethane hydrocarbons (NMHC) means the sum of all hydrocarbon species except methane, as measured according to 40 CFR part 1065.

Official emission result means the measured emission rate for an emission-data vehicle on a given duty cycle before the application of any required deterioration factor, but after the applicability of regeneration adjustment factors.

Owners manual means a document or collection of documents prepared by the vehicle manufacturer for the owners or operators to describe appropriate

vehicle maintenance, applicable warranties, and any other information related to operating or keeping the vehicle. The owners manual is typically provided to the ultimate purchaser at the time of sale.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Particulate trap means a filtering device that is designed to physically trap all particulate matter above a certain size.

Percent has the meaning given in 40 CFR 1065.1001. Note that this means percentages identified in this part are assumed to be infinitely precise without regard to the number of significant figures. For example, one percent of 1,493 is 14.93.

Placed into service means put into initial use for its intended purpose.

Power take-off (PTO) means a secondary engine shaft (or equivalent) that provides substantial auxiliary power for purposes unrelated to vehicle propulsion or normal vehicle accessories such as air conditioning, power steering, and basic electrical accessories. A typical PTO uses a secondary shaft on the engine to transmit power to a hydraulic pump that powers auxiliary equipment, such as a boom on a bucket truck. You may ask us to consider other equivalent auxiliary power configurations (such as those with hybrid vehicles) as power take-off systems.

Preliminary approval means approval granted by an authorized EPA representative prior to submission of an application for certification, consistent with the provisions of § 1037.210.

Rechargeable Energy Storage System (RESS) means the component(s) of a hybrid engine or vehicle that store recovered energy for later use, such as the battery system in an electric hybrid vehicle.

Regulatory sub-category means one of the following groups:

(1) All vehicles subject to the standards of § 1037.104. Note that this category includes most gasoline-fueled and diesel-fueled heavy-duty pickup trucks and vans.

(2) [Reserved]

(3) Vocational vehicles at or below 19,500 pounds GVWR.

(4) Vocational vehicles above 19,500 pounds GVWR but at or below 33,000 pounds GVWR.

(5) Vocational vehicles over 33,000 pounds GVWR.

(6) Low-roof tractors above 26,000 pounds GVWR but at or below 33,000 pounds GVWR.

(7) Mid-roof tractors above 26,000 pounds GVWR but at or below 33,000 pounds GVWR.

(8) High-roof tractors above 26,000 pounds GVWR but at or below 33,000 pounds GVWR.

(9) Low-roof day cab tractors above 33,000 pounds GVWR.

(10) Low-roof sleeper cab tractors above 33,000 pounds GVWR.

(11) Mid-roof day cab tractors above 33,000 pounds GVWR.

(12) Mid-roof sleeper cab tractors above 33,000 pounds GVWR.

(13) High-roof day cab tractors above 33,000 pounds GVWR.

(14) High-roof sleeper cab tractors above 33,000 pounds GVWR.

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.

Roof height means the maximum height of a vehicle (rounded to the nearest inch), excluding narrow accessories such as exhaust pipes and antennas, but including any wide accessories such as roof fairings. Measure roof height of the vehicle configured to have its maximum height that will occur during actual use, with properly inflated tires and no driver, passengers, or cargo onboard. *Roof height* may also refer to the following categories:

(1) Low-roof means relating to a vehicle with a roof height of 120 inches or less.

(2) Mid-roof means relating to a vehicle with a roof height of 121 to 147 inches.

(3) High-roof means relating to a vehicle with a roof height of 148 inches or more.

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.

Sleeper cab means a type of tractor cab that has a compartment behind the driver's seat intended to be used by the driver for sleeping. This includes cabs accessible from the driver's compartment and those accessible from outside the vehicle.

Small manufacturer means a manufacturer meeting the criteria specified in 13 CFR 121.201. For manufacturers owned by a parent company, the employee and revenue limits apply to the total number employees and total revenue of the 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.

Standard payload means the vehicle payload assumed for each class in tons for modeling and calculating emission credits. There are three standard payloads:

(1) 2.85 tons for light heavy-duty vehicles.

(2) 5.6 tons for medium heavy-duty vehicles.

(3) 7.5 tons for heavy heavy-duty vehicles.

Standard trailer has the meaning given in § 1037.501.

Suspend has the meaning given in 40 CFR 1068.30.

Test sample means the collection of vehicles selected from the population of a vehicle family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Test vehicle means a vehicle in a test sample.

Test weight means the vehicle weight used or represented during testing.

Tire rolling resistance level (TRRL) means a value with units of kg/metric ton that represents that rolling resistance of a tire configuration. TRRLs are used as inputs to the GEM model under § 1037.520. Note that a manufacturer may assign a value higher than the measured rolling resistance of a tire configuration.

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 an atomic hydrogen-to-carbon 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 vehicles. The atomic hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Tractor has the meaning given for ''truck tractor'' in 49 CFR 571.3. This includes most heavy-duty vehicles specifically designed for the primary purpose of pulling trailers, but does not include vehicles designed to carry other loads. For purposes of this definition ''other loads'' would not include loads carried in the cab, sleeper compartment, or toolboxes. Examples of vehicles that are similar to tractors but that are not *tractors* under this part include dromedary tractors, automobile haulers, straight trucks with trailers hitches, and tow trucks. Note that the provisions of this part that apply for tractors do not apply for tractors that are classified as vocational tractors under § 1037.630.

Ultimate purchaser means, with respect to any new vehicle, the first person who in good faith purchases such new vehicle for purposes other than resale.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for a vehicle family the model year after the one currently in production.

U.S.-directed production volume means the number of vehicle 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. This does not include vehicles certified to state emission standards that are different than the emission standards in this part.

Useful life means the period during which a vehicle is required to comply with all applicable emission standards.

Vehicle means equipment intended for use on highways that meets the criteria of paragraph (1)(i) or (1)(ii) of this definition, as follows:

(1) The following equipment are vehicles:

(i) A piece of equipment that is intended for self-propelled use on highways becomes a vehicle when it includes at least an engine, a transmission, and a frame. (Note: For purposes of this definition, any electrical, mechanical, and/or hydraulic devices attached to engines for the purpose of powering wheels are considered to be transmissions.)

(ii) A piece of equipment that is intended for self-propelled use on highways becomes a vehicle when it includes a passenger compartment attached to a frame with axles.

(2) Vehicles may be complete or incomplete vehicles as follows:

(i) A *complete vehicle* is a functioning vehicle that has the primary load carrying device or container (or equivalent equipment) attached. Examples of equivalent equipment would include fifth wheel trailer hitches, firefighting equipment, and utility booms.

(ii) An *incomplete vehicle* is a vehicle that is not a complete vehicle. Incomplete vehicles may also be cab-complete vehicles. This may include vehicles sold to secondary vehicle manufacturers.

(iii) The primary use of the terms ''complete vehicle'' and ''incomplete vehicle'' are to distinguish whether a vehicle is complete when it is first sold as a vehicle.

(iv) You may ask us to allow you to certify a vehicle as incomplete if you manufacture the engines and sell the unassembled chassis components, as long as you do not produce and sell the body components necessary to complete the vehicle.

(3) Equipment such as trailers that are not self-propelled are not ''vehicles'' under this part 1037.

Vehicle configuration means a unique combination of vehicle hardware and calibration (related to measured or modeled emissions) within a vehicle family. Vehicles with hardware or software differences, but that have no hardware or software differences related to measured or modeled emissions may be included in the same vehicle configuration. Note that vehicles with hardware or software differences related to measured or modeled emissions are considered to be different configurations even if they have the same GEM inputs and FEL. Vehicles within a vehicle configuration differ only with respect to normal production variability or factors unrelated to measured or modeled emissions.

Vehicle family has the meaning given in § 1037.230.

Vehicle service class means a vehicle's weight class as specified in this definition. Note that, while *vehicle service class* is similar to primary intended service class for engines, they are not necessarily the same. For example, a medium heavy-duty vehicle may include a light heavy-duty engine. Note also that while spark-ignition engines do not have a primary intended service class, vehicles using spark-ignition engines have a vehicle service class.

(1) Light heavy-duty vehicles are those vehicles with GVWR below 19,500 pounds.

Vehicles In this class include heavy-duty pickup trucks and vans, motor homes and other recreational vehicles, and some straight trucks with a single rear axle. Typical applications would include personal transportation, light-load commercial delivery, passenger service, agriculture, and construction.

(2) Medium heavy-duty vehicles are those vehicles with GVWR from 19,500 to 33,000 pounds. Vehicles in this class include school buses, straight trucks with a single rear axle, city tractors,

and a variety of special purpose vehicles such as small dump trucks, and refuse trucks. Typical applications would include commercial short haul and intra-city delivery and pickup.

(3) Heavy heavy-duty vehicles are those vehicles with GVWR above 33,000 pounds. Vehicles in this class include tractors, urban buses, and other heavy trucks.

Vehicle subfamily or *subfamily* means a subset of a vehicle family including vehicles subject to the same FEL(s).

Vocational tractor means a vehicle classified as a vocational tractor under § 1037.630.

Vocational vehicle means relating to a vehicle subject to the standards of § 1037.105 (including vocational tractors).

Void has the meaning given in 40 CFR 1068.30.

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.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36394, June 17, 2013]

§ 1037.805 Symbols, acronyms, and abbreviations.

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

ABT Averaging, banking, and trading.
AECD auxiliary emission control device.
AES Automatic engine shutdown.
C_D drag coefficient.
C_DA drag area.
CFD computational fluid dynamics.
CFR Code of Federal Regulations.
CH_4 methane.
CO carbon monoxide.
CO_2 carbon dioxide.
CREE carbon-related exhaust emissions.
DOT Department of Transportation.
EPA Environmental Protection Agency.
ETW equivalent test weight.
FEL Family Emission Limit.
g grams.
GAWR gross axle weight rating.
GCWR gross combination weight rating.
GVWR gross vehicle weight rating.
GWP global-warming potential.
HC hydrocarbon.
ISO International Organization for Standardization.
kg kilograms.
m meter.
mm millimeter
mph miles per hour.
N_2O nitrous oxide.
NARA National Archives and Records Administration.
NHTSA National Highway Transportation Safety Administration.
NO_X oxides of nitrogen (NO and NO_2).
PM particulate matter.
PTO power take-off.
RESS rechargeable energy storage system.
RPM revolutions per minute.
SAE Society of Automotive Engineers.
SKU Stock-keeping unit.
TRRL Tire rolling resistance level.
U.S.C. United States Code.
VSL vehicle speed limiter.
WF work factor.

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36394, June 17, 2013]

§ 1037.810 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Environmental Protection Agency must publish a notice of the change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460, (202) 202–1744, and is available from the sources listed below. It is also available for inspection 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*.

(b) International Organization for Standardization, Case Postale 56, CH–1211 Geneva 20, Switzerland, (41) 22749 0111, *http://www.iso.org*, or *central@iso.org*.

(1) ISO 28580:2009(E) ''Passenger car, truck and bus tyres—Methods of measuring rolling resistance—Single point test and correlation of measurement results'', First Edition, July 1, 2009; IBR approved for § 1037.520(c).

(2) [Reserved]

(c) U.S. EPA, Office of Air and Radiation, 2565 Plymouth Road, Ann Arbor, MI 48105, *http://www.epa.gov:*

(1) Greenhouse gas Emissions Model (GEM) simulation tool, Version 2.0.1, September 2012; IBR approved for § 1037.520. The computer code for this model is available as noted in paragraph (a) of this section. A working version of this software is also available for download at *http://www.epa.gov/otaq/climate/gem.htm*.

(2) [Reserved]

(d) Society of Automotive Engineers, 400 Commonwealth Dr., Warrendale, PA 15096–0001, (877) 606–7323 (U.S. and Canada) or (724) 776–4970 (outside the U.S. and Canada), *http://www.sae.org*.

(1) SAE J1252, SAE Wind Tunnel Test Procedure for Trucks and Buses, Revised July 1981, IBR approved for § 1037.521(d), (e), and (f).

(2) SAE J1594, Vehicle Aerodynamics Terminology, Revised July 2010, IBR approved for § 1037.521(d).

(3) SAE J2071, Aerodynamic Testing of Road Vehicles—Open Throat Wind Tunnel Adjustment, Revised June 1994, IBR approved for § 1037.521(d).

[76 FR 57398, Sept. 15, 2011, as amended at 78 FR 36394, June 17, 2013]

§ 1037.815 Confidential information.

The provisions of 40 CFR 1068.10 apply for information you consider confidential.

§ 1037.820 Requesting 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.

§ 1037.825 Reporting and recordkeeping requirements.

(a) This part includes various requirements to submit and record data or other information. Unless we specify otherwise, store required records in any format and on any media and keep them readily available for eight years after you send an associated application for certification, or eight years after you generate the data if they do not support an application for certification. You may not rely on anyone else to meet recordkeeping requirements on your behalf unless we specifically authorize it. We may review these records at any time. You must promptly send us organized, written records in English if we ask for them. We may require you to submit written records in an electronic format.

(b) The regulations in § 1037.255 and 40 CFR 1068.25 and 1068.101 describe your obligation to report truthful and complete information. This includes information not related to certification. Failing to properly report information and keep the records we specify violates 40 CFR 1068.101(a)(2), which may involve civil or criminal penalties.

(c) Send all reports and requests for approval to the Designated Compliance Officer (see § 1037.801).

(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. Keep these records for eight years unless the regulations specify a different period. We may require you to send us these records whether or not you are a certificate holder.

(e) 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:

(1) We specify the following requirements related to vehicle certification in this part 1037:

(i) In subpart C of this part we identify a wide range of information required to certify vehicles.

(ii) 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.

(iii) In §1037.725, 1037.730, and 1037.735 we specify certain records related to averaging, banking, and trading.

(2) We specify the following requirements related to testing in 40 CFR part 1066:

(i) In 40 CFR 1065.2 we give an overview of principles for reporting information.

(ii) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published test procedures.

(iii) In 40 CFR 1065.25 we establish basic guidelines for storing test information.

(iv) In 40 CFR 1065.695 we identify data that may be appropriate for collecting during testing of in-use vehicles using portable analyzers.

APPENDIX I TO PART 1037—HEAVY-DUTY TRANSIENT CHASSIS TEST CYCLE

Time sec.	Speed mph	Speed m/s
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.41	0.18
8	1.18	0.53
9	2.26	1.01
10	3.19	1.43
11	3.97	1.77
12	4.66	2.08
13	5.32	2.38
14	5.94	2.66
15	6.48	2.90
16	6.91	3.09
17	7.28	3.25
18	7.64	3.42
19	8.02	3.59
20	8.36	3.74
21	8.60	3.84
22	8.74	3.91
23	8.82	3.94
24	8.82	3.94
25	8.76	3.92
26	8.66	3.87
27	8.58	3.84
28	8.52	3.81
29	8.46	3.78
30	8.38	3.75
31	8.31	3.71
32	8.21	3.67
33	8.11	3.63
34	8.00	3.58
35	7.94	3.55
36	7.94	3.55
37	7.80	3.49
38	7.43	3.32
39	6.79	3.04
40	5.81	2.60
41	4.65	2.08
42	3.03	1.35
43	1.88	0.84
44	1.15	0.51
45	1.14	0.51
46	1.12	0.50
47	1.11	0.50
48	1.19	0.53
49	1.57	0.70
50	2.31	1.03
51	3.37	1.51
52	4.51	2.02
53	5.56	2.49
54	6.41	2.87
55	7.09	3.17
56	7.59	3.39
57	7.99	3.57
58	8.32	3.72
59	8.64	3.86
60	8.91	3.98
61	9.13	4.08
62	9.29	4.15
63	9.40	4.20
64	9.39	4.20
65	9.20	4.11
66	8.84	3.95
67	8.35	3.73
68	7.81	3.49
69	7.22	3.23
70	6.65	2.97
71	6.13	2.74
72	5.75	2.57
73	5.61	2.51
74	5.65	2.53
75	5.80	2.59
76	5.95	2.66
77	6.09	2.72
78	6.21	2.78
79	6.31	2.82
80	6.34	2.83
81	6.47	2.89
82	6.65	2.97
83	6.88	3.08
84	7.04	3.15
85	7.05	3.15
86	7.01	3.13
87	6.90	3.08
88	6.88	3.08
89	6.89	3.08
90	6.96	3.11
91	7.04	3.15
92	7.17	3.21
93	7.29	3.26
94	7.39	3.30
95	7.48	3.34
96	7.57	3.38
97	7.61	3.40
98	7.59	3.39
99	7.53	3.37
100	7.46	3.33
101	7.40	3.31
102	7.39	3.30
103	7.38	3.30
104	7.37	3.29
105	7.37	3.29
106	7.39	3.30
107	7.42	3.32
108	7.43	3.32
109	7.40	3.31
110	7.39	3.30
111	7.42	3.32
112	7.50	3.35
113	7.57	3.38
114	7.60	3.40
115	7.60	3.40
116	7.61	3.40

Time sec.	Speed mph	Speed m/s
117	7.64	3.42
118	7.68	3.43
119	7.74	3.46
120	7.82	3.50
121	7.90	3.53
122	7.96	3.56
123	7.99	3.57
124	8.02	3.59
125	8.01	3.58
126	7.87	3.52
127	7.59	3.39
128	7.20	3.22
129	6.52	2.91
130	5.53	2.47
131	4.36	1.95
132	3.30	1.48
133	2.50	1.12
134	1.94	0.87
135	1.56	0.70
136	0.95	0.42
137	0.42	0.19
138	0.00	0.00
139	0.00	0.00
140	0.00	0.00
141	0.00	0.00
142	0.00	0.00
143	0.00	0.00
144	0.00	0.00
145	0.00	0.00
146	0.00	0.00
147	0.00	0.00
148	0.00	0.00
149	0.00	0.00
150	0.00	0.00
151	0.00	0.00
152	0.00	0.00
153	0.00	0.00
154	0.00	0.00
155	0.00	0.00
156	0.00	0.00
157	0.00	0.00
158	0.00	0.00
159	0.00	0.00
160	0.00	0.00
161	0.00	0.00
162	0.00	0.00
163	0.00	0.00
164	0.00	0.00
165	0.00	0.00
166	0.00	0.00
167	0.00	0.00
168	0.00	0.00
169	0.00	0.00
170	0.00	0.00
171	0.00	0.00
172	1.11	0.50
173	2.65	1.18
174	4.45	1.99
175	5.68	2.54
176	6.75	3.02
177	7.59	3.39
178	7.75	3.46
179	7.63	3.41
180	7.67	3.43
181	8.70	3.89
182	10.20	4.56
183	11.92	5.33
184	12.84	5.74
185	13.27	5.93
186	13.38	5.98
187	13.61	6.08
188	14.15	6.33
189	14.84	6.63
190	16.49	7.37
191	18.33	8.19
192	20.36	9.10
193	21.47	9.60
194	22.35	9.99
195	22.96	10.26
196	23.46	10.49
197	23.92	10.69
198	24.42	10.92
199	24.99	11.17
200	25.91	11.58
201	26.26	11.74
202	26.38	11.79
203	26.26	11.74
204	26.49	11.84
205	26.76	11.96
206	27.07	12.10
207	26.64	11.91
208	25.99	11.62
209	24.77	11.07
210	24.04	10.75
211	23.39	10.46
212	22.73	10.16
213	22.16	9.91
214	21.66	9.68
215	21.39	9.56
216	21.43	9.58
217	20.67	9.24
218	17.98	8.04
219	13.15	5.88
220	7.71	3.45
221	3.30	1.48
222	0.88	0.39
223	0.00	0.00
224	0.00	0.00
225	0.00	0.00
226	0.00	0.00
227	0.00	0.00
228	0.00	0.00
229	0.00	0.00
230	0.00	0.00
231	0.00	0.00
232	0.00	0.00
233	0.00	0.00
234	0.00	0.00
235	0.00	0.00
236	0.00	0.00
237	0.00	0.00
238	0.00	0.00
239	0.00	0.00
240	0.00	0.00
241	0.00	0.00
242	0.00	0.00
243	0.00	0.00
244	0.00	0.00
245	0.00	0.00
246	0.00	0.00
247	0.00	0.00
248	0.00	0.00
249	0.00	0.00
250	0.00	0.00
251	0.00	0.00
252	0.00	0.00
253	0.00	0.00
254	0.00	0.00
255	0.00	0.00
256	0.00	0.00
257	0.00	0.00
258	0.00	0.00
259	0.50	0.22
260	1.57	0.70
261	3.07	1.37
262	4.57	2.04

Time sec.	Speed mph	Speed m/s
263	5.65	2.53
264	6.95	3.11
265	8.05	3.60
266	9.13	4.08
267	10.05	4.49
268	11.62	5.19
269	12.92	5.78
270	13.84	6.19
271	14.38	6.43
272	15.64	6.99
273	17.14	7.66
274	18.21	8.14
275	18.90	8.45
276	19.44	8.69
277	20.09	8.98
278	21.89	9.79
279	24.15	10.80
280	26.26	11.74
281	26.95	12.05
282	27.03	12.08
283	27.30	12.20
284	28.10	12.56
285	29.44	13.16
286	30.78	13.76
287	32.09	14.35
288	33.24	14.86
289	34.46	15.40
290	35.42	15.83
291	35.88	16.04
292	36.03	16.11
293	35.84	16.02
294	35.65	15.94
295	35.31	15.78
296	35.19	15.73
297	35.12	15.70
298	35.12	15.70
299	35.04	15.66
300	35.08	15.68
301	35.04	15.66
302	35.34	15.80
303	35.50	15.87
304	35.77	15.99
305	35.81	16.01
306	35.92	16.06
307	36.23	16.20
308	36.42	16.28
309	36.65	16.38
310	36.26	16.21
311	36.07	16.12
312	35.84	16.02
313	35.96	16.08
314	36.00	16.09
315	35.57	15.90
316	35.00	15.65
317	34.08	15.24
318	33.39	14.93
319	32.20	14.39
320	30.32	13.55
321	28.48	12.73
322	26.95	12.05
323	26.18	11.70
324	25.38	11.35
325	24.77	11.07
326	23.46	10.49
327	22.39	10.01
328	20.97	9.37
329	20.09	8.98
330	18.90	8.45
331	18.17	8.12
332	16.48	7.37
333	15.07	6.74
334	12.23	5.47
335	10.08	4.51
336	7.71	3.45
337	7.32	3.27
338	8.63	3.86
339	10.77	4.81
340	12.65	5.66
341	13.88	6.20
342	15.03	6.72
343	15.64	6.99
344	16.99	7.60
345	17.98	8.04
346	19.13	8.55
347	18.67	8.35
348	18.25	8.16
349	18.17	8.12
350	18.40	8.23
351	19.63	8.78
352	20.32	9.08
353	21.43	9.58
354	21.47	9.60
355	21.97	9.82
356	22.27	9.96
357	22.69	10.14
358	23.15	10.35
359	23.69	10.59
360	23.96	10.71
361	24.27	10.85
362	24.34	10.88
363	24.50	10.95
364	24.42	10.92
365	24.38	10.90
366	24.31	10.87
367	24.23	10.83
368	24.69	11.04
369	25.11	11.23
370	25.53	11.41
371	25.38	11.35
372	24.58	10.99
373	23.77	10.63
374	23.54	10.52
375	23.50	10.51
376	24.15	10.80
377	24.30	10.86
378	24.15	10.80
379	23.19	10.37
380	22.50	10.06
381	21.93	9.80
382	21.85	9.77
383	21.55	9.63
384	21.89	9.79
385	21.97	9.82
386	21.97	9.82
387	22.01	9.84
388	21.85	9.77
389	21.62	9.67
390	21.62	9.67
391	22.01	9.84
392	22.81	10.20
393	23.54	10.52
394	24.38	10.90
395	24.80	11.09
396	24.61	11.00
397	23.12	10.34
398	21.62	9.67
399	19.90	8.90
400	18.86	8.43
401	17.79	7.95
402	17.25	7.71
403	16.91	7.56
404	16.75	7.49
405	16.75	7.49
406	16.87	7.54
407	16.37	7.32
408	16.37	7.32

Time sec.	Speed mph	Speed m/s	Time sec.	Speed mph	Speed m/s
409	16.49	7.37	482	34.20	15.29
410	17.21	7.69	483	32.39	14.48
411	17.41	7.78	484	30.29	13.54
412	17.37	7.77	485	28.56	12.77
413	16.87	7.54	486	26.45	11.82
414	16.72	7.47	487	24.79	11.08
415	16.22	7.25	488	23.12	10.34
416	15.76	7.05	489	20.73	9.27
417	14.72	6.58	490	18.33	8.19
418	13.69	6.12	491	15.72	7.03
419	12.00	5.36	492	13.11	5.86
420	10.43	4.66	493	10.47	4.68
421	8.71	3.89	494	7.82	3.50
422	7.44	3.33	495	5.70	2.55
423	5.71	2.55	496	3.57	1.60
424	4.22	1.89	497	0.92	0.41
425	2.30	1.03	498	0.00	0.00
426	1.00	0.45	499	0.00	0.00
427	0.00	0.00	500	0.00	0.00
428	0.61	0.27	501	0.00	0.00
429	1.19	0.53	502	0.00	0.00
430	1.61	0.72	503	0.00	0.00
431	1.53	0.68	504	0.00	0.00
432	2.34	1.05	505	0.00	0.00
433	4.29	1.92	506	0.00	0.00
434	7.25	3.24	507	0.00	0.00
435	10.20	4.56	508	0.00	0.00
436	12.46	5.57	509	0.00	0.00
437	14.53	6.50	510	0.00	0.00
438	16.22	7.25	511	0.00	0.00
439	17.87	7.99	512	0.00	0.00
440	19.74	8.82	513	0.00	0.00
441	21.01	9.39	514	0.00	0.00
442	22.23	9.94	515	0.00	0.00
443	22.62	10.11	516	0.00	0.00
444	23.61	10.55	517	0.00	0.00
445	24.88	11.12	518	0.00	0.00
446	26.15	11.69	519	0.00	0.00
447	26.99	12.07	520	0.00	0.00
448	27.56	12.32	521	0.00	0.00
449	28.18	12.60	522	0.50	0.22
450	28.94	12.94	523	1.50	0.67
451	29.83	13.34	524	3.00	1.34
452	30.78	13.76	525	4.50	2.01
453	31.82	14.22	526	5.80	2.59
454	32.78	14.65	527	6.52	2.91
455	33.24	14.86	528	6.75	3.02
456	33.47	14.96	529	6.44	2.88
457	33.31	14.89	530	6.17	2.76
458	33.08	14.79	531	6.33	2.83
459	32.78	14.65	532	6.71	3.00
460	32.39	14.48	533	7.40	3.31
461	32.13	14.36	534	7.67	3.43
462	31.82	14.22	535	7.33	3.28
463	31.55	14.10	536	6.71	3.00
464	31.25	13.97	537	6.41	2.87
465	30.94	13.83	538	6.60	2.95
466	30.71	13.73	539	6.56	2.93
467	30.56	13.66	540	5.94	2.66
468	30.79	13.76	541	5.45	2.44
469	31.13	13.92	542	5.87	2.62
470	31.55	14.10	543	6.71	3.00
471	31.51	14.09	544	7.56	3.38
472	31.47	14.07	545	7.59	3.39
473	31.44	14.05	546	7.63	3.41
474	31.51	14.09	547	7.67	3.43
475	31.59	14.12	548	7.67	3.43
476	31.67	14.16	549	7.48	3.34
477	32.01	14.31	550	7.29	3.26
478	32.63	14.59	551	7.29	3.26
479	33.39	14.93	552	7.40	3.31
480	34.31	15.34	553	7.48	3.34
481	34.81	15.56	554	7.52	3.36

Time sec.	Speed mph	Speed m/s
555	7.52	3.36
556	7.48	3.34
557	7.44	3.33
558	7.28	3.25
559	7.21	3.22
560	7.09	3.17
561	7.06	3.16
562	7.29	3.26
563	7.75	3.46
564	8.55	3.82
565	9.09	4.06
566	10.04	4.49
567	11.12	4.97
568	12.46	5.57
569	13.00	5.81
570	14.26	6.37
571	15.37	6.87
572	17.02	7.61
573	18.17	8.12
574	19.21	8.59
575	20.17	9.02
576	20.66	9.24
577	21.12	9.44
578	21.43	9.58
579	22.66	10.13
580	23.92	10.69
581	25.42	11.36
582	25.53	11.41
583	26.68	11.93
584	28.14	12.58
585	30.06	13.44
586	30.94	13.83
587	31.63	14.14
588	32.36	14.47
589	33.24	14.86
590	33.66	15.05
591	34.12	15.25
592	35.92	16.06
593	37.72	16.86
594	39.26	17.55
595	39.45	17.64
596	39.83	17.81
597	40.18	17.96
598	40.48	18.10
599	40.75	18.22
600	41.02	18.34
601	41.36	18.49
602	41.79	18.68
603	42.40	18.95
604	42.82	19.14
605	43.05	19.25
606	43.09	19.26
607	43.24	19.33
608	43.59	19.49
609	44.01	19.67
610	44.35	19.83
611	44.55	19.92
612	44.82	20.04
613	45.05	20.14
614	45.31	20.26
615	45.58	20.38
616	46.00	20.56
617	46.31	20.70
618	46.54	20.81
619	46.61	20.84
620	46.92	20.98
621	47.19	21.10
622	47.46	21.22
623	47.54	21.25
624	47.54	21.25
625	47.54	21.25
626	47.50	21.23
627	47.50	21.23
628	47.50	21.23
629	47.31	21.15
630	47.04	21.03
631	46.77	20.91
632	45.54	20.36
633	43.24	19.33
634	41.52	18.56
635	39.79	17.79
636	38.07	17.02
637	36.34	16.25
638	34.04	15.22
639	32.45	14.51
640	30.86	13.80
641	28.83	12.89
642	26.45	11.82
643	24.27	10.85
644	22.04	9.85
645	19.82	8.86
646	17.04	7.62
647	14.26	6.37
648	11.52	5.15
649	8.78	3.93
650	7.17	3.21
651	5.56	2.49
652	3.72	1.66
653	3.38	1.51
654	3.11	1.39
655	2.58	1.15
656	1.66	0.74
657	0.67	0.30
658	0.00	0.00
659	0.00	0.00
660	0.00	0.00
661	0.00	0.00
662	0.00	0.00
663	0.00	0.00
664	0.00	0.00
665	0.00	0.00
666	0.00	0.00
667	0.00	0.00
668	0.00	0.00

Appendix II to Part 1037—Power Take-Off Test Cycle

Cycle simulation	Mode	Start time of mode	Normalized pressure, circuit 1 (%)	Normalized pressure, circuit 2 (%)
Utility	0	0	0.0	0.0
Utility	1	33	80.5	0.0
Utility	2	40	0.0	0.0
Utility	3	145	83.5	0.0
Utility	4	289	0.0	0.0
Refuse	5	361	0.0	13.0
Refuse	6	363	0.0	38.0
Refuse	7	373	0.0	53.0

Cycle simulation	Mode	Start time of mode	Normalized pressure, circuit 1 (%)	Normalized pressure, circuit 2 (%)
Refuse	8	384	0.0	73.0
Refuse	9	388	0.0	0.0
Refuse	10	401	0.0	13.0
Refuse	11	403	0.0	38.0
Refuse	12	413	0.0	53.0
Refuse	13	424	0.0	73.0
Refuse	14	442	11.2	0.0
Refuse	15	468	29.3	0.0
Refuse	16	473	0.0	0.0
Refuse	17	486	11.2	0.0
Refuse	18	512	29.3	0.0
Refuse	19	517	0.0	0.0
Refuse	20	530	12.8	11.1
Refuse	21	532	12.8	38.2
Refuse	22	541	12.8	53.4
Refuse	23	550	12.8	73.5
Refuse	24	553	0.0	0.0
Refuse	25	566	12.8	11.1
Refuse	26	568	12.8	38.2
Refuse	27	577	12.8	53.4
Refuse	28	586	12.8	73.5
Refuse	29	589	0.0	0.0
Refuse	30	600	0.0	0.0

APPENDIX III TO PART 1037—EMISSION CONTROL IDENTIFIERS

This appendix identifies abbreviations for emission control information labels, as required under §1037.135.

VEHICLE SPEED LIMITERS

-VSL—Vehicle speed limiter
-VSLS—''Soft-top'' vehicle speed limiter
-VSLE—Expiring vehicle speed limiter
-VSLD—Vehicle speed limiter with both ''soft-top'' and expiration

IDLE REDUCTION TECHNOLOGY

-IRT5—Engine shutoff after 5 minutes or less of idling
-IRTE—Expiring engine shutoff

TIRES

-LRRA—Low rolling resistance tires (all)
-LRRD—Low rolling resistance tires (drive)
-LRRS—Low rolling resistance tires (steer)

AERODYNAMIC COMPONENTS

-ATS—Aerodynamic side skirt and/or fuel tank fairing
-ARF—Aerodynamic roof fairing
-ARFR—Adjustable height aerodynamic roof fairing
-TGR—Gap reducing fairing (tractor to trailer gap)

OTHER COMPONENTS

-ADVH—Vehicle includes advanced hybrid technology components
-ADVO—Vehicle includes other advanced technology components (*i.e.*, non-hybrid system)
-INV—Vehicle includes innovative technology components

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

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APPENDIX III TO PART 1039 [RESERVED]
APPENDIX IV TO PART 1039 [RESERVED]
APPENDIX V TO PART 1039 [RESERVED]
APPENDIX VI TO PART 1039—NONROAD COMPRESSION-IGNITION COMPOSITE TRANSIENT CYCLE

AUTHORITY: 42 U.S.C. 7401–7671q.

SOURCE: 69 FR 39213, June 29, 2004, unless otherwise noted.

Subpart A—Overview and Applicability

§ 1039.1 Does this part apply for my engines?

(a) The regulations in this part 1039 apply for all new, compression-ignition nonroad engines (defined in § 1039.801), except as provided in § 1039.5.

(b) This part 1039 applies as follows:

(1) This part 1039 applies for all engines subject to the emission standards specified in subpart B of this part starting with the model years noted in the following table:

TABLE 1 OF § 1039.1—PART 1039 APPLICABILITY BY MODEL YEAR

Power category	Model year
kW <19	[1] 2008
19 ≤kW <56	[2] 2008
56 ≤kW <130	2012
130 ≤kW ≤560	2011
kW >560	2011

[1] As described in § 1039.102, some engines below 19 kW may not be subject to the emission standards in this part until the 2010 model year.

[2] As described in § 1039.102, some engines in the 19–56 kW power category may not be subject to the emission standards in this part until the 2012 model year.

(2) If you use the provisions of § 1039.104(a) to certify an engine to the emission standards of this part before the model years shown in Table 1 of this section, all the requirements of this part apply for those engines.

(3) See 40 CFR part 89 for requirements that apply to engines not yet subject to the requirements of this part 1039.

(4) This part 1039 applies for other compression-ignition engines as follows:

(i) The provisions of paragraph (c) of this section and § 1039.801 apply for stationary engines beginning January 1, 2006.

(ii) The provisions of § 1039.620 and § 1039.801 apply for engines used solely for competition beginning January 1, 2006.

(c) The definition of nonroad engine in 40 CFR 1068.30 excludes certain engines used in stationary applications. These engines may be required by subpart IIII of 40 CFR part 60 to comply with some of the provisions of this part 1039; otherwise, these engines are only required to comply with the requirements in § 1039.20. In addition, the prohibitions in 40 CFR 1068.101 restrict the use of stationary engines for nonstationary purposes unless they are certified under this part 1039, or under the provisions of 40 CFR part 89 or 40 CFR part 94, to the same standards that would apply to nonroad engines for the same model year.

(d) In certain cases, the regulations in this part 1039 apply to engines at or above 250 kW that would otherwise be covered by 40 CFR part 1048. See 40 CFR 1048.620 for provisions related to this allowance.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40462, July 13, 2005; 71 FR 39184, July 11, 2006]

§ 1039.2 Who is responsible for compliance?

The regulations in this part 1039 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 § 1039.801, especially for issues related to certification.

[75 FR 22988, Apr. 30, 2010]

§ 1039.5 Which engines are excluded from this part's requirements?

This part does not apply to the following nonroad engines:

(a) *Locomotive engines.* (1) The following locomotive engines are not subject to the provisions of this part 1039:

(i) Engines in locomotives certified under 40 CFR part 1033.

(ii) Engines in locomotives that are exempt from the standards of 40 CFR

part 92 or 1033 pursuant to the provisions of 40 CFR part 1033 or 1068 (except for the provisions of 40 CFR 1033.150(e)).

(2) The following locomotive engines are subject to the provisions of this part 1039:

(i) Engines in locomotives exempt from 40 CFR part 1033 pursuant to the provisions of 40 CFR 1033.150(e).

(ii) Locomotive engines excluded from the definition of locomotive in 40 CFR 1033.901.

(b) *Marine engines.* (1) The following marine engines are not subject to the provisions of this part 1039:

(i) Engines subject to the standards of 40 CFR part 94.

(ii) Engines not subject to the standards of 40 CFR part 94 only because they were produced before the standards of 40 CFR part 94 started to apply.

(iii) Engines that are exempt from the standards of 40 CFR part 94 pursuant to the provisions of 40 CFR part 94 (except for the provisions of 40 CFR 94.907 or 94.912). For example, an engine that is exempt under 40 CFR 94.906 because it is a manufacturer-owned engine is not subject to the provisions of this part 1039.

(iv) Engines with rated power below 37 kW.

(v) Engines on foreign vessels.

(2) Marine engines are subject to the provisions of this part 1039 if they are exempt from 40 CFR part 94 based on the engine-dressing provisions of 40 CFR 94.907 or the common-family provisions of 40 CFR 94.912.

(c) *Mining engines.* Engines used in underground mining or in underground mining equipment and regulated by the Mining Safety and Health Administration in 30 CFR parts 7, 31, 32, 36, 56, 57, 70, and 75 are not subject to the provisions of this part 1039.

(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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40462, July 13, 2005; 73 FR 59191, Oct. 8, 2008; 75 FR 22988, Apr. 30, 2010]

§ 1039.10 How is this part organized?

This part 1039 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of part 1039 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 § 1039.102 and § 1039.104 discuss 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) [Reserved]

(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 emission credits to certify your engines.

(i) Subpart I of this part contains definitions and other reference information.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40462, July 13, 2005; 72 FR 53129, Sept. 18, 2007]

§ 1039.15 Do any other regulation parts apply to me?

(a) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1039 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the exhaust emission standards in this part.

(b) 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 1039, 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.

(c) Other parts of this chapter apply if referenced in this part.

[69 FR 39213, June 29, 2004, as amended at 75 FR 22988, Apr. 30, 2010]

§ 1039.20 What requirements from this part apply to excluded stationary engines?

The provisions of this section apply for engines built on or after January 1, 2006.

(a) You must add a permanent label or tag to each new engine you produce or import that is excluded under § 1039.1(c) as a stationary engine and is not required by 40 CFR part 60, subpart IIII, to meet the requirements of this part 1039, or the requirements of 40 CFR parts 89, 94 or 1042, that are equivalent to the requirements applicable to marine or land-based nonroad engines for the same model year. To meet labeling requirements, you must do the following things:

(1) Attach the label or tag in one piece so no one can remove it without destroying or defacing it.

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

(3) Make sure it is durable and readable for the engine's entire life.

(4) Write it in English.

(5) Follow the requirements in § 1039.135(g) regarding duplicate labels if the engine label is obscured in the final installation.

(b) Engine labels or tags required under this section must have the following information:

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

(2) Include your full corporate name and trademark. You may instead include the fill corporate name and trademark of another company you choose to designate.

(3) State the engine displacement (in liters) and maximum engine power (or in the case of fire pumps, NFPA nameplate engine power).

(4) State: ''THIS ENGINE IS EXEMPTED FROM THE REQUIREMENTS OF 40 CFR PARTS 89 AND 1039 AS A ''STATIONARY ENGINE.'' INSTALLING OR USING THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.''

(c) Stationary engines required by 40 CFR part 60, subpart IIII, to meet the requirements of this part 1039, or part 89, 94 or 1042, must meet the labeling requirements of 40 CFR 60.4210.

[69 FR 39213, June 29, 2004, as amended at 71 FR 39185, July 11, 2006; 76 FR 37977, June 28, 2011]

§ 1039.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to § 1039.825 and 40 CFR 1068.25 regarding recordkeeping requirements. Unless we specify otherwise, 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 § 1039.255 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* § 1039.801).

(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.

[75 FR 22988, Apr. 30, 2010]

Subpart B—Emission Standards and Related Requirements

§ 1039.101 What exhaust emission standards must my engines meet after the 2014 model year?

The exhaust emission standards of this section apply after the 2014 model year. Certain of these standards also apply for model year 2014 and earlier. This section presents the full set of emission standards that apply after all the transition and phase-in provisions of § 1039.102 and § 1039.104 expire. See § 1039.102 and 40 CFR 89.112 for exhaust emission standards that apply to 2014 and earlier model years. Section 1039.105 specifies smoke standards.

(a) *Emission standards for transient testing*. Transient exhaust emissions from your engines may not exceed the applicable emission standards in Table 1 of this section. Measure emissions using the applicable transient test procedures described in subpart F of this part. The following engines are not subject to the transient standards in this paragraph (a):

(1) Engines above 560 kW.

(2) Constant-speed engines.

(b) *Emission standards for steady-state testing*. Steady-state exhaust emissions from your engines may not exceed the applicable emission standards in Table 1 of this section. Measure emissions using the applicable steady-state test procedures described in subpart F of this part.

TABLE 1 OF § 1039.101—TIER 4 EXHAUST EMISSION STANDARDS AFTER THE 2014 MODEL YEAR, G/KW-HR [1]

Maximum engine power	Application	PM	NO_X	NMHC	NO_X + NMHC	CO
kW <19	All	[2] 0.40	.....	.....	7.5	[3] 6.6
19 ≤kW <56	All	0.03	.....	.....	4.7	[4] 5.0
56 ≤kW <130	All	0.02	0.40	0.19	.....	5.0
130 ≤kW ≤560	All	0.02	0.40	0.19	.....	3.5
	Generator sets	0.03	0.67	0.19	.....	3.5
kW >560	All except generator sets	0.04	3.5	0.19	.....	3.5

[1] Note that some of these standards also apply for 2014 and earlier model years. This table presents the full set of emission standards that apply after all the transition and phase-in provisions of § 1039.102 expire.
[2] See paragraph (c) of this section for provisions related to an optional PM standard for certain engines below 8 kW.
[3] The CO standard is 8.0 g/kW-hr for engines below 8 kW.
[4] The CO standard is 5.5 g/kW-hr for engines below 37 kW.

(c) *Optional PM standard for engines below 8 kW*. You may certify hand-startable, air-cooled, direct injection engines below 8 kW to an optional Tier 4 PM standard of 0.60 g/kW-hr. The term hand-startable generally refers to engines that are started using a hand crank or pull cord. This PM standard applies to both steady-state and transient testing, as described in paragraphs (a) and (b) of this section. Engines certified under this paragraph (c) may not be used to generate PM or NO_X + NMHC emission credits under the provisions of subpart H of this part. These engines may use PM or NO_X + NMHC emission credits, subject to the FEL caps in paragraph (d)(1) of this section.

(d) *Averaging, banking, and trading*. You may generate or use emission credits under the averaging, banking, and trading (ABT) program, as described in subpart H of this part. This requires that you specify a family emission limit (FEL) for each pollutant you include in the ABT program for each engine family. These FELs serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in paragraphs (a) and (b) of this section. The FELs determine the not-to-exceed standards for your engine family, as specified in paragraph (e) of this section.

(1) *Primary FEL caps*. The FEL may not be higher than the limits in Table 2 of this section, except as allowed by

paragraph (d)(2) of this section or by § 1039.102:

TABLE 2 OF § 1039.101—TIER 4 FEL CAPS AFTER THE 2014 MODEL YEAR, G/KW-HR

Maximum engine power	Application	PM	NO_X	NO_X + NMHC
kW <19	All	0.80	.....	[1] 9.5
19 ≤kW <56	All	0.05	.....	7.5
56 ≤kW <130	All	0.04	0.80	.....
130 ≤kW ≤560	All	0.04	0.80	.....
kW >560	Generator sets	0.05	1.07	.....
	All except generator sets	0.07	6.2	.....

[1] For engines below 8 kW, the FEL cap is 10.5 g/kW-hr for NO_X + NMHC emissions.

(2) *Alternate FEL caps.* For a given power category, you may use the alternate FEL caps shown in Table 3 of this section instead of the FEL caps identified in paragraph (d)(1) of this section for up to 5 percent of your U.S.-directed production volume in a given model year.

TABLE 3 OF § 1039.101—ALTERNATE FEL CAPS, G/KW-HR

Maximum engine power	Starting model year [1]	PM FEL cap	NO_X FEL cap
19 ≤kW <56	[2] 2016	0.30	.....
56 ≤kW <130	2016	[3] 0.30	[3] 3.8
130 ≤kW ≤560	2015	0.20	3.8
kW >560	2019	0.10	[4] 3.5

[1] See § 1039.104(g) for alternate FEL caps that apply in earlier model years.
[2] For manufacturers certifying engines under Option #1 of Table 3 of § 1039.102, these alternate FEL caps apply starting with the 2017 model year.
[3] For engines below 75 kW, the FEL caps are 0.40 g/kW-hr for PM emissions and 4.4 g/kW-hr for NO_X emissions.
[4] For engines above 560 kW, the provision for alternate NO_X FEL caps is limited to generator-set engines. For example, if you produce 1,000 generator-set engines above 560 kW in a given model year, up to 50 of them may be certified to the alternate NO_X FEL caps.

(e) *Not-to-exceed standards.* Exhaust emissions from your engines may not exceed the applicable not-to-exceed (NTE) standards in this paragraph (e).

(1) Measure emissions using the procedures described in subpart F of this part.

(2) Except as noted in paragraph (e)(7) of this section, the NTE standard, rounded to the same number of decimal places as the applicable standard in Table 1 of this section, is determined from the following equation:

$$\text{NTE standard for each pollutant} = (\text{STD}) \times (\text{M})$$

Where:

STD = The standard specified for that pollutant in Table 1 of this section (or paragraph (c) 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 paragraph (e)(3) of this section.

(3) The NTE multiplier for each pollutant is 1.25, except in the following cases:

If . . .	Or . . .	Then . . .
(i) The engine family is certified to a NO_X standard less than 2.50 g/kW-hr without using ABT.	The engine family is certified to a NO_X FEL less than 2.50 g/kW-hr or a NO_X + NMHC FEL less than 2.70 g/kW-hr.	The multiplier for NO_X, NMHC, and NO_X + NMHC is 1.50.
(ii) The engine family is certified to a PM standard less than 0.07 g/kW-hr without using ABT.	The engine family is certified to a PM FEL less than 0.07 g/kW-hr.	The multiplier for PM is 1.50.

(4) There are two sets of specifications of ambient operating regions that will apply for all NTE testing of engines in an engine family. You must choose one set for each engine family and must identify your choice of ambient operating regions in each application for certification for an engine family. You may choose separately for each engine family. Choose one of the following ambient operating regions:

(i) All altitudes less than or equal to 5,500 feet above sea level during all ambient temperature and humidity conditions.

(ii) All altitudes less than or equal to 5,500 feet above sea level, for temperatures less than or equal to the temperature determined by the following equation at the specified altitude:

$$T = -0.00254 \times A + 100$$

Where:

T = ambient air temperature in degrees Fahrenheit.

A = altitude in feet above sea level (A is negative for altitudes below sea level).

(5) Temperature and humidity ranges for which correction factors are allowed are specified in 40 CFR 86.1370–2007(e).

(i) If you choose the ambient operating region specified in paragraph (e)(4)(i) of this section, the temperature and humidity ranges for which correction factors are allowed are defined in 40 CFR 86.1370–2007(e)(1).

(ii) If you choose the ambient operating region specified in paragraph (e)(4)(ii) of this section, the temperature and humidity ranges for which correction factors are allowed are defined in 40 CFR 86.1370–2007(e)(2).

(6) For engines equipped with exhaust-gas recirculation, the NTE standards of this section do not apply during the cold operating conditions specified in 40 CFR 86.1370–2007(f).

(7) For engines certified to a PM FEL less than or equal to 0.01 g/kW-hr, the PM NTE standard is 0.02 g/kW-hr.

(f) *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, except for engines certified under § 1039.615. For engines certified under § 1039.615, the standards of this section apply to emissions measured using the specified test fuel. You must meet the numerical emission standards for NMHC 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) Other engines: NMHC emissions.

(g) *Useful life.* Your engines must meet the exhaust emission standards in paragraphs (a) through (e) of this section over their full useful life.

(1) The useful life values are shown in the following table, except as allowed by paragraph (g)(2) of this section:

TABLE 4 OF § 1039.101—USEFUL LIFE VALUES

If your engine is certified as . . .	And its maximum power is . . .	And its rated speed is . . .	Then its useful life is . . .
(i) Variable speed or constant speed.	kW <19	Any Speed	3,000 hours or five years, whichever comes first.
(ii) Constant speed	19 ≤kW <37	3,000 rpm or higher	3,000 hours or five years, whichever comes first.
(iii) Constant speed	19 ≤kW <37	Less than 3,000 rpm	5,000 hours or seven years, whichever comes first.
(iv) Variable	19 ≤kW <37	Any Speed	5,000 hours or seven years, whichever comes first.
(v) Variable speed or constant speed.	kW ≥37	Any speed	8,000 hours or ten years, whichever comes first.

(2) 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) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

(h) *Applicability for testing*. The emission standards in this subpart apply to all testing, including certification, selective enforcement audits, and in-use testing. For selective enforcement audits, we will require you to perform duty-cycle testing as specified in §§ 1039.505 and 1039.510. The NTE standards of this section apply for those tests. We will not direct you to do additional testing under a selective enforcement audit to show that your engines meet the NTE standards.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40462, July 13, 2005]

§ 1039.102 What exhaust emission standards and phase-in allowances apply for my engines in model year 2014 and earlier?

The exhaust emission standards of this section apply for 2014 and earlier model years. See § 1039.101 for exhaust emission standards that apply to later model years. See 40 CFR 89.112 for exhaust emission standards that apply to model years before the standards of this part 1039 take effect.

(a) *Emission standards for transient testing*. Transient exhaust emissions from your engines may not exceed the applicable emission standards in Tables 1 through 6 of this section. Measure emissions using the applicable transient test procedures described in subpart F of this part. See paragraph (c) of this section for a description of provisions related to the phase-in and phase-out standards shown in Tables 4 through 6 of this section. The emission standards for transient testing are limited for certain engines, as follows:

(1) The transient standards in this section do not apply for the following engines:

(i) Engines below 37 kW for model years before 2013.

(ii) Engines certified under Option #1 of Table 3 of this section. These are the small-volume manufacturer engines certified to the Option #1 standards for model years 2008 through 2015 under § 1039.104(c), and other engines certified to the Option #1 standards for model years 2008 through 2012.

(iii) Engines certified to an alternate FEL during the first four years of the Tier 4 standards for the applicable power category, as allowed in § 1039.104(g). However, you may certify these engines to the transient standards in this section to avoid using temporary compliance adjustment factors, as described in § 1039.104(g)(2). Note that in some cases this four-year period extends into the time covered by the standards in § 1039.101.

(iv) Constant-speed engines.

(v) Engines above 560 kW.

(2) The transient standards in this section for gaseous pollutants do not apply to phase-out engines that you certify to the same numerical standards (and FELs if the engines are certified using ABT) for gaseous pollutants as you certified under the Tier 3 requirements of 40 CFR part 89. However, except as specified by paragraph (a)(1) of this section, the transient PM emission standards apply to these engines.

(b) Emission standards for steady-state testing. Steady-state exhaust emissions from your engines may not exceed the applicable emission standards in Tables 1 through 7 of this section. Measure emissions using the applicable steady-state test procedures described in subpart F of this part. See paragraph (c) of this section for a description of provisions related to the phase-in and phase-out standards shown in Tables 4 through 6 of this section.

TABLE 1 OF § 1039.102—TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): KW <19

Maximum engine power	Model years	PM	NO_X + NMHC	CO
kW <8	2008–2014	[1] 0.40	7.5	8.0
8 ≤kW <19	2008–2014	0.40	7.5	6.6

[1] For engines that qualify for the special provisions in § 1039.101(c), you may delay certifying to the standards in this part 1039 until 2010. In 2009 and earlier model years, these engines must instead meet the applicable Tier 2 standards and other requirements from 40 CFR part 89. Starting in 2010, these engines must meet a PM standard of 0.60 g/kW-hr, as described in § 1039.101(c). Engines certified to the 0.60 g/kWhr PM standard may not generate ABT credits.

TABLE 2 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 19 >KW <37

Model years	PM	NO_X + NMHC	CO
2008–2012	0.30	7.5	5.5
2013–2014	0.03	4.7	5.5

TABLE 3 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 37 >KW <56

Option [1]	Model years	PM	NO_X + NMHC	CO
#1	2008–2012	0.30	4.7	5.0
#2	2012	0.03	4.7	5.0
All	2013–2014	0.03	4.7	5.0

[1] You may certify engines to the Option #1 or Option #2 standards starting in the listed model year. Under Option #1, all engines at or above 37 kW and below 56 kW produced before the 2013 model year must meet the applicable Option #1 standards in this table. These engines are considered to be ''Option #1 engines.'' Under Option #2, all these engines produced before the 2012 model year must meet the applicable standards under 40 CFR part 89. Engines certified to the Option #2 standards in model year 2012 are considered to be ''Option #2 engines.''

TABLE 4 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 56 >KW <75

Model years [1]	Phase-in option	PM	NO_X	NMHC	NO_X + NMHC	CO
2012–2013	Phase-in	0.02	0.40	0.19		5.0
	Phase-out	0.02			4.7	5.0
2014	All engines	0.02	0.40	0.19		5.0

[1] See paragraph (d)(2) of this section for provisions that allow for a different phase-in schedule than that specified in paragraph (c)(1) of this section.

TABLE 5 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 75 >KW <130

Model years [1]	Phase-in option	PM	NO_X	NMHC	NO_X + NMHC	CO
2012–2013	Phase-in	0.02	0.40	0.19		5.0
	Phase-out	0.02			4.0	5.0
2014	All engines	0.02	0.40	0.19		5.0

[1] See paragraph (d)(2) of this section for provisions that allow for a different phase-in schedule than that specified in paragraph (c)(1) of this section.

TABLE 6 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): 130 >KW <560

Model years [1]	Phase-in option	PM	NO_X	NMHC	NO_X + NMHC	CO
2011–2013	Phase-in	0.02	0.40	0.19		3.5
	Phase-out	0.02			4.0	3.5
2014	All engines	0.02	0.40	0.19		3.5

TABLE 7 OF § 1039.102—INTERIM TIER 4 EXHAUST EMISSION STANDARDS (G/KW-HR): KW >560

Model years	Maximum engine power	Application	PM	NO_X	NMHC	CO
2011–2014	560 <kW ≤900	All	0.10	3.5	0.40	3.5
	kW >900	Generator sets	0.10	0.67	0.40	3.5
		All except generator sets	0.10	3.5	0.40	3.5

(c) *Phase-in requirements.* The following phase-in provisions apply for engines in 56–560 kW power categories meeting the interim Tier 4 standards in paragraphs (a) and (b) of this section:

(1) For each model year before 2014 noted in Tables 4 through 6 of this section, you must certify engine families representing at least 50 percent of your U.S.-directed production volume for each power category to the applicable phase-in standards, except as allowed by paragraph (c)(3), (d)(2), or (e) of this section. Any engines not certified to the phase-in standards must be certified to the corresponding phase-out standards.

(2) Engines certified to the phase-out standards in Tables 4 through 6 of this section must comply with all other requirements that apply to Tier 4 engines, except as otherwise specified in this section.

(3) At the time of certification, show how you intend to meet the phase-in requirements of this paragraph (c) based on projected U.S.-directed production volumes. If your actual U.S.-directed production volume fails to meet the phase-in requirements for a given model year, you must make up the shortfall (in terms of number of engines) by the end of the model year representing the final year of the phase-in period. For example, if you plan in good faith to produce 50 percent of a projected 10,000 engines in the 56–130 kW power category (*i.e.*, 5,000 engines) in 2012 in compliance with the Tier 4 phase-in standards for NO_X and NMHC in Table 4 of this section, but produce 4,500 such engines of an actual 10,000 engines, you must produce 500 engines in model year 2013 (*i.e.*, the final year of the phase-in for this power category) that meet the Tier 4 phase-in standards above and beyond the production otherwise needed to meet the 50-percent phase-in requirement for model year 2013. If any shortfall exceeds the applicable limit of paragraph (c)(3)(i) or (ii) of this section, that number of phase-out engines will be considered not covered by a certificate of conformity and in violation of § 1068.101(a)(1). The shortfall allowed by this paragraph (c)(3) may not exceed a certain number of engines, as follows:

(i) For engine families certified according to the alternate phase-in schedule described in paragraph (d)(2) of this section, for model years prior to the final year of the phase-in, 5 percent of your actual U.S.-directed production volume for that power category in that model year.

(ii) For all other engine families, for model years prior to the final year of the phase-in, 25 percent of your actual U.S.-directed production volume for that power category in that model year.

(iii) No shortfall is allowed in the final year of the phase-in.

(4) Engines you introduce into commerce beyond the limits described in paragraphs (c)(3) of this section will be considered not covered by a certificate of conformity and in violation of § 1068.101(a)(1).

(5) For the purposes of this part, the term ''phase-in'' means relating to a standard that is identified in this section as a phase-in standard and the term ''phase-out'' means relating to a standard that is identified in this section as a phase-out standard. For example, a 200–kW engine from the 2012 model year that is certified to the 4.0 g/kW-hr NO_X + NMHC standard in Table 6 of § 1039.102 is a phase-out engine.

(d) *Banked credits and alternate phase-in for 56–130 kW engines.* For engines in the 56–130 kW power category, you may use only one of the following additional provisions:

(1) For model years 2012 through 2014, you may use banked NO_X + NMHC credits from any Tier 2 engine at or above 37 kW certified under 40 CFR part 89 to

meet the NO_X phase-in standards or the NO_X + NMHC phase-out standards under paragraphs (b) and (c) of this section, subject to the additional ABT provisions in § 1039.740.

(2) Instead of meeting the phase-in requirements of paragraph (c)(1) of this section, you may certify engine families representing at least 25 percent of your U.S.-directed production volume for each model year from 2012 through 2014 to the applicable phase-in standards in Tables 4 and 5 of this section, except as allowed by paragraph (c)(3) or (e) of this section. Any engines not certified to the phase-in standards must be certified to the corresponding phase-out standards. Engines certified under this paragraph (d)(2) may generate NO_X emission credits only for averaging within the same power category during the same model year. For engines certified under this paragraph (d)(2), the 2014 model year may not extend beyond December 30, 2014.

(e) *Alternate NO_X standards.* For engines in 56–560 kW power categories during the phase-in of Tier 4 standards, you may certify engine families to the alternate NO_X or NO_X + NMHC standards in this paragraph (e) instead of the phase-in and phase-out NO_X and NO_X + NMHC standards described in Tables 4 through 6 of this section. Engines certified to an alternate NO_X standard under this section must be certified to an NMHC standard of 0.19 g/kW-hr. Do not include engine families certified under this paragraph (e) in determining whether you comply with the percentage phase-in requirements of paragraphs (c) and (d)(2) of this section. Except for the provisions for alternate FEL caps in § 1039.104(g), the NO_X and NO_X + NMHC standards and FEL caps under this paragraph (e) are as follows:

(1) For engines in the 56–130 kW power category, apply the following alternate NO_X standards and FEL caps:

(i) If you use the provisions of paragraph (d)(1) of this section, your alternate NO_X standard for any engine family in the 56–130 kW power category is 2.3 g/kW-hr for model years 2012 and 2013. Engines certified to this standard may not exceed a NO_X FEL cap of 3.0 g/kW-hr.

(ii) If you use the provisions of paragraph (d)(2) of this section, your alternate NO_X standard for any engine family in the 56–130 kW power category is 3.4 g/kW-hr for model years 2012 through 2014. Engines below 75 kW certified to this standard may not exceed a NO_X FEL cap of 4.4 g/kW-hr; engines at or above 75 kW certified to this standard may not exceed a NO_X FEL cap of 3.8 g/kW-hr.

(iii) If you do not use the provisions of paragraph (d) of this section, you may apply the alternate NO_X standard and the appropriate FEL cap from either paragraph (e)(1)(i) or (ii) of this section.

(2) For engines in the 130–560 kW power category, the alternate NO_X standard is 2.0 g/kW-hr for model years 2011 through 2013. Engines certified to this standard may not exceed a NO_X FEL cap of 2.7 g/kW-hr.

(3) You use NO_X + NMHC emission credits to certify an engine family to the alternate NO_X + NMHC standards in this paragraph (e)(3) instead of the otherwise applicable alternate NO_X and NMHC standards. Calculate the alternate NO_X + NMHC standard by adding 0.1 g/kW-hr to the numerical value of the applicable alternate NO_X standard of paragraph (e)(1) or (2) of this section. Engines certified to the NO_X + NMHC standards of this paragraph (e)(3) may not generate emission credits. The FEL caps for engine families certified under this paragraph (e)(3) are the previously applicable NO_X + NMHC standards of 40 CFR 89.112 (generally the Tier 3 standards).

(f) *Split families.* For generating or using credits for engines in 56–560 kW power categories during the phase-in of Tier 4 standards, you may split an engine family into two subfamilies (for example, one that uses credits and one that generates credits for the same pollutant).

(1) Identify any split engine families in your application for certification. Your engines must comply with all the standards and requirements applicable to Tier 4 engines, except as noted in this paragraph (f). You may calculate emission credits relative to different emission standards (*i.e.*, phase-in and phase-out standards) for different sets of engines within the engine family, but the engine family must be certified to a single set of standards and FELs.

To calculate NO_X + NMHC emission credits, add the NO_X FEL to the NMHC phase-in standard for comparison with the applicable NO_X + NMHC phase-out standard. Any engine family certified under this paragraph (f) must meet the applicable phase-in standard for NMHC. You may assign the number and configurations of engines within the respective subfamilies any time before the due date for the final report required in § 1039.730. Apply the same label to each engine in the family, including the NO_X FEL to which it is certified.

(2) For example, a 10,000-unit engine family in the 75–130 kW power category may be certified to meet the standards for PM, NMHC, and CO that apply to phase-in engines, with a 0.8 g/kW-hr FEL for NO_X. When compared to the phase-out NO_X + NMHC standard, this engine family would generate positive NO_X + NMHC emission credits. When compared to the phase-in NO_X standard, this engine family would generate negative NO_X emission credits. You could create a subfamily with 2,500 engines (one-quarter of the 10,000 engines) and identify them as phase-in engines. You would count these 2,500, with their negative NO_X credits, in determining compliance with the 50-percent phase-in requirement in paragraph (c)(1) of this section. You would calculate negative credits relative to the 0.40 g/kW-hr NO_X standard for these 2,500 engines. You would identify the other 7,500 engines in the family as phase-out engines and calculate positive credits relative to the 4.0 g/kW-hr NO_X + NMHC standard.

(g) *Other provisions.* The provisions of § 1039.101(d) through (h) apply with respect to the standards of this section, with the following exceptions and special provisions:

(1) *NTE standards.* Use the provisions of § 1039.101(e)(3) to calculate and apply the NTE standards, but base these calculated values on the applicable standards in this section or the applicable FEL, instead of the standards in Table 1 of § 1039.101. All other provisions of § 1039.101(e) apply under this paragraph (g)(1). The NTE standards do not apply for certain engines and certain pollutants, as follows:

(i) All engines below 37 kW for model years before 2013.

(ii) All engines certified under Option #1 of Table 3 of this section. These are small-volume manufacturer engines certified to the Option #1 standards for model years 2008 through 2015 under § 1039.104(c), and other engines certified to the Option #1 standards for model years 2008 through 2012.

(iii) All engines less than or equal to 560 kW that are certified to an FEL under the alternate FEL program during the first four years of the Tier 4 standards for the applicable power category, as described in § 1039.104(g). However, if you apply to meet transient emission standards for these engines under § 1039.102(a)(1)(iii), you must also meet the NTE standards in this paragraph (g)(1).

(iv) Gaseous pollutants for phase-out engines that you certify to the same numerical standards and FELs for gaseous pollutants to which you certified under the Tier 3 requirements of 40 CFR part 89. However, the NTE standards for PM apply to these engines.

(2) *Interim FEL caps.* As described in § 1039.101(d), you may participate in the ABT program in subpart H of this part by certifying engines to FELs for PM, NO_X, or NO_X + NMHC instead of the standards in Tables 1 through 7 of this section for the model years shown. The FEL caps listed in the following table apply instead of the FEL caps in § 1039.101(d)(1), except as allowed by § 1039.104(g):

TABLE 8 OF § 1039.102—INTERIM TIER 4 FEL CAPS, G/KW-HR

Maximum engine power	Phase-in option	Model years [1]	PM	NO_X	NO_X + NMHC
kW <19		2008–2014	0.80		[2] 9.5
19 ≤kW <37		2008–2012	0.60		9.5
37 ≤kW <56		[3] 2008–2012	0.40		7.5
56 ≤kW <130	phase-in	2012–2013	0.04	0.80	
56 ≤kW <130	phase-out	2012–2013	0.04		[4] 6.6
130 ≤kW ≤560	phase-in	2011–2013	0.04	0.80	
130 ≤kW ≤560	phase-out	2011–2013	0.04		[5] 6.4

TABLE 8 OF § 1039.102—INTERIM TIER 4 FEL CAPS, G/KW-HR—Continued

Maximum engine power	Phase-in option	Model years [1]	PM	NO_X	NO_X + NMHC
kW >560		2011–2014	0.20	6.2	

[1] For model years before 2015 where this table does not specify FEL caps, apply the FEL caps shown in § 1039.101.
[2] For engines below 8 kW, the FEL cap is 10.5 g/kW-hr for NO_X + NMHC emissions.
[3] For manufacturers certifying engines to the standards of this part 1039 in 2012 under Option #2 of Table 3 of § 1039.102, the FEL caps for 37–56 kW engines in the 19–56 kW category of Table 2 of § 1039.101 apply for model year 2012 and later; see 40 CFR part 89 for provisions that apply to earlier model years.
[4] For engines below 75 kW, the FEL cap is 7.5 g/kW-hr for NO_X + NMHC emissions.
[5] For engines below 225 kW, the FEL cap is 6.6 g/kW-hr for NO_X + NMHC emissions.

(3) *Crankcase emissions*. The crankcase emission requirements of § 1039.115(a) do not apply to engines using charge-air compression that are certified to an FEL under the alternate FEL program in § 1039.104(g) during the first four years of the Tier 4 standards for the applicable power category.

(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).

[69 FR 39213, June 29, 2004, as amended at 72 FR 53130, Sept. 18, 2007; 73 FR 59191, Oct. 8, 2008; 75 FR 68461, Nov. 8, 2010]

§ 1039.104 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 when these interim provisions apply.

(a) *Incentives for early introduction*. This paragraph (a) allows you to reduce the number of engines subject to the applicable standards in § 1039.101 or § 1039.102, when some of your engines are certified to the specified levels earlier than otherwise required. The engines that are certified early are considered offset-generating engines. The provisions of this paragraph (a), which describe the requirements applicable to offset-generating engines, apply beginning in model year 2007. These offset generating engines may generate additional allowances for equipment manufacturers under the incentive program described in § 1039.627; you may instead use these offsets under paragraph (a)(2) of this section in some cases.

(1) For early-compliant engines to generate offsets for use either under this paragraph (a) or under § 1039.627, you must meet the following general provisions:

(i) You may not generate offsets from engines below 19 kW.

(ii) You must begin actual production of engines covered by the corresponding certificate by the following dates:

(A) For engines at or above 19 kW and below 37 kW: September 1, 2012.

(B) For engines at or above 37 kW and below 56 kW: September 1, 2012 if you choose Option #1 in Table 3 of § 1039.102, or September 1, 2011 if you do not choose Option #1 in Table 3 of § 1039.102.

(C) For engines in the 56–130 kW power category: September 1, 2011.

(D) For engines in the 130–560 kW power category: September 1, 2010.

(E) For engines above 560 kW: September 1, 2014.

(iii) Engines you produce after December 31 of the year shown in paragraph (a)(1)(ii) of this section may not generate offsets.

(iv) You may not use ABT credits to certify offset-generating engines.

(v) Offset-generating engines must be certified to the Tier 4 standards and requirements under this part 1039.

(2) If equipment manufacturers decline offsets for your offset-generating engines under § 1039.627, you may not generate ABT credits with these engines, but you may reduce the number of engines that are required to meet the standards in § 1039.101 or § 1039.102 as follows:

For every . . .	With maximum engine power . . .	That are certified to the applicable standards in . . .	You may reduce the number of engines in the same power category that are required to meet the . . .	In later model years by . . .
(i) 2 engines	19 ≤kW <37	Table 2 of § 1039.102 [1].	PM standard in Table 2 of § 1039.102 applicable to model year 2013 or 2014 engines or the PM standard in Table 1 of § 1039.101.	3 engines.
(ii) 2 engines	56 ≤kW ≤560	Table 4, 5, or 6 of § 1039.102 for Phase-out engines.	Phase-out standards in Tables 4 through 6 of § 1039.102.	3 engines.
(iii) 2 engines	kW ≥19	Table 1 of § 1039.101	Standards in Tables 2 through 7 of § 1039.102 or standards in Table 1 of § 1039.101.	3 engines. [2]
(iv) 1 engine	kW ≥19	Table 1 of § 1039.101 + 0.20 g/kW-hr NO_X standard.	Standards in Tables 2 through 7 of § 1039.102 or standards in Table 1 of § 1039.101.	2 engines. [2]

[1] The engine must be certified to the PM standard applicable to model year 2013 engines, and to the NO_X + NMHC and CO standards applicable to model year 2012 engines.
[2] For engines above 560 kW, offsets from generator-set engines may be used only for generator-set engines. Offsets from engines for other applications may be used only for other applications besides generator sets.

(3) Example: If you produce 100 engines in the 56–130 kW power category in model year 2008 that are certified to the 56–130 kW standards listed in § 1039.101, and you produced 10,000 engines in this power category in model year 2015, then only 9,850 of these model year 2015 engines would need to comply with the standards listed in § 1039.101. The 100 offset-generating engines in model year 2008 could not use or generate ABT credits.

(4) Offset-using engines (that is, those not required to certify to the standards of § 1039.101 or § 1039.102 under paragraph (a)(2) of this section) are subject to the following provisions:

(i) If the offset is being used under paragraph (a)(2)(i) of this section for an engine that would otherwise be certified to the model year 2013 or 2014 standards in Table 2 of § 1039.102 or the standards in Table 1 of § 1039.101, this engine must be certified to the standards and requirements of this part 1039, except that the only PM standard that applies is the steady-state PM standard that applies for model year 2012. Such an engine may not generate ABT credits.

(ii) If the offset is being used under paragraph (a)(2)(ii) of this section for an engine that would otherwise be certified to the phase-out standards in Tables 4 through 6 of § 1039.102, this engine must be certified to the standards and requirements of this part 1039, except that the PM standard is the Tier 3 PM standard that applies for this engine's maximum power. Such an engine will be treated as a phase-out engine for purposes of determining compliance with percentage phase-in requirements. Such an engine may not generate ABT credits.

(iii) All other offset-using engines must meet the standards and other provisions that apply in model year 2011 for engines in the 19–130 kW power categories, in model year 2010 for engines in the 130–560 kW power category, or in model year 2014 for engines above 560 kW. Show that engines meet these emission standards by meeting all the requirements of § 1068.265. You must meet the labeling requirements in § 1039.135, but add the following statement instead of the compliance statement in § 1039.135(c)(12): ''THIS ENGINE MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1039.104(a).'' For power categories with a percentage phase-in, these engines should be treated as phase-in engines for purposes of determining compliance with phase-in requirements.

(5) If an equipment manufacturer claims offsets from your engine for use under § 1039.627, the engine generating the offset must comply with the requirements of paragraph (a)(1) of this section. You may not generate offsets for use under paragraphs (a)(2) and (5) of this section for these engines. You may generate ABT credits from these engines as follows:

(i) To generate emission credits for NO_X, NO_X + NMHC, and PM, the engine must be certified to FELs at or below

the standards in paragraph (a)(2) of this section.

(ii) Calculate credits according to §1039.705 but use as the applicable standard the numerical value of the standard to which the engine would have otherwise been subject if it had not been certified under this paragraph (a).

(iii) For the production volume, use the number of engines certified under this paragraph (a) for which you do not claim offsets under paragraph (a)(2) of this section.

(6) You may include engines used to generate offsets under this paragraph (a) and engines used to generate offsets under §1039.627 in the same engine family, subject to the provisions of §1039.230. The engine must be certified to FELs, as specified in paragraph (a)(5)(i) of this section. The FELs must be below the standard levels specified in paragraph (a)(2) of this section and those specified in §1039.627. In the reports required in §1039.730, include the following information for each model year:

(i) The total number of engines that generate offsets under this paragraph (a).

(ii) The number of engines used to generate offsets under paragraph (a)(2) of this section.

(iii) The names of equipment manufacturers that intend to use your offsets under §1039.627 and the number of offsets involved for each equipment manufacturer.

(b) *In-use compliance limits*. For purposes of determining compliance after title or custody has transferred to the ultimate purchaser, calculate the applicable in-use compliance limits by adjusting the applicable standards or FELs. This applies only for engines at or above 19 kW. The NO_X adjustment applies only for engines with a NO_X FEL no higher than 2.1 g/kW-hr The PM adjustment applies only for engines with a PM FEL no higher than the PM standard in §1039.101 for the appropriate power category. Add the following adjustments to the otherwise applicable standards or FELs (steady-state, transient, and NTE) for NO_X and PM:

In model years . . .	If your engine's maximum power is . . .	The NO_X adjustment in g/kW-hr is . . .	The PM adjustment in g/kW-hr is . . .
2013–2014	19 ≤kW <56	not allowed	0.01
2012–2016	56 ≤kW <130	0.16 for operating hours ≤2000 0.25 for operating hours 2001 to 3400 0.34 for operating hours >3400	0.01
2011–2015	130 ≤kW <560	0.16 for operating hours ≤2000 0.25 for operating hours 2001 to 3400 0.34 for operating hours >3400	0.01
2011–2016	kW >560	0.16 for operating hours ≤2000 0.25 for operating hours 2001 to 3400 0.34 for operating hours >3400	0.01

(c) *Provisions for small-volume manufacturers*. Special provisions apply if you are a small-volume engine manufacturer subject to the requirements of this part. You must notify us in writing before January 1, 2008 if you intend to use these provisions.

(1) You may delay complying with certain otherwise applicable Tier 4 emission standards and requirements as described in the following table:

If your engine's maximum power is . . .	You may delay meeting . . .	Until model year . . .	Before that model year the engine must comply with . . .
kW <19	The standards and requirements of this part	2011	The standards and requirements in 40 CFR part 89.
19 ≤kW <37	The Tier 4 standards and requirements of this part that would otherwise be applicable in model year 2013.	2016	The Tier 4 standards and requirements that apply for model year 2008.
37 ≤kW <56	See paragraph (c)(2) of this section for special provisions that apply for engines in this power category.		

If your engine's maximum power is . . .	You may delay meeting . . .	Until model year . . .	Before that model year the engine must comply with . . .
56 ≤kW <130	The standards and requirements of this part	2015	The standards and requirements in 40 CFR part 89.

(2) To use the provisions of this paragraph (c) for engines at or above 37 kW and below 56 kW, choose one of the following:

(i) If you comply with the 0.30 g/kW-hr PM standard in §1039.102 in all model years from 2008 through 2012 without using PM credits, you may continue meeting that standard through 2015.

(ii) If you do not choose to comply with paragraph (c)(2)(i) of this section, you may continue to comply with the standards and requirements in 40 CFR part 89 for model years through 2012, but you must begin complying in 2013 with Tier 4 standards and requirements specified in Table 3 of §1039.102 for model years 2013 and later.

(3) After the delays indicated in paragraph (c)(1) and (2) of this section, you must comply with the same Tier 4 standards and requirements as all other manufacturers.

(4) For engines not in the 19–56 kW power category, if you delay compliance with any standards under this paragraph (c), you must do all the following things for the model years when you are delaying compliance with the otherwise applicable standards:

(i) Produce engines that meet all the emission standards and other requirements under 40 CFR part 89 applicable for that model year, except as noted in this paragraph (c).

(ii) Meet the labeling requirements in 40 CFR 89.110, but use the following compliance statement instead of the compliance statement in 40 CFR 89.110(b)(10): ''THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [CURRENT MODEL YEAR] NONROAD COMPRESSION-IGNITION ENGINES UNDER 40 CFR 1039.104(c).''.

(iii) Notify the equipment manufacturer that the engines you produce under this section are excluded from the production volumes associated with the equipment-manufacturer allowance program in §1039.625.

(5) For engines in the 19–56 kW power category, if you delay compliance with any standards under this paragraph (c), you must do all the following things for the model years when you are delaying compliance with the otherwise applicable standards:

(i) Produce engines in those model years that meet all the emission standards and other requirements that applied for your model year 2008 engines in the same power category.

(ii) Meet the labeling requirements in §1039.135, but use the following compliance statement instead of the compliance statement in §1039.135: ''THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [CURRENT MODEL YEAR] NONROAD COMPRESSION-IGNITION ENGINES UNDER 40 CFR 1039.104(c).''.

(iii) Notify the equipment manufacturer that the engines you produce under this section are excluded from the production volumes associated with the equipment-manufacturer allowance program in §1039.625.

(6) The provisions of this paragraph (c) may not be used to circumvent the requirements of this part.

(d) *Deficiencies for NTE standards*. You may ask us to accept as compliant an engine that does not fully meet specific requirements under the applicable NTE standards. Such deficiencies are intended to allow for minor deviations from the NTE standards under limited conditions. We expect your engines to have functioning emission-control hardware that allows you to comply with the NTE standards.

(1) Request our approval for specific deficiencies in your application for certification, or before you submit your application. We will not approve deficiencies retroactively to cover engines already certified. In your request, identify the scope of each deficiency and describe any auxiliary emission-control devices you will use to control emissions to the lowest practical level, considering the deficiency you are requesting.

(2) We will approve a deficiency only if compliance would be infeasible or

unreasonable considering such factors as the technical feasibility of the given hardware and the applicable lead time and production cycles—including schedules related to phase-in or phase-out of engines. We may consider other relevant factors.

(3) Our approval applies only for a single model year and may be limited to specific engine configurations. We may approve your request for the same deficiency in the following model year if correcting the deficiency would require unreasonable hardware or software modifications and we determine that you have demonstrated an acceptable level of effort toward complying.

(4) You may ask for any number of deficiencies in the first three model years during which NTE standards apply for your engines. For the next four model years, we may approve up to three deficiencies per engine family. Deficiencies of the same type that apply similarly to different power ratings within a family count as one deficiency per family. We may condition approval of any such additional deficiencies during these four years on any additional conditions we determine to be appropriate. We will not approve deficiencies after the seven-year period specified in this paragraph (d)(4).

(e) *Diesel test fuels and corresponding labeling requirements.* For diesel-fueled engines in 2011 and later model years, the diesel test fuel is ultra low-sulfur diesel fuel specified in 40 CFR part 1065. For diesel-fueled engines in 2010 and earlier model years, use test fuels and meet labeling requirements as follows:

(1) Use the following test fuels in 2010 and earlier model years:

(i) Unless otherwise specified, the diesel test fuel is low-sulfur diesel fuel specified in 40 CFR part 1065.

(ii) In model years 2007 through 2010, you may use ultra low-sulfur diesel fuel as the test fuel for any engine family that employs sulfur-sensitive technology if you can demonstrate that in-use engines in the family will use diesel fuel with a sulfur concentration no greater than 15 ppm.

(iii) You may use ultra low-sulfur diesel fuel as the test fuel for engine families in any power category below 56 kW, as long as none of the engines in your engine family employ sulfur-sensitive technologies, you ensure that ultimate purchasers of equipment using these engines are informed that ultra low-sulfur diesel fuel is recommended, and you recommend to equipment manufacturers that a label be applied at the fuel inlet recommending 15 ppm fuel.

(iv) For the engines described in §1039.101(c) that are certified to the 0.60 g/kW-hr PM standard in Table 1 of §1039.102 in the 2010 model year, you may test with the ultra low-sulfur fuel specified in 40 CFR part 1065.

(2) Meet the labeling requirements of this paragraph (e)(2) (or other labeling requirements we approve) to identify the applicable test fuels specified in paragraph (e)(1) of this section. Provide instructions to equipment manufacturers to ensure that they are aware of these labeling requirements.

(i) For engines certified under the provisions of paragraph (e)(1)(i) of this section, include the following statement on the emission control information label and the fuel-inlet label specified in §1039.135: ''LOW SULFUR FUEL OR ULTRA LOW SULFUR FUEL ONLY''.

(ii) For engines certified under the provisions of paragraph (e)(1)(ii) of this section, include the following statement on the emission control information label and the fuel-inlet label specified in §1039.135: ''ULTRA LOW SULFUR FUEL ONLY''.

(iii) For engines certified under the provisions of paragraph (e)(1)(iii) of this section, include the following statement on the emission control information label specified in §1039.135: ''ULTRA LOW SULFUR FUEL RECOMMENDED''.

(3) For model years 2010 and earlier, we will use the test fuel that you use under paragraph (e)(1) of this section, subject to the conditions of paragraph (e)(1) of this section.

(f) *Requirements for equipment manufacturers.* If you produce equipment with engines certified to Tier 3 standards under Option #2 of Table 3 of §1039.102 during model years from 2008 through 2011, then a minimum number of pieces of equipment you produce using 2012 model year engines must have engines certified to the Option #2 standards, as follows:

(1) For equipment you produce with 2012 model year engines at or above 37 kW and below 56 kW, determine the minimum number of these engines that must be certified to the Option #2 standards in Table 3 of § 1039.102 as follows:

(i) If all the equipment you produce using 2008 through 2011 model year engines use engines certified to Tier 3 standards under Option #2 of Table 3 of § 1039.102, then all the 2012 model year engines you install must be certified to the Option #2 standards of Table 3 of § 1039.102.

(ii) If you produce equipment using 2008 through 2011 model year engines with some engines certified to Option #1 standards of Table 3 of § 1039.102 and some engines certified to Tier 3 standards under Option #2 standards of Table 3 of § 1039.102, calculate the minimum number of 2012 model year engines you must install that are certified to the Option #2 standards of Table 3 of § 1039.102 from the following equation:

$$\text{Minimum number} = [(T\text{-}O_1 - F)/(T - F) - 0.05] \times P$$

Where:

T = The total number of 2008–2010 model year engines at or above 37 kW and below 56 kW that you use in equipment you produce.

O_1 = The number of engines from the 2008–2010 model years certified under Option #1 of Table 3 of § 1039.102 that you use in equipment you produce.

F = The number of 2008–2010 model year engines at or above 37 kW and below 56 kW that you use in equipment you produce under the flexibility provisions of § 1039.625.

P = The total number of 2012 model year engines at or above 37 kW and below 56 kW that you use in equipment you produce.

(2) As needed for the calculation required by this paragraph (f), keep records of all equipment you produce using 2008–2012 model year engines at or above 37 kW and below 56 kW. If you fail to keep these records, you may not use any 2012 model year engines certified to Option #1 standards in your equipment.

(3) If you fail to comply with the provisions of this paragraph (f), then using 2012 model year engines certified under Option #1 of Table 3 of § 1039.102 (or certified to less stringent standards) in such equipment violates the prohibitions in § 1068.101(a)(1).

(g) *Alternate FEL caps.* You may certify engines to the FEL caps in Table 1 of this section instead of the otherwise applicable FEL caps in § 1039.101(d)(1), § 1039.102(e), or § 1039.102(g)(2) for the indicated model years, subject to the following provisions:

(1) The provisions of this paragraph (g) apply for limited numbers of engines as specified in this paragraph (g)(1). If you certify an engine under an alternate FEL cap in this paragraph (g) for any pollutant, count it toward the allowed percentage of engines certified to the alternate FEL caps.

(i) Except as specified in paragraph (g)(1)(ii) of this section, the number of engines certified to the FEL caps in Table 1 of this section must not exceed 20 percent in any single model year in each power category, and the sum of percentages over the 4-year period must not exceed a total of 40 percent in each power category.

(ii) For the 19–56 kW power category, the number of engines certified to the FEL caps in Table 1 of this section must not exceed 40 percent in any single model year, and the sum of percentages over the 4-year period must not exceed a total of 80 percent.

(2) If your engine is not certified to transient emission standards under the provisions of § 1039.102(a)(1)(iii), you must adjust your FEL upward by a temporary compliance adjustment factor (TCAF) before calculating your negative emission credits under § 1039.705, as follows:

(i) The temporary compliance adjustment factor for NO_X and for NO_X + NMHC is 1.1.

(ii) The temporary compliance adjustment factor for PM is 1.5.

(iii) The adjusted FEL (FEL_{adj}) for calculating emission credits is determined from the steady-state FEL (FEL_{ss}) using the following equation:

$$FEL_{adj} = (FEL_{ss}) \times (TCAF)$$

(iv) The unadjusted FEL (FEL_{ss}) applies for all purposes other than credit calculation.

(3) These alternate FEL caps may not be used for phase-in engines.

(4) Do not apply TCAFs to gaseous emissions for phase-out engines that

you certify to the same numerical standards (and FELs if the engines are certified using ABT) for gaseous pollutants as you certified under the Tier 3 requirements of 40 CFR part 89.

TABLE 1 OF § 1039.104—ALTERNATE FEL CAPS

Maximum engine power	PM FEL cap, g/kW-hr	Model years for the alternate PM FEL cap	NO_X FEL cap, g/kW-hr [1]	Model years for the alternate NO_X FEL cap
19 ≤ kW < 56	0.30	[2] 2012–2015	.....	
56 ≤ kW < 130 [3]	0.30	2012–2015	3.8	[4] 2012–2015
130 ≤ kW ≤ 560	0.20	2011–2014	3.8	[5] 2011–2014
kW > 560 [6]	0.10	2015–2018	3.5	2015–2018

[1] The FEL cap for engines demonstrating compliance with a NO_X + NMHC standard is equal to the previously applicable NO_X + NMHC standard specified in 40 CFR 89.112 (generally the Tier 3 standards).

[2] For manufacturers certifying engines under Option #1 of Table 3 of § 1039.102, these alternate FEL caps apply to all 19–56 kW engines for model years from 2013 through 2016 instead of the years indicated in this table. For manufacturers certifying engines under Option #2 of Table 3 of § 1039.102, these alternate FEL caps do not apply to 19–37 kW engines except in model years 2013 to 2015.

[3] For engines below 75 kW, the FEL caps are 0.40 g/kW-hr for PM emissions and 4.4 g/kW-hr for NO_X emissions.

[4] For manufacturers certifying engines in this power category using a percentage phase-in/phase-out approach instead of the alternate NO_X standards of § 1039.102(e)(1), the alternate NO_X FEL cap in the table applies only in the 2014–2015 model years if certifying under § 1039.102(d)(1), and only in the 2015 model year if certifying under § 1039.102(d)(2).

[5] For manufacturers certifying engines in this power category using the percentage phase-in/phase-out approach instead of the alternate NO_X standard of § 1039.102(e)(2), the alternate NO_X FEL cap in the table applies only for the 2014 model year.

[6] For engines above 560 kW, the provision for alternate NO_X FEL caps is limited to generator-set engines.

(5) You may certify engines under this paragraph (g) in any model year provided for in Table 1 of this section without regard to whether or not the engine family's FEL is at or below the otherwise applicable FEL cap. For example, a 200 kW engine certified to the NO_X + NMHC standard of § 1039.102(e)(3) with an FEL equal to the FEL cap of 2.8 g/kW-hr may nevertheless be certified under this paragraph (g).

(6) For engines you produce under this paragraph (g) after the Tier 4 final standards take effect, you may certify based on a NO_X + NMHC FEL as described in Table 1 of this section. Calculate emission credits for these engines relative to the applicable NO_X standard in § 1039.101 or § 1039.102, plus 0.1 g/kW-hr.

(h) *Delayed compliance with labeling requirements.* Before the 2011 model year, you may omit the dates of manufacture from the emission control information label as specified in § 1039.135(c)(6) if you keep those records and provide them to us upon request.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40462, July 13, 2005; 72 FR 53130, Sept. 18, 2007; 75 FR 22988, Apr. 30, 2010; 75 FR 68461, Nov. 8, 2010; 79 FR 7083, Feb. 6, 2014]

§ 1039.105 What smoke standards must my engines meet?

(a) The smoke standards in this section apply to all engines subject to emission standards under this part, except for the following engines:

(1) Single-cylinder engines.

(2) Constant-speed engines.

(3) Engines certified to a PM emission standard or FEL of 0.07 g/kW-hr or lower.

(b) Measure smoke as specified in § 1039.501(c). Smoke from your engines may not exceed the following standards:

(1) 20 percent during the acceleration mode.

(2) 15 percent during the lugging mode.

(3) 50 percent during the peaks in either the acceleration or lugging modes.

§ 1039.107 What evaporative emission standards and requirements apply?

There are no evaporative emission standards for diesel-fueled engines, or engines using other nonvolatile or nonliquid fuels (for example, natural gas). If your engine uses a volatile liquid fuel, such as methanol, you must meet the evaporative emission requirements of 40 CFR part 1048 that apply to spark-ignition engines, as follows:

(a) Follow the steps in 40 CFR 1048.245 to show that you meet the requirements of 40 CFR 1048.105.

(b) Do the following things in your application for certification:

(1) Describe how your engines control evaporative emissions.

(2) Present test data to show that equipment using your engines meets the evaporative emission standards we specify in this section if you do not use design-based certification under 40 CFR 1048.245. Show these figures before and after applying deterioration factors, where applicable.

§ 1039.110 [Reserved]

§ 1039.115 What other requirements apply?

Engines that are required to meet the emission standards of this part must meet the following requirements, except as noted elsewhere in 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) 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.

(2) 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.

(3) 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)–(d) [Reserved]

(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, selective enforcement auditing, 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 to auxiliary-emission control devices you identify in your certification application if any of the following is true:

(1) The conditions of concern were substantially included in the applicable 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.

(4) The auxiliary emission control device applies only for engines that will be installed in emergency equipment and the need is justified in terms of preventing the equipment from losing speed or power due to abnormal conditions of the emission control system, or in terms of preventing such abnormal conditions from occurring, during operation related to emergency response. Examples of such abnormal conditions may include excessive exhaust backpressure from an overloaded particulate trap, and running out of diesel exhaust fluid for engines that rely on urea-based selective catalytic reduction. The emission standards do not apply when any AECDs approved under this paragraph (g)(4) are active.

(5) The auxiliary emission control device operates only in emergency situations as defined in § 1039.665 and meets all of the requirements of that section, and you meet all of the requirements of that section.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53130, Sept. 18, 2007; 77 FR 34147, June 8, 2012]

§ 1039.120 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 nonroad 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 for at least as long as the minimum warranty periods listed in this paragraph (b) in hours of operation and years, whichever comes first. 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 when the engine is placed into service. The minimum warranty periods are shown in the following table:

If your engine is certified as . . .	And its maximum power is . . .	And its rated speed is . . .	Then its warranty period is . . .
Variable speed or constant speed.	kW <19	Any speed	1,500 hours or two years, whichever comes first.
Constant speed	19 ≤kW <37	3,000 rpm or higher	1,500 hours or two years, whichever comes first.
Constant speed	19 ≤kW <37	Less than 3,000 rpm	3,000 hours or five years, whichever comes first.
Variable speed	19 ≤kW <37	Any speed	3,000 hours or five years, whichever comes first.
Variable speed or constant speed.	kW ≥37	Any speed	3,000 hours or five years, 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 need to 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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 75 FR 22989, Apr. 30, 2010]

§ 1039.125 What maintenance instructions must I give to buyers?

Give the ultimate purchaser of each new nonroad engine written instructions for properly maintaining and using the engine, including the emission-control system. The maintenance instructions also apply to service accumulation on your emission-data engines, as described in § 1039.245 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, with the exception that paragraphs (a)(1)(ii) and (iii) of this section do not apply for DEF replenishment:

(i) You present data showing that, if a lack of maintenance increases emissions, it 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) For engines below 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

(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.

(ii) For the following components, including associated sensors and actuators, the minimum interval is 3,000 hours: Fuel injectors, turbochargers, catalytic converters, electronic control units, EGR systems (including related components, but excluding filters and coolers), and other add-on components.

(iii) For SCR systems, the minimum interval for replenishing the diesel exhaust fluid (DEF) is the number of engine operating hours necessary to consume a full tank of fuel based on normal usage starting from full fuel capacity for the equipment. Use good engineering judgment to ensure that equipment manufacturers will meet this requirement for worst-case operation by following your installation instructions. For example, if your highest rate of DEF consumption (relative to fuel consumption) will occur under a steady state operating conditions characterized by one of the modes of the applicable steady-state certification test (to the extent that continuous operation at such mode is representative of real-world conditions), the DEF tank should be large enough that a single tank of DEF would be enough to continue proper operation of the SCR system for the expected operating range with a single tank of fuel at that mode. For engine testing in a laboratory, any size DEF tank and fuel tank may be used; however, for our testing of engines, we may require you to provide us with a production-type DEF tank, including any associated sensors.

(3) For engines at or above 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

(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.

(ii) For the following components, including associated sensors and actuators, the minimum interval is 4,500 hours: Fuel injectors, turbochargers, catalytic converters, electronic control units, EGR systems (including related components, but excluding filters and coolers), and other add-on components.

(iii) The provisions of paragraph (a)(2)(iii) of this section apply for SCR systems.

(4) For particulate traps, trap oxidizers, and components related to either of these, scheduled maintenance may include cleaning or repair at the intervals specified in paragraph (a)(2) or (3) of this section, as applicable. Scheduled maintenance may include a shorter interval for cleaning or repair and may also include adjustment or replacement, but only if we approve it. We will approve your request if you provide the maintenance free of charge and clearly state this in your maintenance instructions, and you provide us additional information as needed to convince us that the maintenance will occur.

(5) You may ask us to approve a maintenance interval shorter than that specified in paragraphs (a)(2) and (3) of

this section under § 1039.210, including emission-related components that were not in widespread use with nonroad compression-ignition engines before 2011. In your request you must describe the proposed maintenance step, recommend the maximum feasible interval for this maintenance, include your rationale with supporting evidence to support the need for the maintenance at the recommended interval, and demonstrate that the maintenance will be done at the recommended interval on in-use engines. In considering your request, we will evaluate the information you provide and any other available information to establish alternate specifications for maintenance intervals, if appropriate. We will announce any decision we make under this paragraph (a)(5) in the FEDERAL REGISTER. Anyone may request a hearing regarding such a decision (*see* § 1039.820).

(6) If your engine family has an alternate useful life under § 1039.101(g) that is shorter than the period specified in paragraph (a)(2) or (a)(3) of this section, you may not schedule critical emission-related maintenance more frequently than the alternate useful life, except as specified in paragraph (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. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address engine operation that is not atypical, or that the maintenance is unlikely to occur in use. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

(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 (that is, 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 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 the regulations require it or 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 (6) of the definition of *new nonroad engine* in § 1039.801.

(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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 72 FR 53130, Sept. 18, 2007; 73 FR 59191, Oct. 8, 2008; 75 FR 22989, Apr. 30, 2010; 79 FR 46373, Aug. 8, 2014]

§ 1039.130 What installation instructions must I give to equipment manufacturers?

(a) If you sell an engine for someone else to install in a piece of 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.

(b) Make sure these 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 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 the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of § 1039.205(u). Also describe how to properly size the DEF tank consistent with the specifications in § 1039.125(a), if applicable.

(4) [Reserved]

(5) 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 constant-speed operation, tell equipment manufacturers not to install the engines in variable-speed applications.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

(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.''.

(8) Describe equipment-labeling requirements consistent with § 1039.135. State whether you are providing the label for the fuel inlet or the equipment manufacturer must provide the label.

(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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 79 FR 46373, Aug. 8, 2014]

§ 1039.135 How must I label and identify the engines I produce?

(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. However, you may use two-piece labels for engines below 19 kW if there is not enough space on the engine to apply a one-piece label.

(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 § 1039.640.

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

(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.

(5) 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.

(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) State the FELs to which the engines are certified if certification depends on the ABT provisions of subpart H of this part.

(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.

(9) For diesel-fueled engines, unless otherwise specified in § 1039.104(e)(2), state: ''ULTRA LOW SULFUR FUEL ONLY'.

(10) Identify any additional requirements for fuel and lubricants that do not involve fuel-sulfur levels. 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.

(11) State the useful life for your engine family if we approve a shortened useful life under § 1039.101(g)(2).

(12) State: ''THIS ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR] NONROAD DIESEL ENGINES.''.

(13) For engines above 560 kW, include the following things:

(i) For engines certified to the emission standards for generator-set engines, add the phrase ''FOR GENERATOR SETS AND OTHER APPLICATIONS''.

(ii) For all other engines, add the phrase ''NOT FOR USE IN A GENERATOR SET''.

(14) If your engines are certified only for constant-speed operation, state ''USE IN CONSTANT-SPEED APPLICATIONS ONLY''.

(15) For engines with one or more approved auxiliary emission control devices for emergency equipment applications under § 1039.115(g)(4), the statement: ''THIS ENGINE IS FOR INSTALLATION IN EMERGENCY EQUIPMENT ONLY.'' Note that this

label requirement does not apply for engines that include emergency AECDs under § 1039.665 rather than § 1039.115(g)(4).

(d) You may add information to the emission control information label to identify other emission standards that the engine meets or does not meet (such as European standards). You may also add other information to ensure that the engine will be properly maintained and used.

(e) Except as specified in § 1039.104(e)(2), create a separate label with the statement: ''ULTRA LOW SULFUR FUEL ONLY''. Permanently attach this label to the equipment near the fuel inlet or, if you do not manufacture the equipment, take one of the following steps to ensure that the equipment will be properly labeled:

(1) Provide the label to the equipment manufacturer and include the appropriate information in the emission-related installation instructions.

(2) Confirm that the equipment manufacturers install their own complying labels.

(f) You may ask us to approve modified labeling requirements in this part 1039 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 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.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53130, Sept. 18, 2007; 73 FR 59191, Oct. 8, 2008; 75 FR 22989, Apr. 30, 2010; 77 FR 34147, June 8, 2012; 79 FR 46373, Aug. 8, 2014]

§ 1039.140 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 § 1039.225.

(d) Throughout this part, references to a specific power value or a range of power values for an engine are based on maximum engine power. For example, the group of engines with maximum engine power above 560 kW may be referred to as engines above 560 kW.

Subpart C—Certifying Engine Families

§ 1039.201 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 from the indicated effective date until December 31 of the model year 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 § 1039.255).

(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 § 1039.250.

(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 § 1039.255 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 § 1039.235(c)).

(h) For engines that become new after being placed into service, such as engines converted to nonroad use after being used in motor vehicles, we may specify alternate certification provisions consistent with the intent of this part. *See* the definition of ''new nonroad engine'' in § 1039.801.

[69 FR 39213, June 29, 2004, as amended at 75 FR 22990, Apr. 30, 2010]

§ 1039.205 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 § 1039.201(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, ultra low-sulfur diesel fuel). 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 § 1039.140.

(b) Explain how the emission-control system operates. 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 all the following:

(1) Give a general overview of the engine, the emission-control strategies, and all AECDs.

(2) Describe each AECD's general purpose and function.

(3) Identify the parameters that each AECD senses (including measuring, estimating, calculating, or empirically deriving the values). Include equipment-based parameters and state whether you simulate them during testing with the applicable procedures.

(4) Describe the purpose for sensing each parameter.

(5) Identify the location of each sensor the AECD uses.

(6) Identify the threshold values for the sensed parameters that activate the AECD.

(7) Describe the parameters that the AECD modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AECD's stated purpose. Use graphs and tables, as necessary.

(8) Describe each AECD's specific calibration details. This may be in the form of data tables, graphical representations, or some other description.

(9) Describe the hierarchy among the AECDs when multiple AECDs sense or modulate the same parameter. Describe whether the strategies interact in a comparative or additive manner and identify which AECD takes precedence in responding, if applicable.

(10) Explain the extent to which the AECD is included in the applicable test procedures specified in subpart F of this part.

(11) Do the following additional things for AECDs designed to protect engines or equipment:

(i) Identify the engine and/or equipment design limits that make protection necessary and describe any damage that would occur without the AECD.

(ii) Describe how each sensed parameter relates to the protected components' design limits or those operating conditions that cause the need for protection.

(iii) Describe the relationship between the design limits/parameters being protected and the parameters

sensed or calculated as surrogates for those design limits/parameters, if applicable.

(iv) Describe how the modulation by the AECD prevents engines and/or equipment from exceeding design limits.

(v) Explain why it is necessary to estimate any parameters instead of measuring them directly and describe how the AECD calculates the estimated value, if applicable.

(vi) Describe how you calibrate the AECD modulation to activate only during conditions related to the stated need to protect components and only as needed to sufficiently protect those components in a way that minimizes the emission impact.

(c) [Reserved]

(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 (see § 1039.501).

(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 instructions you will give to the ultimate purchaser of each new nonroad engine (see § 1039.125).

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a piece of nonroad equipment (see § 1039.130).

(k) Describe your emission control information label (see § 1039.135).

(l) Identify the emission standards or FELs to which you are certifying engines in the engine family. Identify the ambient operating regions that will apply for NTE testing under § 1039.101(e)(4).

(m) Identify the engine family's deterioration factors and describe how you developed them (see § 1039.245). 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 for hydrocarbons (such as NMHC or THCE, as applicable), NO_X, PM, and CO on an emission-data engine to show your engines meet the applicable duty-cycle emission standards we specify in § 1039.101. Show emission figures before and after applying adjustment factors for regeneration and deterioration factors for each engine. Include emission results for each mode if you do discrete-mode testing under § 1039.505. Present emission data to show that you meet any applicable smoke standards we specify in § 1039.105. If we specify more than one grade of any fuel type (for example, high-sulfur and low-sulfur diesel fuel), you need to submit test data only for one grade, unless the regulations of this part specify otherwise for your engine. Note that § 1039.235 allows 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 § 1039.515. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement.

(q) For engines above 560 kW, include information showing how your emission controls will function during normal in-use transient operation. For example, this might include the following:

(1) Emission data from transient testing of engines using measurement systems designed for measuring in-use emissions.

(2) Comparison of the engine design for controlling transient emissions with that from engines for which you have emission data over the transient duty cycle for certification.

(3) Detailed descriptions of control algorithms and other design parameters for controlling transient emissions.

(r) Report test results as follows:

(1) Report all test results involving measurement of pollutants for which emission standards apply. Include test results 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. 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.

(2) Report measured CO_2, N_2O, and CH_4 as described in §1039.235. Small-volume engine manufacturers may omit reporting N_2O and CH_4.

(s) Describe all adjustable operating parameters (see §1039.115(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.

(t) Provide the information 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 equipment and placed in service. If this cannot be done by simply adding a 20-centimeter extension to the exhaust pipe, show how to sample exhaust emissions in a way that prevents diluting the exhaust sample with ambient air.

(v) State whether your certification is intended to include engines used in stationary applications. 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) Constant-speed engines.

(2) Engines used for transportation refrigeration units that you certify under the provisions of §1039.645.

(3) Hand-startable engines certified under the provisions of §1039.101(c).

(4) Engines above 560 KW that are not certified to emission standards for generator-set engines.

(w) 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.

(x) 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.

(y) Include the information required by other subparts of this part. For example, include the information required by §1039.725 if you participate in the ABT program.

(z) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(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.

[69 FR 39213, June 29, 2004, as amended at 71 FR 39185, July 11, 2006; 72 FR 53131, Sept. 18, 2007; 74 FR 56508, Oct. 30, 2009]

§ 1039.210 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 NTE deficiencies and carve-outs. 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 best-efforts to 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.

[72 FR 53131, Sept. 18, 2007]

§ 1039.220 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 § 1039.125. 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 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).

[75 FR 22990, Apr. 30, 2010]

§ 1039.225 How do I amend my application for certification?

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 that is included or should be 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 § 1039.230.

(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 relevant information to the Designated Compliance Officer.

(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 § 1039.820).

(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 engine 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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 72 FR 53131, Sept. 18, 2007; 75 FR 22990, Apr. 30, 2010]

§ 1039.230 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) Group engines in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle and fuel.

(2) The cooling system (water-cooled vs. air-cooled).

(3) Method of air aspiration.

(4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap).

(5) Combustion chamber design.

(6) Bore and stroke.

(7) Cylinder arrangement (such as in-line vs. vee configurations). This applies for engines with aftertreatment devices only.

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

(9) Power category.

(10) Numerical level of the emission standards that apply to the engine.

(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) 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.

(e) If you combine engines from different power categories into a single engine family under paragraph (d) of this section, you must certify the engine family to the more stringent set of standards from the two power categories in that model year.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53131, Sept. 18, 2007; 75 FR 22990, Apr. 30, 2010]

§ 1039.235 What testing requirements apply for certification?

This section describes the emission testing you must perform to show compliance with the emission standards in § 1039.101(a) and (b) or § 1039.102(a) and (b). See § 1039.205(p) regarding emission testing related to the NTE standards. See § 1039.240, § 1039.245, and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing.

(a) Test your emission-data engines using the procedures and equipment specified in subpart F of this part.

(b) Select an emission-data engine from each engine family for testing. Select the engine configuration with the highest volume of fuel injected per cylinder per combustion cycle at the point of maximum torque—unless good engineering judgment indicates that a different engine configuration is more likely to exceed (or have emissions nearer to) an applicable emission standard or FEL. If two or more engines have the same fueling rate at maximum torque, select the one with the highest fueling rate at rated speed. In making this selection, consider all factors expected to affect emission-control performance and compliance with the standards, including emission levels of all exhaust constituents, especially NO_X and PM.

(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) Before we test one of your engines, we may set its adjustable parameters to any point within the physically adjustable ranges (*see* § 1039.115(e)).

(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

for an engine parameter that is subject to production variability because it is adjustable during production, but is not considered an adjustable parameter (as defined in § 1039.801) because it is permanently sealed.

(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.

(e) We may require you to test a second engine of the same or different configuration in addition to the engine 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.

(g) Measure CO_2 and CH_4 with each low-hour certification test using the procedures specified in 40 CFR part 1065 in the 2011 and 2012 model years, respectively. Also measure N_2O with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2013 model year for any engine family that depends on NOx aftertreatment to meet emission standards. Small-volume engine manufacturers may omit measurement of N_2O and CH_4. These measurements are not required for NTE testing. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/kW-hr.

(2) Round N_2O to the nearest 0.001 g/kW-hr.

(3) Round CH_4 to the nearest 0.001g/kW-hr.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53131, Sept. 18, 2007; 74 FR 56509, Oct. 30, 2009; 75 FR 22991, Apr. 30, 2010]

§ 1039.240 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 emission standards in § 1039.101(a) and (b), § 1039.102(a) and (b), § 1039.104, and § 1039.105 if all emission-data engines representing that family have test results showing official emission results and deteriorated emission levels at or below these standards. This also applies for all test points for emission-data engines within the family used to establish deterioration factors. 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 an official emission result or 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. This also applies for all test points for emission-data engines within the family used to establish deterioration factors.

(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. Section 1039.245 specifies how to test your engine to develop deterioration factors that represent the deterioration expected 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. Small-volume engine manufacturers may use assigned deterioration factors that we establish. Apply deterioration factors as follows:

(1) *Additive deterioration factor for exhaust emissions.* Except as specified in paragraph (c)(2) of this section, use an additive deterioration factor for exhaust emissions. An additive deterioration factor is the difference between 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 engine at the selected test point by adding the factor to the measured emissions. If the factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable standard.

(2) *Multiplicative deterioration factor for exhaust emissions.* Use a multiplicative deterioration factor if good engineering judgment calls for the deterioration factor for a pollutant to be the ratio of exhaust emissions at the end of the useful life to exhaust emissions at the low-hour test point. For example, if you use aftertreatment technology that controls emissions of a pollutant proportionally to engine-out emissions, it is often appropriate to use a multiplicative deterioration factor. 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. A multiplicative deterioration factor may not be appropriate in cases where testing variability is significantly greater than engine-to-engine variability. Multiplicative deterioration factors must be specified to one more significant figure than the applicable standard.

(3) *Deterioration factor for smoke.* Deterioration factors for smoke are always additive, as described in paragraph (c)(1) of this section.

(4) *Deterioration factor for crankcase emissions.* If your engine vents crankcase emissions to the exhaust or to the atmosphere, you must account for crankcase emission deterioration, using good engineering judgment. You may use separate deterioration factors for crankcase emissions of each pollutant (either multiplicative or additive) or include the effects in combined deterioration factors that include exhaust and crankcase emissions together for each pollutant.

(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 NO_X + NMHC standards, apply the deterioration factor to each pollutant and then add the results before rounding.

(e) For engines subject to NMHC standards, you may base compliance on total hydrocarbon (THC) emissions. Indicate in your application for certification if you are using this option. If you do, measure THC emissions and calculate NMHC emissions as 98 percent of THC emissions, as shown in the following equation:

$$NMHC = (0.98) \times (THC).$$

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 75 FR 22991, Apr. 30, 2010]

§ 1039.245 How do I determine deterioration factors from exhaust durability testing?

This section describes how to determine deterioration factors, either with an engineering analysis, with pre-existing test data, or with new emission measurements. Apply these deterioration factors to determine whether your engines will meet the duty-cycle emission standards throughout the useful life as described in § 1039.240.

(a) You may ask us to approve deterioration factors for an engine family with established technology based on engineering analysis instead of testing. Engines certified to a NO_X + NMHC standard or FEL greater than the Tier 3 NO_X + NMHC standard described in 40 CFR 89.112 are considered to rely on established technology for gaseous emission control, except that this does not include any engines that use exhaust-gas recirculation or aftertreatment. In most cases, technologies used to meet the Tier 1 and Tier 2 emission standards would be considered to be established technology.

(b) You may ask us to approve deterioration factors for an engine family

based on emission measurements from similar highway or nonroad 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. We will approve your request if you show us that the emission measurements from other engines reasonably represent in-use deterioration for the engine family for which you have not yet determined deterioration factors.

(c) If you are unable to determine deterioration factors for an engine family under paragraph (a) or (b) of this section, select engines, subsystems, or components for testing. Determine deterioration factors based on service accumulation and related testing to represent the deterioration expected from in-use engines over the full useful life. You must measure emissions from the emission-data engine at least three times with evenly spaced intervals of service accumulation. You may use extrapolation to determine deterioration factors once you have established a trend of changing emissions with age for each pollutant. You may use an engine installed in nonroad equipment to accumulate service hours instead of running the engine only in the laboratory. You may perform maintenance on emission-data engines as described in § 1039.125 and 40 CFR part 1065, subpart E. Use good engineering judgment for all aspects of the effort to establish deterioration factors under this paragraph (c).

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

(1) If you use 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 determine your deterioration factors based on engineering analysis, explain why this is appropriate and include a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

(3) If you do testing to determine deterioration factors, describe the form and extent of service accumulation, including a rationale for selecting the service-accumulation period and the method you use to accumulate hours.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53131, Sept. 18, 2007; 75 FR 22991, Apr. 30, 2010]

§ 1039.250 What records must I keep and what reports must I send to EPA?

(a) Within 45 days after the end of the model year, send the Designated Compliance Officer a report describing the following information about engines you produced during the model year:

(1) Report the total number of engines you produced in each engine family by maximum engine power, total displacement, and the type of fuel system.

(2) If you produced exempted engines under the provisions of § 1039.625, report the number of exempted engines you produced for each engine model and identify the buyer or shipping destination for each exempted engine.

(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 § 1039.205 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.

[69 FR 39213, June 29, 2004, as amended at 75 FR 22991, Apr. 30, 2010]

§ 1039.255 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 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 despite our presenting a warrant or court order (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 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 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 § 1039.820).

[69 FR 39213, June 29, 2004, as amended at 72 FR 53132, Sept. 18, 2007; 75 FR 22991, Apr. 30, 2010]

Subpart D [Reserved]

Subpart E—In-Use Testing

§ 1039.401 General provisions.

We may perform in-use testing of any engine subject to the standards of this part. However, we will limit recall testing to the first 75 percent of each engine's useful life as specified in § 1039.101(g).

Subpart F—Test Procedures

§ 1039.501 How do I run a valid emission test?

(a) Use the equipment and procedures for compression-ignition engines in 40 CFR part 1065 to determine whether engines meet the duty-cycle emission standards in subpart B of this part. Measure the emissions of all the exhaust constituents subject to emissions standards as specified in 40 CFR part 1065. Measure CO_2, N_2O, and CH_4 as described in § 1039.235. Use the applicable duty cycles specified in §§ 1039.505 and 1039.510.

(b) Section 1039.515 describes the supplemental procedures for evaluating

whether engines meet the not-to-exceed emission standards in subpart B of this part.

(c) Measure smoke using the procedures in 40 CFR part 86, subpart I, for evaluating whether engines meet the smoke standards in §1039.105, except that you may test two-cylinder engines with an exhaust muffler like those installed on in-use engines.

(d) Use the fuels specified in §1039.104(e) and 40 CFR part 1065 to perform valid tests.

(1) For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use.

(2) For diesel-fueled engines, use the appropriate diesel fuel specified in 40 CFR part 1065 for emission testing. Unless we specify otherwise, the appropriate diesel test fuel is the ultra low-sulfur diesel fuel. If we allow you to use a test fuel with higher sulfur levels, identify the test fuel in your application for certification and ensure that the emission control information label is consistent with your selection of the test fuel (see §1039.135(c)(9)). For example, do not test with ultra low-sulfur diesel fuel if you intend to label your engines to allow use of diesel fuel with sulfur concentrations up to 500 ppm.

(e) You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10.

(f) 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.

(g) You may disable any AECDs that have been approved solely for emergency equipment applications under §1039.115(g)(4). The emission standards do not apply when any of these AECDs are active.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 72 FR 53132, Sept. 18, 2007; 74 FR 56509, Oct. 30, 2009; 77 FR 34147, June 8, 2012; 79 FR 46373, Aug. 8, 2014]

§ 1039.505 How do I test engines using steady-state duty cycles, including ramped-modal 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; you may also choose between discrete-mode and ramped-modal testing. In all 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 cycle you select for your own testing. If you submit certification test data using more than one duty cycle, any of the selected duty cycles may be used for any subsequent 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 described in 40 CFR part 1065.

(b) Measure emissions by testing the engine on a dynamometer with one of the following duty cycles to determine whether it meets the steady-state emission standards in §1039.101(b):

(1) Use the 5-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (a) of Appendix II of this part for constant-speed engines. Note that these cycles do not apply to all engines used in constant-speed applications, as described in §1039.801.

(2) Use the 6-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (b) of Appendix II of this part for variable-speed engines below 19 kW. You may instead use the 8-mode duty cycle or the corresponding ramped-modal cycle described in appendix IV of this part if some engines from your engine family will be used in applications that do not involve governing to maintain engine operation around rated speed.

(3) Use the 8-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (c) of Appendix II of this part for variable-speed engines at or above 19 kW.

(c) For constant-speed engines whose design prevents full-load operation for extended periods, you may ask for approval under 40 CFR 1065.10(c) to replace full-load operation with the maximum load for which the engine is designed to operate for extended periods.

(d) To allow non-motoring dynamometers on cycles with idle, you

may omit additional points from the duty-cycle regression as follows:

(1) For variable-speed engines with low-speed governors, you may omit speed, torque, and power points from the duty-cycle regression statistics if the following are met:

(i) The engine operator demand is at its minimum.

(ii) The dynamometer demand is at its minimum.

(iii) It is an idle point f_{nref} = 0% (idle) and T_{ref} = 0% (idle).

(iv) $T_{ref} < T \leq 5\% \cdot T_{maxmapped}$.

(2) For variable-speed engines without low-speed governors, you may omit torque and power points from the duty-cycle regression statistics if the following are met:

(i) The dynamometer demand is at its minimum.

(ii) It is an idle point f_{nref} = 0% (idle) and T_{ref} = 0% (idle).

(iii) $f_{nref} - (2\% \cdot f_{ntest}) < f_n < f_{nref} + (2\% \cdot f_{ntest})$.

(iv) $T_{ref} < T \leq 5\% \cdot T_{maxmapped}$.

[79 FR 23750, Apr. 28, 2014]

§ 1039.510 Which duty cycles do I use for transient testing?

(a) Measure emissions by testing the engine on a dynamometer with one of the following transient duty cycles to determine whether it meets the transient emission standards in § 1039.101(a):

(1) For variable-speed engines, use the transient duty cycle described in appendix VI of this part.

(2) [Reserved]

(b) The transient test sequence consists of an initial run through the transient duty cycle from a cold start, 20 minutes with no engine operation, then a final run through the same transient duty cycle. Calculate the official transient emission result from the following equation:

$$\text{Official transient emission result} = \frac{0.05 \cdot \text{cold-start emissions (g)} + 0.95 \cdot \text{hot-start emissions (g)}}{0.05 \cdot \text{cold-start work (kW} \cdot \text{hr)} + 0.95 \cdot \text{hot-start work (kW} \cdot \text{hr)}}$$

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 75 FR 22991, Apr. 30, 2010; 76 FR 57437, Sept. 15, 2011; 79 FR 23751, Apr. 28, 2014]

§ 1039.515 What are the test procedures related to not-to-exceed standards?

(a) *General provisions.* The provisions in 40 CFR 86.1370–2007 apply for determining whether an engine meets the not-to-exceed emission standards in § 1039.101(e). Interpret references to vehicles and vehicle operation to mean equipment and equipment operation.

(b) *Special PM zone.* For engines certified to a PM standard or FEL above 0.07 g/kW-hr, a modified NTE control area applies for PM emissions only. The speeds and loads to be excluded are determined based on speeds B and C, determined according to the provisions of 40 CFR 86.1360–2007(c). One of the following provisions applies:

(1) If the C speed is below 2400 rpm, exclude the speed and load points to the right of or below the line formed by connecting the following two points on a plot of speed-vs.-power:

(i) 30% of maximum power at the B speed; however, use the power value corresponding to the engine operation at 30% of maximum torque at the B speed if this is greater than 30% of maximum power at the B speed.

(ii) 70% of maximum power at 100% speed.

(2) If the C speed is at or above 2400 rpm, exclude the speed and load points to the right of the line formed by connecting the two points in paragraphs (b)(2)(i) and (ii) of this section (the 30% and 50% torque/power points) and below the line formed by connecting the two points in paragraphs (b)(2)(ii) and (iii) of this section (the 50% and 70% torque/power points). The 30%, 50%, and 70% torque/power points are defined as follows:

(i) 30% of maximum power at the B speed; however, use the power value corresponding to the engine operation at 30% of maximum torque at the B speed if this is greater than 30% of maximum power at the B speed.

(ii) 50% of maximum power at 2400 rpm.

(iii) 70% of maximum power at 100% speed.

§ 1039.520 What testing must I perform to establish deterioration factors?

Sections 1039.240 and 1039.245 describe the method for testing that must be performed to establish deterioration factors for an engine family.

§ 1039.525 How do I adjust emission levels to account for infrequently regenerating aftertreatment devices?

This section describes how to adjust emission results from engines using aftertreatment technology with infrequent regeneration events. For this section, ''regeneration'' means an intended event during which emission levels change while the system restores aftertreatment performance. For example, exhaust gas temperatures may increase temporarily to remove sulfur from adsorbers or to oxidize accumulated particulate matter in a trap. For this section, ''infrequent'' refers to regeneration events that are expected to occur on average less than once over the applicable transient duty cycle or ramped-modal cycle, or on average less than once per typical mode in a discrete-mode test. If your engine family includes engines with one or more AECDs for emergency equipment applications approved under § 1039.115(g)(4), do not consider additional regenerations resulting from those AECDs when calculating emission factors or frequencies under this section.

(a) *Developing adjustment factors.* Develop an upward adjustment factor and a downward adjustment factor for each pollutant based on measured emission data and observed regeneration frequency. Adjustment factors should generally apply to an entire engine family, but you may develop separate adjustment factors for different engine configurations within an engine family. If you use adjustment factors for certification, you must identify the frequency factor, F, from paragraph (b) of this section in your application for certification and use the adjustment factors in all testing for that engine family. You may use carryover or carry-across data to establish adjustment factors for an engine family, as described in § 1039.235(d), consistent with good engineering judgment. All adjustment factors for regeneration are additive. Determine adjustment factors separately for different test segments. For example, determine separate adjustment factors for hot-start and cold-start test segments and for different modes of a discrete-mode steady-state test. You may use either of the following different approaches for engines that use aftertreatment with infrequent regeneration events:

(1) You may disregard this section if regeneration does not significantly affect emission levels for an engine family (or configuration) or if it is not practical to identify when regeneration occurs. If you do not use adjustment factors under this section, your engines must meet emission standards for all testing, without regard to regeneration.

(2) If your engines use aftertreatment technology with extremely infrequent regeneration and you are unable to apply the provisions of this section, you may ask us to approve an alternate methodology to account for regeneration events.

(b) *Calculating average adjustment factors.* Calculate the average adjustment factor (EF_A) based on the following equation:

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

Where:

F = the frequency of the regeneration event in terms of the fraction of tests during which the regeneration occurs.

EF_H = measured emissions from a test segment in which the regeneration occurs.

EF_L = measured emissions from a test segment in which the regeneration does not occur.

(c) *Applying adjustment factors.* Apply adjustment factors based on whether regeneration occurs during the test run. You must be able to identify regeneration in a way that is readily apparent during all testing.

(1) If regeneration does not occur during a test segment, add an upward adjustment factor to the measured emission rate. Determine the upward adjustment factor (UAF) using the following equation:

$UAF = EF_A - EF_L$

(2) If regeneration occurs or starts to occur during a test segment, subtract a downward adjustment factor from the measured emission rate. Determine the downward adjustment factor (DAF) using the following equation:

$DAF = EF_H - EF_A$

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

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

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

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

[69 FR 39213, June 29, 2004, as amended at 77 FR 34147, June 8, 2012]

Subpart G—Special Compliance Provisions

§ 1039.601 What compliance provisions apply to these engines?

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.

§ 1039.605 What provisions apply to engines certified under the motor-vehicle program?

(a) *General provisions*. If you are an engine manufacturer, this section allows you to introduce new nonroad engines into commerce if they are already certified to the requirements that apply to compression-ignition engines under 40 CFR parts 85 and 86 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 for each engine to also be a valid certificate of conformity under this part 1039 for its model year, without a separate application for certification under the requirements of this part 1039. See § 1039.610 for similar provisions that apply to engines certified to chassis-based standards for motor vehicles.

(b) *Equipment-manufacturer provisions*. If you are not an engine manufacturer, you may produce nonroad equipment using motor-vehicle engines under this section as long as you meet all the requirements and conditions specified in paragraph (d) of this section. You must also add the fuel-inlet label we specify in § 1039.135(e). If you modify the motor-vehicle engine in any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new nonroad 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. This applies to engine manufacturers, equipment manufacturers who use these engines, and all other persons as if these engines were used in a motor vehicle. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new engines and equipment; however, we consider the certificate issued under 40 CFR part 86 for each engine to also be a valid certificate of conformity under this part 1039 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 40 CFR 1068.505.

(d) *Specific requirements*. If you are an engine manufacturer or equipment manufacturer and meet all the following criteria and requirements regarding your new nonroad 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.

(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 if it is subject to evaporative-emission standards. 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 parameters from the certified configuration.

(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 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 50 percent of the engine family's total sales in the United States are used in nonroad applications. This includes engines used in any application without regard to which company manufactures the vehicle 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.

(5) You must add a permanent supplemental label to the engine in a position where it will remain clearly visible after installation in the equipment. In the supplemental label, do the following:

(i) Include the heading: ''NONROAD 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 NONROAD USE WITHOUT AFFECTING ITS EMISSION CONTROLS. 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.''.

(iv) 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 equipment or, if the equipment obscures the engine's emission control information label, the equipment manufacturer must attach duplicate labels, as described in 40 CFR 1068.105.

(7) You must make sure that nonroad equipment produced under this section will have the fueling label we specify in § 1039.135(c)(9)(i).

(8) 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 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.

(iii) State: ''We produce each listed [engine or equipment] model for nonroad application without making any changes that could increase its certified emission levels, as described in 40 CFR 1039.605.''.

(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 1039 and the certificate issued under 40 CFR part 86 will not be deemed to also be a certificate issued under this part 1039. Introducing these engines into 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 any applicable nonroad duty cycles.

(g) *Participation in averaging, banking and trading*. Engines adapted for nonroad use under this section may not generate or use emission credits under this part 1039. 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 that

exceeds an applicable standard under 40 CFR part 86.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 72 FR 53132, Sept. 18, 2007; 75 FR 22992, Apr. 30, 2010]

§ 1039.610 What provisions apply to vehicles certified under the motor-vehicle program?

(a) *General provisions*. If you are a motor-vehicle manufacturer, this section allows you to introduce new nonroad engines or equipment into commerce if the vehicle is already certified to the requirements that apply under 40 CFR parts 85 and 86 for the appropriate model year. If you comply with all of the provisions of this section, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the engine under this part 1039 for its model year, without a separate application for certification under the requirements of this part 1039. See § 1039.605 for similar provisions that apply to motor-vehicle engines produced for nonroad equipment.

(b) *Equipment-manufacturer provisions*. If you are not a motor-vehicle manufacturer, you may produce nonroad equipment from motor vehicles under this section as long as you meet all the requirements and conditions specified in paragraph (d) of this section. You must also add the fuel-inlet label we specify in § 1039.135(e). If you modify the motor vehicle or its engine in any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new nonroad engine. Such modifications prevent you from using the provisions of this section.

(c) *Liability*. Engines, vehicles, and equipment 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. This applies to engine manufacturers, equipment manufacturers, and all other persons as if the nonroad equipment were motor vehicles. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new pieces of equipment; however, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the engine under this part 1039 for its model year. If we make a determination that these engines, vehicles, or equipment do not conform to the regulations during their useful life, we may require you to recall them under 40 CFR part 86 or 40 CFR 1068.505.

(d) *Specific requirements*. If you are a motor-vehicle manufacturer and meet all the following criteria and requirements regarding your new nonroad equipment and its engine, the engine is eligible for an exemption under this section:

(1) Your equipment must be covered by a valid certificate of conformity as a motor vehicle issued under 40 CFR part 86.

(2) You must not make any changes to the certified vehicle that we could reasonably expect to increase its exhaust emissions for any pollutant, or its evaporative emissions if it is subject to evaporative-emission standards. For example, if you make any of the following changes, you do not qualify for this exemption:

(i) Change any fuel system parameters from the certified configuration.

(ii) Change, remove, or fail to properly install any other component, element of design, or calibration specified in the vehicle manufacturer's application for certification. This includes aftertreatment devices and all related components.

(iii) Modify or design the engine cooling system so that temperatures or heat rejection rates are outside the original vehicle manufacturer's specified ranges.

(iv) Add more than 500 pounds to the curb weight of the originally certified motor vehicle.

(3) You must show that fewer than 50 percent of the engine family's total sales in the United States are used in nonroad applications. This includes any type of vehicle, without regard to which company completes the manufacturing of the nonroad equipment. Show this as follows:

(i) If you are the original manufacturer of the vehicle, base this showing on your sales information.

(ii) In all other cases, you must get the original manufacturer of the vehicle to confirm this based on their sales information.

(4) The equipment must have the vehicle emission control information and fuel labels we require under 40 CFR 86.007–35.

(5) You must add a permanent supplemental label to the equipment in a position where it will remain clearly visible. In the supplemental label, do the following:

(i) Include the heading: ''NONROAD 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 VEHICLE WAS ADAPTED FOR NONROAD USE WITHOUT AFFECTING ITS EMISSION CONTROLS. 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.''.

(iv) State the date you finished modifying the vehicle (month and year), if applicable.

(6) The original and supplemental labels must be readily visible in the fully assembled equipment.

(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 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.

(iii) State: ''We produced each listed engine or equipment model for nonroad application without making any changes that could increase its certified emission levels, as described in 40 CFR 1039.610.''

(e) *Failure to comply*. If your engines, vehicles, or equipment do not meet the criteria listed in paragraph (d) of this section, the engines will be subject to the standards, requirements, and prohibitions of this part 1039, and the certificate issued under 40 CFR part 86 will not be deemed to also be a certificate issued under this part 1039. Introducing these engines into 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 any applicable nonroad duty cycles.

(g) *Participation in averaging, banking and trading*. Vehicles adapted for nonroad use under this section may not generate or use emission credits under this part 1039. These vehicles 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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40463, July 13, 2005; 72 FR 53132, Sept. 18, 2007; 75 FR 22992, Apr. 30, 2010]

§ 1039.615 What special provisions apply to engines using noncommercial fuels?

In § 1039.115(e), we generally require that engines meet emission standards for any adjustment within the full range of any adjustable parameters. For engines that use noncommercial fuels significantly different than the specified test fuel of the same type, you may ask to use the parameter-adjustment provisions of this section instead of those in § 1039.115(e). Engines certified under this section must be in a separate engine family.

(a) If we approve your request, the following provisions apply:

(1) You must certify the engine using the test fuel specified in § 1039.501.

(2) You may produce the engine without limits or stops that keep the engine adjusted within the certified range.

(3) You must specify in-use adjustments different than the adjustable settings appropriate for the specified test fuel, consistent with the provisions of paragraph (b)(1) of this section.

(b) To produce engines under this section, you must do the following:

(1) Specify in-use adjustments needed so the engine's level of emission control for each regulated pollutant is

equivalent to that from the certified configuration.

(2) Add the following information to the emission control information label specified in § 1039.135:

(i) Include instructions describing how to adjust the engine to operate in a way that maintains the effectiveness of the emission-control system.

(ii) State: ''THIS ENGINE IS CERTIFIED TO OPERATE IN APPLICATIONS USING NONCOMMERCIAL FUEL. MALADJUSTMENT OF THE ENGINE IS A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.''.

(3) Keep records to document the destinations and quantities of engines produced under this section.

§ 1039.620 What are the provisions for exempting engines used solely for competition?

The provisions of this section apply for new engines built on or after January 1, 2006.

(a) Equipment manufacturers may use uncertified engines if the vehicles or equipment in which they are installed will be used solely for competition.

(b) The definition of nonroad engine in 40 CFR 1068.30 excludes engines used solely for competition. These engines are not required to comply with this part 1039 or 40 CFR part 89, but 40 CFR 1068.101 prohibits the use of competition engines for noncompetition purposes.

(c) We consider a vehicle or piece of equipment to be one that will be used solely for competition if it has features that are not easily removed that would make its use other than in competition unsafe, impractical, or highly unlikely.

(d) As an engine manufacturer, your engine is exempt without our prior approval if you have a written request for an exempted engine from the equipment manufacturer showing the basis for believing that the equipment will be used solely for competition. You must permanently label engines exempted under this section to clearly indicate that they are to be used solely for competition. Failure to properly label an engine will void the exemption.

(e) We may discontinue an exemption under this section if we find that engines are not used solely for competition.

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

The provisions of this section allow equipment manufacturers to produce equipment with engines that are subject to less stringent emission standards after the Tier 4 emission standards begin to apply. To be eligible to use these provisions, you must follow all the instructions in this section. *See* 40 CFR 89.102(d) and (e) for provisions that apply to equipment produced while Tier 1, Tier 2, or Tier 3 standards apply. *See* § 1039.626 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), subject to the provisions of this section.

(a) *General.* If you are an equipment manufacturer, you may introduce into commerce in the United States limited numbers of nonroad equipment with 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 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 equipment for you. If you produce a type of equipment that has more than one engine, count each engine separately. These provisions are available over the following periods:

(1) These provisions are available for the years shown in the following table, except as provided in paragraph (a)(2) of this section:

TABLE 1 OF § 1039.625—GENERAL AVAILABILITY OF ALLOWANCES

Power category	Calendar years
kW <19	2008–2014
19 ≤kW <56	2008–2014
56 ≤kW <130	2012–2018
130 ≤kW ≤560	2011–2017
kW >560	2011–2017

(2) If you do not use any allowances in a power category before the earliest dates shown in the following table, you may delay the start of the seven-year period for using allowances under this section as follows:

TABLE 2 OF § 1039.625—AVAILABILITY OF DELAYED ALLOWANCES

Power category	Calendar years
kW <19	
19 ≤kW <56	2012–2018
56 ≤kW <130	2014–2020
130 ≤kW ≤560	2014–2020
kW >560	2015–2021

(b) *Allowances*. You may choose one of the following options for each power category to produce equipment with exempted engines under this section, except as allowed under § 1039.627:

(1) *Percent-of-production allowances*. You may produce a certain number of units with exempted engines calculated using a percentage of your total sales within a power category relative to your total U.S.-directed production volume. The sum of these percentages within a power category during the seven-year period specified in paragraph (a) of this section may not exceed 80 percent, except as allowed under paragraph (b)(2) or (m) of this section.

(2) *Small-volume allowances*. You may determine an alternate allowance for a specific number of exempted engines under this section using one of the following approaches for your U.S.-directed production volumes:

(i) You may produce up to 700 units with exempted engines within a power category during the seven-year period specified in paragraph (a) of this section, with no more than 200 units in any single year within a power category, except as provided in paragraph (m) of this section. Engines within a power category that are exempted under this section must be from a single engine family within a given year.

(ii) For engines below 130 kW, you may produce up to 525 units with exempted engines within a power category during the seven-year period specified in paragraph (a) of this section, with no more than 150 units in any single year within a power category, except as provided in paragraph (m) of this section. For engines at or above 130 kW, you may produce up to 350 units with exempted engines within a power category during the seven-year period, with no more than 100 units in any single year within a power category. Exemptions under this paragraph (b)(2)(ii) may apply to engines from multiple engine families in a given year.

(iii) In each power category at or above 56 kW, you may apply the provisions of paragraph (b)(2)(i) of this section in the first two model years for which Tier 4 standards apply, regardless of the number of engine families you use in your equipment, provided you exceed the single engine family restriction of that paragraph primarily due to production of equipment intended specifically to travel on snow and to commonly operate at more than 9,000 feet above sea level. After the first two Tier 4 model years in a power category, you may continue to apply the provisions of paragraph (b)(2)(i) of this section, subject to the single engine family restriction.

(c) *Percentage calculation*. Calculate for each calendar year the percentage of equipment with exempted engines from your total U.S.-directed production within a power category if you need to show that you meet the percent-of-production allowances in paragraph (b)(1) of this section.

(d) *Inclusion of engines not subject to Tier 4 standards*. The following provisions apply to engines that are not subject to Tier 4 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 (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.

(2) If you install engines that are exempted from the Tier 4 standards for any reason, other than for equipment-manufacturer allowances under this section, do not include these units in your count of 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. 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 Tier 4 standards.

(3) Do not include equipment using model year 2008 or 2009 engines certified under the provisions of § 1039.101(c) in your count of equipment using exempted engines. 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.

(4) You may start using the allowances under this section for engines that are not yet subject to Tier 4 standards, as long as the seven-year period for using allowances under the Tier 2 or Tier 3 program has expired (see 40 CFR 89.102(d)). Table 3 of this section shows the years for which this applies. To use these early allowances, you must use engines that meet the emission standards described in paragraph (e) of this section. You must also count these units or calculate these percentages as described in paragraph (c) of this section and apply them toward the total number or percentage of equipment with exempted engines we allow for the Tier 4 standards as described in paragraph (b) of this section. The maximum number of cumulative early allowances under this paragraph (d)(4) is 10 percent under the percent-of-production allowance or 100 units under the small-volume allowance. For example, if you produce 5 percent of your equipment with engines between 130 and 560 kW that use allowances under this paragraph (d)(4) in 2009, you may use up to an additional 5 percent of your allowances in 2010. If you use allowances for 5 percent of your equipment in both 2009 and 2010, your 80 percent allowance for 2011–2017 in the 130–560 kW power category decreases to 70 percent. Manufacturers using allowances under this paragraph (d)(4) must comply with the notification and reporting requirements specified in paragraph (g) of this section.

TABLE 3 OF § 1039.625—YEARS FOR EARLY ALLOWANCES

Maximum engine power	Calendar years
kW <19	2007
19 ≤kW <37	2006–2011
37 ≤kW <56	2011
56 ≤kW <75	2011
75 ≤kW <130	2010–2011
130 ≤kW <225	2010
225 ≤kW <450	2008–2010
450 ≤kW ≤560	2009–2010
KW >560	.....

(e) *Standards*. If you produce equipment with exempted engines under this section, the engines must meet emission standards specified in this paragraph (e), or more stringent standards. 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 40 CFR 89.112.

(2) If you are using the provisions of paragraph (a)(2) of this section, engines must be identical in all material respects to engines certified under this part 1039 as follows:

Engines in the following power category. . .	Must meet all standards and requirements that applied in the following model year. . .
(i) 19 ≤kW <56	2008 (Option 1, where applicable).
(ii) 56 ≤kW <130	2012 (Phase-out).
(iii) 130 ≤kW ≤560	2011 (Phase-out).
(iv) kW >560	2011.

(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) *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 you produce with exempted engines 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 Web site 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 1039.625.

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

(i) Your company's name and address, and your parent company's name and address, if applicable.

(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) Your best estimate of the number of units in each power category you will produce under this section and whether you intend to comply under paragraph (b)(1) or (b)(2) of this section.

(vi) The number of units in each power category you have sold in previous calendar years under 40 CFR 89.102(d).

(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.

(h) *Recordkeeping.* Keep the following records of all equipment with exempted engines you produce under this section for at least five full years after the final year in which allowances are available for each power category:

(1) The model number, serial number, and the date of manufacture for each engine and piece of equipment.

(2) The maximum power of each engine.

(3) The total number or percentage of equipment with exempted engines, as described in paragraph (b) of this section and all documentation supporting your calculation.

(4) 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, 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). Exempt engines must meet the emission standards in paragraph (e) of this section and you must meet all the requirements of 40 CFR 1068.265, except that engines produced under the provisions of paragraph (a)(2) of this section must be identical in all material respects to engines previously certified under this part 1039. 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.

(k) *Other exemptions*. *See* 40 CFR 1068.255 for exemptions based on hardship for equipment manufacturers and secondary engine manufacturers.

(l) [Reserved]

(m) *Additional exemptions for technical or engineering hardship*. You may request additional engine allowances under paragraph (b) of this section; however, you may use these extra allowances only for those equipment models for which you, or an affiliated company, do not also produce the engine. Additional allowances under this paragraph (m) must be used within the specified seven-year period. After considering the circumstances, we may permit you to introduce into U.S. commerce equipment with such engines that do not comply with Tier 4 emission standards, as follows:

(1) We may approve additional exemptions if extreme and unusual circumstances that are clearly outside your control and that could not have been avoided with reasonable discretion have resulted in technical or engineering problems that prevent you from meeting the requirements of this part. You must show that you exercised prudent planning and have taken all reasonable steps to minimize the scope of your request for additional allowances.

(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:

(i) Describe your process for designing equipment.

(ii) Describe how you normally work cooperatively or concurrently with your engine supplier to design products.

(iii) Describe the engineering or technical problems causing you to request the exemption and explain why you have not been able to solve them. Describe the extreme and unusual circumstances that led to these problems and explain how they were unavoidable.

(iv) Describe any information or products you received from your engine supplier related to equipment design—such as written specifications, performance data, or prototype engines—and when you received it.

(v) Compare the design processes of the equipment model for which you need additional exemptions and that for other models for which you do not need additional exemptions. Explain the technical differences that justify your request.

(vi) Describe your efforts to find and use other compliant engines, or otherwise explain why none is available.

(vii) Describe the steps you have taken to minimize the scope of your request.

(viii) Include other relevant information. You must give us other relevant information if we ask for it.

(ix) Estimate the increased percent of production you need for each equipment model covered by your request, as described in paragraph (m)(3) of this section. Estimate the increased number of allowances you need for each equipment model covered by your request, as described in paragraph (m)(4) of this section.

(3) We may approve your request to increase the allowances under paragraph (b)(1) of this section, subject to the following limitations:

(i) You must use up the allowances under paragraph (b)(1) of this section before using any additional allowances under this paragraph (m).

(ii) The additional allowances under this paragraph (m)(3) may not exceed 200 percent for each power category.

(iii) You may use these additional allowances only for the specific equipment models covered by your request.

(4) We may approve your request to increase the small-volume allowances under paragraph (b)(2) of this section, subject to the following limitations:

(i) You are eligible for additional allowances under this paragraph (m)(4) only if you do not use the provisions of paragraph (m)(3) of this section to obtain additional allowances within a given power category.

(ii) You must use up the allowances under paragraph (b)(2) of this section before using any additional allowances under this paragraph (m).

(iii) The additional allowances under this paragraph (m)(4) may not exceed 2,000 units.

(iv) We may approve additional allowances in the form of waiving the annual limits specified in paragraph (b)(2) of this section instead of or in addition to increasing the total number of allowances under this paragraph (m)(4).

(v) If we increase the total number of allowances, you may use these allowances only for the specific equipment models covered by your request.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40464, July 13, 2005; 72 FR 53133, Sept. 18, 2007; 73 FR 59191, Oct. 8, 2008; 75 FR 68461, Nov. 8, 2010; 78 FR 49966, Aug. 16, 2013; 79 FR 7084, Feb. 6, 2014]

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

This section describes requirements that apply to equipment manufacturers using the provisions of § 1039.625 for equipment produced outside the United States. Note that § 1039.625 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 these allowances. Such importers may import equipment with exempted engines only as described in paragraph (b) of this section.

(a) As a foreign equipment manufacturer, you or someone else may import equipment with exempted engines under this section if you comply with the provisions in § 1039.625 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 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 § 1039.625.

(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 §1039.625(g). Include in the notice of intent in §1039.625(g)(1) a commitment to comply with the requirements and obligations of §1039.625 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 §1039.625, 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 1039—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 must post a bond to cover any potential enforcement actions under the Clean Air Act before you or anyone else imports your equipment under this section, as follows:

(i) The value of the bond is based on the per-engine bond values shown in Table 1 of this section and on the highest number of engines in each power category you produce in any single calendar year under the provisions of §1039.625. For example, if you have projected U.S.-directed production volumes of 100 exempt engines in the 19–56 kW power category and 300 exempt engines in the 56–130 kW power category in 2013, the appropriate bond amount is $180,000. If your estimated or actual engine imports increase beyond the level appropriate for your current bond payment, you must post additional bond to reflect the increased sales within 90 days after you change your estimate or determine the actual sales. You may not decrease your bond.

(ii) You may meet the bond requirements of this section with any of the following methods:

(A) Get 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.'' Maintain this bond for five years after the applicable allowance period expires, or five years after you use up all the available allowances under §1039.625, whichever comes first.

(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.

(iii) If you forfeit some or all of your bond in an enforcement action, you must post any appropriate bond for continuing importation within 90 days after you forfeit the bond amount.

TABLE 1 OF § 1039.626—PER-ENGINE BOND VALUES

For engines with maximum engine power falling in the following ranges . . .	The per-engine bond value is . . .
kW <19	$150
19 ≤kW <56	300
56 ≤kW <130	500
130 ≤kW <225	1,000
225 ≤kW <450	3,000
kW ≥450	8,000

(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) 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 § 1039.625 only if each engine is exempted under an allowance provided to an equipment manufacturer meeting the requirements of § 1039.625 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) Before you use the provisions of this section, send the Designated Compliance Officer a written notice of your intent, including:

(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 in each power category you will import under this section in the upcoming calendar year, broken down by equipment manufacturer and power category.

(iv) The number of units in each power category you have imported in previous calendar years under 40 CFR 89.102(d).

(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.

[69 FR 39213, June 29, 2004, as amended at 73 FR 59192, Oct. 8, 2008]

§ 1039.627 What are the incentives for equipment manufacturers to use cleaner engines?

This section allows equipment manufacturers to generate additional allowances under the provisions of § 1039.625 by producing equipment using engines at or above 19 kW certified to specified levels earlier than otherwise required.

(a) For early-compliant engines to generate offsets for use under this section, the following general provisions apply:

(1) The engine manufacturer must comply with the provisions of § 1039.104(a)(1) for the offset-generating engines.

(2) Engines you install in your equipment after December 31 of the years specified in § 1039.104(a)(1) do not generate allowances under this section, even if the engine manufacturer generated offsets for that engine under § 1039.104(a).

(3) Offset-generating engines must be certified to the following standards under this part 1039:

If the engine's maximum power is . . .	And you install . . .	Certified early to the . . .	You may reduce the number of engines in the same power category that are required to meet the . . .	In later model years by . . .
(i) kW ≥19	One engine	Emissions standards in § 1039.101	Standards in Tables 2 through 7 of § 1039.102 or in § 1039.101.	One engine.

If the engine's maximum power is . . .	And you install . . .	Certified early to the . . .	You may reduce the number of engines in the same power category that are required to meet the . . .	In later model years by . . .
(ii) 56 ≤kW <130	Two engines	NO_X standards in § 1039.102(e)(1), and NMHC standard of 0.19 g/kW-hr, a PM standard of 0.02 g/kW-hr, and a CO standard of 5.0 g/kW-hr.	Standards in Tables 2 through 7 of § 1039.102 or in § 1039.101.	One engine.
(iii) 130 ≤kW <560 ...	Two engines	NO_X standards in § 1039.102(e)(2), an NMHC standard of 0.19 g/kW-hr, a PM standard of 0.02 g/kW-hr, and a CO standard of 3.5 g/kW-hr.	Standards in Tables 2 through 7 of § 1039.102 or in § 1039.101.	One engine.

(b) *Using engine offsets.* (1) You may use engine offsets generated under paragraph (a) of this section to generate additional allowances under § 1039.625, as follows:

(i) For each engine offset, you may increase the number of available allowances under § 1039.625(b) for that power category by one engine for the years indicated.

(ii) For engines in 56–560 kW power categories, you may transfer engine offsets across power categories within this power range. Calculate the number of additional allowances by scaling the number of generated engine offsets according to the ratio of engine power for offset and allowance engines. Make this calculation for all your offset engines for which you will transfer offsets under this paragraph (b)(1)(ii), then round the result to determine the total number of available power-weighted allowances. For example, if you generate engine offsets for 75 500-kW engines, you may generate up to 37,500 kW-engines of power-weighted allowances. You may apply this to 375 100-kW engines or any other combination that totals 37,500 kW-engines.

(2) You may decline to use the offsets. If you decline, the engine manufacturer may use the provisions of § 1039.104(a)(1).

(c) *Limitation on offsets for engines above 560 kW.* For engines above 560 kW, you must track how many engines you install in generator sets and how many you install in other applications under the provisions of this section. Offsets from generator-set engines may be used only for generator-set engines. Offsets from engines for other applications may be used only for other applications besides generator sets.

(d) *Reporting.* When you submit your first annual report under § 1039.625(g), include the following additional information related to the engines you use to generate offsets under this section:

(1) The name of each engine family involved.

(2) The number of engines from each power category.

(3) The maximum engine power of each engine.

(4) For engines above 560 kW, whether you use engines certified to the standards for generator-set engines.

(e) *In-use fuel.* If the engine manufacturer certifies using ultra low-sulfur diesel fuel, you must take steps to ensure that the in-use engines in the family will use diesel fuel with a sulfur concentration no greater than 15 ppm. For example, selling equipment only into applications where the operator commits to a central-fueling facility with ultra low-sulfur diesel fuel throughout its lifetime would meet this requirement.

[69 FR 39213, June 29, 2004, as amended at 75 FR 22992, Apr. 30, 2010]

§ 1039.630 What are the economic hardship provisions for equipment manufacturers?

If you qualify for the economic hardship provisions specified in 40 CFR 1068.255, we may approve your hardship application subject to the following additional conditions:

(a) You must show that you have used up the allowances to produce equipment with exempted engines under § 1039.625.

(b) You may produce equipment under this section for up to 12 months total (or 24 months total for small-volume manufacturers).

§ 1039.635 What are the hardship provisions for engine manufacturers?

If you qualify for the hardship provisions specified in 40 CFR 1068.245, we may approve a period of delayed compliance for up to one model year total (or two model years total for small-volume manufacturers). If you qualify for the hardship provisions specified in 40 CFR 1068.250 for small-volume manufacturers, we may approve a period of delayed compliance for up to two model years total.

§ 1039.640 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 § 1039.135(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 § 1039.120. 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.

§ 1039.645 What special provisions apply to engines used for transportation refrigeration units?

Manufacturers may choose to use the provisions of this section for engines used in transportation refrigeration units (TRUs). The operating restrictions and characteristics in paragraph (f) of this section define engines that are not used in TRUs. All provisions of this part apply for TRU engines, except as specified in this section.

(a) You may certify engines under this section with the following special provisions:

(1) The engines are not subject to the transient emission standards of subpart B of this part.

(2) The steady-state emission standards in subpart B of this part apply for emissions measured over the steady-state test cycle described in paragraph (b) of this section instead of the otherwise applicable duty cycle described in § 1039.505.

(b) Measure steady-state emissions using the procedures specified in § 1039.505, except for the duty cycles, as follows:

(1) The following duty cycle applies for discrete-mode testing:

TABLE 1 OF § 1039.645—DISCRETE-MODE CYCLE FOR TRU ENGINES

Mode number	Engine speed [1]	Torque (percent) [2]	Weighting factors
1	Maximum test speed	75	0.25
2	Maximum test speed	50	0.25
3	Intermediate test speed	75	0.25
4	Intermediate test speed	50	0.25

[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.

(2) The following duty cycle applies for ramped-modal testing:

TABLE 2 OF § 1039.645—RAMPED-MODAL CYCLE FOR TRU ENGINES

RMC mode	Time in mode (seconds)	Engine speed [1]	Torque (percent) [2 3]
1a Steady-state	290	Intermediate Speed	75.
1b Transition	20	Intermediate Speed	Linear Transition.

TABLE 2 OF § 1039.645—RAMPED-MODAL CYCLE FOR TRU ENGINES—Continued

RMC mode	Time in mode (seconds)	Engine speed [1]	Torque (percent) [2 3]
2a Steady-state	280	Intermediate Speed	50.
2b Transition	20	Linear Transition	Linear Transition.
3a Steady-state	280	Maximum Test Speed	75.
3b Transition	20	Maximum Test Speed	Linear Transition.
4 Steady-state	290	Maximum Test Speed	50

[1] Speed terms are defined in 40 CFR part 1065.
[2] The percent torque is relative to the maximum torque at the commanded engine speed.
[3] 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, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

(c) Engines certified under this section must be certified in a separate engine family that contains only TRU engines.

(d) You must do the following for each engine certified under this section:

(1) State on the emission control information label: ''THIS ENGINE IS CERTIFIED TO OPERATE ONLY IN TRANSPORTATION REFRIGERATION UNITS. INSTALLING OR USING THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.''.

(2) State in the emission-related installation instructions all steps necessary to ensure that the engine will operate only in the modes covered by the test cycle described in this section.

(3) Keep records to document the destinations and quantities of engines produced under this section.

(e) All engines certified under this section must comply with NTE standards, as described in § 1039.101 or § 1039.102 for the applicable model year, except that the NTE standards are not limited with respect to operating speeds and loads. In your application for certification, certify that all the engines in the engine family comply with the not-to-exceed emission standards for all normal operation and use. The deficiency provisions of § 1039.104(d) do not apply to these engines. This paragraph (e) applies whether or not the engine would otherwise be subject to NTE standards.

(f) An engine is not considered to be used in a TRU if any of the following is true:

(1) The engine is installed in any equipment other than refrigeration units for railcars, truck trailers, or other freight vehicles.

(2) The engine operates in any mode not covered by the test cycle described in this section, except as follows:

(i) The engine may operate briefly at idle. Note, however, that TRU engines must meet NTE emission standards under any type of operation, including idle, as described in paragraph (e) of this section.

(ii) The engine may have a minimal amount of transitional operation between two allowable modes. As an example, a thirty-second transition period would clearly not be considered minimal.

(iii) The engine as installed may experience up to a 2-percent decrease in load at a given setpoint over any 10-minute period, and up to a 15-percent decrease in load at a given setpoint over any 60-minute period.

(3) The engine is sold in a configuration that allows the engine to operate in any mode not covered by the test cycle described in this section. For example, this section does not apply to an engine sold without a governor limiting operation only to those modes covered by the test cycle described in this section.

(4) The engine is subject to Tier 3 or earlier standards, or phase-out Tier 4 standards.

[69 FR 39213, June 29, 2004, as amended at 73 FR 37241, June 30, 2008]

§ 1039.650 [Reserved]

§ 1039.655 What special provisions apply to engines sold in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

(a) The prohibitions in § 1068.101(a)(1) do not apply to an engine if the following conditions are met:

(1) The engine is intended for use and will be used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands.

(2) The engine meets the latest applicable emission standards in 40 CFR 89.112.

(3) You meet all the requirements of 40 CFR 1068.265.

(b) If you introduce an engine into commerce in the United States under this section, you must meet the labeling requirements in 40 CFR 89.110, but add the following statement instead of the compliance statement in 40 CFR 89.110(b)(10):

THIS ENGINE DOES NOT COMPLY WITH U.S. EPA TIER 4 EMISSION REQUIREMENTS. IMPORTING THIS ENGINE INTO THE UNITED STATES OR ANY TERRITORY OF THE UNITED STATES EXCEPT GUAM, AMERICAN SAMOA, OR THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(c) Introducing into commerce an engine exempted under this section in any state or territory of the United States other than Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands, throughout its lifetime, violates the prohibitions in 40 CFR 1068.101(a)(1), unless it is exempt under a different provision.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40464, July 13, 2005]

§ 1039.660 What special provisions apply to Independent Commercial Importers?

Under § 1039.801, certain engines are considered to be new engines when they are imported into the United States, even if they have previously been used outside the country. Independent Commercial Importers may use the provisions of 40 CFR part 89, subpart G, and 40 CFR 89.906(b) to receive a certificate of conformity for engines meeting all the requirements of this part 1039.

§ 1039.665 Special provisions for use of engines in emergency situations.

This section specifies provisions that allow for temporarily disabling emission controls during qualified emergency situations. For purposes of this section, a qualified emergency situation is one in which the condition of an engine's emission controls poses a significant direct or indirect risk to human life. An example of a direct risk would be an emission control condition that inhibits the performance of an engine being used to rescue a person from a life-threatening situation. An example of an indirect risk would be an emission control condition that inhibits the performance of an engine being used to provide electrical power to a data center that routes ''911'' emergency response telecommunications.

(a) *Scope.* To facilitate temporarily disabling emission controls during a qualified emergency situation, manufacturers may apply for approval of auxiliary emission control devices (AECDs) under this section. Once activated, an AECD approved under this section may disable any emission controls as necessary to address a qualified emergency situation, subject to the limitations in this section. For the purposes of this section, automatically limiting engine performance to induce an operator to perform emission-related maintenance—such as refilling a DEF tank—is considered an emission control. AECDs approved under this section are not defeat devices, and their proper use during a qualified emergency situation is not prohibited under Clean Air Act section 203 (42 U.S.C. 7522). Manufacturers may apply for AECD approval at any time; however, we encourage manufacturers to obtain preliminary approval before submitting an application for certification. We may allow manufacturers to apply an approved AECD to engines and equipment that have already been placed into service.

(b) *AECD approval criteria.* We will approve an AECD where we determine that the following criteria have been met:

(1) The AECD's design must be consistent with good engineering judgment and the manufacturer must show that the AECD deactivates emission controls only to the extent necessary to address the expected emergency situation.

(2) Manufacturers must discourage improper activation of the AECD by displaying information where it is clearly visible to the equipment operator when the operator is in a position to activate the AECD. Unless we approve alternate language, state the following: ''EMERGENCY USE ONLY. SEE OWNERS MANUAL. PENALTIES APPLY FOR MISUSE.''

(3) Manufacturers may design and produce their engines with the AECD initially armed to allow operators to activate the AECD one time per engine without any further input or permission from the manufacturer. The AECD may be subsequently reset as specified in paragraph (b)(8) of this section.

(4) Except as allowed by paragraph (b)(3) of this section, AECD activation must require either input of a temporary code, reconfiguration of the engine's electronic control module by a qualified service technician, or an equivalent security feature that is unique to each engine.

(5) The engine controls must be configured to record the total number of AECD activations in that engine's nonvolatile electronic memory.

(6) The engine controls must include an operator-activated switch or other element of design to allow the operator to manually deactivate the AECD once a qualified emergency situation has ended. This manual control may include a ''confirm-delete'' function, as needed, to prevent unintentionally deactivating the AECD. This control may allow for manual reactivation of the AECD provided that the AECD's automatic deactivation limits in paragraph (b)(7) of this section have not yet been reached, but such reactivation by operators would be allowed only under emergency situations. This manual deactivation control must not deactivate operator inducements required by paragraph (b)(9) of this section.

(7) The AECD must automatically deactivate within a cumulative engine run time of 120 hours after the AECD was initially activated (excluding any time the AECD was deactivated). The AECD may be subsequently reset as specified in paragraph (b)(8) of this section. For emission controls that involve a sequence of increasingly severe engine performance limits to induce operators to perform emission-related maintenance, the emission controls may be reset to the initial point of that sequence when the AECD is deactivated.

(8) The manufacturer must ensure that resetting the AECD cannot occur without the manufacturer's specific permission, and that resetting the AECD requires either input of a temporary code, reconfiguration of the engine's electronic control module by a qualified service technician, or an equivalent security feature that is unique to each engine. AECD resets may not occur unless either the manufacturer has evidence that the emergency situation is continuing or the operator provides the information required in paragraph (e) of this section, in writing or by any other means.

(9) The manufacturer must take appropriate additional steps to induce operators to report AECD activation and request resetting the AECD. We recommend including one or more persistent visible and/or audible alarms that are active from the point when the AECD is activated to the point when it is reset.

(c) *Required information.* Manufacturers producing engines equipped with an AECD approved under this section must communicate at least the following information in writing to the operator:

(1) Instructions for activating, deactivating, and reactivating the AECD; reporting AECD use; and requesting AECD resets.

(2) A warning that federal regulations prohibit activating the emergency AECD for something other than a qualified emergency situation, failing to disable the emergency AECD after a qualified emergency situation ends, and failing to notify the manufacturer and send reports as required under paragraph (e) of this section. The warning must also identify the maximum civil penalty for such violations as described in 40 CFR 1068.101.

(3) Notification that the manufacturer will send the information from the operator's report under paragraph (e) of this section to EPA and that federal regulation separately prohibits submitting false information.

(d) *Resetting AECDs.* The operator (or other person responsible for the engine/equipment) may request resetting the AECD at any time. The manufacturer may reset the AECD only if the manufacturer has evidence that the emergency situation is continuing, or after the operator provides the information required in paragraph (e) of this section, in writing or by any other means.

(e) *Operator reporting of AECD use.* The operator (or other person responsible for the engine/equipment) must send a written report to the manufacturer within 60 calendar days after activating an AECD approved under this section. The report must include the following:

(1) Contact name, mail and email addresses, and telephone number for the responsible company or entity.

(2) A description of the emergency situation, the location of the engine during the emergency, and the contact information for an official who can verify the emergency situation (such as a county sheriff, fire marshal, or hospital administrator).

(3) The reason for AECD activation during the emergency situation, such as the lack of DEF, or the failure of an emission-related sensor when the engine was needed to respond to an emergency situation.

(4) The engine's serial number (or equivalent).

(5) A description of the extent and duration of the engine operation while the AECD was active, including a statement describing whether or not the AECD was manually deactivated after the emergency situation ended.

(f) *Operator failure to report.* If the operator fails to submit the report required by paragraph (e) of this section to the manufacturer within 60 days of activating an AECD approved under this section, the manufacturer, to the extent it has been made aware of the AECD activation, must send written notification to the operator that failure to meet the submission requirements may subject the operator to penalties under 40 CFR 1068.101.

(g) *Prohibited acts.* The following actions by the operator are improper use of the AECD and are prohibited under Clean Air Act section 203 (42 U.S.C. 7522):

(1) Activating the emergency AECD for any use other than a qualified emergency situation where the emission control strategy would curtail engine performance.

(2) Failing to disable the emergency AECD after a qualified emergency situation has ended.

(3) Failing to disable the emergency AECD after the problem causing the emission control strategy to interfere with engine performance has been or can reasonably be fixed.

(4) Failing to provide the information required under paragraph (e) of this section within 60 days of AECD activation.

(h) *Manufacturer reporting to EPA.* Within 90 days after each calendar year, the manufacturer must send an annual report to the Designated Compliance Officer describing the use of AECDs approved under this section. A manufacturer may request an extension if it is impractical to meet this deadline as the result of an emergency situation occurring late in a given calendar year. The annual report must include a description of each emergency situation leading to each AECD activation and copies of the reports submitted by operators (or statements that an operator did not submit a report, to the extent of the manufacturer's knowledge).

(i) *Submissions to EPA.* Notifications and reports submitted to comply with this section are deemed to be submissions to EPA.

(j) *Recordkeeping.* The manufacturer must keep records to document the use of AECDs approved under this section until the end of the calendar year five years after the onset of the relevant emergency situation. We may approve alternate recordkeeping and reporting requirements.

(k) *Anti-circumvention.* We may set other reasonable conditions to ensure that the provisions in this section are

not used to circumvent the emission standards of this part.

[79 FR 46373, Aug. 8, 2014]

§ 1039.670 Approval of an emergency equipment field modification (EEFM).

This section describes how you may implement design changes for emergency equipment that has already been placed into service to ensure that the equipment will perform properly in emergency situations.

(a) You must notify us in writing of your intent to install or distribute an emergency equipment field modification (EEFM). In some cases you may install or distribute an EEFM only with our advance approval, as specified in this section.

(b) Include in your notification a full description of the EEFM and any documentation to support your determination that the EEFM is necessary to prevent the equipment from losing speed, torque, or power due to abnormal conditions of its emission control system during operation related to emergency response, or to prevent such abnormal conditions from occurring during operation related to emergency response. Examples of such abnormal conditions may include excessive exhaust backpressure from an overloaded particulate trap, or running out of diesel exhaust fluid (DEF) for engines that rely on urea-based selective catalytic reduction. Your determination must be based on an engineering evaluation or testing or both.

(c) You may need our advance approval for your EEFM, as follows:

(1) Where the proposed EEFM is identical to an AECD we approved under this part for an engine family currently in production, no approval of the proposed EEFM is necessary.

(2) Where the proposed EEFM is for an engine family currently in production but the applicable demonstration is based on an AECD we approved under this part for an engine family no longer in production, you must describe to us how your proposed EEFM differs from the approved AECD. Unless we say otherwise, your proposed EEFM is deemed approved 30 days after you notify us.

(3) If we have not approved an EEFM comparable to the one you are proposing, you must get our approval before installing or distributing it. In this case, we may request additional information to support your determination under paragraph (b) of this section, as follows:

(i) If we request additional information and you do not provide it within 30 days after we ask, we may deem that you have retracted your request for our approval; however, we may extend this deadline for submitting the additional information.

(ii) We will deny your request if we determine that the EEFM is not necessary to prevent the equipment from losing speed, torque, or power due to abnormal conditions of the emission control system during operation related to emergency response, or to prevent such abnormal conditions from occurring during operation related to emergency response.

(iii) Unless we say otherwise, your proposed EEFM is deemed approved 30 days after we acknowledge that you have provided us with all the additional information we have specified.

(4) If your proposed EEFM is deemed to be approved under paragraph (c)(2) or (3) of this section and we find later that your EEFM in fact does not meet the requirements of this section, we may require you to no longer install or distribute it.

[77 FR 34147, June 8, 2012, as amended at 79 FR 46375, Aug. 8, 2014]

Subpart H—Averaging, Banking, and Trading for Certification

§ 1039.701 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. Participation in this program is voluntary.

(b) Section 1039.740 restricts the use of emission credits to certain averaging sets.

(c) 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 in which emission credits may be exchanged only with other engines 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) *Reserved emission credits* means emission credits you have generated that we have not yet verified by reviewing your final report.

(6) *Seller* means the entity that provides emission credits during a trade.

(7) *Standard* means the emission standard that applies under subpart B of this part for engines not participating in the ABT program of this subpart.

(8) *Trade* means to exchange emission credits, either as a buyer or seller.

(d) 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 emissions from an engine exceed an FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FEL that applies only to future production.

(e) Engine families that use emission credits for one or more pollutants may not generate positive emission credits for another pollutant.

(f) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under § 1039.225. The new FEL may apply only to engines you have not already introduced into commerce. Each engine's emission control information label must include the applicable FELs.

§ 1039.705 How do I generate and calculate emission credits?

The provisions of this section apply separately for calculating emission credits for NO_X, NO_X + NMHC, or PM.

(a) [Reserved]

(b) 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:

$$\text{Emission credits (kg)} = (\text{Std} - \text{FEL}) \times (\text{Volume}) \times (\text{AvgPR}) \times (\text{UL}) \times (10^{-3})$$

Where:

Std = the emission standard, in grams per kilowatt-hour, that applies under subpart B of this part for engines not participating in the ABT program of this subpart (the ''otherwise applicable standard'').

FEL = the family emission limit for the engine family, in grams per kilowatt-hour.

Volume = the number of engines eligible to participate in the averaging, banking, and trading program within the given engine family during the model year, as described in paragraph (c) of this section.

AvgPR = the average maximum engine power of all the engine configurations within an engine family, calculated on a sales-weighted basis, in kilowatts.

UL = the useful life for the given engine family, in hours.

(c) In your application for certification, base your showing of compliance on projected production volumes for engines whose point of first retail sale is in the United States. As described in § 1039.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for engines whose point of first retail sale is in the United States. Do not include any of the following engines to calculate emission credits:

(1) Engines exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported engines.

(3) Engines not subject to the requirements of this part, such as those excluded under § 1039.5.

(4) Engines in families that include only stationary engines, except for engines in families certified to standards that are identical to standards applicable under this part 1039 to nonroad engines of the same type for the same model year.

(5) Any other engines, where we indicate elsewhere in this part 1039 that they are not to be included in the calculations of this subpart.

[69 FR 39213, June 29, 2004, as amended at 71 FR 39185, July 11, 2006; 72 FR 53133, Sept. 18, 2007; 75 FR 22992, Apr. 30, 2010]

§ 1039.710 How do I average emission credits?

(a) Averaging is the exchange of emission credits among your engine families. You may average emission credits only within the same averaging set.

(b) You may certify one or more engine families to an FEL above the applicable 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 an engine family to an FEL that exceeds the otherwise applicable standard, you must obtain enough emission credits to offset the engine family's deficit by the due date for the final report required in § 1039.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model year, from emission credits you have banked, or from emission credits you obtain through trading.

§ 1039.715 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.

(b) You may designate any emission credits you plan to bank in the reports you submit under § 1039.730 as reserved credits. 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.

[75 FR 22992, Apr. 30, 2010]

§ 1039.720 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.

(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.

(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 § 1039.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer having a negative balance of emission credits. See § 1039.745.

[69 FR 39213, June 29, 2004, as amended at 75 FR 22992, Apr. 30, 2010]

§ 1039.725 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 engine family that will be certified using the ABT program. You must also declare the FELs you select for the engine 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 applicable standards.

(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.

[69 FR 39213, June 29, 2004, as amended at 75 FR 22992, Apr. 30, 2010]

§ 1039.730 What ABT reports must I send to EPA?

(a) If any of your engine 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 engine family participating in the ABT program:

(1) Engine-family designation.

(2) The emission standards that would otherwise apply to the engine 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 as specified in § 1039.225.

(4) The projected and actual U.S.-directed production volumes for the model year. 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 the average engine power weighted by U.S.-directed production volumes for the engine family.

(6) Useful life.

(7) Calculated positive or negative emission credits for the whole engine 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 engine families in each averaging set in the applicable model year is not negative.

(2) State whether you will reserve 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 engine 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 engine 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.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53133, Sept. 18, 2007; 75 FR 22992, Apr. 30, 2010]

§ 1039.735 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 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 § 1039.725 and § 1039.730.

(d) Keep records of the engine identification number for each engine 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. You must also identify the purchaser and destination for each engine you produce to the extent this information is available.

(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.

[69 FR 39213, June 29, 2004, as amended at 72 FR 53133, Sept. 18, 2007; 75 FR 22993, Apr. 30, 2010]

§ 1039.740 What restrictions apply for using emission credits?

The following restrictions apply for using emission credits:

(a) *Averaging sets.* Emission credits may be exchanged only within an averaging set. For Tier 4 engines, there are two averaging sets—one for engines at or below 560 kW and another for engines above 560 kW.

(b) *Emission credits from earlier tiers of standards.* (1) For purposes of ABT under this subpart, you may not use emission credits generated from engines subject to emission standards under 40 CFR part 89, except as specified in § 1039.102(d)(1) or the following table:

If the maximum power of the credit-generating engine is . . .	And it was certified to the following standards under 40 CFR part 89 . . .	Then you may use those banked credits for the following Tier 4 engines . . .
(i) kW <19	Tier 2	kW <19
(ii) 19 ≤kW <37	Tier 2	kW ≥19
(iii) 37 ≤kW ≤560	Tier 3	kW ≥19
(iv) kW >560	Tier 2	kW ≥19

(2) Emission credits generated from marine engines certified under the provisions of 40 CFR part 89 may not be used under this part.

(3) See 40 CFR part 89 for other restrictions that may apply for using emission credits generated under that part.

(4) If the maximum power of an engine generating credits under the Tier 2 standards in 40 CFR part 89 is at or above 37 kW and below 75 kW, you may use those credits for certifying engines under the Option #1 standards in § 1039.102.

(c) *NO_X and NO_X + NMHC emission credits.* You may use NO_X emission credits without adjustment to show compliance with NO_X + NMHC standards. You may use NO_X + NMHC emission credits to show compliance with NO_X standards, but you must adjust

the NO_X + NMHC emission credits downward by twenty percent when you use them, as shown in the following equation:

NO_X emission credits = (0.8) × (NO_X + NMHC emission credits).

(d) *Other restrictions.* Other sections of this part specify additional restrictions for using emission credits under certain special provisions.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40464, July 13, 2005]

§ 1039.745 What can happen if I do not comply with the provisions of this subpart?

(a) For each engine 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 an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FEL above an applicable standard based on a projection that you will have enough emission credits to offset the deficit for the engine 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 an engine family.

(c) We may void the certificate of conformity for an engine 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 § 1039.820).

Subpart I—Definitions and Other Reference Information

§ 1039.801 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 Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

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) and turbochargers are not aftertreatment.

Aircraft means any vehicle capable of sustained air travel above treetop heights.

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.

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 § 1039.235(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.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine.

Constant-speed engine means an engine whose certification is limited to constant-speed operation. Engines whose constant-speed governor function is removed or disabled are no longer constant-speed engines.

Constant-speed operation has the meaning given in 40 CFR 1065.1001.

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.

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, 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.

Diesel exhaust fluid (DEF) means a liquid reducing agent (other than the engine fuel) used in conjunction with selective catalytic reduction to reduce NO_X emissions. *Diesel exhaust fluid* is generally understood to be an aqueous solution of urea conforming to the specifications of ISO 22241.

Discrete-mode means relating to the discrete-mode type of steady-state test described in § 1039.505.

Emergency equipment means any of the following types of equipment that is not a motor vehicle:

(1) Specialized vehicles used to perform aircraft rescue and/or fire-fighting functions at airports, with particular emphasis on saving lives and reducing injuries coincident with aircraft fires following impact, or aircraft ground fires.

(2) Wildland firefighting equipment designed primarily to support wildland fire suppression operations. For example, a bulldozer designed with special features for fighting wildfires would be a piece of emergency equipment.

(3) Any other equipment that we have determined will likely be used in emergency situations where emission control function or malfunction may cause a significant risk to human life. For example, we would consider nonroad equipment that is certain to be retrofitted with a slip-on fire-fighting module to be emergency equipment, irrespective of the equipment manufacturer's original design.

In making this determination, we may consider any factor that has an effect on the totality of the actual risk to human life. For example, we may consider how frequently the equipment will be used in emergency situations or how likely it is that the emission controls will cause a significant risk to human life when the equipment is used in emergency situations. We will consider to what extent the flexibility provisions of §1039.665 already address the risk. In the example above, we would not consider equipment to be emergency equipment if there is merely a possibility (rather than a certainty) that the equipment will be retrofitted with a slip-on firefighting module.

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 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.

Engine family has the meaning given in §1039.230.

Engine manufacturer means the manufacturer of the engine. See the definition of ''manufacturer'' in this section.

Engine used in a locomotive means either an engine placed in the locomotive to move other equipment, freight, or passenger traffic; or an engine mounted on the locomotive to provide auxiliary power.

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 §1039.626, the term ''equipment manufacturer'' has a narrower meaning, which applies only to that section.)

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 §1039.5, is not subject to this part 1039.

Exempted has the meaning we give in 40 CFR 1068.30.

Exhaust-gas recirculation 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 with respect to all required testing.

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 diesel fuel or natural gas. There can be multiple grades within a single fuel type, such as high-sulfur or low-sulfur diesel fuel.

Generator-set engine means an engine used primarily to operate an electrical generator or alternator to produce electric power for other applications.

Good engineering judgment has the meaning we give in 40 CFR 1068.30. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

High-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *high-sulfur diesel fuel* means a diesel fuel with a maximum sulfur concentration greater than 500 parts per million.

(2) For testing, *high-sulfur diesel fuel* has the meaning we give in 40 CFR part 1065.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type. For alcohol-fueled engines, HC means total hydrocarbon equivalent (THCE). For all other engines, HC means nonmethane hydrocarbon (NMHC).

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.

Intermediate test speed has the meaning given in 40 CFR 1065.1001.

Low-hour means relating to an engine with stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 300 hours of operation.

Low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *low-sulfur diesel* fuel means a diesel fuel with a maximum sulfur concentration of 500 parts per million.

(2) For testing, *low-sulfur diesel fuel* has the meaning we give in 40 CFR part 1065.

Manufacture means the physical and engineering process of designing, constructing, and assembling a nonroad engine or a piece of nonroad equipment.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures an engine, vehicle, or piece of equipment for sale in the United States or otherwise introduces a new nonroad engine into commerce in the United States. This includes importers who import engines, equipment, or vehicles for resale. (Note: In § 1039.626, the term ''equipment manufacturer'' has a narrower meaning, which applies only to that section.)

Marine engine means a nonroad engine that is installed or intended to be installed on a marine 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 § 1039.140. Note that § 1039.230 generally disallows grouping engines from different power categories in the same engine family.

Maximum test speed has the meaning we give in 40 CFR 1065.1001.

Maximum test torque has the meaning we give in 40 CFR 1065.1001.

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 § 1039.5 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* has the meaning given in 40 CFR 89.602 for independent commercial importers.

(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 first assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

Motor vehicle has the meaning we give 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 §1039.5, when that engine is installed in a piece of equipment that is covered by this part 1039. The engine is no longer new when it is placed into nonroad service covered by this part 1039. For example, this would apply to marine diesel 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, but only if it was produced on or after the dates shown in the following table. 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 an earlier

model year than that identified in the following table:

APPLICABILITY OF EMISSION STANDARDS FOR NONROAD DIESEL ENGINES

Maximum engine power	Initial date of emission standards
kW <19	January 1, 2000.
19 ≤kW <37	January 1, 1999.
37 ≤kW <75	January 1, 1998.
75 ≤kW <130	January 1, 1997.
130 ≤kW ≤560	January 1, 1996.
kW >560	January 1, 2000.

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) An imported nonroad piece of equipment with an engine 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 § 1039.1).

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 § 1039.615 for provisions related to engines designed to burn noncommercial fuels.

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 hydrocarbons (NMHC) means the sum of all hydrocarbon species except methane. Refer to 40 CFR 1065.660 for NMHC determination.

Nonroad means relating to nonroad engines or equipment that includes nonroad engines.

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 § 1039.5).

Nonroad equipment means a piece of equipment that is powered by one or more nonroad engines.

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, but after the applicability of regeneration adjustment factors.

Opacity means the fraction of a beam of light, expressed in percent, which fails to penetrate a plume of smoke, as measured by the procedure specified in § 1039.501.

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.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Particulate trap means a filtering device that is designed to physically trap all particulate matter above a certain size.

Piece of equipment means any vehicle, vessel, or other type of equipment using engines to which this part applies.

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.

Power category means a specific range of maximum engine power that defines the applicability of standards. For example, references to the 56–130 kW power category and 56 ≤kW <130 include all engines with maximum engine power at or above 56 kW but below 130 kW. Also references to 56–560 kW power categories or 56 ≤kW ≤560 include all

engines with maximum engine power at or above 56 kW but at or below 560 kW, even though these engines span multiple power categories. Note that in some cases, FEL caps are based on a subset of a power category. The power categories are defined as follows:

(1) Engines with maximum power below 19 kW.

(2) Engines with maximum power at or above 19 kW but below 56 kW.

(3) Engines with maximum power at or above 56 kW but below 130 kW.

(4) Engines with maximum power at or above 130 kW but at or below 560 kW.

(5) Engines with maximum power above 560 kW.

Ramped-modal means relating to the ramped-modal type of steady-state test described in §1039.505.

Rated speed means the maximum full-load governed speed for governed engines and the speed of maximum power for ungoverned engines.

Revoke has the meaning we give in 40 CFR 1068.30.

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 a small business engine manufacturer that had engine families certified to meet the requirements of 40 CFR part 89 before 2003 (40 CFR part 89, revised as of July 1, 2002), had annual U.S.-directed production of no more than 2,500 units in 2002 and all earlier calendar years, and has 1000 or fewer employees. For manufacturers owned by a parent company, the production limit applies to the production of the parent company and all its subsidiaries and the employee limit applies to the total number of employees of the 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 has the meaning given in 40 CFR 1065.1001.

Sulfur-sensitive technology means an emission-control technology that experiences a significant drop in emission-control performance or emission-system durability when an engine is operated on low-sulfur fuel (*i.e.*, fuel with a sulfur concentration of 300 to 500 ppm) as compared to when it is operated on ultra low-sulfur fuel (*i.e.*, fuel with a sulfur concentration less than 15 ppm). Exhaust-gas recirculation is not a sulfur-sensitive technology.

Suspend has the meaning we give in 40 CFR 1068.30.

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.

Tier 1 means relating to the Tier 1 emission standards, as shown in 40 CFR 89.112.

Tier 2 means relating to the Tier 2 emission standards, as shown in 40 CFR 89.112.

Tier 3 means relating to the Tier 3 emission standards, as shown in 40 CFR 89.112.

Tier 4 means relating to the Tier 4 emission standards, as shown in §1039.101 and §1039.102. This includes the emission standards that are shown in §1039.101 and §1039.102 that are unchanged from Tier 2 or Tier 3 emission standards.

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 an atomic hydrogen-to-carbon 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 atomic 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.

Ultra low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *ultra low-sulfur diesel fuel* means a diesel fuel with a maximum sulfur concentration of 15 parts per million.

(2) For testing, *ultra low-sulfur diesel fuel* has the meaning we give in 40 CFR part 1065.

United States has the meaning we give in 40 CFR 1068.30.

Upcoming model year means for an engine family 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 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* § 1039.101(g).

Variable-speed engine means an engine that is not a constant-speed engine.

Void has the meaning we give in 40 CFR 1068.30.

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.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40464, July 13, 2005; 72 FR 53133, Sept. 18, 2007; 73 FR 59192, Oct. 8, 2008; 75 FR 22993, Apr. 30, 2010; 77 FR 34147, June 8, 2012; 79 FR 46375, Aug. 8, 2014]

§ 1039.805 What symbols, acronyms, and abbreviations does this part use?

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

CFR Code of Federal Regulations.
CH_4 methane.
CO carbon monoxide.
CO2 carbon dioxide.
DEF Diesel exhaust fluid.
EEFM Emergency equipment field modification.
EPA Environmental Protection Agency.
FEL Family Emission Limit.
g/kW-hr grams per kilowatt-hour.
HC hydrocarbon.
ISO International Organization for Standardization (see *www.iso.org*).
kW kilowatts.
N_2O nitrous oxide.
NIST National Institute of Standards and Technology.
NMHC nonmethane hydrocarbons.
NO_X oxides of nitrogen (NO and NO_2).
NTE not-to-exceed
PM particulate matter.
rpm revolutions per minute.
SAE Society of Automotive Engineers.
SCR Selective catalytic reduction.
SEA Selective enforcement audit.
THC total hydrocarbon.
THCE total hydrocarbon equivalent.
TRU transportation refrigeration unit.
U.S.C. United States Code.

[69 FR 39213, June 29, 2004, as amended at 74 FR 56509, Oct. 30, 2009; 77 FR 34148, June 8, 2012]

§ 1039.815 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.

§ 1039.820 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.

§ 1039.825 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 1039:

(1) In § 1039.20 we require engine manufacturers to label stationary engines that do not meet the standards in this part.

(2) In § 1039.135 we require engine manufacturers to keep certain records related to duplicate labels sent to equipment manufacturers.

(3) [Reserved]

(4) In subpart C of this part we identify a wide range of information required to certify engines.

(5) [Reserved]

(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. For example, equipment manufacturers must submit reports and keep records related to the flexibility provisions in § 1039.625.

(8) In § 1039.725, 1039.730, and 1039.735 we specify certain records related to averaging, banking, and trading.

(b) 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.

(c) 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.

[72 FR 53134, Sept. 18, 2007]

APPENDIX I TO PART 1039 [RESERVED]

APPENDIX II TO PART 1039—STEADY-STATE DUTY CYCLES

(a) The following duty cycles apply for constant-speed engines:

(1) The following duty cycle applies for discrete-mode testing:

D2 mode number	Engine speed	Torque (percent) [1]	Weighting factors
1	Engine governed	100	0.05
2	Engine governed	75	0.25
3	Engine governed	50	0.30
4	Engine governed	25	0.30
5	Engine governed	10	0.10

[1] The percent torque is relative to maximum test torque.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed	Torque (percent) [1] [2]
1a Steady-state	53	Engine governed	100.
1b Transition	20	Engine governed	Linear transition.
2a Steady-state	101	Engine governed	10.
2b Transition	20	Engine governed	Linear transition.
3a Steady-state	277	Engine governed	75.
3b Transition	20	Engine governed	Linear transition.
4a Steady-state	339	Engine governed	25.
4b Transition	20	Engine governed	Linear transition.
5 Steady-state	350	Engine governed	50.

[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.

(b) The following duty cycles apply for variable-speed engines with maximum engine power below 19 kW:

(1) The following duty cycle applies for discrete-mode testing:

G2 mode number	Engine speed [1]	Torque (percent) [2]	Weighting factors
1	Maximum test speed	100	0.09
2	Maximum test speed	75	0.20
3	Maximum test speed	50	0.29
4	Maximum test speed	25	0.30
5	Maximum test speed	10	0.07
6	Warm idle	0	0.05

[1] Speed terms are defined in 40 CFR part 1065.
[2] The percent torque is relative to the maximum torque at the commanded test speed.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed [1] [3]	Torque (percent) [2] [3]
1a Steady-state	41	Warm idle	0.
1b Transition	20	Linear transition	Linear transition.
2a Steady-state	135	Maximum test speed	100.

RMC mode	Time in mode (seconds)	Engine speed [1 3]	Torque (percent) [2 3]
2b Transition	20	Maximum test speed	Linear transition.
3a Steady-state	112	Maximum test speed	10.
3b Transition	20	Maximum test speed	Linear transition.
4a Steady-state	337	Maximum test speed	75.
4b Transition	20	Maximum test speed	Linear transition.
5a Steady-state	518	Maximum test speed	25.
5b Transition	20	Maximum test speed	Linear transition.
6a Steady-state	494	Maximum test speed	50.
6b Transition	20	Linear transition	Linear transition.
7 Steady-state	43	Warm idle	0.

[1] Speed terms are defined in 40 CFR part 1065.
[2] The percent torque is relative to the maximum torque at the commanded engine speed.
[3] 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, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

(c) The following duty cycles apply for variable-speed engines with maximum engine power at or above 19 kW:

(1) The following duty cycle applies for discrete-mode testing:

C1 mode number	Engine speed [1]	Torque (percent) [2]	Weighting factors
1	Maximum test speed	100	0.15
2	Maximum test speed	75	0.15
3	Maximum test speed	50	0.15
4	Maximum test speed	10	0.10
5	Intermediate test speed	100	0.10
6	Intermediate test speed	75	0.10
7	Intermediate test speed	50	0.10
8	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 commanded test speed.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed [1 3]	Torque (percent) [2 3]
1a Steady-state	126	Warm Idle	0.
1b Transition	20	Linear Transition	Linear Transition.
2a Steady-state	159	Intermediate Speed	100.
2b Transition	20	Intermediate Speed	Linear Transition.
3a Steady-state	160	Intermediate Speed	50.
3b Transition	20	Intermediate Speed	Linear Transition.
4a Steady-state	162	Intermediate Speed	75.
4b Transition	20	Linear Transition	Linear Transition.
5a Steady-state	246	Maximum Test Speed	100.
5b Transition	20	Maximum Test Speed	Linear Transition.
6a Steady-state	164	Maximum Test Speed	10.
6b Transition	20	Maximum Test Speed	Linear Transition.
7a Steady-state	248	Maximum Test Speed	75.
7b Transition	20	Maximum Test Speed	Linear Transition.
8a Steady-state	247	Maximum Test Speed	50.
8b Transition	20	Linear Transition	Linear Transition.
9 Steady-state	128	Warm Idle	0.

[1] Speed terms are defined in 40 CFR part 1065.
[2] The percent torque is relative to the maximum torque at the commanded engine speed.
[3] 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, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

[69 FR 39213, June 29, 2004, as amended at 73 FR 37241, June 30, 2008]

APPENDIX V TO PART 1039 [RESERVED]

APPENDIX VI TO PART 1039—NONROAD COMPRESSION-IGNITION COMPOSITE TRANSIENT CYCLE

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	1	3
25	1	3
26	1	3
27	1	3
28	1	3
29	1	3
30	1	6
31	1	6
32	2	1
33	4	13
34	7	18
35	9	21
36	17	20
37	33	42
38	57	46
39	44	33
40	31	0
41	22	27
42	33	43
43	80	49
44	105	47
45	98	70
46	104	36
47	104	65
48	96	71
49	101	62
50	102	51
51	102	50
52	102	46
53	102	41
54	102	31
55	89	2
56	82	0
57	47	1
58	23	1
59	1	3
60	1	8
61	1	3
62	1	5
63	1	6
64	1	4
65	1	4
66	0	6
67	1	4
68	9	21
69	25	56
70	64	26
71	60	31
72	63	20
73	62	24
74	64	8
75	58	44
76	65	10
77	65	12
78	68	23
79	69	30
80	71	30
81	74	15
82	71	23
83	73	20
84	73	21
85	73	19
86	70	33
87	70	34
88	65	47
89	66	47
90	64	53
91	65	45
92	66	38
93	67	49
94	69	39
95	69	39
96	66	42
97	71	29
98	75	29
99	72	23
100	74	22
101	75	24
102	73	30
103	74	24
104	77	6
105	76	12
106	74	39
107	72	30
108	75	22
109	78	64
110	102	34
111	103	28
112	103	28
113	103	19
114	103	32
115	104	25
116	103	38
117	103	39
118	103	34
119	102	44
120	103	38
121	102	43
122	103	34
123	102	41
124	103	44
125	103	37
126	103	27
127	104	13
128	104	30
129	104	19
130	103	28
131	104	40
132	104	32
133	101	63
134	102	54

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
135	102	52
136	102	51
137	103	40
138	104	34
139	102	36
140	104	44
141	103	44
142	104	33
143	102	27
144	103	26
145	79	53
146	51	37
147	24	23
148	13	33
149	19	55
150	45	30
151	34	7
152	14	4
153	8	16
154	15	6
155	39	47
156	39	4
157	35	26
158	27	38
159	43	40
160	14	23
161	10	10
162	15	33
163	35	72
164	60	39
165	55	31
166	47	30
167	16	7
168	0	6
169	0	8
170	0	8
171	0	2
172	2	17
173	10	28
174	28	31
175	33	30
176	36	0
177	19	10
178	1	18
179	0	16
180	1	3
181	1	4
182	1	5
183	1	6
184	1	5
185	1	3
186	1	4
187	1	4
188	1	6
189	8	18
190	20	51
191	49	19
192	41	13
193	31	16
194	28	21
195	21	17
196	31	21
197	21	8
198	0	14
199	0	12
200	3	8
201	3	22
202	12	20
203	14	20
204	16	17
205	20	18
206	27	34
207	32	33
208	41	31
209	43	31
210	37	33
211	26	18
212	18	29
213	14	51
214	13	11
215	12	9
216	15	33
217	20	25
218	25	17
219	31	29
220	36	66
221	66	40
222	50	13
223	16	24
224	26	50
225	64	23
226	81	20
227	83	11
228	79	23
229	76	31
230	68	24
231	59	33
232	59	3
233	25	7
234	21	10
235	20	19
236	4	10
237	5	7
238	4	5
239	4	6
240	4	6
241	4	5
242	7	5
243	16	28
244	28	25
245	52	53
246	50	8
247	26	40
248	48	29
249	54	39
250	60	42
251	48	18
252	54	51
253	88	90
254	103	84
255	103	85
256	102	84
257	58	66
258	64	97
259	56	80
260	51	67
261	52	96
262	63	62
263	71	6
264	33	16
265	47	45
266	43	56
267	42	27
268	42	64
269	75	74
270	68	96
271	86	61
272	66	0
273	37	0
274	45	37
275	68	96
276	80	97
277	92	96
278	90	97

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
279	82	96
280	94	81
281	90	85
282	96	65
283	70	96
284	55	95
285	70	96
286	79	96
287	81	71
288	71	60
289	92	65
290	82	63
291	61	47
292	52	37
293	24	0
294	20	7
295	39	48
296	39	54
297	63	58
298	53	31
299	51	24
300	48	40
301	39	0
302	35	18
303	36	16
304	29	17
305	28	21
306	31	15
307	31	10
308	43	19
309	49	63
310	78	61
311	78	46
312	66	65
313	78	97
314	84	63
315	57	26
316	36	22
317	20	34
318	19	8
319	9	10
320	5	5
321	7	11
322	15	15
323	12	9
324	13	27
325	15	28
326	16	28
327	16	31
328	15	20
329	17	0
330	20	34
331	21	25
332	20	0
333	23	25
334	30	58
335	63	96
336	83	60
337	61	0
338	26	0
339	29	44
340	68	97
341	80	97
342	88	97
343	99	88
344	102	86
345	100	82
346	74	79
347	57	79
348	76	97
349	84	97
350	86	97
351	81	98
352	83	83
353	65	96
354	93	72
355	63	60
356	72	49
357	56	27
358	29	0
359	18	13
360	25	11
361	28	24
362	34	53
363	65	83
364	80	44
365	77	46
366	76	50
367	45	52
368	61	98
369	61	69
370	63	49
371	32	0
372	10	8
373	17	7
374	16	13
375	11	6
376	9	5
377	9	12
378	12	46
379	15	30
380	26	28
381	13	9
382	16	21
383	24	4
384	36	43
385	65	85
386	78	66
387	63	39
388	32	34
389	46	55
390	47	42
391	42	39
392	27	0
393	14	5
394	14	14
395	24	54
396	60	90
397	53	66
398	70	48
399	77	93
400	79	67
401	46	65
402	69	98
403	80	97
404	74	97
405	75	98
406	56	61
407	42	0
408	36	32
409	34	43
410	68	83
411	102	48
412	62	0
413	41	39
414	71	86
415	91	52
416	89	55
417	89	56
418	88	58
419	78	69
420	98	39
421	64	61
422	90	34

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
423	88	38
424	97	62
425	100	53
426	81	58
427	74	51
428	76	57
429	76	72
430	85	72
431	84	60
432	83	72
433	83	72
434	86	72
435	89	72
436	86	72
437	87	72
438	88	72
439	88	71
440	87	72
441	85	71
442	88	72
443	88	72
444	84	72
445	83	73
446	77	73
447	74	73
448	76	72
449	46	77
450	78	62
451	79	35
452	82	38
453	81	41
454	79	37
455	78	35
456	78	38
457	78	46
458	75	49
459	73	50
460	79	58
461	79	71
462	83	44
463	53	48
464	40	48
465	51	75
466	75	72
467	89	67
468	93	60
469	89	73
470	86	73
471	81	73
472	78	73
473	78	73
474	76	73
475	79	73
476	82	73
477	86	73
478	88	72
479	92	71
480	97	54
481	73	43
482	36	64
483	63	31
484	78	1
485	69	27
486	67	28
487	72	9
488	71	9
489	78	36
490	81	56
491	75	53
492	60	45
493	50	37
494	66	41
495	51	61
496	68	47
497	29	42
498	24	73
499	64	71
500	90	71
501	100	61
502	94	73
503	84	73
504	79	73
505	75	72
506	78	73
507	80	73
508	81	73
509	81	73
510	83	73
511	85	73
512	84	73
513	85	73
514	86	73
515	85	73
516	85	73
517	85	72
518	85	73
519	83	73
520	79	73
521	78	73
522	81	73
523	82	72
524	94	56
525	66	48
526	35	71
527	51	44
528	60	23
529	64	10
530	63	14
531	70	37
532	76	45
533	78	18
534	76	51
535	75	33
536	81	17
537	76	45
538	76	30
539	80	14
540	71	18
541	71	14
542	71	11
543	65	2
544	31	26
545	24	72
546	64	70
547	77	62
548	80	68
549	83	53
550	83	50
551	83	50
552	85	43
553	86	45
554	89	35
555	82	61
556	87	50
557	85	55
558	89	49
559	87	70
560	91	39
561	72	3
562	43	25
563	30	60
564	40	45
565	37	32
566	37	32

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
567	43	70
568	70	54
569	77	47
570	79	66
571	85	53
572	83	57
573	86	52
574	85	51
575	70	39
576	50	5
577	38	36
578	30	71
579	75	53
580	84	40
581	85	42
582	86	49
583	86	57
584	89	68
585	99	61
586	77	29
587	81	72
588	89	69
589	49	56
590	79	70
591	104	59
592	103	54
593	102	56
594	102	56
595	103	61
596	102	64
597	103	60
598	93	72
599	86	73
600	76	73
601	59	49
602	46	22
603	40	65
604	72	31
605	72	27
606	67	44
607	68	37
608	67	42
609	68	50
610	77	43
611	58	4
612	22	37
613	57	69
614	68	38
615	73	2
616	40	14
617	42	38
618	64	69
619	64	74
620	67	73
621	65	73
622	68	73
623	65	49
624	81	0
625	37	25
626	24	69
627	68	71
628	70	71
629	76	70
630	71	72
631	73	69
632	76	70
633	77	72
634	77	72
635	77	72
636	77	70
637	76	71
638	76	71
639	77	71
640	77	71
641	78	70
642	77	70
643	77	71
644	79	72
645	78	70
646	80	70
647	82	71
648	84	71
649	83	71
650	83	73
651	81	70
652	80	71
653	78	71
654	76	70
655	76	70
656	76	71
657	79	71
658	78	71
659	81	70
660	83	72
661	84	71
662	86	71
663	87	71
664	92	72
665	91	72
666	90	71
667	90	71
668	91	71
669	90	70
670	90	72
671	91	71
672	90	71
673	90	71
674	92	72
675	93	69
676	90	70
677	93	72
678	91	70
679	89	71
680	91	71
681	90	71
682	90	71
683	92	71
684	91	71
685	93	71
686	93	68
687	98	68
688	98	67
689	100	69
690	99	68
691	100	71
692	99	68
693	100	69
694	102	72
695	101	69
696	100	69
697	102	71
698	102	71
699	102	69
700	102	71
701	102	68
702	100	69
703	102	70
704	102	68
705	102	70
706	102	72
707	102	68
708	102	69
709	100	68
710	102	71

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
711	101	64
712	102	69
713	102	69
714	101	69
715	102	64
716	102	69
717	102	68
718	102	70
719	102	69
720	102	70
721	102	70
722	102	62
723	104	38
724	104	15
725	102	24
726	102	45
727	102	47
728	104	40
729	101	52
730	103	32
731	102	50
732	103	30
733	103	44
734	102	40
735	103	43
736	103	41
737	102	46
738	103	39
739	102	41
740	103	41
741	102	38
742	103	39
743	102	46
744	104	46
745	103	49
746	102	45
747	103	42
748	103	46
749	103	38
750	102	48
751	103	35
752	102	48
753	103	49
754	102	48
755	102	46
756	103	47
757	102	49
758	102	42
759	102	52
760	102	57
761	102	55
762	102	61
763	102	61
764	102	58
765	103	58
766	102	59
767	102	54
768	102	63
769	102	61
770	103	55
771	102	60
772	102	72
773	103	56
774	102	55
775	102	67
776	103	56
777	84	42
778	48	7
779	48	6
780	48	6
781	48	7
782	48	6
783	48	7
784	67	21
785	105	59
786	105	96
787	105	74
788	105	66
789	105	62
790	105	66
791	89	41
792	52	5
793	48	5
794	48	7
795	48	5
796	48	6
797	48	4
798	52	6
799	51	5
800	51	6
801	51	6
802	52	5
803	52	5
804	57	44
805	98	90
806	105	94
807	105	100
808	105	98
809	105	95
810	105	96
811	105	92
812	104	97
813	100	85
814	94	74
815	87	62
816	81	50
817	81	46
818	80	39
819	80	32
820	81	28
821	80	26
822	80	23
823	80	23
824	80	20
825	81	19
826	80	18
827	81	17
828	80	20
829	81	24
830	81	21
831	80	26
832	80	24
833	80	23
834	80	22
835	81	21
836	81	24
837	81	24
838	81	22
839	81	22
840	81	21
841	81	31
842	81	27
843	80	26
844	80	26
845	81	25
846	80	21
847	81	20
848	83	21
849	83	15
850	83	12
851	83	9
852	83	8
853	83	7
854	83	6

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
855	83	6
856	83	6
857	83	6
858	83	6
859	76	5
860	49	8
861	51	7
862	51	20
863	78	52
864	80	38
865	81	33
866	83	29
867	83	22
868	83	16
869	83	12
870	83	9
871	83	8
872	83	7
873	83	6
874	83	6
875	83	6
876	83	6
877	83	6
878	59	4
879	50	5
880	51	5
881	51	5
882	51	5
883	50	5
884	50	5
885	50	5
886	50	5
887	50	5
888	51	5
889	51	5
890	51	5
891	63	50
892	81	34
893	81	25
894	81	29
895	81	23
896	80	24
897	81	24
898	81	28
899	81	27
900	81	22
901	81	19
902	81	17
903	81	17
904	81	17
905	81	15
906	80	15
907	80	28
908	81	22
909	81	24
910	81	19
911	81	21
912	81	20
913	83	26
914	80	63
915	80	59
916	83	100
917	81	73
918	83	53
919	80	76
920	81	61
921	80	50
922	81	37
923	82	49
924	83	37
925	83	25
926	83	17
927	83	13
928	83	10
929	83	8
930	83	7
931	83	7
932	83	6
933	83	6
934	83	6
935	71	5
936	49	24
937	69	64
938	81	50
939	81	43
940	81	42
941	81	31
942	81	30
943	81	35
944	81	28
945	81	27
946	80	27
947	81	31
948	81	41
949	81	41
950	81	37
951	81	43
952	81	34
953	81	31
954	81	26
955	81	23
956	81	27
957	81	38
958	81	40
959	81	39
960	81	27
961	81	33
962	80	28
963	81	34
964	83	72
965	81	49
966	81	51
967	80	55
968	81	48
969	81	36
970	81	39
971	81	38
972	80	41
973	81	30
974	81	23
975	81	19
976	81	25
977	81	29
978	83	47
979	81	90
980	81	75
981	80	60
982	81	48
983	81	41
984	81	30
985	80	24
986	81	20
987	81	21
988	81	29
989	81	29
990	81	27
991	81	23
992	81	25
993	81	26
994	81	22
995	81	20
996	81	17
997	81	23
998	83	65

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
999	81	54
1000	81	50
1001	81	41
1002	81	35
1003	81	37
1004	81	29
1005	81	28
1006	81	24
1007	81	19
1008	81	16
1009	80	16
1010	83	23
1011	83	17
1012	83	13
1013	83	27
1014	81	58
1015	81	60
1016	81	46
1017	80	41
1018	80	36
1019	81	26
1020	86	18
1021	82	35
1022	79	53
1023	82	30
1024	83	29
1025	83	32
1026	83	28
1027	76	60
1028	79	51
1029	86	26
1030	82	34
1031	84	25
1032	86	23
1033	85	22
1034	83	26
1035	83	25
1036	83	37
1037	84	14
1038	83	39
1039	76	70
1040	78	81
1041	75	71
1042	86	47
1043	83	35
1044	81	43
1045	81	41
1046	79	46
1047	80	44
1048	84	20
1049	79	31
1050	87	29
1051	82	49
1052	84	21
1053	82	56
1054	81	30
1055	85	21
1056	86	16
1057	79	52
1058	78	60
1059	74	55
1060	78	84
1061	80	54
1062	80	35
1063	82	24
1064	83	43
1065	79	49
1066	83	50
1067	86	12
1068	64	14
1069	24	14
1070	49	21
1071	77	48
1072	103	11
1073	98	48
1074	101	34
1075	99	39
1076	103	11
1077	103	19
1078	103	7
1079	103	13
1080	103	10
1081	102	13
1082	101	29
1083	102	25
1084	102	20
1085	96	60
1086	99	38
1087	102	24
1088	100	31
1089	100	28
1090	98	3
1091	102	26
1092	95	64
1093	102	23
1094	102	25
1095	98	42
1096	93	68
1097	101	25
1098	95	64
1099	101	35
1100	94	59
1101	97	37
1102	97	60
1103	93	98
1104	98	53
1105	103	13
1106	103	11
1107	103	11
1108	103	13
1109	103	10
1110	103	10
1111	103	11
1112	103	10
1113	103	10
1114	102	18
1115	102	31
1116	101	24
1117	102	19
1118	103	10
1119	102	12
1120	99	56
1121	96	59
1122	74	28
1123	66	62
1124	74	29
1125	64	74
1126	69	40
1127	76	2
1128	72	29
1129	66	65
1130	54	69
1131	69	56
1132	69	40
1133	73	54
1134	63	92
1135	61	67
1136	72	42
1137	78	2
1138	76	34
1139	67	80
1140	70	67
1141	53	70
1142	72	65

Time(s)	Normalized speed (percent)	Normalized torque (percent) [1]
1143	60	57
1144	74	29
1145	69	31
1146	76	1
1147	74	22
1148	72	52
1149	62	96
1150	54	72
1151	72	28
1152	72	35
1153	64	68
1154	74	27
1155	76	14
1156	69	38
1157	66	59
1158	64	99
1159	51	86
1160	70	53
1161	72	36
1162	71	47
1163	70	42
1164	67	34
1165	74	2
1166	75	21
1167	74	15
1168	75	13
1169	76	10
1170	75	13
1171	75	10
1172	75	7
1173	75	13
1174	76	8
1175	76	7
1176	67	45
1177	75	13
1178	75	12
1179	73	21
1180	68	46
1181	74	8
1182	76	11
1183	76	14
1184	74	11
1185	74	18
1186	73	22
1187	74	20
1188	74	19
1189	70	22
1190	71	23
1191	73	19
1192	73	19
1193	72	20
1194	64	60
1195	70	39
1196	66	56
1197	68	64
1198	30	68
1199	70	38
1200	66	47
1201	76	14
1202	74	18
1203	69	46
1204	68	62
1205	68	62
1206	68	62
1207	68	62
1208	68	62
1209	68	62
1210	54	50
1211	41	37
1212	27	25
1213	14	12
1214	0	0
1215	0	0
1216	0	0
1217	0	0
1218	0	0
1219	0	0
1220	0	0
1221	0	0
1222	0	0
1223	0	0
1224	0	0
1225	0	0
1226	0	0
1227	0	0
1228	0	0
1229	0	0
1230	0	0
1231	0	0
1232	0	0
1233	0	0
1234	0	0
1235	0	0
1236	0	0
1237	0	0
1238	0	0

[1] The percent torque is relative to maximum torque at the commanded engine speed.

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

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Subpart A—Overview and Applicability

§ 1042.1 Applicability.

Except as provided in this section and § 1042.5, the regulations in this part 1042 apply for all new compression-ignition marine engines (including new engines deemed to be compression-ignition engines under this section) and vessels containing such engines. *See* § 1042.901 for the definitions of engines and vessels considered to be new.

(a) The emission standards of this part 1042 for freshly manufactured engines apply for new marine engines starting with the model years noted in the following tables:

TABLE 1 TO § 1042.1—PART 1042 APPLICABILITY BY MODEL YEAR

Engine category	Maximum engine power [a]	Displacement (L/cyl) or application	Model year
Category 1	kW <75	disp. <0.9	[b] 2009
	75 ≤kW ≤3700	disp. <0.9	2012
		0.9 ≤disp. <1.2	2013
		1.2 ≤disp. <2.5	2014
		2.5 ≤disp. <3.5	2013
		3.5 ≤disp. <7.0	2012
	kW >3700	disp. <7.0	2014
Category 2	kW ≤3700	7.0 <disp. <15.0	2013
	kW >3700	7.0 ≤disp. <15.0	2014
	All	15 ≤disp. <30	2014
Category 3	All	disp. ≥*30*	*2011*

[a] *See* § 1042.140, which describes how to determine maximum engine power.
[b] *See* Table 1 of § 1042.101 for the first model year in which this part 1042 applies for engines with maximum engine power below 75 kW and displacement at or above 0.9 L/cyl.

(b) New engines with maximum engine power below 37 kW and originally manufactured and certified before the model years identified in Table 1 to this section are subject to emission standards and requirements of 40 CFR part 89. The provisions of this part 1042 do not apply for such engines certified under 40 CFR part 89, except as follows beginning June 29, 2010:

(1) The allowances of this part apply.

(2) The definitions of ''new marine engine'' and ''model year'' apply.

(c) Freshly manufactured engines with maximum engine power at or above 37 kW and originally manufactured and certified before the model years identified in Table 1 to this section are subject to emission standards and requirements of 40 CFR part 94. The provisions of this part 1042 do not apply for such engines certified under 40 CFR part 89, except as follows beginning June 29, 2010:

(1) The allowances of this part apply.

(2) The definitions of ''new marine engine'' and ''model year'' apply.

(3) The remanufacturing provisions in subpart I of this part may apply for remanufactured engines originally manufactured in model years before

the model years identified in Table 1 to this section.

(4) 40 CFR part 94 specifies other provisions from this part 1042 that apply.

(d) Engines with model years before those specified in Table 1 to this section are generally subject to the Tier 1 or Tier 2 standards of 40 CFR part 94. Such engines may be certified to those standards under this part 1042. All the provisions of this part except the emission standards apply to such engines if they are certified under this part. Note that engines subject to, but not certified to, the standards of 40 CFR part 94 are subject to the requirements and prohibitions of this part and 40 CFR part 1068.

(e) The requirements of subpart I of this part apply to remanufactured Category 1 and Category 2 engines beginning July 7, 2008.

(f) The marine engines listed in this paragraph (f) are subject to all the requirements of this part even if they do not meet the definition of ''compression-ignition'' in § 1042.901. The following engines are deemed to be compression-ignition engines for purposes of this part:

(1) Marine engines powered by natural gas or other gaseous fuels with maximum engine power at or above 250 kW. Note that gaseous-fueled engines with maximum engine power below 250 kW may or may not meet the definition of ''compression-ignition'' in § 1042.901.

(2) Marine gas turbine engines.

(3) Other marine internal combustion engines that do not meet the definition of ''spark-ignition'' in § 1042.901.

(g) Some of the provisions of this part may apply for other engines as specified in 40 CFR part 1043.

(h) Starting with the model years noted in Table 1 of this section, all of the subparts of this part, except subpart I, apply as specified in 40 CFR part 60, subpart IIII, to freshly manufactured stationary compression-ignition engines subject to the standards of 40 CFR part 60, subpart IIII, that have a per-cylinder displacement at or above 10 liters and below 30 liters per cylinder. Such engines are considered Category 2 engines for purposes of this part 1042.

[75 FR 22994, Apr. 30, 2010, as amended at 76 FR 37977, June 28, 2011]

§ 1042.2 Who is responsible for compliance?

The regulations in this part 1042 contain provisions that affect both engine manufacturers and others. However, the requirements of this part, other than those of subpart I of this part, are generally addressed to the engine manufacturer for freshly manufactured marine engines or other certificate holders. The term ''you'' generally means the engine manufacturer, as defined in § 1042.901, especially for issues related to certification (including production-line testing, reporting, *etc.*).

[75 FR 22995, Apr. 30, 2010]

§ 1042.5 Exclusions.

This part does not apply to the following marine engines:

(a) *Foreign vessels.* The requirements and prohibitions of this part do not apply to engines installed on foreign vessels, as defined in § 1042.901. Note however, that the requirements and prohibitions of this part do apply to engines installed on any formerly foreign vessels that are reflagged as U.S.-flagged vessels.

(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.

(c) *Recreational gas turbine engines.* The requirements and prohibitions of this part do not apply to gas turbine engines installed on recreational vessels, as defined in § 1042.901.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59192, Oct. 8, 2008; 75 FR 22995, Apr. 30, 2010]

§ 1042.10 Organization of this part.

This part 1042 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of this part 1042 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 § 1042.145 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 and 40 CFR 1065 describe how to test your engines.

(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 emission credits to certify your engines.

(i) Subpart I of this part describes how these regulations apply for remanufactured engines.

(j) Subpart J of this part contains definitions and other reference information.

§ 1042.15 Do any other regulation parts apply to me?

(a) Part 1043 of this chapter describes requirements related to international pollution prevention that apply for some of the engines subject to this part.

(b) The evaporative emission requirements of part 1060 of this chapter apply to vessels that include installed engines fueled with a volatile liquid fuel as specified in § 1042.107. (Note: Conventional diesel fuel is not considered to be a volatile liquid fuel.)

(c) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1042 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the exhaust emission standards in this part.

(d) 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 1042, or vessels containing 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.

(e) Other parts of this chapter apply if referenced in this part.

[75 FR 22995, Apr. 30, 2010]

§ 1042.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to § 1042.925 and 40 CFR 1068.25 regarding recordkeeping requirements. Unless we specify otherwise, 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 § 1042.255 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* § 1042.901).

(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.

[75 FR 22996, Apr. 30, 2010]

Subpart B—Emission Standards and Related Requirements

§ 1042.101 Exhaust emission standards for Category 1 engines and Category 2 engines.

(a) *Duty-cycle standards.* Exhaust emissions from your engines may not exceed emission standards, as follows:

(1) Measure emissions using the test procedures described in subpart F of this part.

(2) The following CO emission standards in this paragraph (a)(2) apply starting with the applicable model year identified in § 1042.1:

(i) 8.0 g/kW-hr for engines below 8 kW.

(ii) 6.6 g/kW-hr for engines at or above 8 kW and below 19 kW.

(iii) 5.5 g/kW-hr for engines at or above 19 kW and below 37 kW.

(iv) 5.0 g/kW-hr for engines at or above 37 kW.

(3) Except as described in paragraphs (a)(4) and (5) of this section, the Tier 3 standards for PM and NO_X + HC emissions are described in the following tables:

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)	NOx+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
		kW ≥ 600	2014+	0.11	5.6
	2.5 ≤ disp. < 3.5	kW < 600	2013-2017	0.11	5.6
			2018+	0.10	5.6
		kW ≥ 600	2013+	0.11	5.6
	3.5 ≤ disp.< 7.0	kW < 600	2012-2017	0.11	5.8
			2018+	0.10	5.8
		kW ≥ 600	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		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)(7) of this section for the standards that apply for these engines.
[b] The applicable NOx+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 commercial engines at or above 2000 kW. FELs for these engines may not be higher than the Tier 1 NOx standard specified in Appendix I of this part.

TABLE 2 TO § 1042.101—TIER 3 STANDARDS FOR CATEGORY 2 ENGINES BELOW 3700 KW [A]

Displacement (L/cyl)	Maximum engine power	Model year	PM (g/kW-hr)	NO_X + HC (g/kW-hr)
7.0 ≤disp. <15.0	kW <2000	2013 +	0.14	6.2
	2000 ≤kW <3700	2013 +	0.14	[b] 7.8
15.0 ≤disp. <20.0 [c]	kW <2000	2014 +	0.34	7.0
20.0 ≤disp. <25.0 [c]	kW <2000	2014 +	0.27	9.8
25.0 ≤disp. <30.0 [c]	kW <2000	2014 +	0.27	11.0

[a] No Tier 3 standards apply for Category 2 engines at or above 3700 kW. See § 1042.1(c) and paragraph (a)(7) of this section for the standards that apply for these engines.
[b] For engines subject to the 7.8 g/kW-hr NO_X + HC standard, FELs may not be higher than the Tier 1 NO_X standard specified in appendix I of this part.

[c] No Tier 3 standards apply for Category 2 engines with per-cylinder displacement above 15.0 liters if maximum engine power is at or above 2000 kW. See § 1042.1(c) and paragraph (a)(7) of this section for the standards that apply for these engines.

(4) For Tier 3 engines at or above 19 kW and below 75 kW with displacement below 0.9 L/cyl, you may alternatively certify some or all of your engine families to a PM emission standard of 0.20 g/kW-hr and a NO_X + HC emission standard of 5.8 g/kW-hr for 2014 and later model years.

(5) Starting with the 2014 model year, recreational marine engines at or above 3700 kW (with any displacement) must be certified under this part 1042 to the Tier 3 standards specified in this section for 3.5 to 7.0 L/cyl recreational marine engines.

(6) Interim Tier 4 PM standards apply for 2014 and 2015 model year engines between 2000 and 3700 kW as specified in this paragraph (a)(6). These engines are considered to be Tier 4 engines.

(i) For Category 1 engines, the Tier 3 PM standards from Table 1 to this section continue to apply. PM FELs for these engines may not be higher than the applicable Tier 2 PM standards specified in Appendix I of this part.

(ii) For Category 2 engines with per-cylinder displacement below 15.0 liters, the Tier 3 PM standards from Table 2 to this section continue to apply. PM FELs for these engines may not be higher than 0.27 g/kW-hr.

(iii) For Category 2 engines with per-cylinder displacement at or above 15.0 liters, the PM standard is 0.34 g/kW-hr for engines at or above 2000 kW and below 3300 kW, and 0.27 g/kW-hr for engines at or above 3300 kW and below 3700 kW. PM FELs for these engines may not be higher than 0.50 g/kW-hr.

(7) Except as described in paragraph (a)(8) of this section, the Tier 4 standards for PM, NO_X, and HC emissions are described in the following table:

TABLE 3 TO § 1042.101—TIER 4 STANDARDS FOR CATEGORY 2 AND COMMERCIAL CATEGORY 1 ENGINES ABOVE 600 KW

Maximum engine power	Displacement (L/cyl)	Model year	PM (g/kW-hr)	NO_X (g/kW-hr)	HC (g/kW-hr)
600 ≤kW <1400	all	2017 +	0.04	1.8	0.19
1400 ≤kW <2000	all	2016 +	0.04	1.8	0.19
2000 ≤kW <3700 [a]	all	2014 +	0.04	1.8	0.19
kW ≥3700	disp. <15.0	2014–2015	0.12	1.8	0.19
	15.0 ≤disp.<30.0	2014–2015	0.25	1.8	0.19
	all	2016 +	0.06	1.8	0.19

[a] See paragraph (a)(6) of this section for interim PM standards that apply for model years 2014 and 2015 for engines between 2000 and 3700 kW. The Tier 4 NO_X FEL cap for engines at or above 2000 kW and below 3700 kW is 7.0 g/kW-hr. Starting in the 2016 model year, the Tier 4 PM FEL cap for engines at or above 2000 kW and below 3700 kW is 0.34 g/kW-hr.

(8) The following optional provisions apply for complying with the Tier 3 and Tier 4 standards specified in paragraphs (a)(3) and (6) of this section:

(i) You may use NO_X credits accumulated through the ABT program to certify Tier 4 engines to a NO_X + HC emission standard of 1.9 g/kW-hr instead of the NO_X and HC standards that would otherwise apply by certifying your family to a NO_X + HC FEL. Calculate the NO_X credits needed as specified in subpart H of this part using the NO_X + HC emission standard and FEL in the calculation instead of the otherwise applicable NO_X standard and FEL. You may not generate credits relative to the alternate standard or certify to the standard without using credits.

(ii) For engines below 1000 kW, you may delay complying with the Tier 4 standards in the 2017 model year for up to nine months, but you must comply no later than October 1, 2017.

(iii) For engines at or above 3700 kW, you may delay complying with the Tier 4 standards in the 2016 model year for up to twelve months, but you must comply no later than December 31, 2016.

(iv) For Category 2 engines at or above 1400 kW, you may alternatively comply with the Tier 3 and Tier 4 standards specified in Table 4 of this section instead of the NO_X, HC, NO_X + HC, and PM standards specified in paragraphs (a)(3) and (6) of this section.

The CO standards specified in paragraph (a)(2) of this section apply without regard to whether you choose this option. If you choose this option, you must do so for all engines at or above 1400 kW in the same displacement category (that is, 7–15, 15–20, 20–25, or 25–30 liters per cylinder) in model years 2012 through 2015.

TABLE 4 TO § 1042.101—OPTIONAL TIER 3 AND TIER 4 STANDARDS FOR CATEGORY 2 ENGINES AT OR ABOVE 1400 kW

Tier	Maximum engine power	Model year	PM (g/kW-hr)	NO_X (g/kW-hr)	HC (g/kW-hr)
Tier 3	kW ≥1400	2012–2014	0.14	7.8 NO_X + HC	
Tier 4	1400 ≤kW <3700	2015	0.04	1.8	0.19
	kW ≥3700	2015	0.06	1.8	0.19

(b) *Averaging, banking, and trading.* You may generate or use emission credits under the averaging, banking, and trading (ABT) program as described in subpart H of this part for demonstrating compliance with NO_X, NO_X + HC, and PM emission standards for Category 1 and Category 2 engines. You may also use NO_X or NO_X + HC emission credits to comply with the alternate NO_X + HC standard in paragraph (a)(8)(i) of this section. Generating or using emission credits requires that you specify a family emission limit (FEL) for each pollutant you include in the ABT program for each engine family. These FELs serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in paragraph (a) of this section. The FELs determine the not-to-exceed standards for your engine family, as specified in paragraph (c) of this section. Unless otherwise specified, the following FEL caps apply:

(1) FELs for Tier 3 engines may not be higher than the applicable Tier 2 standards specified in Appendix I of this part.

(2) FELs for Tier 4 engines may not be higher than the applicable Tier 3 standards specified in paragraph (a)(3) of this section.

(c) *Not-to-exceed standards.* Except as noted in § 1042.145(e), exhaust emissions from all engines subject to the requirements of this part may not exceed the not-to-exceed (NTE) standards as follows:

(1) Use the following equation to determine the NTE standards:

(i) NTE standard for each pollutant = STD × M.

Where:

STD = The standard specified for that pollutant in 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.

(ii) Round each NTE standard to the same number of decimal places as the emission standard.

(2) Determine the applicable NTE zone and subzones as described in § 1042.515. Determine NTE multipliers for specific zones and subzones and pollutants as follows:

(i) For commercial marine engines certified using the duty cycle specified in § 1042.505(b)(1), except for variable-speed propulsion marine engines used with controllable-pitch propellers or with electrically coupled propellers, apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_X + HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.5 for NO_X + HC standards.

(D) Subzone 2: 1.9 for PM and CO standards.

(ii) For recreational marine engines certified using the duty cycle specified in § 1042.505(b)(2), except for variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers, apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_X + HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzones 2 and 3: 1.5 for NO_X + HC standards.

(D) Subzones 2 and 3: 1.9 for PM and CO standards.

(iii) For variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers that are certified using the duty cycle specified in § 1042.505(b)(1), (2), or (3), apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_X + HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.5 for NO_X + HC standards.

(D) Subzone 2: 1.9 for PM and CO standards. However, there is no NTE standard in Subzone 2b for PM emissions if the engine family's applicable standard for PM is at or above 0.07 g/kW-hr.

(iv) For constant-speed engines certified using a duty cycle specified in § 1042.505(b)(3) or (4), apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_X + HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.5 for NO_X + HC standards.

(D) Subzone 2: 1.9 for PM and CO standards. However, there is no NTE standard for PM emissions if the engine family's applicable standard for PM is at or above 0.07 g/kW-hr.

(v) For variable-speed auxiliary marine engines certified using the duty cycle specified in § 1042.505(b)(5)(ii) or (iii):

(A) Subzone 1: 1.2 for Tier 3 NO_X + HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.2 for Tier 3 NO_X + HC standards.

(D) Subzone 2: 1.5 for Tier 4 standards and Tier 3 PM and CO standards. However, there is no NTE standard for PM emissions if the engine family's applicable standard for PM is at or above 0.07 g/kW-hr.

(3) The NTE standards apply to your engines whenever they operate within the NTE zone for an NTE sampling period of at least thirty seconds, during which only a single operator demand set point may be selected. Engine operation during a change in operator demand is excluded from any NTE sampling period. There is no maximum NTE sampling period.

(4) Collect emission data for determining compliance with the NTE standards using the procedures described in subpart F of this part.

(5) You may ask us to accept as compliant an engine that does not fully meet specific requirements under the applicable NTE standards where such deficiencies are necessary for safety.

(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.

(1) 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:

(i) Alcohol-fueled engines must comply with Tier 3 HC standards based on THCE emissions and with Tier 4 standards based on NMHCE emissions.

(ii) Natural gas-fueled engines must comply with HC standards based on NMHC emissions.

(iii) Diesel-fueled and all other engines not described in paragraph (d)(1)(i) or (ii) of this section must comply with Tier 3 HC standards based on THC emissions and with Tier 4 standards based on NMHC emissions.

(2) Tier 3 and later engines must comply with the exhaust emission standards when tested using test fuels containing 15 ppm or less sulfur (ultra low-sulfur diesel fuel). Manufacturers may use low-sulfur diesel fuel (without request) to certify an engine otherwise requiring an ultra low-sulfur test fuel; however, emissions may not be corrected to account for the effects of using higher sulfur fuel.

(3) Engines designed to operate using residual fuel must comply with the standards and requirements of this part when operated using residual fuel in addition to complying with the requirements of this part when operated using diesel fuel.

(e) *Useful life*. Your engines must meet the exhaust emission standards of this section over their full useful life, expressed as a period in years or hours of engine operation, whichever comes first.

(1) The minimum useful life values are as follows, except as specified by paragraph (e)(2) or (3) of this section:

(i) 10 years or 1,000 hours of operation for recreational Category 1 engines

(ii) 5 years or 3,000 hours of operation for commercial engines below 19 kW.

(iii) 7 years or 5,000 hours of operation for commercial engines at or above 19 kW and below 37kW.

(iv) 10 years or 10,000 hours of operation for commercial Category 1 engines at or above 37 kW.

(v) 10 years or 20,000 hours of operation for Category 2 engines.

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild indicates a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(3) 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) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

(f) *Applicability for testing*. The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in § 1042.505, 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.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59192, Oct. 8, 2008; 74 FR 8425, Feb. 24, 2009; 75 FR 22996, Apr. 30, 2010]

§ 1042.104 Exhaust emission standards for Category 3 engines.

(a) *Duty-cycle standards*. Exhaust emissions from your engines may not exceed emission standards, as follows:

(1) Measure emissions using the test procedures described in subpart F of this part. Note that while no PM standards apply for Category 3 engines, PM emissions must be measured for certification testing and reported under § 1042.205. Note also that you are not required to measure PM emissions for other testing.

(2) NO_X standards apply based on the engine's model year and maximum in-use engine speed as shown in the following table:

TABLE 1 TO § 1042.104—NO_X EMISSION STANDARDS FOR CATEGORY 3 ENGINES (G/KW-HR)

Emission standards	Model year	Maximum in-use engine speed		
		Less than 130 RPM	130–2000 RPM [a]	Over 2000 RPM
Tier 1	2004–2010 [b]	17.0	$45.0 \cdot n^{(-0.20)}$	9.8
Tier 2	2011–2015	14.4	$44.0 \cdot n^{(-0.23)}$	7.7
Tier 3	2016 and later	3.4	$9.0 \cdot n^{(-0.20)}$	2.0

[a] Applicable standards are calculated from n (maximum in-use engine speed, in RPM, as specified in § 1042.140). Round the standards to one decimal place.

[b] Tier 1 NO_X standards apply as specified in 40 CFR part 94 for engines originally manufactured in model years 2004 through 2010. They are shown here only for reference.

(3) The HC standard for Tier 2 and later engines is 2.0 g/kW-hr. This standard applies as follows:

(i) Alcohol-fueled engines must comply with HC standards based on THCE emissions.

(ii) Natural gas-fueled engines must comply with HC standards based on NMHC emissions.

(iii) Diesel-fueled and all other engines not described in paragraph (a)(3)(i) or (ii) of this section must comply with HC standards based on THC emissions.

(4) The CO standard for Tier 2 and later engines is 5.0 g/kW-hr.

(b) *Averaging, banking, and trading.* Category 3 engines are not eligible for participation in the averaging, banking, and trading (ABT) program as described in subpart H of this part.

(c) *Mode caps.* Measured NO_X emissions may not exceed the cap specified in this paragraph (c) for any applicable duty-cycle test modes with power greater than 10 percent maximum engine power. Calculate the mode cap by multiplying the applicable NO_X standard by 1.5 and rounding to the nearest 0.1 g/kW-hr. Note that mode caps do not apply for pollutants other than NO_X and do not apply for any modes of operation outside of the applicable duty cycles in §1042.505. Category 3 engines are not subject to not-to-exceed standards.

(d) *Useful life.* Your engines must meet the exhaust emission standards of this section over their full useful life, expressed as a period in years or hours of engine operation, whichever comes first.

(1) The minimum useful life value is 3 years or 10,000 hours of operation.

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild indicates a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(e) *Applicability for testing.* The duty-cycle emission standards in this section apply to all testing performed according to the procedures in §1042.505, including certification, production-line, and in-use testing. *See* paragraph (g) of this section for standards that apply for certain other test procedures, such as some production-line testing.

(f) *Domestic engines.* Engines installed on vessels excluded from 40 CFR part 1043 because they operate only domestically may not be certified for use with residual fuels.

(g) *Alternate installed-engine standards.* NO_X emissions may not exceed the standard specified in this paragraph (g) for test of engines installed on vessels when you are unable to operate the engine at the test points for the specified duty cycle, and you approximate these points consistent with the specifications of section 6 of Appendix 8 to the NO_X Technical Code (incorporated by reference in §1042.910). Calculate the alternate installed-engine standard by multiplying the applicable NO_X standard by 1.1 and rounding to the nearest 0.1 g/kW-hr.

[75 FR 22997, Apr. 30, 2010]

§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.

[73 FR 59193, Oct. 8, 2008]

§ 1042.110 Recording reductant use and other diagnostic functions.

(a) Engines equipped with SCR systems using a reductant other than the engine's fuel must meet the following requirements:

(1) The diagnostic system must monitor reductant quality and tank levels and alert operators to the need to refill the reductant tank before it is empty, or to replace the reductant if it does not meet your concentration specifications. Unless we approve other alerts, use a malfunction-indicator light (MIL) and an audible alarm. You do not need to separately monitor reductant quality if you include an exhaust NO_X sensor (or other sensor) that allows you to determine inadequate reductant quality. However, tank level must be monitored in all cases.

(2) The onboard computer log must record in nonvolatile computer memory all incidents of engine operation with inadequate reductant injection or reductant quality. Use good engineering judgment to ensure that the operator can readily access the information to submit the report required by § 1042.660. For example, you may meet this requirement by documenting the incident in a text file that can be downloaded or printed by the operator.

(3) SCR systems must also conform to the provisions of paragraph (d) of this section if they are equipped with on-off controls as allowed under § 1042.115(g).

(b) If you determine your emission controls have failure modes that may reasonably be expected to affect safety, equip the engines with diagnostic features that will alert the operator to such failures. Use good engineering judgment to alert the operator before the failure occurs.

(c) You may equip your engine with other diagnostic features. If you do, they must be designed to allow us to read and interpret the codes. Note that §§ 1042.115 and 1042.205 require that you provide us any information needed to read, record, and interpret all the information broadcast by an engine's onboard computers and electronic control units.

(d) For Category 3 engines equipped with on-off NO_X controls (as allowed by § 1042.115(g)), you must also equip your engine to continuously monitor NO_X concentrations in the exhaust. *See* § 1042.650 to determine if this requirement applies for a given Category 1 or Category 2 engine. Use good engineering judgment to alert operators if measured NO_X concentrations indicate malfunctioning emission controls. Record any such operation in nonvolatile computer memory. You are not required to monitor NO_X concentrations during operation for which the emission controls may be disabled under § 1042.115(g). For the purpose of this paragraph (d), ''malfunctioning emission controls'' means any condition in which the measured NO_X concentration exceeds the highest value expected when the engine is in compliance with the installed engine standard of § 1042.104(g). Use good engineering judgment to determine these expected values during production-line testing of the engine using linear interpolation between test points and accounting for the degree to which the cycle-weighted emissions of the engine are below the standard. You may also use additional intermediate test points measured during the production-line test. Note that the provisions of paragraph (a) of this section also apply for SCR systems covered by this paragraph (d). For engines subject to both the provisions of paragraph (a) of this section and this paragraph (d), use good engineering judgment to integrate diagnostic features to comply with both paragraphs.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22998, Apr. 30, 2010]

§ 1042.115 Other requirements.

Engines that are required to comply with the emission standards of this part must meet the following requirements:

(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) 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 both of 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) *Torque broadcasting.* 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. This information is necessary for testing engines in the field (see § 1042.515).

(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) *Adjustable parameters.* An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. The following provisions apply for adjustable parameters:

(1) Category 1 engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. We may require that you set adjustable parameters to any specification within the adjustable range during any testing, including certification testing, selective enforcement auditing, or in-use testing.

(2) Category 2 and Category 3 engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the specified adjustable range. You must specify in your application for certification the adjustable range of each adjustable parameter on a new engine to—

(i) Ensure that safe engine operating characteristics are available within that range, as required by section 202(a)(4) of the Clean Air Act (42 U.S.C. 7521(a)(4)), taking into consideration the production tolerances.

(ii) Limit the physical range of adjustability to the maximum extent practicable to the range that is necessary for proper operation of the engine.

(e) *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.

(f) *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. (Note that this means emission control for operation outside of and between the official test modes is generally expected to be similar to emission control demonstrated at the test modes.) This 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 (the portion during which emissions are measured).

(2) You show your design is necessary to prevent engine (or vessel) damage or accidents.

(3) The reduced effectiveness applies only to starting the engine.

(4) The engine is a Category 3 engine and the AECD conforms to the requirements of paragraph (g) of this section. *See* § 1042.650 to determine if this allowance applies for a given Category 1 or Category 2 engine.

(g) *On-off controls for Category 3 engines.* Manufacturers may equip Category 3 engines with features that disable Tier 3 NO_X emission controls subject to the provisions of this paragraph (g). *See* § 1042.650 to determine if this allowance applies for a given Category 1 or Category 2 engine. Where this paragraph (g) applies for a Category 1 or Category 2 engine, read ''Tier 2'' to mean ''Tier 3'' and read ''Tier 3'' to mean ''Tier 4''.

(1) Features that disable Tier 3 emission controls are considered to be AECDs whether or not they meet the definition of an AECD. For example, manually operated on-off features are AECDs under this paragraph (g). The features must be identified in your application for certification as AECDs. For purposes of this paragraph (g), the term ''features that disable Tier 3 emission controls'' includes (but is not limited to) any combination of the following that cause the engine's emissions to exceed any Tier 3 emission standard:

(i) Bypassing of exhaust aftertreatment.

(ii) Reducing or eliminating flow of reductant to an SCR system.

(iii) Modulating engine calibration in a manner that increases engine-out emissions of a regulated pollutant.

(2) You must demonstrate that the AECD will not disable emission controls while operating in areas where emissions could reasonably be expected to adversely affect U.S. air quality. If an ECA has been established for U.S. waters, this means you must demonstrate that the AECD will not disable emission control while operating in waters within the ECA or any ECA associated area. (Note: *See* the regulations in 40 CFR part 1043 for requirements related to operation in ECAs, including foreign ECAs.) Compliance with this paragraph will generally require that the AECD operation be based on Global Positioning System (GPS) inputs. We may consider any relevant information to determine whether your AECD conforms to this paragraph (g).

(3) The onboard computer log must record in nonvolatile computer memory all incidents of engine operation with the Tier 3 emission controls disabled.

(4) The engine must comply fully with the Tier 2 standards when the Tier 3 emission controls are disabled.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59193, Oct. 8, 2008; 75 FR 22998, Apr. 30, 2010]

§ 1042.120 Emission-related warranty requirements.

(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 for at least as long as the minimum warranty periods listed in this paragraph (b) in hours of operation and years, whichever comes first. 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 when the engine is placed into service. The following minimum warranty periods apply:

(1) For Category 1 and Category 2 engines, your emission-related warranty must be valid for at least 50 percent of the engine's useful life in hours of operation or a number of years equal to at least 50 percent of the useful life in years, whichever comes first.

(2) For Category 3 engines, your emission-related warranty must be valid throughout the engine's full useful life as specified in § 1042.104(d).

(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 for freshly manufactured marine engines covers these components even if another company produces the component. Your emission-related warranty does not need to cover components whose failure would not increase an engine's emissions of any regulated pollutant. For remanufactured engines, your emission-related warranty is required to cover only those parts that you supply or those parts for which you specify allowable part manufacturers. It does not need to cover used parts that are not replaced during the remanufacture.

(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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22999, Apr. 30, 2010]

§ 1042.125 Maintenance instructions.

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 § 1042.245 and in 40 CFR part 1065. The restrictions specified in paragraphs (a) through (e) of this section related to allowable maintenance apply only to Category 1 and Category 2 engines. Manufacturers may specify any maintenance for Category 3 engines.

(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) For engines below 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

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

(ii) For the following components, including associated sensors and actuators, the minimum interval is 3,000 hours: Fuel injectors, turbochargers, catalytic converters, electronic control units, particulate traps, trap oxidizers, components related to particulate traps and trap oxidizers, EGR systems (including related components, but excluding filters and coolers), and other add-on components. For particulate traps, trap oxidizers, and components related to either of these, maintenance is limited to cleaning and repair only.

(3) For Category 1 and Category 2 engines at or above 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

(i) For EGR-related filters and coolers, PCV valves, and fuel injector tips

(cleaning only), the minimum interval is 1,500 hours.

(ii) For the following components, including associated sensors and actuators, the minimum interval is 4500 hours: Fuel injectors, turbochargers, catalytic converters, electronic control units, particulate traps, trap oxidizers, components related to particulate traps and trap oxidizers, EGR systems (including related components, but excluding filters and coolers), and other add-on components. For particulate traps, trap oxidizers, and components related to either of these, maintenance is limited to cleaning and repair only.

(4) We may approve shorter maintenance intervals than those listed in paragraph (a)(3) of this section where technologically necessary.

(5) If your engine family has an alternate useful life under §1042.101(e) that is shorter than the period specified in paragraph (a)(2) or (a)(3) of this section, you may not schedule critical emission-related maintenance more frequently than the alternate useful life, except as specified in paragraph (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 (that is, 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 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 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 (6) of the definition of ''new marine engine'' in § 1042.901.

(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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22999, Apr. 30, 2010]

§ 1042.130 Installation instructions for 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 these 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 § 1042.205(u).

(4) Describe any necessary steps for installing the diagnostic system described in § 1042.110.

(5) 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 constant-speed operation, tell vessel manufacturers not to install the engines in variable-speed applications or modify the governor.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

(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 vessel, as described in 40 CFR 1068.105.''.

(8) Describe any vessel labeling requirements specified in § 1042.135.

(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 Web site 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.

§ 1042.135 Labeling.

(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 § 1042.640.

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

(4) Identify all the emission standards that apply to the engine (or FELs, if applicable). If you do not declare an FEL under subpart H of this part, you may alternatively state the engine's category, displacement (in liters or L/cyl), maximum engine power (in kW), and power density (in kW/L) as needed to determine the emission standards for the engine family. You may specify displacement, maximum engine power, or power density as a range consistent with the ranges listed in § 1042.101. See § 1042.140 for descriptions of how to specify per-cylinder displacement, maximum engine power, and power density.

(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 application(s) for which the engine family is certified (such as constant-speed auxiliary, variable-speed propulsion engines used with fixed-pitch propellers, etc.). If the engine is certified as a recreational engine, state: ''INSTALLING THIS RECREATIONAL ENGINE IN A COMMERCIAL VESSEL OR USING THE VESSEL FOR COMMERCIAL PURPOSES MAY VIOLATE FEDERAL LAW SUBJECT TO CIVIL PENALTY (40 CFR 1042.601).''.

(7) For engines requiring ULSD, state: ''ULTRA LOW SULFUR DIESEL FUEL ONLY''.

(8) State the useful life for your engine family if the applicable useful life is based on the provisions of § 1042.101(e)(2) or (3), or § 1042.104(d)(2).

(9) 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.

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

(11) For a Category 1 or Category 2 engine that can be modified to operate on residual fuel, but has not been certified to meet the standards on such a fuel, include the statement: ''THIS ENGINE IS CERTIFIED FOR OPERATION ONLY WITH DIESEL FUEL. MODIFYING THE ENGINE TO OPERATE ON RESIDUAL OR INTERMEDIATE FUEL MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTIES.''

(12) For an engine equipped with on-off emissions controls as allowed by § 1042.115, include the statement: ''THIS ENGINE IS CERTIFIED WITH ON-OFF EMISSION CONTROLS. OPERATION OF THE ENGINE CONTRARY TO 40 CFR 1042.115(g) IS A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTIES.''

(13) For engines intended for installation on domestic or public vessels, include the following statement: ''THIS ENGINE DOES NOT COMPLY WITH INTERNATIONAL MARINE REGULATIONS FOR COMMERCIAL VESSELS UNLESS IT IS ALSO COVERED BY AN EIAPP CERTIFICATE.''

(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 international 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) For engines requiring ULSD, create a separate label with the statement: ''ULTRA LOW SULFUR DIESEL FUEL ONLY''. Permanently attach this label to the vessel near the fuel inlet or, if you do not manufacture the vessel, take one of the following steps to ensure that the vessel will be properly labeled:

(1) Provide the label to each vessel manufacturer and include in the emission-related installation instructions the requirement to place this label near the fuel inlet.

(2) Confirm that the vessel manufacturers install their own complying labels.

(f) You may ask us to approve modified labeling requirements in this part 1042 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the intent of the labeling requirements of this part.

(g) If you obscure the engine label while installing the engine in the vessel such that the label will be hard to 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 family and the date you sent them.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22999, Apr. 30, 2010]

§ 1042.140 Maximum engine power, displacement, power density, and maximum in-use engine speed.

This section describes how to determine the maximum engine power, displacement, and power density of an engine for the purposes of this part. Note that maximum engine power may differ from the definition of ''maximum test power'' in § 1042.901. This section also specifies how to determine maximum in-use engine speed for Category 3 engines.

(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) An engine configuration's per-cylinder displacement is the intended swept volume of each cylinder. 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 0.02 liters. Determine the final value by truncating digits to establish the per-cylinder displacement to the nearest 0.1 liters. For example, for an engine with circular cylinders having an internal diameter of 13.0 cm and a 15.5 cm stroke length, the rounded displacement would be: $(13.0/2)^2 \times (\pi) \times (15.5) \div 1000 = 2.0$ liters.

(d) 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 § 1042.225.

(e) Throughout this part, references to a specific power value for an engine are based on maximum engine power. For example, the group of engines with maximum engine power above 600 kW may be referred to as engines above 600 kW.

(f) Calculate an engine family's power density in kW/L by dividing the unrounded maximum engine power by the engine's unrounded per-cylinder displacement, then dividing by the number of cylinders. Round the calculated value to the nearest whole number.

(g) Calculate a maximum test speed for the nominal power curve as specified in 40 CFR 1065.610. This is the maximum in-use engine speed used for calculating the NO_X standard in § 1042.104 for Category 3 engines. Alternatively, you may use a lower value if engine speed will be limited in actual use to that lower value.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23000, Apr. 30, 2010]

§ 1042.145 Interim provisions.

(a) *General*. The provisions in this section apply instead of other provisions in this part. This section describes when these interim provisions expire. Only the provisions of paragraph (h) of this section apply for Category 3 engines.

(b) *Delayed standards*. Post-manufacturer marinizers that are small-volume engine manufacturers may delay compliance with the Tier 3 standards for engines below 600 kW as follows:

(1) You may delay compliance with the Tier 3 standards for one model year, as long as the engines meet all the requirements that apply to Tier 2 engines.

(2) You may delay compliance with the NTE standards for Tier 3 engines for three model years in addition to the one-year delay specified in paragraph (b)(1) of this section, as long as the engines meet all other Tier 3 requirements for the appropriate model year.

(c) *Part 1065 test procedures for Category 1 and Category 2 engines*. You must generally use the test procedures specified in subpart F of this part, including the applicable test procedures in 40 CFR part 1065. As specified in this paragraph (c), you may use a combination of the test procedures specified in this part and the test procedures specified for Tier 2 engines before January 1, 2015. After this date, you must use test procedures only as specified in subpart F of this part.

(1) You may determine maximum test speed for engines below 37 kW as specified in 40 CFR part 89 without request through the 2009 model year.

(2) Before January 1, 2015, you may ask to use some or all of the procedures specified in 40 CFR part 94 (or 40 CFR part 89 for engines below 37 kW) for engines certified under this part 1042. If you ask to rely on a combination of procedures under this paragraph (c)(2), we will approve your request only if you show us that it does not affect your ability to demonstrate compliance with the applicable emission standards. This generally requires that the combined procedures would result in emission measurements at least as high as those that would be measured using the procedures specified in this part. Alternatively, you may demonstrate that the combined effects of the different procedures is small relative to your compliance margin (the degree to which your emissions are below the applicable standards).

(d) [Reserved]

(e) *Delayed compliance with NTE standards*. Engines below 56 kW may delay complying with the NTE standards specified in § 1042.101(c) until the 2013 model year. Engines at or above 56 kW and below 75 kW may delay complying with the NTE standards specified in § 1042.101(c) until the 2012 model year.

(f) *In-use compliance limits*. The provisions of this paragraph (f) apply for the first three model years of the Tier 4 standards. For purposes of determining compliance based on testing other than certification or production-line testing, calculate the applicable in-use compliance limits by adjusting the applicable standards/FELs. The PM adjustment does not apply for engines with a PM standard or FEL above 0.04 g/kW-hr. The NO_X adjustment does not apply for engines with a NO_X FEL above 2.7 g/kW-hr. Add the applicable adjustments in one of the following tables to the otherwise applicable standards and NTE limits. You must specify during certification which add-ons, if any, will apply for your engines.

TABLE 1 TO § 1042.145—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 Tier 4 NO_X standards	For Tier 4 PM standards
0 <hours ≤50% of useful life	0.9	0.02
50 <hours ≤75% of useful life	1.3	0.02
hours >75% of useful life	1.7	0.02

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

(g) *Deficiencies for NTE standards.* You may ask us to accept as compliant an engine that does not fully meet specific requirements under the applicable NTE standards. Such deficiencies are intended to allow for minor deviations from the NTE standards under limited conditions. We expect your engines to have functioning emission control hardware that allows you to comply with the NTE standards.

(1) Request our approval for specific deficiencies in your application for certification, or before you submit your application. We will not approve deficiencies retroactively to cover engines already certified. In your request, identify the scope of each deficiency and describe any auxiliary emission control devices you will use to control emissions to the lowest practical level, considering the deficiency you are requesting.

(2) We will approve a deficiency only if compliance would be infeasible or unreasonable considering such factors as the technical feasibility of the given hardware and the applicable lead time and production cycles. We may consider other relevant factors.

(3) Our approval applies only for a single model year and may be limited to specific engine configurations. We may approve your request for the same deficiency in the following model year if correcting the deficiency would require unreasonable hardware or software modifications and we determine that you have demonstrated an acceptable level of effort toward complying.

(4) You may ask for any number of deficiencies in the first three model years during which NTE standards apply for your engines. For the next four model years, we may approve up to three deficiencies per engine family. Deficiencies of the same type that apply similarly to different power ratings within a family count as one deficiency per family. We may condition approval of any such additional deficiencies during these four years on any additional conditions we determine to be appropriate. We will not approve deficiencies after the seven-year period specified in this paragraph (g)(4), unless they are related to safety.

(h) The following interim provisions apply for Category 3 engines:

(1) *Applicability of Tier 3 standards to Category 3 engines operating in Alaska, Hawaii, and U.S. territories.* (i) Category 3 engines are not required to comply with the Tier 3 NO_X standard when operating in areas of Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, Puerto Rico, or U.S. Virgin Islands. Category 3 engines are also not required to comply with the Tier 3 NO_X standards when operating in the waters of the smallest Hawaiian islands or in the waters of

Alaska west of Kodiak. For the purpose of this paragraph (h)(1), ''the smallest Hawaiian islands'' includes all Hawaiian islands other than Hawaii, Kahoolawe, Kauai, Lanai, Maui, Molokai, Niihau, and Oahu. Engines must comply fully with the appropriate Tier 2 NO_X standard and all other applicable requirements when operating in the areas identified in this paragraph (h)(1).

(ii) The provisions of paragraph (h)(1)(i) of this section do not apply to ships operating in an ECA or an ECA associated area. The Tier 3 standards apply in full for any area included in an ECA or an ECA associated area.

(2) *Part 1065 test procedures.* You must generally use the test procedures specified in subpart F of this part for Category 3 engines, including the applicable test procedures in 40 CFR part 1065. You may use a combination of the test procedures specified in this part and the test procedures specified in 40 CFR part 94 before January 1, 2016 without request. After this date, you must use test procedures only as specified in subpart F of this part.

(i) *Limitation of 40 CFR 1068.101 before July 1, 2010.* Notwithstanding other provisions of this part or 40 CFR part 94, for the period June 29, 2010 through July 1, 2010, it is not a violation of 40 CFR 1068.101 to operate in U.S. waters uncertified engines installed on vessels manufactured outside of the United States before June 29, 2010. Operation of such vessels in U.S. waters on or after July 1, 2010 is deemed to be introduction into U.S. commerce of a new marine engine.

(j) Vessel manufacturers and marine equipment manufacturers may apply the provisions of § 1042.605 to land-based engines with maximum engine power at or above 19 kW and below 600 kW produced under the allowances provided in 40 CFR 1039.625 for model year 2013 marine engines. All the provisions of § 1042.605 apply as if those engines were certified to emission standards under 40 CFR part 1039. Similarly, engine manufacturers, vessel manufacturers, and marine equipment manufacturers must comply with all the provisions of 40 CFR 1039.625 as if those engines were installed in land-based equipment.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23000, Apr. 30, 2010; 78 FR 36396, June 17, 2013]

Subpart C—Certifying Engine Families

§ 1042.201 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.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see § 1042.255).

(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 § 1042.250.

(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 § 1042.255 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 § 1042.235(c)).

(h) For engines that become new after being placed into service, such as engines installed on imported vessels, we may specify alternate certification provisions consistent with the intent of this part. *See* the definition of ''new marine engine'' in § 1042.901.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23000, Apr. 30, 2010]

§ 1042.205 Application requirements.

This section specifies the information that must be in your application,

unless we ask you to include less information under § 1042.201(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, ultra low-sulfur diesel fuel). 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 § 1042.140.

(b) Explain how the emission control system operates. 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 all the following:

(1) Give a general overview of the engine, the emission control strategies, and all AECDs.

(2) Describe each AECD's general purpose and function.

(3) Identify the parameters that each AECD senses (including measuring, estimating, calculating, or empirically deriving the values). Include vessel-based parameters and state whether you simulate them during testing with the applicable procedures.

(4) Describe the purpose for sensing each parameter.

(5) Identify the location of each sensor the AECD uses.

(6) Identify the threshold values for the sensed parameters that activate the AECD.

(7) Describe the parameters that the AECD modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AECD's stated purpose. Use graphs and tables, as necessary.

(8) Describe each AECD's specific calibration details. This may be in the form of data tables, graphical representations, or some other description.

(9) Describe the hierarchy among the AECDs when multiple AECDs sense or modulate the same parameter. Describe whether the strategies interact in a comparative or additive manner and identify which AECD takes precedence in responding, if applicable.

(10) Explain the extent to which the AECD is included in the applicable test procedures specified in subpart F of this part.

(11) Do the following additional things for AECDs designed to protect engines or vessels:

(i) Identify the engine and/or vessel design limits that make protection necessary and describe any damage that would occur without the AECD.

(ii) Describe how each sensed parameter relates to the protected components' design limits or those operating conditions that cause the need for protection.

(iii) Describe the relationship between the design limits/parameters being protected and the parameters sensed or calculated as surrogates for those design limits/parameters, if applicable.

(iv) Describe how the modulation by the AECD prevents engines and/or vessels from exceeding design limits.

(v) Explain why it is necessary to estimate any parameters instead of measuring them directly and describe how the AECD calculates the estimated value, if applicable.

(vi) Describe how you calibrate the AECD modulation to activate only during conditions related to the stated need to protect components and only as needed to sufficiently protect those components in a way that minimizes the emission impact.

(12) Include any other information required by this part with respect to AECDs. For example, *see* § 1042.115 for requirements related to on-off technologies.

(c) If your engines are equipped with an engine diagnostic system, explain how it works, describing especially the engine conditions (with the corresponding diagnostic trouble codes)

that cause the malfunction-indicator light to go on.

(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 the duty cycle(s) and the corresponding engine applications. Also describe 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* §§1042.120 and 1042.125). Describe your plan for meeting warranty obligations under §1042.120.

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vessel (see §1042.130).

(k) Describe your emission control information label (see §1042.135).

(l) Identify the emission standards and/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 §1042.245). 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 for HC, NO_X, PM, and CO on an emission-data engine to show your engines meet emission standards as specified in §§1042.101 or 1042.104. Note that you must submit PM data for all engines, whether or not a PM standard applies. Show emission figures before and after applying adjustment factors for regeneration and deterioration factors for each pollutant and for each engine. If we specify more than one grade of any fuel type (for example, high-sulfur and low-sulfur diesel fuel), you need to submit test data only for one grade, unless the regulations of this part specify otherwise for your engine. Include emission results for each mode for Category 3 engines or for other engines if you do discrete-mode testing under §1042.505. Note that §§1042.235 and 1042.245 allows you to submit an application in certain cases without new emission data.

(p) For Category 1 and Category 2 engines, state that all the engines in the engine family comply with the applicable not-to-exceed emission standards in §1042.101 for all normal operation and use when tested as specified in §1042.515. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement.

(q) [Reserved]

(r) Report test results as follows:

(1) Report all test results involving measurement of pollutants for which emission standards apply. Include test results 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. 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.

(2) Report measured CO_2, N_2O, and CH_4 as described in §1042.235. Small-volume engine manufacturers may omit reporting N_2O and CH_4.

(s) Describe all adjustable operating parameters (see §1042.115(d)), 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) For Category 1 engines, 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.

(5) For Category 2 and Category 3 engines, propose a range of adjustment for each adjustable parameter, as described in § 1042.115(d). Include 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 proposed adjustable ranges.

(t) Provide the information 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) 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) Constant-speed engines.

(2) Engines used with controllable-pitch propellers.

(3) Recreational engines.

(w) 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.

(x) 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.

(y) Include the information required by other subparts of this part. For example, include the information required by § 1042.725 if you participate in the ABT program.

(z) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(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.

(bb) The following provisions apply for imported engines:

(1) Describe your normal practice for importing engines. For example, this may include identifying the names and addresses of any agents you have authorized to import your engines. Engines imported by nonauthorized agents are not covered by your certificate.

(2) For engines below 560 kW, identify 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.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23000, Apr. 30, 2010]

§ 1042.210 Preliminary approval.

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, useful life, testing for service accumulation, maintenance, and compliance with not-to-exceed standards. See § 1042.245 for specific provisions that apply for deterioration factors. 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 best-efforts to 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.

§ 1042.220 Amending maintenance instructions.

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 § 1042.125. 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 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).

[75 FR 23001, Apr. 30, 2010]

§ 1042.225 Amending applications for certification.

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 that is included or should be 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 § 1042.230.

(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 as specified in paragraph (a) of this section, send the relevant information to the Designated Compliance Officer.

(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 § 1042.920).

(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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23001, Apr. 30, 2010]

§ 1042.230 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. You may not group engines in different engine categories in the same family. Your engine family is limited to a single model year.

(b) For Category 1 engines, group engines in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle and the fuel with which the engine is intended or designed to be operated.

(2) The cooling system (for example, raw-water vs. separate-circuit cooling).

(3) Method of air aspiration.

(4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap).

(5) Combustion chamber design.

(6) Nominal bore and stroke.

(7) Cylinder arrangement (such as inline vs. vee configurations). This applies for engines with aftertreatment devices only.

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

(9) Application (commercial or recreational).

(10) Numerical level of the emission standards that apply to the engine, except as allowed under paragraphs (f) and (g) of this section.

(c) For Category 2 engines, group engines in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle (e.g., diesel cycle).

(2) The fuel with which the engine is intended or designed to be operated and the fuel system configuration.

(3) The cooling system (for example, air-cooled or water-cooled), and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fans, radiator shutters, etc.).

(4) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown).

(5) The turbocharger or supercharger general performance characteristics (e.g., approximate boost pressure, approximate response time, approximate size relative to engine displacement).

(6) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled).

(7) The type of exhaust aftertreatment system (oxidation catalyst, particulate trap), and characteristics of the aftertreatment system (catalyst loading, converter size vs. engine size).

(8) The combustion chamber configuration and the surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions.

(9) Nominal bore and stroke dimensions.

(10) The location of the piston rings on the piston.

(11) The intake manifold induction port size and configuration.

(12) The exhaust manifold port size and configuration.

(13) The location of the intake and exhaust valves (or ports).

(14) The size of the intake and exhaust valves (or ports).

(15) The approximate intake and exhaust event timing and duration (valve or port).

(16) The configuration of the fuel injectors and approximate injection pressure.

(17) The type of fuel injection system controls (i.e., mechanical or electronic).

(18) The overall injection timing characteristics, or as appropriate ignition timing characteristics (i.e., the deviation of the timing curves from the optimal fuel economy timing curve must be similar in degree).

(19) The type of smoke control system.

(d) For Category 3 engines, group engines into engine families based on the criteria specified in Section 4.3 of the NO_X Technical Code (incorporated by reference in §1042.910), except as allowed in paragraphs (e) and (f) of this section.

(e) You may subdivide a group of engines that is identical under paragraph (b) or (c) of this section into different engine families if you show the expected emission characteristics are different during the useful life. However, for the purpose of applying small-volume family provisions of this part, we will consider the otherwise applicable engine family criteria of this section.

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

(1) In unusual circumstances, you may group such engines in 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 any Category 1 engines into a single engine family or you may group any Category 2 engines into a single engine family. This also applies if you are a post-manufacture marinizer modifying a base engine that has a valid certificate of conformity for any kind of nonroad or heavy-duty highway engine under this chapter.

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

(g) If you combine engines that are subject to different emission standards

into a single engine family under paragraph (f) of this section, you must certify the engine family to the more stringent set of standards for that model year. For Category 3 engine families that include a range of maximum in-use engine speeds, use the highest value of maximum in-use engine speed to establish the applicable NO_X emission standard.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23001, Apr. 30, 2010]

§ 1042.235 Emission testing related to certification.

This section describes the emission testing you must perform to show compliance with the emission standards in § 1042.101(a) or § 1042.104. *See* § 1042.205(p) regarding emission testing related to the NTE standards. *See* §§ 1042.240 and 1042.245 and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing. *See* § 1042.655 for special testing provisions available for Category 3 engines subject to Tier 3 standards.

(a) Select an emission-data engine from each engine family for testing. For engines at or above 560 kW, you may use a development engine that is equivalent in design to the engine being certified. For Category 3 engines, you may use a single-cylinder version of the engine. Using good engineering judgment, select the engine configuration most likely to exceed an applicable emission standard over the useful life, considering all exhaust emission constituents and the range of installation options available to vessel manufacturers.

(b) Test your emission-data engines using the procedures and equipment specified in subpart F of this part.

(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 from 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) Before we test one of your engines, we may set its adjustable parameters to any point within the specified adjustable ranges (*see* § 1042.115(d)).

(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 for an engine parameter that is subject to production variability because it is adjustable during production, but is not considered an adjustable parameter (as defined in § 1042.901) because it is permanently sealed.

(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 § 1042.225.

(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 engine family covered by the application for certification. For engines originally tested under the provisions of 40 CFR part 94, 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 a second engine of the same or different configuration in addition to the engine 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.

(g) Measure CO_2 with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2011 model year. Also measure CH_4 from Category 1 and Category 2 engines with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2012 model year. Measure N_2O from Category 1 and Category 2 engines with each low-hour certification test using the procedures specified in 40 CFR part 1065 for any engine family that depends on NOx aftertreatment to meet emission standards. Small-volume engine manufacturers may omit measurement of N_2O and CH_4. These measurements are not required for NTE testing. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/kW-hr.

(2) Round N_2O to the nearest 0.001 g/kW-hr.

(3) Round CH_4 to the nearest 0.001 g/kW-hr.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23002, Apr. 30, 2010]

§ 1042.240 Demonstrating compliance with exhaust emission standards.

(a) For purposes of certification, your engine family is considered in compliance with the emission standards in § 1042.101(a) or § 1042.104 if all emission-data engines representing that family have test results showing official emission results and deteriorated emission levels at or below these standards. This also applies for all test points for emission-data engines within the family used to establish deterioration factors. *See* paragraph (f) of this section for provisions related to demonstrating compliance with non-duty-cycle standards, such as NTE standards. 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 an official emission result or 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. This also applies for all test points for emission-data engines within the family used to establish deterioration factors.

(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. Section 1042.245 specifies how to test your Category 1 or Category 2 engine to develop deterioration factors that represent the deterioration expected in emissions over your engines' full useful life. *See* paragraph (e) of this section for determining deterioration factors for Category 3 engines. Your deterioration factors must take into account any available data from in-use testing with similar engines. Small-volume engine manufacturers and post-manufacture marinizers may use assigned deterioration factors that we establish. Apply deterioration factors as follows:

(1) *Additive deterioration factor for exhaust emissions.* Except as specified in paragraph (c)(2) of this section, use an additive deterioration factor for exhaust emissions. An additive deterioration factor is the difference between 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 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 applicable standard.

(2) *Multiplicative deterioration factor for exhaust emissions.* Use a multiplicative deterioration factor if good engineering judgment calls for the deterioration factor for a pollutant to be the ratio of exhaust emissions at the end of

the useful life to exhaust emissions at the low-hour test point. For example, if you use aftertreatment technology that controls emissions of a pollutant proportionally to engine-out emissions, it is often appropriate to use a multiplicative deterioration factor. 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. A multiplicative deterioration factor may not be appropriate in cases where testing variability is significantly greater than engine-to-engine variability. Multiplicative deterioration factors must be specified to one more significant figure than the applicable standard.

(3) *Deterioration factor for crankcase emissions.* If your engine vents crankcase emissions to the exhaust or to the atmosphere, you must account for crankcase emission deterioration, using good engineering judgment. You may use separate deterioration factors for crankcase emissions of each pollutant (either multiplicative or additive) or include the effects in combined deterioration factors that include exhaust and crankcase emissions together for each pollutant.

(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 NO_X + HC standards, apply the deterioration factor to each pollutant and then add the results before rounding.

(e) For Category 3 engines, determine a deterioration factor based on an engineering analysis. The engineering analysis must describe how the measured emission levels from the emission-data engine show that engines comply with applicable emission standards throughout the useful life. Include this analysis in your application for certification and add a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

(f) For NTE standards and mode caps, use good engineering judgment to demonstrate compliance throughout the useful life. You may, but are not required to, apply the same deterioration factors used to show compliance with the applicable duty-cycle standards. We will deny your application for certification if we determine that your test data show that your engines would exceed one or more NTE standard or mode cap during their useful lives.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23002, Apr. 30, 2010]

§ 1042.245 Deterioration factors.

This section describes how to determine deterioration factors for Category 1 and Category 2 engines, either with an engineering analysis, with pre-existing test data, or with new emission measurements. Apply these deterioration factors to determine whether your engines will meet the duty-cycle emission standards throughout the useful life as described in § 1042.240. This section does not apply for Category 3 engines.

(a) You may ask us to approve deterioration factors for an engine family with established technology based on engineering analysis instead of testing. Engines certified to a NO_X + HC standard or FEL greater than the Tier 3 NO_X + HC standard are considered to rely on established technology for control of gaseous emissions, except that this does not include any engines that use exhaust-gas recirculation or aftertreatment. In most cases, technologies used to meet the Tier 1 and Tier 2 emission standards would qualify as established technology. We must approve your plan to establish a deterioration factor under this paragraph (a) before you submit your application for certification.

(b) You may ask us to approve deterioration factors for an engine family based on emission measurements from similar highway, stationary, or nonroad engines (including locomotive engines or other marine 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. We must approve your plan to establish a deterioration factor under this paragraph (b) before you submit your application for certification. We will approve your request if you show us that the emission measurements from other engines reasonably represent in-use deterioration for the engine family for which you have not yet determined deterioration factors.

(c) If you are unable to determine deterioration factors for an engine family under paragraph (a) or (b) of this section, first get us to approve a plan for determining deterioration factors based on service accumulation and related testing. We will respond to your proposed plan within 45 days of receiving your request. Your plan must involve measuring emissions from an emission-data engine at least three times, which are evenly spaced over the service-accumulation period unless we specify otherwise, such that the resulting measurements and calculations will represent the deterioration expected from in-use engines over the full useful life. You may use extrapolation to determine deterioration factors once you have established a trend of changing emissions with age for each pollutant. You may use an engine installed in a vessel to accumulate service hours instead of running the engine only in the laboratory. You may perform maintenance on emission-data engines as described in §1042.125 and 40 CFR part 1065, subpart E.

(d) 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 determine your deterioration factors based on engineering analysis, explain why this is appropriate and include a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

(3) If you do testing to determine deterioration factors, describe the form and extent of service accumulation, including a rationale for selecting the service-accumulation period and the method you use to accumulate hours.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23003, Apr. 30, 2010]

§1042.250 Recordkeeping and reporting.

(a) Send the Designated Compliance Officer information related to your U.S.-directed production volumes as described in §1042.345. 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 §1042.345.

(2) State the total production volume for any engine family for which you produce engines after completing the reports required in §1042.345.

(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 §1042.205 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 (valid and invalid), 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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23003, Apr. 30, 2010]

§ 1042.255 EPA decisions.

(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 § 1042.920).

[73 FR 37243, June 30, 2008, as amended at 75 FR 23003, Apr. 30, 2010]

Subpart D—Testing Production-line Engines

§ 1042.301 General provisions.

(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 Category 1 engine families with a projected U.S.-directed production volume below 100 engines from routine testing under this subpart. Request this exemption in your application for certification and include your basis for projecting a production volume below 100 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 100 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) [Reserved]

(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 §§ 1042.325 and 1042.340).

(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 or measurement methods for testing production-line engines in the following circumstances:

(1) [Reserved]

(2) You may test your engines using the CumSum procedures specified in 40 CFR part 1045 or 1051 instead of the procedures specified in this subpart, except that the threshold for establishing quarterly or annual test periods is based on U.S.-directed production volumes of 800 instead of 1600. This alternate program does not require prior approval.

(3) You may ask to use another alternate program or measurement method for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your engines meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate program.

(e) If you certify a Category 1 or Category 2 engine family with carryover emission data, as described in § 1042.235(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. For Category 3 engines, you are not required to deliver engines to us, but we may inspect and test your engines at any facility at which they are assembled or installed in vessels.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23003, Apr. 30, 2010]

§ 1042.302 Applicability of this subpart for Category 3 engines.

If you produce Tier 3 or later Category 3 engines that are certified under this part, you must test them as described in this subpart, except as specified in this section.

(a) You must test each engine at the sea trial of the vessel in which it is installed or within the first 300 hours of operation, whichever occurs first. Since you must test each engine, the provisions of §§ 1042.310 and 1042.315(b) do not apply for Category 3 engines. If we determine that an engine failure under this subpart is caused by defective components or design deficiencies, we may revoke or suspend your certificate for the engine family as described in § 1042.340. If we determine that an engine failure under this subpart is caused only by incorrect assembly, we may suspend your certificate for the engine family as described in § 1042.325. If the engine fails, you may continue operating only to complete the sea trial and return to port. It is a violation of 40 CFR 1068.101(b)(1) to operate the vessel further until you remedy the cause of failure. Each two-hour period of such operation constitutes a separate offense. A violation lasting less than two hours constitutes a single offense.

(b) You are only required to measure NO_X emissions. You do not need to measure HC, CO or PM emissions under this subpart.

(c) If you are unable to operate the engine at the test points for the specified duty cycle, you may approximate

these points consistent with the specifications of section 6 of Appendix 8 to the NO_X Technical Code (incorporated by reference in §1042.910) and show compliance with the alternate installed-engine standard of §1042.104(g). You must obtain EPA approval of your test procedure prior to testing the engine. Include in your request a description of your basis for concluding that the engine cannot be tested at the actual test points of the specified duty cycle.

(d) You may measure NO_X emissions at additional test points for the purposes of the continuous NO_X monitoring requirements of §1042.110(d). If you do, you must report these values along with your other test results. Describe in your application for certification how you plan to use these values for continuous NO_X monitoring.

(e) You may ask to measure emissions according to the Direct Measurement and Monitoring method specified in section 6.4 of the NO_X Technical Code (incorporated by reference in §1042.910).

[75 FR 23003, Apr. 30, 2010]

§1042.305 Preparing and testing 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. For Category 1 and Category 2 engines, the not-to-exceed standards apply for this testing of Category 1 and Category 2 engines, but you need not do additional testing to show that production-line engines meet the not-to-exceed standards. The mode cap standards apply for the testing of Category 3 engines.

(b) *Modifying a test engine.* Once an engine is selected for testing (see §1042.310), 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 on a Category 1 engine to any setting within its physically adjustable range. We may adjust or require you to adjust any adjustable parameter on a Category 2 or Category 3 engine to any setting within its specified 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 or the specified 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 stabilize emission levels (or establish a Green Engine Factor for Category 2 engines) before you test production-line engines, as follows:

(1) You may stabilize emission levels by operating the engine in a way that represents the way production engines will be used, using good engineering judgment, for no more than the greater of two periods:

(i) 300 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).

(2) For Category 2 or Category 3 engines, you may ask us to approve a Green Engine Factor for each regulated pollutant for each engine family. Use the Green Engine Factor to adjust measured emission levels to establish a stabilized low-hour emission level.

(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 § 1042.345 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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

§ 1042.310 Engine selection for Category 1 and Category 2 engines.

(a) Determine minimum sample sizes as follows:

(1) For Category 1 engines, the minimum sample size is one engine or one percent of the projected U.S.-directed production volume for all your Category 1 engine families, whichever is greater.

(2) For Category 2 engines, the minimum sample size is one engine or one percent of the projected U.S.-directed production volume for all your Category 2 engine families, whichever is greater.

(b) Randomly select one engine from each engine family early in the model year. For further testing to reach the minimum sample size, randomly select a proportional sample from each engine family, with testing distributed evenly over the course of the model year, unless we specify a different schedule for your tests. For example, we may require you to disproportionately select engines from the early part of a model year for a new engine model that has not previously been subject to production-line testing.

(c) For each engine that fails to meet emission standards, test two engines from the same engine family from the next fifteen engines produced or within seven days, whichever is later. If an engine fails to meet emission standards for any pollutant, count it as a failing engine under this paragraph (c).

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

(1) You test the number of engines specified in paragraphs (a) and (c) of this section.

(2) The engine family does not comply according to § 1042.315 or you choose to declare that the engine family does not comply with the requirements of this subpart.

(3) You test 30 engines from the engine family.

(e) You may elect to test more randomly chosen engines than we require under this section.

§ 1042.315 Determining compliance.

This section describes the pass-fail criteria for the production-line testing requirements. We apply these criteria on an engine-family basis. See § 1042.320 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. Include the Green Engine Factor to determine low-hour emission results, if applicable.

(2) *Final deteriorated test results.* Apply the deterioration factor for the engine family to the final test results (*see* § 1042.240(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) For Category 1 and Category 2 engines, if a production-line engine fails to meet emission standards and you test two additional engines as described in § 1042.310, calculate the average emission level for each pollutant for the three engines. If the calculated average emission level for any pollutant exceeds the applicable emission standard, 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 § 1042.225(f).

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

§ 1042.320 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 § 1042.315(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 § 1042.345.

(b) You may request to amend the application for certification to raise the FEL of the entire engine family at this point (see § 1042.225).

(c) For catalyst-equipped engines, you may ask us to allow you to exclude an initial failed test if all of the following are true:

(1) The catalyst was in a green condition when tested initially.

(2) The engine met all emission standards when retested after degreening the catalyst.

(3) No additional emission-related maintenance or repair was performed between the initial failed test and the subsequent passing test.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

§ 1042.325 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 § 1042.315. 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 § 1042.920). 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 1042.335 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 entire engine family before or after we suspend your certificate as described in § 1042.225(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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

§ 1042.330 Selling 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 § 1042.315 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.

§ 1042.335 Reinstating suspended certificates.

(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.

§ 1042.340 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 § 1042.325 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.

§ 1042.345 Reporting.

(a) Within 45 days of the end of each quarter in which production-line testing occurs, 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. Also describe how you developed and applied the Green Engine Factor, if applicable.

(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) Report on each failed engine as described in § 1042.320.

(9) Identify when the model year ends 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 1042. 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. See § 1042.915 for information on how we treat information you consider confidential.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

§ 1042.350 Recordkeeping.

(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 § 1042.345.

(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 § 1042.345 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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

Subpart E—In-use Testing

§ 1042.401 General Provisions.

We may perform in-use testing of any engine subject to the standards of this part.

Subpart F—Test Procedures

§ 1042.501 How do I run a valid emission test?

(a) Use the equipment and procedures for compression-ignition engines in 40 CFR part 1065 to determine whether engines meet the duty-cycle emission standards in §§ 1042.101 or 1042.104. Measure the emissions of all regulated pollutants as specified in 40 CFR part 1065. Use the applicable duty cycles specified in § 1042.505.

(b) Section 1042.515 describes the supplemental test procedures for evaluating whether engines meet the not-to-exceed emission standards in § 1042.101(c).

(c) 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 this section and § 1042.515.

(1) For service accumulation, use the test fuel or any commercially available

fuel that is representative of the fuel that in-use engines will use.

(2) For diesel-fueled engines, use the appropriate diesel fuel specified in 40 CFR part 1065, subpart H, for emission testing. Unless we specify otherwise, the appropriate diesel test fuel for Category 1 and Category 2 engines is the ultra low-sulfur diesel fuel. If we allow you to use a test fuel with higher sulfur levels, identify the test fuel in your application for certification. Unless we specify otherwise, the appropriate diesel test fuel for Category 3 engines is the high-sulfur diesel fuel. For Category 2 and Category 3 engines, you may ask to use commercially available diesel fuel similar but not necessarily identical to the applicable fuel specified in 40 CFR part 1065, subpart H; we will approve your request if you show us that it does not affect your ability to demonstrate compliance with the applicable emission standards.

(3) For Category 1 and Category 2 engines that are expected to use a type of fuel (or mixed fuel) other than diesel fuel (such as natural gas, methanol, or residual fuel), use a commercially available fuel of that type for emission testing. If a given engine is designed to operate on different fuels, we may (at our discretion) require testing on each fuel. Propose test fuel specifications that take into account the engine design and the properties of commercially available fuels. Describe these test fuel specifications in the application for certification.

(d) You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10.

(e) 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.

(f) Duty-cycle testing is limited to ambient temperatures of 20 to 30 °C. Atmospheric pressure must be between 91.000 and 103.325 kPa, and must be within ±5 percent of the value recorded at the time of the last engine map. Testing may be performed with any ambient humidity level. Correct duty-cycle NO_X emissions for humidity as specified in 40 CFR part 1065.

(g) For Category 3 engines, instead of test data collected as specified in 40 CFR part 1065, you may submit test data for NO_X, HC, and CO emissions that were collected as specified in the NO_X Technical Code (incorporated by reference in § 1042.910). For example, this allowance includes the allowance to perform the testing using test fuels allowed under the NO_X Technical Code that do not meet the sulfur specifications of this section. We may require you to include a brief engineering analysis showing how these data demonstrate that your engines would meet the applicable emission standards if you had used the test procedures specified in 40 CFR part 1065.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23005, Apr. 30, 2010]

§ 1042.505 Testing engines using discrete-mode or ramped-modal duty cycles.

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; you may also choose between discrete-mode and ramped-modal testing. In all 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. If you submit certification test data using more than one duty cycle, any of the selected duty cycles may be used for any subsequent 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 described in 40 CFR Part 1065.

(b) Measure emissions by testing the engine on a dynamometer with one of the following duty cycles (as specified) to determine whether it meets the emission standards in §§ 1042.101 or 1042.104:

(1) *General cycle.* Use the 4-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (a) of Appendix II of this part for commercial propulsion marine engines that are

used with (or intended to be used with) fixed-pitch propellers, propeller-law auxiliary engines, and any other engines for which the other duty cycles of this section do not apply. Use this duty cycle also for commercial variable-speed propulsion marine engines that are used with (or intended to be used with) controllable-pitch propellers or with electrically coupled propellers, unless these engines are not intended for sustained operation (e.g., for at least 30 minutes) at all four modes when installed in the vessel.

(2) *Recreational marine engines.* Except as specified in paragraph (b)(3) of this section, use the 5-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (b) of Appendix II of this part for recreational marine engines with maximum engine power at or above 37 kW.

(3) *Controllable-pitch and electrically coupled propellers.* Use the 4-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (c) of Appendix II of this part for constant-speed propulsion marine engines that are used with (or intended to be used with) controllable-pitch propellers or with electrically coupled propellers. Use this duty cycle also for variable-speed propulsion marine engines that are used with (or intended to be used with) controllable-pitch propellers or with electrically coupled propellers if the duty cycles in paragraph (b)(1) and (b)(2) of this section do not apply.

(4) *Constant-speed auxiliary engines.* Use the 5-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR Part 1039, Appendix II, paragraph (a) for constant-speed auxiliary engines.

(5) *Variable-speed auxiliary engines.* (i) Use the duty cycle specified in paragraph (b)(1) of this section for propeller-law auxiliary engines.

(ii) Use the 6-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR Part 1039, Appendix II, paragraph (b) for variable-speed auxiliary engines with maximum engine power below 19 kW that are not propeller-law engines.

(iii) Use the 8-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR Part 1039, Appendix III, paragraph (c) for variable-speed auxiliary engines with maximum engine power at or above 19 kW that are not propeller-law engines.

(c) For constant-speed engines whose design prevents full-load operation for extended periods, you may ask for approval under 40 CFR 1065.10(c) to replace full-load operation with the maximum load for which the engine is designed to operate for extended periods.

[79 FR 23751, Apr. 28, 2014]

§ 1042.515 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 §1042.101(c). These procedures may include any normal engine operation and ambient conditions that the engines may experience in use. Paragraphs (c) through (e) of this section define the limits of what we will consider normal engine operation and ambient conditions.

(b) 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. Use the equipment and procedures specified in 40 CFR part 1065 to conduct laboratory testing.

(2) Test the selected engines while they remain installed in a vessel. Use the equipment and procedures specified in 40 CFR part 1065 subpart J, to conduct field testing. 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.

(c) Engine testing may occur under the following ranges of ambient conditions without correcting measured emission levels:

(1) Atmospheric pressure must be between 96.000 and 103.325 kPa, except that manufacturers may test at lower atmospheric pressures if their test facility is located at an altitude that makes it impractical to stay within this range. This pressure range is intended to allow testing under most weather conditions at all altitudes up to 1,100 feet above sea level.

(2) Ambient air temperature must be between 13 and 35 °C (or between 13 °C

and 30 °C for engines not drawing intake air directly from a space that could be heated by the engine).

(3) Ambient water temperature must be between 5 and 27 °C.

(4) Ambient humidity must be between 7.1 and 10.7 grams of moisture per kilogram of dry air.

(d) Engine testing may occur at any conditions expected during normal operation but that are outside the conditions described in paragraph (b) of this section, as long as measured values are corrected to be equivalent to the nearest end of the specified range, using good engineering judgment. Correct NO_X emissions for humidity as specified in 40 CFR part 1065, subpart G.

(e) The sampling period may not begin until the engine has reached stable operating temperatures. For example, this would include only engine operation after starting and after the engine thermostat starts modulating the engine's coolant temperature. The sampling period may not include engine starting.

(f) Apply the NTE standards specified in §1042.101(c) to an engine family based on the zones and subzones corresponding to specific duty cycles and engine types as defined in Appendix III of this part. For an engine family certified to multiple duty cycles, the broadest applicable NTE zone applies for that family at the time of certification. Whenever an engine family is certified to multiple duty cycles and a specific engine from that family is tested for NTE compliance in use, determine the applicable NTE zone for that engine according to its in-use application. An engine family's NTE zone may be modified as follows:

(1) You may ask us to approve a narrower NTE zone for an engine family at the time of certification, based on information such as how that engine family is expected to normally operate in use. For example, if an engine family is always coupled to a pump or jet drive, the engine might be able to operate only within a narrow range of engine speed and power.

(2) You may ask us to approve a Limited Testing Region (LTR). An LTR is a region of engine operation, within the applicable NTE zone, where you have demonstrated that your engine family operates for no more than 5.0 percent of its normal in-use operation, on a time-weighted basis. You must specify an LTR using boundaries based on engine speed and power (or torque), where the LTR boundaries must coincide with some portion of the boundary defining the overall NTE zone. Any emission data collected within an LTR for a time duration that exceeds 5.0 percent of the duration of its respective NTE sampling period (as defined in paragraph (c)(3) of this section) will be excluded when determining compliance with the applicable NTE standards. Any emission data collected within an LTR for a time duration of 5.0 percent or less of the duration of the respective NTE sampling period will be included when determining compliance with the NTE standards.

(3) You must notify us if you design your engines for normal in-use operation outside the applicable NTE zone. If we learn that normal in-use operation for your engines includes other speeds and loads, we may specify a broader NTE zone, as long as the modified zone is limited to normal in-use operation for speeds greater than 70 percent of maximum test speed and loads greater than 30 percent of maximum power at maximum test speed (or 30 percent of maximum test torque for constant-speed engines).

(4) You may exclude emission data based on ambient or engine parameter limit values as follows:

(i) *NO_X catalytic aftertreatment minimum temperature.* For an engine equipped with a catalytic NO_X aftertreatment system, exclude NO_X emission data that is collected when the exhaust temperature is less than 250 °C, as measured within 30 cm downstream of the last NO_X aftertreatment device. Where there are parallel paths, measure the temperature 30 cm downstream of the last NO_X aftertreatment device in the path with the greatest exhaust flow.

(ii) *Oxidizing aftertreatment minimum temperature.* For an engine equipped with an oxidizing catalytic aftertreatment system, exclude HC, CO, and PM emission data that is collected when the exhaust temperature is less than 250 °C, as measured within 30 cm downstream of the last oxidizing

aftertreatment device. Where there are parallel paths, measure the temperature 30 cm downstream of the last oxidizing aftertreatment device in the path with the greatest exhaust flow.

(iii) *Other parameters.* You may request our approval for other minimum or maximum ambient or engine parameter limit values at the time of certification.

(g) For engines equipped with emission controls that include discrete regeneration events, if a regeneration event occurs during the NTE test, the averaging period must be at least as long as the time between the events multiplied by the number of full regeneration events within the sampling period. This requirement applies only for engines that send an electronic signal indicating the start of the regeneration event.

§ 1042.520 What testing must I perform to establish deterioration factors?

Sections 1042.240 and 1042.245 describe the required methods for testing to establish deterioration factors for an engine family.

§ 1042.525 How do I adjust emission levels to account for infrequently regenerating aftertreatment devices?

This section describes how to adjust emission results from engines using aftertreatment technology with infrequent regeneration events. See paragraph (e) of this section for how to adjust ramped-modal testing. See paragraph (f) of this section for how to adjust discrete-mode testing. For this section, ''regeneration'' means an intended event during which emission levels change while the system restores aftertreatment performance. For example, exhaust gas temperatures may increase temporarily to remove sulfur from adsorbers or to oxidize accumulated particulate matter in a trap. For this section, ''infrequent'' refers to regeneration events that are expected to occur on average less than once over the applicable transient duty cycle or ramped-modal cycle, or on average less than once per typical mode in a discrete-mode test.

(a) *Developing adjustment factors.* Develop an upward adjustment factor and a downward adjustment factor for each pollutant based on measured emission data and observed regeneration frequency. Adjustment factors should generally apply to an entire engine family, but you may develop separate adjustment factors for different engine configurations within an engine family. If you use adjustment factors for certification, you must identify the frequency factor, F, from paragraph (b) of this section in your application for certification and use the adjustment factors in all testing for that engine family. You may use carryover or carry-across data to establish adjustment factors for an engine family, as described in § 1042.235(d), consistent with good engineering judgment. All adjustment factors for regeneration are additive. Determine adjustment factors separately for different test segments. For example, determine separate adjustment factors for different modes of a discrete-mode steady-state test. You may use either of the following different approaches for engines that use aftertreatment with infrequent regeneration events:

(1) You may disregard this section if regeneration does not significantly affect emission levels for an engine family (or configuration) or if it is not practical to identify when regeneration occurs. If you do not use adjustment factors under this section, your engines must meet emission standards for all testing, without regard to regeneration.

(2) If your engines use aftertreatment technology with extremely infrequent regeneration and you are unable to apply the provisions of this section, you may ask us to approve an alternate methodology to account for regeneration events.

(b) *Calculating average adjustment factors.* Calculate the average adjustment factor (EF_A) based on the following equation:

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

Where:

F = The frequency of the regeneration event during normal in-use operation, expressed in terms of the fraction of equivalent tests during which the regeneration occurs. You may determine F from in-use operating data or running replicate tests. For example, if you observe

that the regeneration occurs 125 times during 1,000 MW-hrs of operation, and your engine typically accumulates 1 MW-hr per test, F would be (125) ÷ (1,000) ÷ (1) = 0.125. No further adjustments, including weighting factors, may be applied to F.

EF_H = Measured emissions from a test segment in which the regeneration occurs.

EF_L = Measured emissions from a test segment in which the regeneration does not occur.

(c) *Applying adjustment factors.* Apply adjustment factors based on whether regeneration occurs during the test run. You must be able to identify regeneration in a way that is readily apparent during all testing.

(1) If regeneration does not occur during a test segment, add an upward adjustment factor to the measured emission rate. Determine the upward adjustment factor (UAF) using the following equation:

$$UAF = EF_A - EF_L$$

(2) If regeneration occurs or starts to occur during a test segment, subtract a downward adjustment factor from the measured emission rate. Determine the downward adjustment factor (DAF) using the following equation:

$$DAF = EF_H - EF_A$$

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

EF_A = (0.1)(0.5 g/kW-hr) + (1.0 − 0.1)(0.1 g/kW-hr) = 0.14 g/kW-hr.

UAF = 0.14 g/kW-hr − 0.10 g/kW-hr = 0.04 g/kW-hr.

DAF = 0.50 g/kW-hr − 0.14 g/kW-hr = 0.36 g/kW-hr.

(e) *Ramped-modal testing.* Develop a single sets of adjustment factors for the entire test. If a regeneration has started but has not been completed when you reach the end of a test, use good engineering judgment to reduce your downward adjustments to be proportional to the emission impact that occurred in the test.

(f) *Discrete-mode testing.* Develop separate adjustment factors for each test mode. If a regeneration has started but has not been completed when you reach the end of the sampling time for a test mode extend the sampling period for that mode until the regeneration is completed.

(g) *Category 3 engines.* We may specify an alternate methodology to account for regeneration events from Category 3 engines. If we do not, the provisions of this section apply as specified.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23005, Apr. 30, 2010]

Subpart G—Special Compliance Provisions

§ 1042.601 General compliance provisions for marine engines and vessels.

Engine and vessel manufacturers, as well as owners, operators, and rebuilders of engines and vessels 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. The provisions of 40 CFR part 1068 apply for compression-ignition marine engines as specified in that part, subject to the following provisions:

(a) The following prohibitions apply with respect to recreational marine engines and recreational vessels:

(1) Installing a recreational marine engine in a vessel that is not a recreational vessel is a violation of 40 CFR 1068.101(a)(1).

(2) For a vessel with an engine that is certified and labeled as a recreational marine engine, using it in a manner inconsistent with its intended use as a recreational vessel violates 40 CFR 1068.101(a)(1), except as allowed by this chapter.

(b) Subpart I of this part describes how the prohibitions of 40 CFR 1068.101(a)(1) apply for certain remanufactured engines. The provisions of 40 CFR 1068.105 do not allow the installation of a new remanufactured engine in a vessel that is defined as a new vessel unless the remanufactured engine is subject to the same standards as the standards applicable to freshly manufactured engines of the required model year.

(c) The provisions of 40 CFR 1068.120 apply when rebuilding marine engines, except as specified in subpart I of this part. The following additional requirements also apply when rebuilding marine engines equipped with exhaust aftertreatment:

(1) Follow all instructions from the engine manufacturer and aftertreatment manufacturer for checking, repairing, and replacing aftertreatment components. For example, you must replace the catalyst if the catalyst assembly is stamped with a build date more than ten years ago and the manufacturer's instructions state that catalysts over ten years old must be replaced when the engine is rebuilt.

(2) Measure pressure drop across the catalyst assembly to ensure that it is neither higher nor lower than the manufacturer's specifications and repair or replace exhaust-system components as needed to bring the pressure drop within the manufacturer's specifications.

(3) For engines equipped with exhaust sensors, verify that sensor outputs are within the manufacturer's recommended range and repair or replace any malfunctioning components (sensors, catalysts, or other components).

(d) The provisions of § 1042.635 for the national security exemption apply instead of 40 CFR 1068.225.

(e) For replacement engines, apply the provisions of 40 CFR 1068.240 as described in § 1042.615.

(f) For the purpose of meeting the defect-reporting requirements in 40 CFR 1068.501, if you manufacture other nonroad engines that are substantially similar to your marine engines, you may consider defects using combined marine and non-marine families.

(g) The selective enforcement audit provisions of 40 CFR part 1068 do not apply for Category 3 engines.

(h) The defect reporting requirements of 40 CFR 1068.501 apply for Category 3 engines, except the threshold for filing a defect report is two engines.

(i) You may not circumvent the requirements of this part or the Clean Air Act by manufacturing a vessel outside the United States or initially flagging a vessel in another country. The definition of ''new marine engine'' in § 1042.901 includes provisions for U.S.-flagged vessels that are manufactured or reflagged outside of U.S. waters. These provisions have the effect of applying the prohibitions of 40 CFR 1068.101(a)(1) to such vessels no later than when they first enter U.S. waters. The inclusion of these provisions does not affect requirements or prohibitions of the Clean Air Act or other statutes that may apply to the vessel before it first enters U.S. waters.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23005, Apr. 30, 2010]

§ 1042.605 Dressing engines already certified to other standards for nonroad or heavy-duty highway engines for marine use.

(a) *General provisions.* If you are an engine manufacturer (including someone who marinizes a land-based engine), this section allows you to introduce new marine engines into U.S. commerce if they are already certified to the requirements that apply to compression-ignition engines under 40 CFR parts 85 and 86 or 40 CFR part 89, 92, 1033, or 1039 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, 89, 92, 1033, or 1039 for each engine to also be a valid certificate of conformity under this part 1042 for its model year, without a separate application for certification under the requirements of this part 1042. This section does not apply for Category 3 engines.

(b) *Vessel-manufacturer provisions.* If you are not an engine manufacturer, you may install an engine certified for the appropriate model year under 40 CFR part 86, 89, 92, 1033, or 1039 in a marine vessel as long as you do not make any of the changes described in paragraph (d)(3) of this section and you meet the requirements of paragraph (e) of this section. If you modify the nonmarine engine in any of the ways described in paragraph (d)(3) of this section, we will consider you a manufacturer of a new 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 40 CFR part 89, 92, 1033, or 1039. This paragraph (c) applies to engine manufacturers, vessel manufacturers that use such an engine,

and all other persons as if the engine were used in its originally intended application. 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, 89, 92, 1033, or 1039 for each engine to also be a valid certificate of conformity under this part 1042 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 85, 89, 92, or 1068.

(d) *Specific criteria and requirements*. If you are an engine manufacturer and meet all the following criteria and requirements regarding your new marine engine, the engine is eligible for an exemption under this section:

(1) You must produce it by marinizing an engine covered by a valid certificate of conformity from one of the following programs:

(i) Heavy-duty highway engines (40 CFR part 86).

(ii) Land-based compression-ignition nonroad engines (40 CFR part 89 or 1039).

(iii) Locomotives (40 CFR part 92 or 1033). To be eligible for dressing under this section, the engine must be from a locomotive certified to standards that are at least as stringent as either the standards applicable to new marine engines or freshly manufactured locomotives in the model year that the engine is being dressed.

(2) The engine must have the label required under 40 CFR part 86, 89, 92, 1033, or 1039.

(3) You must not make any changes to the certified engine that could reasonably be expected to increase its emissions. For example, if you make any of the following changes to one of these engines, you do not qualify for the engine dressing exemption:

(i) Change any fuel system parameters from the certified configuration, or 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.

(ii) Replacing an original turbocharger, except that small-volume engine manufacturers may replace an original turbocharger on a recreational engine with one that matches the performance of the original turbocharger.

(iii) Modify or design the marine engine cooling or aftercooling system so that temperatures or heat rejection rates are outside the original engine manufacturer's specified ranges.

(4) 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 confirm this based on your best estimate of the original manufacturer's sales information.

(e) *Labeling and documentation*. If you are an engine manufacturer or vessel manufacturer using this exemption, you must do all of the following:

(1) Make sure the original engine label will remain clearly visible after installation in the vessel.

(2) Add a permanent supplemental label to the engine in a position where it will remain clearly visible after installation in the vessel. In your engine label, do the following:

(i) Include the heading: ''Marine Engine Emission Control Information''.

(ii) Include your full corporate name and trademark.

(iii) State: ''This engine was marinized without affecting its emission controls.''.

(iv) State the date you finished marinizing the engine (month and year).

(3) 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 models for which you expect to use this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(4) of this section.

(iii) State: ''We prepare each listed engine model for marine application without making any changes that could increase its certified emission levels, as described in 40 CFR 1042.605.''.

(f) *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 1042 and the certificate issued under 40 CFR part(s) 86, 89, 92, 1033, or 1039 will not be deemed to also be a certificate issued under this part 1042. Introducing these engines into U.S. commerce as marine engines without a valid exemption or certificate of conformity under this part violates the prohibitions in 40 CFR 1068.101(a)(1).

(g) *Data submission*. (1) If you are both the original manufacturer and marinizer of an exempted engine, you must send us emission test data on the appropriate marine duty cycles. You can include the data in your application for certification or in the letter described in paragraph (e)(3) of this section.

(2) If you are the original manufacturer of an exempted engine that is marinized by a post-manufacture marinizer, you may be required to send us emission test data on the appropriate marine duty cycles. If such data are requested you will be allowed a reasonable amount of time to collect the data.

(h) *Participation in averaging, banking and trading*. Engines adapted for marine use under this section may not generate or use emission credits under this part 1042. These engines may generate credits under the ABT provisions in 40 CFR part(s) 86, 89, 92, 1033, or 1039, as applicable. These engines must use emission credits under 40 CFR part(s) 86, 89, 92, 1033, or 1039 as applicable if they are certified to an FEL that exceeds an emission standard.

(i) *Operator requirements*. The requirements specified for vessel manufacturers, owners, and operators in this subpart (including requirements in 40 CFR part 1068) apply to these engines whether they are certified under this part 1042 or another part as allowed by this section.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23005, Apr. 30, 2010]

§ 1042.610 Certifying auxiliary marine engines to land-based standards.

This section applies to auxiliary marine engines that are identical to certified land-based engines. *See* § 1042.605 for provisions that apply to propulsion marine engines or auxiliary marine engines that are modified for marine applications. This section does not apply for Category 3 engines.

(a) *General provisions*. If you are an engine manufacturer, this section allows you to introduce new marine engines into U.S. commerce if they are already certified to the requirements that apply to compression-ignition engines under 40 CFR part 89 or 1039 for the appropriate model year. If you comply with all the provisions of this section, we consider the certificate issued under 40 CFR part 89 or 1039 for each engine to also be a valid certificate of conformity under this part 1042 for its model year, without a separate application for certification under the requirements of this part 1042.

(b) *Vessel-manufacturer provisions*. If you are not an engine manufacturer, you may install an engine certified for land-based applications in a marine vessel as long as you meet all the qualifying criteria and requirements specified in paragraphs (d) and (e) of this section. If you modify the non-marine engine, we will consider you a manufacturer of a new 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 part 89 or 1039. This paragraph (c) applies to engine manufacturers, vessel manufacturers that use such an engine, and all other persons as if the engine were used in its originally intended application. 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 89 or 1039 for each engine to also be a valid certificate of conformity under this part 1042 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 89 or 1068.

(d) *Qualifying criteria.* If you are an engine manufacturer and meet all the following criteria and requirements regarding your new marine engine, the engine is eligible for an exemption under this section:

(1) The marine engine must be identical in all material respects to a land-based engine covered by a valid certificate of conformity for the appropriate model year showing that it meets emission standards for engines of that power rating under 40 CFR part 89 or 1039.

(2) The engines may not be used as propulsion marine engines.

(3) You must show that the number of auxiliary marine engines from the engine family must be smaller than the number of land-based engines from the engine family sold in the United States, 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.

(e) *Specific requirements.* If you are an engine manufacturer or vessel manufacturer using this exemption, you must do all of the following:

(1) Make sure the original engine label will remain clearly visible after installation in the vessel. This label or a supplemental label must identify that the original certification is valid for auxiliary marine applications.

(2) Send a signed letter to the Designated Compliance Officer 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 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 model for marine application without making any changes that could increase its certified emission levels, as described in 40 CFR 1042.610.''.

(3) If you are the certificate holder, you must describe in your application for certification how you plan to produce engines for both land-based and auxiliary marine applications, including projected sales of auxiliary marine engines to the extent this can be determined. If the projected marine sales are substantial, we may ask for the year-end report of production volumes to include actual auxiliary marine engine sales.

(f) *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 1042 and the certificate issued under 40 CFR part 89 or 1039 will not be deemed to also be a certificate issued under this part 1042. Introducing these engines into U.S. commerce as marine engines without a valid exemption or certificate of conformity under this part 1042 violates the prohibitions in 40 CFR 1068.101(a)(1).

(g) *Participation in averaging, banking and trading.* Engines using this exemption may not generate or use emission credits under this part 1042. These engines may generate credits under the ABT provisions in 40 CFR part 89 or 1039, as applicable. These engines must use emission credits under 40 CFR part 89 or 1039 as applicable if they are certified to an FEL that exceeds an emission standard.

(h) *Operator requirements.* The requirements specified for vessel manufacturers, owners, and operators in this subpart (including requirements in 40 CFR part 1068) apply to these engines whether they are certified under this part 1042 or another part as allowed by this section.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23006, Apr. 30, 2010]

§ 1042.615 Replacement engine exemption.

For Category 1 and Category 2 replacement engines, the provisions of 40 CFR 1068.240 apply except as described in this section. In unusual circumstances, you may ask us to allow you to apply these provisions for a new Category 3 engine.

(a) This paragraph (a) applies instead of the provisions of 40 CFR 1068.240(b)(2). The prohibitions in 40 CFR 1068.101(a)(1) do not apply to a new replacement engine if all the following conditions are met:

(1) You use good engineering judgment to determine that no engine certified to the current requirements of this part is produced by any manufacturer with the appropriate physical or performance characteristics to repower the vessel. We have determined that engines certified to Tier 4 standards do not have the appropriate physical or performance characteristics to replace uncertified engines or engines certified to emission standards that are less stringent than the Tier 4 standards.

(2) You make a record of your determination for each replacement engine with the following information and keep these records for eight years:

(i) If you determine that no engine certified to the current requirements of this part is available with the appropriate performance characteristics, explain why certified engines produced by you and other manufacturers cannot be used as a replacement because they are not similar to the engine being replaced in terms of power or speed.

(ii) You may determine that all engines certified to the current requirements of this part that have appropriate performance characteristics are not available because they do not have the appropriate physical characteristics. If this is the case, explain why these certified engines produced by you and other manufacturers cannot be used as a replacement because their weight or dimensions are substantially different than those of the engine being replaced, or because they will not fit within the vessel's engine compartment or engine room.

(iii) In evaluating appropriate physical or performance characteristics, you may account for compatibility with vessel components you would not otherwise replace when installing a new engine, including transmissions or reduction gears, drive shafts or propeller shafts, propellers, cooling systems, operator controls, or electrical systems for generators or indirect-drive configurations. If you make your determination on this basis, you must identify the vessel components that are incompatible with engines certified to current standards and explain how they are incompatible and why it would be unreasonable to replace them.

(iv) In evaluating appropriate physical or performance characteristics, you may account for compatibility in a set of two or more propulsion engines on a vessel where only one of the engines needs replacement, but only if each engine not needing replacement has operated for less than 75 percent of its applicable useful life in hours or years (see §1042.101). If any engine not otherwise needing replacement exceeds this 75 percent threshold, your determination must consider replacement of all the propulsion engines.

(v) In addition to the determination specified in paragraph (a)(1) of this section, you must make a separate determination for your own product line addressing every tier of emission standards that is more stringent than the emission standards for the engine being replaced. For example, if the engine being replaced was built before the Tier 1 standards started to apply and engines of that size are currently subject to Tier 3 standards, you must consider whether any Tier 1 or Tier 2 engines that you produce have the appropriate physical and performance characteristics for replacing the old engine; if you can produce a Tier 2 engine with the appropriate physical and performance characteristics, you must use it as the replacement engine.

(3) You must notify us within 30 days after you ship each replacement engine under this section. Your notification must include all the following things and be signed by an authorized representative of your company:

(i) A copy of your records describing how you made the determination described in paragraph (a)(2) of this section for this particular engine.

(ii) The total number of replacement engines you have shipped in the applicable calendar year, from all your marine engine models.

(iii) The following statement:

I certify that the statements and information in the enclosed document are true, accurate, and complete to the best of my knowledge. I am aware that there are significant civil and criminal penalties for submitting

false statements and information, or omitting required statements and information.

(4) The replacement engine must conform to the applicable requirements of 40 CFR part 1043. Note that 40 CFR 1043.10 specifies allowances for vessels that operate only domestically.

(b) The 40-year limit specified in 40 CFR 1068.240(a) does not apply for engines subject to this part 1042. You may accordingly omit the statement on the permanent labels specified in 40 CFR 1068.240 describing this limitation.

(c) Modifying a vessel to significantly increase its value within six months after installing a replacement engine produced under this section is a violation of 40 CFR 1068.101(a)(1).

(d) We may void an exemption for an engine if we determine that any of the conditions described in paragraph (a) of this section are not met.

(e) We may reduce the reporting and recordkeeping requirements in this section.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23006, Apr. 30, 2010; 79 FR 7084, Feb. 6, 2014]

§ 1042.620 Engines used solely for competition.

The provisions of this section apply for new Category 1 engines and vessels built on or after January 1, 2009.

(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.

[75 FR 23006, Apr. 30, 2010]

§ 1042.625 Special provisions for engines used in emergency applications.

This section describes an exemption that is available for certain Category 1 and Category 2 engines. This exemption is not available for Category 3 engines.

(a) Except as specified in paragraph (d) of this section, the prohibitions in § 1068.101(a)(1) do not apply to a new engine that is subject to Tier 4 standards if the following conditions are met:

(1) The engine is intended for installation in one of the following vessels or applications:

(i) A lifeboat approved by the U.S. Coast Guard under approval series 160.135 (see for example 46 CFR 199.201(a)(1)), as long as such a vessel is not also used as a launch or tender.

(ii) A rescue boat approved by the U.S. Coast Guard under approval series 160.156 (see for example 46 CFR 199.202(a)).

(iii) Generator sets or other auxiliary equipment that qualify as final emergency power sources under 46 CFR part 112.

(2) The engine meets the Tier 3 emission standards specified in § 1042.101 as specified in 40 CFR 1068.265.

(3) The engine is used only for its intended purpose, as specified on the emission control information label.

(b) Except as specified in paragraph (d) of this section, the prohibitions in § 1068.101(a)(1) do not apply to a new engine that is subject to Tier 3 standards according to the following provisions:

(1) The engine must be intended for installation in a lifeboat or a rescue boat as specified in paragraph (a)(1)(i) or (ii) of this section.

(2) This exemption is available from the initial effective date for the Tier 3 standards until the engine model (or one of comparable size, weight, and performance) has been certified as complying with the Tier 3 standards and Coast Guard requirements.

(3) The engine must meet the Tier 2 emission standards specified in Appendix I of this part as specified in 40 CFR 1068.265.

(c) If you introduce an engine into U.S. commerce under this section, you must meet the labeling requirements in § 1042.135, but add one of the following statements instead of the compliance statement in § 1042.135(c)(10):

(1) For lifeboats and rescue boats, add the following statement:

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.625 AND IS FOR USE SOLELY IN LIFEBOATS OR RESCUE BOATS (COAST GUARD APPROVAL SERIES 160.135 OR 160.156). INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(2) For engines serving as final emergency power sources, add the following statement:

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.625 AND IS FOR USE SOLELY IN EMERGENCY EQUIPMENT REGULATED BY 46 CFR 112. INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(d) Introducing into commerce a vessel containing an engine exempted under this section violates the prohibitions in 40 CFR 1068.101(a)(1) where the vessel is not covered by paragraph (a) or (b) of this section, unless it is exempt under a different provision. Similarly, using such an engine or vessel as something other than a lifeboat, rescue boat, or emergency engine as specified in paragraph (a)(1) of this section violates the prohibitions in 40 CFR 1068.101(a)(1), unless it is exempt under a different provision.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23006, Apr. 30, 2010]

§ 1042.630 Personal-use exemption.

This section applies to individuals who manufacture vessels for personal use with used Category 1 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 and new vessels. The prohibitions in

§ 1068.101(a)(1) do not apply to engines exempted under this section. For example, you may install an engine that was not certified as a marine 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 ten-year period under this exemption.

(d) You may not use the vessel in any revenue-generating service or for any other commercial purpose, except that you may use a vessel exempt under this section for commercial fishing that you personally do.

(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.

(f) The vessel must be a vessel that is not classed or subject to Coast Guard inspections or surveys.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23006, Apr. 30, 2010]

§ 1042.635 National security exemption.

The standards and requirements of this part and prohibitions in § 1068.101(a)(1) do not apply to engines exempted under this section.

(a) An engine 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 vessel in which it is installed has armor, permanently attached weaponry, specialized electronic warfare systems, unique stealth performance requirements, and/or unique combat maneuverability requirements. This applies to both remanufactured and freshly manufactured marine engines. Gas turbine engines are also exempt without a request if they will be owned by an agency of the Federal government responsible for national defense.

(b) Manufacturers may request a national security exemption for engines not meeting the conditions of paragraph (a) of this section, as long as the request is endorsed by an agency of the federal government responsible for national defense. Agencies of the federal government responsible for national defense may request exemptions for remanufactured engines. In your request, explain why you need the exemption.

(c) [Reserved]

(d) Add a legible label, written in English, to all engines exempted under this section. The label must be permanently secured to a readily visible part of the engine needed for normal operation and not normally requiring replacement, such as the engine block. 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, family identification, and model year of the engine (as applicable), or whom to contact for further information.

(4) The statement ''THIS ENGINE HAS AN EXEMPTION FOR NATIONAL SECURITY UNDER 40 CFR 1042.635.''.

[73 FR 37243, June 30, 2008, as amended at 74 FR 8426, Feb. 24, 2009; 75 FR 23006, Apr. 30, 2010]

§ 1042.640 Special provisions for 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 § 1042.135(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 § 1042.120. 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.

§ 1042.650 Exemptions for migratory vessels and auxiliary engines on Category 3 vessels.

The provisions of this section apply for Category 1 and Category 2 engines, including auxiliary engines installed on vessels with Category 3 propulsion engines. These provisions do not apply for any Category 3 engines. All engines exempted under this section must comply with the applicable requirements of 40 CFR part 1043.

(a) *Temporary exemption.* A vessel owner may ask us for a temporary exemption from the tampering prohibition in 40 CFR 1068.101(b)(1) for a vessel if it will operate only in areas outside the United States where ULSD is not available. In your request, describe where the vessel will operate, how long it will operate there, why ULSD will be unavailable, and how you will modify the engine, including its emission controls. If we approve your request, you may modify the engine, but only as needed to disable or remove the emission controls needed for meeting the Tier 4 standards. You must return the engine to its original certified configuration before the vessel returns to the United States to avoid violating the tampering prohibition in 40 CFR 1068.101(b)(1). We may set additional conditions to prevent circumvention of the provisions of this part.

(b) *SOLAS exemption.* We may approve a permanent exemption from the prohibitions in 40 CFR 1068.101(a)(1) for an engine that is subject to Tier 4 standards as described in this paragraph (b).

(1) Vessel owners may ask for a permanent exemption from the Tier 4 standards for an engine that will be installed on vessels that will operate for extended periods outside the United States, provided they demonstrate all of the following are true:

(i) Prior to introduction into service, the vessel will comply with applicable certification requirements for international safety pursuant to the U.S. Coast Guard and the International Convention for the Protection of Life at Sea (SOLAS). The vessel owner must maintain compliance with these requirements for the life of the exempted engine.

(ii) The vessel will be used in areas outside of the United States where ULSD will not be available.

(iii) The mix of vessels with engines certified to Tier 3 or earlier standards in the owner's current fleet and the owner's current business operation of those vessels makes the exemption necessary. Note that because of the large fraction of pre-Tier 4 engines in the fleet prior to 2021, a request for a Tier 4 exemption prior to that year must clearly demonstrate that unusual circumstances apply.

(2) An engine exempted under this paragraph (b) must meet the Tier 3 emission standards described in § 1402.101, subject to the procedural requirements of 40 CFR 1068.265.

(3) If you introduce an engine into U.S. commerce under this section, you must meet the labeling requirements in § 1042.135, but add the following statement instead of the compliance statement in § 1042.135(c)(10):

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.650 AND IS FOR USE SOLELY IN SOLAS VESSELS. INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(4) Operating a vessel containing an engine exempted under this paragraph (b) violates the prohibitions in 40 CFR 1068.101(a)(1) if the vessel in not in full compliance with applicable requirements for international safety specified in paragraph (b)(1)(i) of this section.

(c) *Vessels less than 500 gross tons*. In unusual circumstances for vessels less than 500 gross tons, we may approve a vessel owner's request for a permanent exemption from the prohibitions in 40 CFR 1068.101(a)(1) for an engine that is subject to Tier 4 standards that will operate for extended periods outside the United States without it being in compliance with applicable certification requirements for international safety. We may set appropriate additional conditions on such exemptions, and may void the exemption if those conditions are not met.

(d) *Auxiliary engines on Category 3 vessels*. As specified in this paragraph (d), auxiliary engines on vessels with Category 3 propulsion engines are exempt from the standards of this part.

(1) To be eligible for this exemption, the engine must meet all of the following criteria.

(i) The engine must conform fully to the applicable NO_X standards of Annex VI and meet all other applicable requirements of 40 CFR part 1043. Engines installed on vessels constructed on or after January 1, 2016 must conform fully to the Annex VI Tier III NO_X standards under 40 CFR part 1043 and meet all other applicable requirements in 40 CFR part 1043. Engines that would otherwise be subject to the Tier 4 standards of this part must also conform fully to the Annex VI Tier III NO_X standards under 40 CFR part 1043.

(ii) The engine may not be used for propulsion (except for emergency engines).

(iii) The engine may be equipped with on-off NO_X controls, provided it conforms to the requirements of § 1042.115(g).

(2) You must notify the Designated Compliance Officer of your intent to use this exemption when applying for the EIAPP certificate for the engine under 40 CFR part 1043.

(3) The remanufactured engine requirements of subpart I of this part do not apply.

(4) If you introduce an engine into U.S. commerce under this paragraph (d), you must meet the labeling requirements in § 1042.135, but add the following statement instead of the compliance statement in § 1042.135(c)(10):

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.650 AND IS FOR USE SOLELY IN VESSELS WITH CATEGORY 3 PROPULSION ENGINES. INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23007, Apr. 30, 2010]

§ 1042.655 Special certification provisions for—Category 3 engines with aftertreatment.

This section describes an optional approach for demonstrating for certification that catalyst-equipped engines (or engines equipped with other aftertreatment devices) comply with applicable emission standards. You must use good engineering judgment for all aspects of this allowance.

(a) *Eligibility*. You may use the provisions of this section without our prior approval to demonstrate that aftertreatment-equipped Category 3 engines meet the Tier 3 standards. In unusual circumstances, we may also allow you to use this approach to demonstrate that aftertreatment-equipped Category 2 engines meet the Tier 4 standards. We will generally approve this for Category 2 engines only if the engines are too large to be practically tested in a laboratory with a fully assembled aftertreatment system. If we approve this approach for a Category 2 engine, interpret references to Tier 3 in this section to mean Tier 4, and interpret references to Tier 2 in this section to mean Tier 3.

(b) *Required testing*. The emission-data engine must be tested as specified in Subpart F to verify that the engine-out emissions comply with the Tier 2 standards. The catalyst material or other aftertreatment device must be tested under conditions that accurately represent actual engine conditions for the test points. This catalyst or aftertreatment testing may be performed on a benchscale.

(c) *Engineering analysis*. Include with your application a detailed engineering analysis describing how the test data collected for the engine and aftertreatment demonstrate that all

engines in the family will meet all applicable emission standards. We may require that you submit this analysis separately from your application, or that you obtain preliminary approval under § 1042.210.

(d) *Verification*. You must verify your design by testing a complete production engine with installed aftertreatment in the final assembled configuration. Unless we specify otherwise, do this by complying with production-line testing requirements of subpart D of this part.

(e) *Other requirements*. All other requirements of this part, including the non-testing requirements for certification, apply for these engines. Nothing in this section affects requirements in other regulatory parts, such as Coast Guard safety requirements.

[75 FR 23007, Apr. 30, 2010]

§ 1042.660 Requirements for vessel manufacturers, owners, and operators.

(a) For vessels equipped with emission controls requiring the use of specific fuels, lubricants, or other fluids, owners and operators must comply with the manufacturer/remanufacturer's specifications for such fluids when operating the vessels. Failure to comply with the requirements of this paragraph is a violation of 40 CFR 1068.101(b)(1). For marine vessels that are excluded from the requirements of 40 CFR part 1043 because they operate only domestically, it is also a violation of 40 CFR 1068.101(b)(1) to operate the vessel using residual fuel on or after January 1, 2015. Note that 40 CFR part 80 also includes provisions that restrict the use of certain fuels by certain marine engines.

(b) For vessels equipped with SCR systems requiring the use of urea or other reductants, owners and operators must report to us within 30 days any operation of such vessels without the appropriate reductant. Failure to comply with the requirements of this paragraph is a violation of 40 CFR 1068.101(a)(2). Note that such operation is a violation of 40 CFR 1068.101(b)(1).

(c) The provisions of this paragraph (c) apply for marine vessels containing Category 3 engines.

(1) The requirements of this paragraph (c)(1) apply only for Category 3 engines. All maintenance, repair, adjustment, and alteration of Category 3 engines subject to the provisions of this part performed by any owner, operator or other maintenance provider must be perform using good engineering judgment, in such a manner that the engine continues (after the maintenance, repair, adjustment or alteration) to meet the emission standards it was certified as meeting prior to the need for service. This includes but is not limited to complying with the maintenance instructions described in § 1042.125. Adjustments are limited to the range specified by the engine manufacturer in the approved application for certification. Note that where a repair (or other maintenance) cannot be completed while at sea, it is not a violation to continue operating the engine to reach your destination.

(2) It is a violation of 40 CFR 1068.101(b)(1) to operate the vessel with the engine adjusted outside of the specified adjustable range. Each two-hour period of such operation constitutes a separate offense. A violation lasting less than two hours constitutes a single offense.

(3) The owner and operator of the engine must maintain on board the vessel records of all maintenance, repair, and adjustment that could reasonably affect the emission performance of any engine subject to the provision of this part. Owners and operators must also maintain, on board the vessel, records regarding certification, parameter adjustment, and fuels used. For engines that are automatically adjusted electronically, all adjustments must be logged automatically. Owners and operators must make these records available to EPA upon request. These records must include the following:

(i) The Technical File, Record Book of Engine Parameters, and bunker delivery notes as specified in 40 CFR 1043.70. The Technical File must be transferred to subsequent purchasers in the event of a sale of the engine or vessel. (ii) Specific descriptions of engine maintenance, repair, adjustment, and alteration (including rebuilding). The descriptions must include at least the

date, time, and nature of the maintenance, repair, adjustment, or alteration and the position of the vessel when the maintenance, repair, adjustment, or alteration was made.

(iii) Emission-related maintenance instructions provided by the manufacturer. These instructions must be transferred to subsequent purchasers in the event of a sale of the engine or vessel.

(4) Owners and operators of engines equipped with on-off emission controls must comply with the requirements of this paragraph (c)(4) whenever a malfunction of the emission controls is indicated as specified in § 1042.110(d). You must determine the cause of the malfunction and remedy it consistent with paragraph (c)(1) of this section. *See* paragraph (b) of this section if the malfunction is due to either a lack of reductant or inadequate reductant quality. If the malfunction occurs during the useful life, report the malfunction to the certificate holder for investigation and compliance with defect reporting requirements of 40 CFR 1068.501 (unless the malfunction is due to operation without adequate urea or other malmaintenance).

(d) For each marine vessel containing a Category 3 engine, the owner must annually review the vessel's records and submit to EPA a signed statement certifying compliance during the preceding year with the requirements of this part that are applicable to owners and operators of such vessels. Alternately, if review of the vessel's records indicates that there has been one or more violations of the requirements of this part, the owner must submit to EPA a signed statement specifying the noncompliance, including the nature of the noncompliance, the time of the noncompliance, and any efforts made to remedy the noncompliance. The statement of compliance (or noncompliance) required by this paragraph must be signed by the executive with responsibility for marine activities of the owner. If the vessel is operated by a different business entity than the vessel owner, the reporting requirements of this paragraph (e) apply to both the owner and the operator. Compliance with these review and certification requirements by either the vessel owner or the vessel operator with respect to a compliance statement will be considered compliance with these requirements by both of these parties for that compliance statement. The executive(s) may authorize a captain or other primary operator to conduct this review and submit the certification, provided that the certification statement is accompanied by written authorization for that individual to submit such statements. The Administrator may waive the requirements of this paragraph when equivalent assurance of compliance is otherwise available.

(e) Manufacturers, owners and operators must allow emission tests and inspections required by this part to be conducted and must provide reasonable assistance to perform such tests or inspections.

[75 FR 23007, Apr. 30, 2010]

§ 1042.670 Special provisions for gas turbine engines.

The provisions of this section apply for gas turbine engines.

(a) *Implementation schedule.* The requirements of this part do not apply for gas turbine engines below 600 kW before the 2014 model year. The requirements of this part do not apply for Tier 3 or earlier gas turbine engines at or above 600 kW. The provisions of 40 CFR part 1068 also do not apply for gas turbine engines produced in these earlier model years.

(b) *Special test procedures.* Manufacturers seeking certification of gas turbine engines must obtain preliminary approval of the test procedures to be used, consistent with § 1042.210 and 40 CFR 1065.10.

(c) *Remanufacturing.* The requirements of subpart I of this part do not apply for gas turbine engines.

(d) *Equivalent displacement.* Apply displacement-based provisions of this part by calculating an equivalent displacement from the maximum engine power. The equivalent per-cylinder displacement (in liters) equals the maximum engine power in kW multiplied by 0.00311, except that all gas turbines with maximum engine power above 9,300 kW are considered to have an equivalent per-cylinder displacement of 29.0 liters.

(e) *Emission-related components.* All components meeting the criteria of 40 CFR 1068.501(a)(1) are considered to be emission-related components with respect to maintenance, warranty, and defect reporting for gas turbine engines.

(f) *Engines used for national defense. See* § 1042.635 for provisions related to exempting gas turbine engines used for national defense.

[75 FR 23008, Apr. 30, 2010]

Subpart H—Averaging, Banking, and Trading for Certification

§ 1042.701 General provisions.

This subpart describes how you may use emission credits to demonstrate that Category 1 and Category 2 engines comply with emission standards under this part. The provisions of this subpart do not apply for Category 3 engines.

(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. Participation in this program is voluntary.

(b) The definitions of subpart J 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) *Applicable emission standard* means an emission standard that is specified in subpart B of this part. Note that for other subparts, ''applicable emission standard'' is defined to also include FELs.

(3) *Averaging set* means a set of engines in which emission credits may be exchanged only with other engines in the same averaging set.

(4) *Broker* means any entity that facilitates a trade of emission credits between a buyer and seller.

(5) *Buyer* means the entity that receives emission credits as a result of a trade.

(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 not participating in the ABT program of this subpart.

(9) *Trade* means to exchange emission credits, either as a buyer or seller.

(c) Emission credits may be exchanged only within an averaging set. Except as specified in paragraph (d) of this section, the following criteria define the applicable averaging sets:

(1) Recreational engines.

(2) Commercial Category 1 engines.

(3) Category 2 engines.

(d) Emission credits generated by commercial Category 1 engine families may be used for compliance by Category 2 engine families. Such credits must be discounted by 25 percent.

(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 emissions from an engine exceed an FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FEL that applies only to future production.

(f) Engine families that use emission credits for one or more pollutants may not generate positive emission credits for another pollutant.

(g) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

(h) You may increase or decrease an FEL during the model year by amending your application for certification under § 1042.225.

(i) You may use NO_X + HC credits to show compliance with a NO_X emission standard or use NO_X credits to show compliance with a NO_X + HC emission standard.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23008, Apr. 30, 2010]

§ 1042.705 Generating and calculating emission credits.

The provisions of this section apply separately for calculating emission credits for NO_X, NO_X + HC, or PM.

(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:

$$\text{Emission credits (kg)} = (\text{Std} - \text{FEL}) \times (\text{Volume}) \times (\text{Power}) \times (\text{LF}) \times (\text{UL}) \times (10^{-3})$$

Where:

Std = The emission standard, in g/kW-hr.

FEL = The family emission limit for the engine family, in g/kW-hr.

Volume = The number of engines eligible to participate in the averaging, banking, and trading program within the given engine family during the model year, as described in paragraph (c) of this section.

Power = The average value of maximum engine power of all the engine configurations within an engine family, calculated on a production-weighted basis, in kilowatts.

LF = Load factor. Use 0.69 for propulsion marine engines and 0.51 for auxiliary marine engines. We may specify a different load factor if we approve the use of special test procedures for an engine family under 40 CFR 1065.10(c)(2), consistent with good engineering judgment.

UL = The useful life for the given engine family, in hours.

(b) [Reserved]

(c) In your application for certification, base your showing of compliance on projected production volumes for engines whose point of first retail sale is in the United States. As described in § 1042.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for engines whose point of first retail sale is in the United States. Do not include any of the following engines to calculate emission credits:

(1) Engines permanently exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported engines.

(3) Engines not subject to the requirements of this part, such as those excluded under § 1042.5.

(4) [Reserved]

(5) Any other engines, where we indicate elsewhere in this part 1042 that they are not to be included in the calculations of this subpart.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23008, Apr. 30, 2010]

§ 1042.710 Averaging emission credits.

(a) Averaging is the exchange of emission credits among your engine families.

(b) You may certify one or more engine 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 an engine family to an FEL that exceeds the otherwise applicable emission standard, you must obtain enough emission credits to offset the engine family's deficit by the due date for the final report required in § 1042.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model year, from emission credits you have banked, or from emission credits you obtain through trading.

§ 1042.715 Banking 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.

(b) You may designate any emission credits you plan to bank in the reports you submit under § 1042.730 as reserved credits. 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.

[75 FR 23009, Apr. 30, 2010]

§ 1042.720 Trading 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.

(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.

(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 § 1042.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer having a negative balance of emission credits. See § 1042.745.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010]

§ 1042.725 Information required for the application for certification.

(a) You must declare in your application for certification your intent to use the provisions of this subpart for each engine family that will be certified using the ABT program. You must also declare the FELs you select for the engine 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 standards.

(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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010]

§ 1042.730 ABT reports.

(a) If any of your engine 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 engine family participating in the ABT program:

(1) Engine-family designation.

(2) The emission standards that would otherwise apply to the engine 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 U.S.-directed production volumes for the model year, as described in § 1042.705(c). 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 the average engine power weighted by U.S.-directed production volumes for the engine family.

(6) Useful life.

(7) Calculated positive or negative emission credits for the whole engine 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 engine 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) Sellers must include the following information in their report:

(i) The corporate names of the buyer and any brokers.

(ii) A copy of any contracts related to the trade.

(iii) The engine families that generated emission credits for the trade, including the number of emission credits from each family.

(2) Buyers must include the following information in their 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 engine 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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010]

§ 1042.735 Recordkeeping.

(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 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 § 1042.730.

(d) Keep records of the engine identification number for each engine 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. You must also identify the purchaser and destination for each engine you produce to the extent this information is available.

(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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010]

§ 1042.745 Noncompliance.

(a) For each engine 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 an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine 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 engine 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 an engine family.

(c) We may void the certificate of conformity for an engine 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 § 1042.920).

Subpart I—Special Provisions for Remanufactured Marine Engines

§ 1042.801 General provisions.

This subpart describes how the provisions of this part 1042 apply for certain remanufactured marine engines.

(a) The requirements of this subpart apply for remanufactured Tier 2 and earlier commercial Category 1 and Category 2 marine engines at or above 600 kW, excluding those engines originally manufactured before 1973. Note that the requirements of this subpart do not apply for engines below 600 kW, Category 3 engines, engines installed on recreational vessels, or Tier 3 and later engines.

(b) Any person meeting the definition of ''remanufacturer'' in § 1042.901 may apply for a certificate of conformity for a remanufactured engine family.

(c) The rebuilding requirements of 40 CFR 1068.120 do not apply to remanufacturing of engines using a certified remanufacturing system under this subpart. However, the requirements of 40 CFR 1068.120 do apply to all other remanufacturing of engines.

(d) Unless specified otherwise, engines certified under this subpart are also subject to the other requirements of this part.

(e) For remanufactured engines required to have a valid certificate of conformity, placing a new marine engine back into service following remanufacturing is a violation of 40 CFR 1068.101(a)(1), unless it has a valid certificate of conformity for its model year and the required label.

(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).

(g) Vessels equipped with emission controls as part of a state or local retrofit program prior to January 1, 2017 are exempt from the requirements of this subpart, as specified in this paragraph (g).

(1) This exemption only applies for retrofit programs sponsored by a state government (or one of its political subdivisions) for the purpose of reducing emissions. The exemption does not apply where the sponsoring government specifies that inclusion in the retrofit program is not intended to provide an exemption from the requirements of this subpart.

(2) The prohibitions against tampering and defeat devices in 40 CFR

1068.101(b) and the rebuilding requirements in 40 CFR 1068.120 apply for the exempt engines in the same manner as if they were covered by a certificate.

(3) Vessel owners must request an exemption prior to remanufacturing the engine. Your request must include documentation that your vessel has been retrofitted consistent with the specifications of paragraph (g)(1) of this section, and a signed statement declaring that to be true. Except for the initial request for a specific vessel and a specific retrofit, you may consider your request to be approved unless we notify you otherwise within 30 days of the date that we receive your request.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23009, Apr. 30, 2010]

§ 1042.810 Requirements for owner/operators and installers during remanufacture.

This section describes how the remanufacturing regulations affect owner/operators and installers for engines subject to this subpart.

(a) See the definition of ''remanufacture'' in § 1042.901 to determine if you are remanufacturing your engine. (NOTE: Replacing cylinders one at a time may qualify as remanufacturing, depending on the interval between replacement.)

(b) See the definition of ''new marine engine'' in § 1042.901 to determine if remanufacturing your engine makes it subject to the requirements of this part. If the engine is considered to be new, it is subject to the certification requirements of this subpart, unless it is exempt under subpart G of this part.

(c) Your engine is not subject to the standards of this part if we determine that no certified remanufacturing system is available for your engine as described in § 1042.815. For engines that are remanufactured during multiple events within a five-year period, you are not required to use a certified system until all of your engine's cylinders have been replaced after the system became available. For example, if you remanufacture your 16-cylinder engine by replacing four cylinders each January and a system becomes available for your engine June 1, 2010, your engine must be in a certified configuration when you replace four cylinders in January of 2014. At that point, all 16 cylinders would have been replaced after June 1, 2010.

(d) You may comply with the certification requirements of this part for your remanufactured engine by either obtaining your own certificate of conformity as specified in subpart C of this part or by having a certifying remanufacturer include your engine under its certificate of conformity. In either case, your remanufactured engine must be covered by a certificate before it is reintroduced into service.

(e) Contact a certifying remanufacturer to have your engine included under its certificate of conformity. You must comply with the certificate holder's emission-related installation instructions.

§ 1042.815 Demonstrating availability.

(a) A certified remanufacturing system is considered to be available for a specific engine only if EPA has certified the remanufacturing system as being in compliance with the provisions of this part and the certificate holder has demonstrated during certification that the system meets the criteria of this paragraph (a). We may issue a certificate for a remanufacturing system that does not meet these criteria, but such systems would not be considered available.

(1) The engine configuration must be included in the engine family for the remanufacturing system.

(2) The total marginal cost of the remanufacturing system, as calculated under paragraph (c) of this section, must be less than $45,000 per ton of PM reduction.

(3) It must be possible to obtain and install the remanufacturing system in a timely manner consistent with normal remanufacturing procedures. For example, a remanufacturing system would generally not be considered to be available if it required that the engine be removed from the vessel and shipped to a factory to be remanufactured.

(4) The remanufacturing system may result in increased maintenance costs, provided the incremental maintenance costs are included in the total costs. The remanufacturing system may not adversely affect engine reliability or

power. Note that owner/operators may ask us to determine that a remanufacturing system is not considered available for their vessels because of excessive costs under § 1042.850.

(b) We will maintain a list of available remanufacturing systems. A new remanufacturing system is considered to be available 120 days after we first issue a certificate of conformity for it. Where we issue a certificate of conformity based on carryover data for a system that is already considered to be available for the configuration, the 120-day delay does not apply and the new system is considered to be available when we issue the certificate.

(c) For the purpose of paragraph (a)(2) of this section, marginal cost means the difference in costs between remanufacturing the engine using the remanufacturing system and remanufacturing the engine conventionally, divided by the projected amount that PM emissions will be reduced over the engine's useful life.

(1) Total costs include:

(i) Incremental hardware costs.

(ii) Incremental labor costs.

(iii) Incremental operating costs over one useful life period.

(iv) Other costs (such as shipping).

(2) Calculate the projected amount that PM emissions will be reduced over the engine's useful life using the following equation:

$$\text{PM tons} = (EF_{base} - EF_{cont}) \times (PR) \times (UL) \times (LF) \times (10^{-6})$$

Where:

EF_{base} = deteriorated baseline PM emission rate (g/kW-hr).

EF_{cont} = deteriorated controlled PM emission rate (g/kW-hr).

PR = maximum engine power for the engine (kW).

UL = useful life (hr).

LF = the load factor that would apply for your engine under § 1042.705.

§ 1042.820 Emission standards and required emission reductions for remanufactured engines.

(a) The requirements of this section apply with respect to emissions as measured according to subpart F of this part. See paragraph (g) of this section for special provisions related to remanufacturing systems certified for both locomotive and marine engines. Remanufactured Tier 2 and earlier engines may be certified under this subpart only if they have NO_X emissions equivalent to or less than baseline NO_X levels and PM emissions at least 25.0 percent less than baseline PM emission levels. See § 1042.825 for provisions for determining baseline NO_X and PM emissions. See § 1042.835 for provisions related to demonstrating compliance with these requirements.

(b) The NTE and ABT provisions of this part do not apply for remanufactured engines.

(c) 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. Engines designed to operate using residual fuel must comply with the standards and requirements of this part when operated using residual fuel.

(d) Your engines must meet the exhaust emission standards of this section over their full useful life, as defined in § 1042.101(e).

(e) The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in § 1042.505, including certification, production-line, and in-use testing.

(f) Sections 1042.120, 1042.125, 1042.130, 1042.140 apply for remanufactured engines as written. Section 1042.115 applies for remanufactured engines as written, except for the requirement that electronically controlled engines broadcast their speed and output shaft torque.

(g) A remanufacturing system certified for locomotive engines under 40 CFR part 1033 may be deemed to also meet the requirements of this section, as specified in § 1042.836.

§ 1042.825 Baseline determination.

(a) For the purpose of this subpart, the term ''baseline emissions'' means the average measured emission rate specified by this section. Baseline emissions are specific to a given certificate holder and a given engine configuration.

(b) Select a used engine to be the emission-data engine for the engine family for testing. Using good engineering judgment, select the engine configuration expected to represent the

most common configuration in the family.

(c) Remanufacture the engine according to OEM specifications (or equivalent). The engine is considered ''the baseline engine'' at this point. If the OEM specifications include a range of adjustment for any parameter, set the parameter to the midpoint of the range. You may ask us to allow you to adjust it differently, consistent with good engineering judgment.

(d) Test the baseline engine four times according to the test procedures in subpart F of this part. The baseline emissions are the average of those four tests.

(e) We may require you to test a second engine of the same or different configuration in addition to the engine tested under this section. If we require you to test the same configuration, average the results of the testing with previous results, unless we determine that your previous results are not valid.

(f) Use good engineering judgment for all aspects of the baseline determination. We may reject your baseline if we determine that you did not use good engineering judgment, consistent with the provisions of 40 CFR 1068.5.

§ 1042.830 Labeling.

(a) At the time of remanufacture, 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 useful life.

(4) Written in English.

(b) The label must—

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

(2) Include your full corporate name and trademark.

(3) Include EPA's standardized designation for the engine family.

(4) State the engine's category, displacement (in liters or L/cyl), maximum engine power (in kW), and power density (in kW/L) as needed to determine the emission standards for the engine family. You may specify displacement, maximum engine power, and power density as ranges consistent with the ranges listed in § 1042.101. See § 1042.140 for descriptions of how to specify per-cylinder displacement, maximum engine power, and power density.

(5) State: ''THIS MARINE ENGINE COMPLIES WITH 40 CFR 1042, SUBPART I, FOR [CALENDAR YEAR OF REMANUFACTURE].''.

(c) You may add information to the emission control information label to identify other emission standards that the engine meets or does not meet (such as international standards). You may also add other information to ensure that the engine will be properly maintained and used.

(d) You may ask us to approve modified labeling requirements in this section if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the intent of the labeling requirements of this section.

§ 1042.835 Certification of remanufactured engines.

(a) *General requirements.* See §§ 1042.201, 1042.210, 1042.220, 1042.225, 1042.250, and 1042.255 for the general requirements related to obtaining a certificate of conformity. See § 1042.836 for special certification provisions for remanufacturing systems certified for locomotive engines under 40 CFR 1033.936.

(b) *Applications.* See § 1042.840 for a description of what you must include in your application.

(c) *Engine families.* See § 1042.845 for instruction about dividing your engines into engine families.

(d) *Test data.* (1) Measure baseline emissions for the test configuration as specified in § 1042.825.

(2) Measure emissions from the test engine for your remanufacturing system according to the procedures of subpart F of this part.

(3) We may measure emissions from any of your test engines or other engines from the engine family, as follows:

(i) We may decide to do the testing at your plant or any other facility. If we

do this, you must deliver the test engine to a test facility we designate. The test 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.

(ii) If we measure emissions from one of your test 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.

(iii) Before we test one of your engines, we may set its adjustable parameters to any point within the specified adjustable ranges (see §1042.115(d)).

(iv) Before we test one of your engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter.

(4) You may ask to use 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 §1042.225.

(ii) The emission-data engine from the previous model year remains the appropriate emission-data engine.

(iii) 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.

(5) We may require you to test a second engine of the same or different configuration in addition to the engine tested under this section.

(6) 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.

(e) *Demonstrating compliance.* (1) For purposes of certification, your engine family is considered in compliance with the emission standards in §1042.820 if all emission-data engines representing that family have test results showing compliance with the standards and percent reductions required by that section. To compare emission levels from the emission-data engine with the applicable emission standards, apply an additive deterioration factor of 0.015 g/kW-hr to the measured emission levels for PM. Alternatively, you may test your engine as specified in §1042.245 to develop deterioration factors that represent the deterioration expected in emissions over your engines' full useful life.

(2) Collect emission data using measurements to one more decimal place than the applicable standard. Apply the deterioration factor to the official emission result, 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.

(3) Your applicable NO_X standard for each configuration is the baseline NO_X emission rate for that configuration plus 5.0 percent (to account for test-to-test and engine-to-engine variability). Your applicable PM standard for each configuration is the baseline PM emission rate for that configuration multiplied by 0.750 plus the deterioration factor. If you choose to include configurations in your engine family for which you do not measure baseline emissions, you must demonstrate through engineering analysis that your remanufacturing system will reduce PM emissions by at least 25.0 percent for those configurations and not increase NO_X emissions.

(4) Your engine family is deemed not to comply if any emission-data engine representing that family for certification has test results showing a deteriorated emission level above an applicable emission standard for any pollutant.

(f) *Safety Evaluation.* You must exercise due diligence in ensuring that your system will not adversely affect safety

or otherwise violate the prohibition of § 1042.115(e).

(g) *Compatibility Evaluation*. If you are not the original manufacturer of the engine, you must contact the original manufacturer of the engine to verify that your system is compatible with the engine. Keep records of your contact with the original manufacturer.

§ 1042.836 Marine certification of locomotive remanufacturing systems.

If you certify a Tier 0, Tier 1, or Tier 2 remanufacturing system for locomotives under 40 CFR part 1033, you may also certify the system under this part 1042, according to the provisions of this section. Note that in certain cases before 2013, locomotives may be certified under 40 CFR part 1033 to the standards of 40 CFR part 92.

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

(1) A statement of your intent to use your remanufacturing system for marine engines. Include a list of marine engine models for which your system may be used.

(2) If there are significant differences in how your remanufacture system will be applied to marine engines relative to locomotives, in an engineering analysis demonstrating that your system will achieve emission reductions from marine engines similar to those from locomotives.

(3) A description of modifications needed for marine applications.

(4) A demonstration of availability as described in § 1042.815, except that the total marginal cost threshold does not apply.

(5) An unconditional statement 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.

(b) Sections 1042.835 and 1042.840 do not apply for engines certified under this section.

(c) Systems certified to the standards of 40 CFR part 92 are subject to the following restrictions:

(1) Tier 0 locomotives systems may not be used for any Category 1 engines or Tier 1 or later Category 2 engines.

(2) Where systems certified to the standards of 40 CFR part 1033 are also available for an engine, you may not use a system certified to the standards of 40 CFR part 92.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23009, Apr. 30, 2010]

§ 1042.840 Application requirements for remanufactured engines.

This section specifies the information that must be in your application, unless we ask you to include less information under § 1042.201(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, ultra low-sulfur diesel fuel). 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 § 1042.140.

(b) Explain how the emission control system operates. Describe in detail all system components for controlling exhaust emissions, including any auxiliary emission control devices (AECDs) you add to the engine. Identify the part number of each component you describe.

(c) Summarize your cost effectiveness analysis used to demonstrate your system will meet the availability criteria of § 1042.815. Identify the maximum allowable costs for vessel modifications to meet the these criteria.

(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 the duty cycle(s) and the corresponding engine applications. Also describe 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. See § 1042.801 if your certification is based on the use of special fuels or additives.

(h) Identify the engine family's useful life.

(i) Include the maintenance and warranty instructions you will give to the owner/operator (see §§ 1042.120 and 1042.125).

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vessel (see § 1042.130).

(k) Describe your emission control information label (see § 1042.830).

(l) Identify the engine family's deterioration factors and describe how you developed them (see § 1042.245). Present any emission test data you used for this.

(m) 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.

(n) Present emission data for HC, NO_X, PM, and CO as required by § 1042.820. Show emission figures before and after applying adjustment factors for regeneration and deterioration factors for each pollutant and for each engine.

(o) 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 CO_2, report those emission levels. 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.

(p) Describe all adjustable operating parameters (see § 1042.115(d)), 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) For Category 1 engines, 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.

(5) For Category 2 engines, propose a range of adjustment for each adjustable parameter, as described in § 1042.115(d). Include 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 proposed adjustable ranges.

(q) 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.

(r) Include the information required by other subparts of this part.

(s) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(t) 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.

(u) If you are not the original manufacturer of the engine, include a summary of your contact with the original manufacturer of the engine and provide to us any documentation provided to you by the original manufacturer.

§ 1042.845 Remanufactured 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. You may not group Category 1 and Category 2 engines in the same family.

(b) In general, group engines in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle and fuel (the fuels with which the engine is intended or designed to be operated).

(2) The cooling system (for example, raw-water vs. separate-circuit cooling).

(3) Method of air aspiration.

(4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap).

(5) Combustion chamber design.

(6) Nominal bore and stroke.

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

(8) Original engine manufacturer.

(c) Alternatively, you may ask us to allow you to include other engine configurations in your engine family, consistent with good engineering judgment.

(d) Do not include in your family any configurations for which good engineering judgment indicates that your emission controls are unlikely to provide PM emission reductions similar to the configuration(s) tested.

§ 1042.850 Exemptions and hardship relief.

This section describes exemption and hardship provisions that are available for owner/operators of engine subject to the provisions of this subpart.

(a) Vessels owned and operated by entities that meet the size criterion of this paragraph (a) are exempt from the requirements of this subpart I. To be exempt, your gross annual revenue for the calendar year before the remanufacture must be less than $5,000,000 in 2008 dollars or the equivalent value for future years based on the Bureau of Labor Statistics' Producer Price Index (see *www.bls.gov*). Include all revenues from any parent company and its subsidiaries. The exemption applies only for years in which you meet this criterion.

(b) In unusual circumstances, we may exempt you from an otherwise applicable requirement that you apply a certified remanufacturing system when remanufacturing your marine engine.

(1) To be eligible, you must demonstrate that all of the following are true:

(i) Unusual circumstances prevent you from meeting requirements from this chapter.

(ii) You have taken all reasonable steps to minimize the extent of the nonconformity.

(iii) Not having the exemption will jeopardize the solvency of your company.

(iv) No other allowances are available under the regulations in this chapter to avoid the impending violation.

(2) Send the Designated Compliance Officer a written request for an exemption before you are in violation.

(3) We may impose other conditions, including provisions to use an engine meeting less stringent emission standards or to recover the lost environmental benefit.

(4) In determining whether to grant the exemptions, we will consider all relevant factors, including the following:

(i) The number of engines to be exempted.

(ii) The size of your company and your ability to endure the hardship.

(iii) The length of time a vessel is expected to remain in service.

(c) If you believe that a remanufacturing system that we identified as being available cannot be installed without significant modification of your vessel, you may ask us to determine that a remanufacturing system is not considered available for your vessel because the cost would exceed the total marginal cost threshold in § 1042.815(a)(2).

(d) Other exemptions specified in subpart G of this part and 40 CFR part 1068, subparts C and D also apply to remanufactured engines. For example, the national security exemption applies to remanufactured engines as described in § 1042.635.

[73 FR 37243, June 30, 2008, as amended at 74 FR 8426, Feb. 24, 2009; 75 FR 23009, Apr. 30, 2010]

Subpart J—Definitions and Other Reference Information

§ 1042.901 Definitions.

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 and turbochargers 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.

2008 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 (incorporated by reference in § 1042.910).

Applicable emission standard or *applicable standard* means an emission standard to which an engine is subject; or, where an engine has been or is being certified to another standard or FEL, applicable emission standards means the FEL and other standards to which the engine 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, vessel 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.

Base engine means a land-based engine to be marinized, as configured prior to marinization.

Baseline emissions has the meaning given in § 1042.825.

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 § 1042.235(d).

Category 1 means relating to a marine engine with specific engine displacement below 7.0 liters per cylinder. *See* § 1042.670 to determine equivalent per-cylinder displacement for nonreciprocating marine engines (such as gas turbine engines).

Category 2 means relating to a marine engine with a specific engine displacement at or above 7.0 liters per cylinder but less than 30.0 liters per cylinder. *See* § 1042.670 to determine equivalent per-cylinder displacement for nonreciprocating marine engines (such as gas turbine engines).

Category 3 means relating to a reciprocating marine engine with a specific engine displacement at or above 30.0 liters per cylinder.

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.

Commercial means relating to an engine or vessel that is not a recreational marine engine or a recreational vessel.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine. Note that certain other marine engines (such as those powered by natural gas with maximum engine power at or above 250 kW) are deemed to be compression-ignition engines in § 1042.1.

Constant-speed engine means an engine whose certification is limited to constant-speed operation. Engines whose constant-speed governor function is removed or disabled are no longer constant-speed engines.

Constant-speed operation has the meaning given in 40 CFR 1065.1001.

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, 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 (6403-J), 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* §§ 1042.240 and 1042.245), 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.

Diesel fuel has the meaning given in 40 CFR 80.2. This generally includes No. 1 and No. 2 petroleum diesel fuels and biodiesel fuels.

Discrete-mode means relating to the discrete-mode type of steady-state test described in § 1042.505.

ECA associated area has the meaning given in 40 CFR 1043.20.

Emission control area (ECA) has the meaning given in 40 CFR 1043.20.

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 or factors unrelated to emissions.

Engine family has the meaning given in § 1042.230.

Engine manufacturer means a manufacturer of an engine. See the definition of ''manufacturer'' in this section.

Engineering analysis means a summary of scientific and/or engineering principles and facts that support a conclusion made by a manufacturer, with respect to compliance with the provisions of this part.

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 § 1042.5, is not subject to this part 1042.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation 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 with respect to all required testing.

Freshly manufactured marine engine means a marine engine that has not been placed into service. An engine becomes freshly manufactured when it is originally manufactured. *See* the definition of ''New marine engine'' for provisions that specify that certain other types of new engines are treated as freshly manufactured engines.

Foreign vessel means a vessel of foreign registry or a vessel operated under the authority of a country other than the United States.

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, diesel fuel, residual fuel, or natural gas. There can be multiple grades within a single fuel type, such as high-sulfur or low-sulfur diesel fuel.

Gas turbine engine has the meaning given in 40 CFR 1068.30. In general, this means anything commercially known as a gas turbine engine. It does not include external combustion steam engines.

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.

Green Engine Factor means a factor that is applied to emission measurements from a Category 2 engine that has had little or no service accumulation. The Green Engine Factor adjusts emission measurements to be equivalent to emission measurements from an engine that has had approximately 300 hours of use.

High-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *high-sulfur diesel fuel* means a diesel fuel with a maximum sulfur concentration above 500 parts per million.

(2) For testing, *high-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type, as described in § 1042.101(d) and § 1042.104(a).

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.

Low-hour means relating to an engine that has stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 125 hours of operation for engines below 560 kW and less than 300 hours for engines at or above 560 kW.

Low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *low-sulfur diesel fuel* means a diesel fuel market as low-sulfur diesel fuel having a maximum sulfur concentration of 500 parts per million.

(2) For testing, *low-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

Manufacture means the physical and engineering process of designing, constructing, and assembling an engine or a vessel, or modifying or operating an

engine or vessel in a way that makes it a new marine engine or new marine vessel.

Manufacturer means any person who manufactures (*see* definition of ''manufacture'' in this section) a new engine or vessel or imports such engines or vessels for resale. All manufacturing entities under the control of the same person are considered to be a single manufacturer.

(1) This term includes, but is not limited to:

(i) 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.

(ii) Importers who import engines or vessels for resale.

(iii) Post-manufacture marinizers.

(iv) Vessel owners/operators that reflag a formerly foreign vessel as a U.S.-flagged vessel.

(v) Any person who modifies or operates an engine or vessel in a way that makes it a new marine engine or new marine vessel.

(2) Dealers that do not cause an engine or vessel to become new are not manufacturers.

Marine engine means a nonroad engine that is installed or intended to be installed on a marine vessel. This includes a portable auxiliary marine engine only if its fueling, cooling, or exhaust system is an integral part of the vessel. A fueling system is considered integral to the vessel only if one or more essential elements are permanently affixed to 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 § 1042.140.

Maximum in-use engine speed has the meaning given in § 1042.140.

Maximum test power means the power output observed at the maximum test speed with the maximum fueling rate possible.

Maximum test speed has the meaning given in 40 CFR 1065.1001.

Maximum test torque has the meaning given in 40 CFR 1065.1001.

Model year means any of the following:

(1) For freshly manufactured marine engines (*see* definition of ''new 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 marine engine after being certified and placed into service as a motor vehicle engine, a nonroad engine that is not a marine engine, or a stationary engine, model year means the calendar year in which the engine was originally produced. For an engine that is converted to a marine engine after being placed into service as a motor vehicle engine, a nonroad engine that is not a marine engine, or a stationary engine without having been certified, model year means the calendar year in which the engine becomes a new marine engine. (*See* definition of ''new marine engine,'' paragraph (2)).

(3) For an uncertified marine engine excluded under § 1042.5 that is later subject to this part 1042 as a result of being installed in a different vessel, model year means the calendar year in which the engine was installed in the non-excluded vessel. For a marine engine excluded under § 1042.5 that is later subject to this part 1042 as a result of reflagging the vessel, model

year means the calendar year in which the engine was originally manufactured. For a marine engine that become new under paragraph (7) of the definition of ''new marine engine,'' model year means the calendar year in which the engine was originally manufactured. (*See* definition of ''new marine engine,'' paragraphs (3) and (7)).

(4) For engines that do not meet the definition of ''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 marine engine,'' paragraph (4)).

(5) For remanufactured engines, model year means the calendar year in which the remanufacture takes place.

(6) For imported engines:

(i) For imported engines described in paragraph (5)(i) of the definition of ''new 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 marine engine,'' *model year* means the calendar year in which the engine is remanufactured.

(iii) For imported engines described in paragraph (5)(iii) of the definition of ''new marine engine,'' *model year* means the calendar year in which the engine is first assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

(iv) For imported engines described in paragraph (5)(iv) of the definition of ''new marine engine,'' *model year* means the calendar year in which the engine is imported.

(7) [Reserved]

(8) For freshly manufactured vessels, model year means the calendar year in which the keel is laid or the vessel is at a similar stage of construction. For vessels that become new under paragraph (2) of the definition of ''new vessel'' (as a result of modifications), model year means the calendar year in which the modifications physically begin.

Motor vehicle has the meaning given in 40 CFR 85.1703(a).

New marine engine means any of the following:

(1) A freshly manufactured 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 marine engine, or a stationary engine that is later used or intended to be used as a marine engine. In this case, the engine is no longer a motor vehicle, nonmarine, or stationary engine and becomes a ''new marine engine.'' The engine is no longer new when it is placed into marine service as a marine engine. This paragraph (2) applies for engines we exclude under §1042.5, where that engine is later installed as a marine engine in a vessel that is covered by this part 1042. For example, this would apply to an engine that is no longer used in a foreign vessel. An engine converted to a marine engine without having been certified is treated as a freshly manufactured engine under this part 1042.

(3) A marine engine that has been previously placed into service in an application we exclude under §1042.5, where that engine is installed in a vessel that is covered by this part 1042. The engine is new when it first enters U.S. waters on a vessel covered by this part 1042. For example, this would apply to an engine that is no longer used in a foreign vessel and for engines on a vessel that is reflagged as a U.S. vessel. Note paragraph (7) of this definition may also apply.

(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 it is placed into service, whichever comes first. Such an engine is treated as a freshly manufactured engine under this part 1042, whether or not it meets the definition of ''freshly manufactured marine engine.''

(5) A remanufactured marine engine. An engine becomes new when it is remanufactured (as defined in this section) and ceases to be new when placed back into service.

(6) 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 remanufactured engine that would have been required to be certified if it had been remanufactured in the United States.

(iii) 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 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.

(iv) An imported marine engine that is not covered by a certificate of conformity issued under this part at the time of importation is new, but only if it was produced on or after the dates shown in the following table. 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.

APPLICABILITY OF EMISSION STANDARDS FOR COMPRESSION-IGNITION MARINE ENGINES

Engine category and type	Power (kW)	Per-cylinder displacement (L/cyl)	Initial model year of emission standards
Category 1	P <19	All	2000
Category 1	19 ≤P <37	All	1999
Category 1, Recreational	P ≥37	disp. <0.9	2007
Category 1, Recreational	All	0.9 ≤disp. <2.5	2006
Category 1, Recreational	All	disp. ≥2.5	2004
Category 1, Commercial	P ≥37	disp. <0.9	2005
Category 1, Commercial	All	disp. ≥0.9	2004
Category 2 and Category 3	All	disp. ≥5.0	2004

(7) A marine engine that is not covered by a certificate of conformity issued under this part on a U.S.-flag vessel entering U.S. waters is new, but only if it was produced on or after the dates identified in paragraph (6)(iv) of this definition. Such entrance is deemed to be introduction into U.S. commerce.

New vessel means any of the following:

(1) A vessel for which the ultimate purchaser has never received the equitable or legal title. The vessel is no longer new when the ultimate purchaser receives this title or it is placed into service, whichever comes first.

(2) For vessels with no Category 3 engines, a vessel that has been modified such that the value of the modifications exceeds 50 percent of the value of the modified vessel, excluding temporary modifications (as defined in this section). The value of the modification is the difference in the assessed value of the vessel before the modification and the assessed value of the vessel after the modification. The vessel is no longer new when it is placed into service. Use the following equation to determine if the fractional value of the modification exceeds 50 percent:

Percent of value = [(Value after modification) − (Value before modification)] × 100% ÷ (Value after modification)

(3) For vessels with Category 3 engines, a vessel that has undergone a modification that substantially alters the dimensions or carrying capacity of the vessel, changes the type of vessel, or substantially prolongs the vessel's life.

(4) 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 §1042.1).

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.

NO_X Technical Code means the ''Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines'' adopted by the International Maritime Organization (incorporated by reference in §1042.910). The Technical Code is part of 2008 Annex VI.

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, but after the applicability of regeneration adjustment factors.

Operator demand has the meaning given in 40 CFR 1065.1001.

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.

Particulate trap means a filtering device that is designed to physically trap particulate matter above a certain size.

Passenger means a person that provides payment as a condition of boarding a vessel. This does not include the owner or any paid crew members.

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 a vessel dealership or manufacturing facility, 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.

Post-manufacture marinizer means an entity that produces a marine engine by modifying a non-marine engine, whether certified or uncertified, complete or partially complete, where the entity is not controlled by the manufacturer of the base engine or by an entity that also controls the manufacturer of the base engine. In addition, vessel manufacturers that substantially modify marine engines are post-manufacture marinizers. For the purpose of this definition, ''substantially modify'' means changing an engine in a way that could change engine emission characteristics.

Power density has the meaning given in §1042.140.

Ramped-modal means relating to the ramped-modal type of steady-state test described in §1042.505.

Rated speed means the maximum full-load governed speed for governed engines and the speed of maximum power for ungoverned engines.

Recreational marine engine means a Category 1 propulsion marine engine that is intended by the manufacturer to be installed on a recreational vessel.

Recreational vessel means a vessel that is intended by the vessel manufacturer to be operated primarily for pleasure or leased, rented or chartered to another for the latter's pleasure. However, this does not include the following vessels:

(1) Vessels below 100 gross tons that carry more than 6 passengers.

(2) Vessels at or above 100 gross tons that carry one or more passengers.

(3) Vessels used solely for competition (see § 1042.620).

Reflag means to register as a U.S. vessel any vessel that previously had a foreign registry or had been placed into service without registration.

Remanufacture means to replace every cylinder liner in a commercial engine with maximum engine power at or above 600 kW, whether during a single maintenance event or cumulatively within a five-year period. For the purpose of this definition, ''replace'' includes removing, inspecting, and requalifying a liner. Rebuilding a recreational engine or an engine with maximum engine power below 600 kW is not remanufacturing.

Remanufacture system or *remanufacturing system* means all components (or specifications for components) and instructions necessary to remanufacture an engine in accordance with applicable requirements of this part 1042.

Remanufacturer has the meaning given to ''manufacturer'' in section 216(1) of the Clean Air Act (42 U.S.C. 7550(1)) with respect to remanufactured marine engines. This term includes any person that is engaged in the manufacture or assembly of remanufactured engines, such as persons who:

(1) Design or produce the emission-related parts used in remanufacturing.

(2) Install parts in or on an existing engine to remanufacture it.

(3) Own or operate the engine and provide specifications as to how an engine is to be remanufactured (i.e., specifying who will perform the work, when the work is to be performed, what parts are to be used, or how to calibrate the adjustable parameters of the engine).

Residual fuel means any fuel with a T_{90} greater than 700 °F as measured with the distillation test method specified in 40 CFR 1065.1010. This generally includes all RM grades of marine fuel without regard to whether they are known commercially as residual fuel. For example, fuel marketed as intermediate fuel may be residual fuel.

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 boat builder means a boat manufacturer with fewer than 500 employees and with annual worldwide production of fewer than 100 boats. For manufacturers owned by a parent company, these limits apply to the combined production and number of employees of the parent company and all its subsidiaries. Manufacturers that produce vessels with Category 3 engines are not small-volume boat builders.

Small-volume engine manufacturer means a manufacturer of Category 1 and/or Category 2 engines with annual worldwide production of fewer than 1,000 internal combustion engines (marine and nonmarine). For manufacturers owned by a parent company, the limit applies to the production of the parent company and all its subsidiaries. Manufacturers that certify or produce any Category 3 engines are not small-volume engine manufacturers.

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.

Specified adjustable range means a range of adjustment for an adjustable parameter that is approved as part of certification. Note that Category 1 engines must comply with emission standards over the full physically adjustable range for any adjustable parameters.

Steady-state has the meaning given in 40 CFR 1065.1001.

Sulfur-sensitive technology means an emission control technology that experiences a significant drop in emission control performance or emission-system durability when an engine is operated on low-sulfur fuel (i.e., fuel with a sulfur concentration of 300 to 500 ppm) as compared to when it is operated on ultra low-sulfur fuel (i.e., fuel with a sulfur concentration less than 15 ppm). Exhaust-gas recirculation is not a sulfur-sensitive technology.

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.

Temporary modification means a modification to a vessel based on a written contract for marine services such that the modifications will be removed from the vessel when the contract expires. This provision is intended to address short-term contracts that would generally be less than 12 months in duration. You may ask us to consider modifications that will be in place longer than 12 months as temporary modifications.

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.

Tier 1 means relating to the Tier 1 emission standards, as shown in Appendix I.

Tier 2 means relating to the Tier 2 emission standards, as shown in § 1042.104 and Appendix I.

Tier 3 means relating to the Tier 3 emission standards, as shown in § 1042.101 and § 1042.104.

Tier 4 means relating to the Tier 4 emission standards, as shown in § 1042.101.

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 an atomic hydrogen-to-carbon 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 atomic hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Ultimate purchaser means, with respect to any new vessel or new marine engine, the first person who in good faith purchases such new vessel or new marine engine for purposes other than resale.

Ultra low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *ultra low-sulfur diesel fuel* means a diesel fuel marketed as ultra low-sulfur diesel fuel having a maximum sulfur concentration of 15 parts per million.

(2) For testing, *ultra low-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for an engine family 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.

U.S. waters includes U.S. navigable waters and the U.S. EEZ.

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 an engine is required to comply with all applicable emission standards. *See* §§ 1042.101(e) and 1042.104(d).

Variable-speed engine means an engine that is not a constant-speed engine.

Vessel means a marine vessel.

Vessel operator means any individual that physically operates or maintains a vessel or exercises managerial control over the operation of the vessel.

Vessel owner means the individual or company that holds legal title to a 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 fuel 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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23010, Apr. 30, 2010]

§ 1042.905 Symbols, acronyms, and abbreviations.

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.
cyl cylinder.
disp. displacement.
ECA Emission Control Area.
EEZ Exclusive Economic Zone.
EPA Environmental Protection Agency.
FEL Family Emission Limit.
g grams.
HC hydrocarbon.
hr hours.
IMO International Maritime Organization.
kPa kilopascals.
kW kilowatts.
L liters.
LTR Limited Testing Region.
N_2O nitrous oxide.
NARA National Archives and Records Administration.
NMHC nonmethane hydrocarbons.
NO_X oxides of nitrogen (NO and NO_2).
NTE not-to-exceed.
PM particulate matter.
RPM revolutions per minute.
SAE Society of Automotive Engineers.
SCR selective catalytic reduction.
THC total hydrocarbon.
THCE total hydrocarbon equivalent.
ULSD ultra low-sulfur diesel fuel.
U.S.C. United States Code.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23012, Apr. 30, 2010]

§ 1042.910 Reference materials.

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, (202) 566–1744, 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) *IMO material.* This paragraph (a) lists material from the International Maritime Organization that we have incorporated by reference. Anyone may purchase copies of these materials from the International Maritime Organization, 4 Albert Embankment, London SE1 7SR, United Kingdom, or *http://www.imo.org*, or 44–(0)20–7735–7611.

(1) Revised MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships, and NO_X Technical Code 2008, 2009 edition.

(i) Revised MARPOL Annex VI, Regulations for the Prevention of Pollution from Ships (''2008 Annex VI''); IBR approved for § 1042.901.

(ii) NO_X Technical Code 2008 (''NO_X Technical Code''); IBR approved for §§ 1042.104(g), 1042.230(d), 1042.302(c) and (e), 1042.501(g), and 1042.901.

(2) [Reserved]

(b) [Reserved]

[75 FR 23012, Apr. 30, 2010]

§ 1042.915 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.

§ 1042.920 Hearings.

(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.

§ 1042.925 Reporting and recordkeeping requirements.

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 regulated under this part:

(a) We specify the following requirements related to engine certification in this part 1042:

(1) In § 1042.135 we require engine manufacturers to keep certain records related to duplicate labels sent to vessel manufacturers.

(2) In § 1042.145 we state the requirements for interim provisions.

(3) In subpart C of this part we identify a wide range of information required to certify engines.

(4) In §§ 1042.345 and 1042.350 we specify certain records related to production-line testing.

(5) 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.

(6) In §§ 1042.725, 1042.730, and 1042.735 we specify certain records related to averaging, banking, and trading.

(7) In subpart I of this part we specify certain records related to meeting requirements for remanufactured engines.

(b) 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.

(c) 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 1042—SUMMARY OF PREVIOUS EMISSION STANDARDS

The following standards apply to compression-ignition marine engines produced before the model years specified in §1042.1:

(a) *Engines below 37 kW.* Tier 1 and Tier 2 standards for engines below 37 kW apply as specified in 40 CFR part 89 and summarized in the following table:

TABLE 1 TO APPENDIX I—EMISSION STANDARDS FOR ENGINES BELOW 37 kW (G/kW-HR)

Rated power (kW)	Tier	Model year	NMHC + NO_X	CO	PM
kW<8	Tier 1	2000	10.5	8.0	1.0
	Tier 2	2005	7.5	8.0	0.80
8≤kW<19	Tier 1	2000	9.5	6.6	0.80
	Tier 2	2005	7.5	6.6	0.80
19≤kW<37	Tier 1	1999	9.5	5.5	0.8
	Tier 2	2004	7.5	5.5	0.6

(b) *Engines at or above 37 kW.* Tier 1 and Tier 2 standards for engines at or above 37 kW apply as specified in 40 CFR part 94 and summarized as follows:

(1) *Tier 1 standards.* NO_X emissions from model year 2004 and later engines with displacement of 2.5 or more liters per cylinder may not exceed the following values:

(i) 17.0 g/kW-hr when maximum test speed is less than 130 rpm.

(ii) $45.0 \times N^{-0.20}$ when maximum test speed is at or above 130 but below 2000 rpm, where N is the maximum test speed of the engine in revolutions per minute. Round the calculated standard to the nearest 0.1 g/kW-hr.

(ii) 9.8 g/kW-hr when maximum test speed is 2000 rpm or more.

(2) *Tier 2 primary standards.* Exhaust emissions from Category 1 engines at or above 37 kW and all Category 2 engines may not exceed the values shown in the following table:

TABLE 2 TO APPENDIX I—PRIMARY TIER 2 EMISSION STANDARDS FOR COMMERCIAL AND RECREATIONAL MARINE ENGINES AT OR ABOVE 37 kW (G/kW-HR)

Engine size liters/cylinder	Maximum engine power	Category	Model year	NO_X + THC g/kW-hr	CO g/kW-hr	PM g/kW-hr
disp. <0.9	power ≥37 kW	Category 1 Commercial	2005	7.5	5.0	0.40
		Category 1 Recreational	2007	7.5	5.0	0.40
0.9 ≤disp. <1.2	All	Category 1 Commercial	2004	7.2	5.0	0.30
		Category 1 Recreational	2006	7.2	5.0	0.30
1.2 ≤disp. <2.5	All	Category 1 Commercial	2004	7.2	5.0	0.20
		Category 1 Recreational	2006	7.2	5.0	0.20
2.5 ≤disp. <5.0	All	Category 1 Commercial	2007	7.2	5.0	0.20
		Category 1 Recreational	2009	7.2	5.0	0.20
5.0 ≤disp. <15.0	All	Category 2	2007	7.8	5.0	0.27
15.0 ≤disp. <20.0	power <3300 kW	Category 2	2007	8.7	5.0	0.50
	power ≥3300 kW	Category 2	2007	9.8	5.0	0.50
20.0 ≤disp. <25.0	All	Category 2	2007	9.8	5.0	0.50
25.0 ≤disp. <30.0	All	Category 2	2007	11	5.0	0.5

(3) *Tier 2 supplemental standards.* The not-to-exceed emission standards specified in 40 CFR 94.8(e) apply for all engines subject to the Tier 2 standards described in paragraph (b)(2) of this appendix.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23012, Apr. 30, 2010]

APPENDIX II TO PART 1042—STEADY-STATE DUTY CYCLES

(a) The following duty cycles apply as specified in §1042.505(b)(1):

(1) The following duty cycle applies for discrete-mode testing:

E3 mode No.	Engine speed [1]	Percent of maximum test power	Weighting factors
1	Maximum test speed	100	0.2

E3 mode No.	Engine speed [1]	Percent of maximum test power	Weighting factors
2	91%	75	0.5
3	80%	50	0.15
4	63%	25	0.15

[1] Speed terms are defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed [1 3]	Power (percent) [2 3]
1a Steady-state	229	Maximum test speed	100%.
1b Transition	20	Linear transition	Linear transition in torque.
2a Steady-state	166	63%	25%.
2b Transition	20	Linear transition	Linear transition in torque.
3a Steady-state	570	91%	75%.
3b Transition	20	Linear transition	Linear transition in torque.
4a Steady-state	175	80%	50%.

[1] Speed terms are defined in 40 CFR part 1065. Percent speed is relative to maximum test speed.
[2] The percent power is relative to the maximum test power.
[3] 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, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

(b) The following duty cycles apply as specified in § 1042.505(b)(2):

(1) The following duty cycle applies for discrete-mode testing:

E5 mode No.	Engine speed [1]	Percent of maximum test power	Weighting factors
1	Maximum test speed	100	0.08
2	91%	75	0.13
3	80%	50	0.17
4	63%	25	0.32
5	Warm idle	0	0.3

[1] Speed terms are defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed [1 3]	Power (percent) [2 3]
1a Steady-state	167	Warm idle	0.
1b Transition	20	Linear transition	Linear transition in torque.
2a Steady-state	85	Maximum test speed	100%.
2b Transition	20	Linear transition	Linear transition in torque.
3a Steady-state	354	63%	25%.
3b Transition	20	Linear transition	Linear transition in torque.
4a Steady-state	141	91%	75%.
4b Transition	20	Linear transition	Linear transition in torque.
5a Steady-state	182	80%	50%.
5b Transition	20	Linear transition	Linear transition in torque.
6 Steady-state	171	Warm idle	0.

[1] Speed terms are defined in 40 CFR part 1065. Percent speed is relative to maximum test speed.
[2] The percent power is relative to the maximum test power.
[3] 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, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

(c) The following duty cycles apply as specified in § 1042.505(b)(3):

(1) The following duty cycle applies for discrete-mode testing:

E2 mode No.	Engine speed [1]	Torque (percent) [2]	Weighting factors
1	Engine Governed	100	0.2
2	Engine Governed	75	0.5
3	Engine Governed	50	0.15

E2 mode No.	Engine speed [1]	Torque (percent) [2]	Weighting factors
4	Engine Governed	25	0.15

[1] Speed terms are defined in 40 CFR part 1065.
[2] The percent torque is relative to the maximum test torque as defined in 40 CFR part 1065.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed	Torque (percent) [1 2]
1a Steady-state	229	Engine Governed	100.
1b Transition	20	Engine Governed	Linear transition.
2a Steady-state	166	Engine Governed	25.
2b Transition	20	Engine Governed	Linear transition.
3a Steady-state	570	Engine Governed	75.
3b Transition	20	Engine Governed	Linear transition.
4a Steady-state	175	Engine Governed	50.

[1] The percent torque is relative to the maximum test torque as 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.

[73 FR 37243, June 30, 2008, as amended at 75 FR 68461, Nov. 8, 2010]

APPENDIX III TO PART 1042—NOT-TO-EXCEED ZONES

(a) The following definitions apply for this Appendix III:

(1) *Percent power* means the percentage of the maximum power achieved at Maximum Test Speed (or at Maximum Test Torque for constant-speed engines).

(2) *Percent speed* means the percentage of Maximum Test Speed.

(b) Figure 1 of this Appendix illustrates the default NTE zone for commercial marine engines certified using the duty cycle specified in §1042.505(b)(1), except for variable-speed propulsion marine engines used with controllable-pitch propellers or with electrically coupled propellers, as follows:

(1) Subzone 1 is defined by the following boundaries:

(i) Percent power $\geq 0.7 \cdot (\text{percent speed})^{2.5}$.

(ii) Percent power $\leq (\text{percent speed}/0.9)^{3.5}$.

(iii) Percent power $\geq 3.0 \cdot (100\% - \text{percent speed})$.

(2) Subzone 2 is defined by the following boundaries:

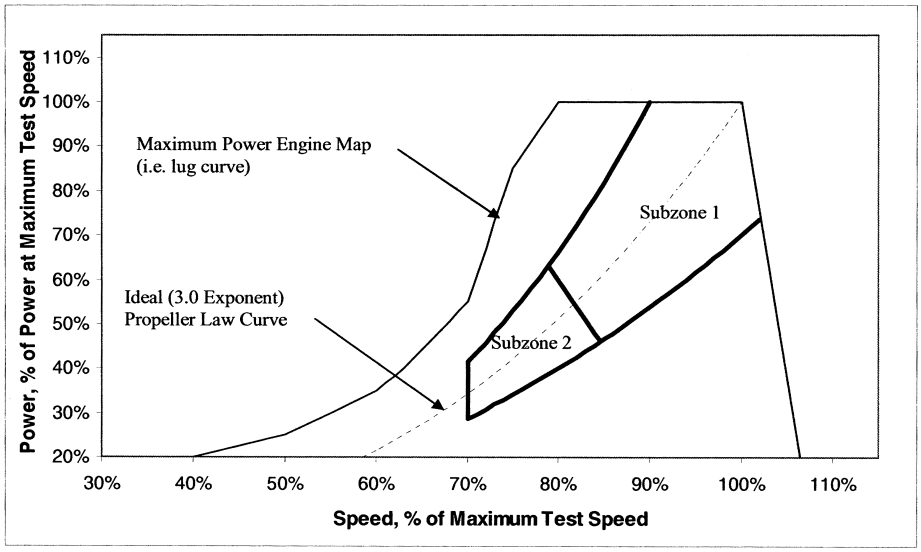
(i) Percent power $\geq 0.7 \cdot (\text{percent speed})^{2.5}$.

(ii) Percent power $\leq (\text{percent speed}/0.9)^{3.5}$.

(iii) Percent power $< 3.0 \cdot (100\% - \text{percent speed})$.

(iv) Percent speed ≥ 70 percent.

Figure 1 of Appendix III — NTE Zone and Subzones for Propeller-Law Commercial Marine Engines



(c) Figure 2 of this Appendix illustrates the default NTE zone for recreational marine engines certified using the duty cycle specified in §1042.505(b)(2), except for variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers, as follows:

(1) Subzone 1 is defined by the following boundaries:

(i) Percent power ≥0.7 · (percent speed)$^{2.5}$.

(ii) Percent power ≤(percent speed/0.9)$^{3.5}$.

(iii) Percent power ≥3.0 · (100% – percent speed).

(iv) Percent power ≤95 percent.

(2) Subzone 2 is defined by the following boundaries:

(i) Percent power ≥0.7 · (percent speed)$^{2.5}$.

(ii) Percent power ≤(percent speed/0.9)$^{3.5}$.

(iii) Percent power <3.0 · (100% – percent speed).

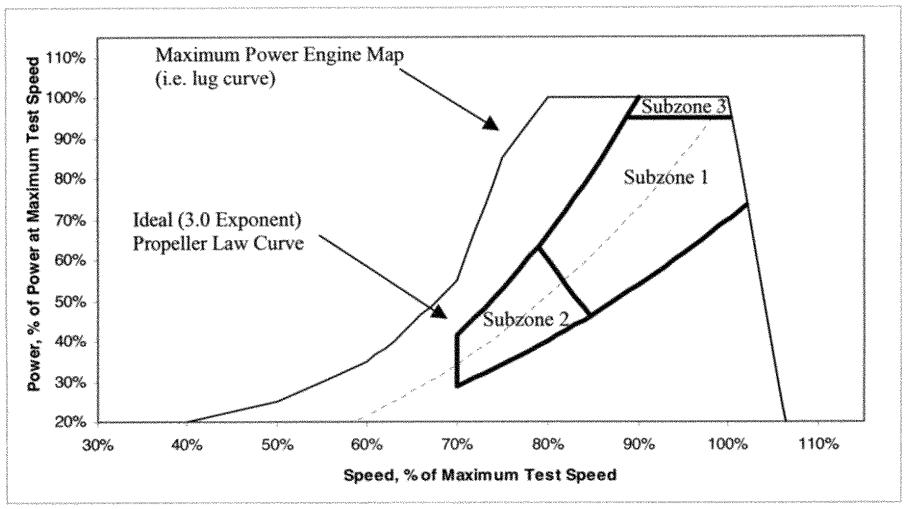
(iv) Percent speed ≥70 percent.

(3) Subzone 3 is defined by the following boundaries:

(i) Percent power ≤(percent speed/0.9)$^{3.5}$.

(ii) Percent power >95 percent.

Figure 2 of Appendix III — NTE Zone and Subzones for Propeller-Law Recreational Marine Engines



(d) Figure 3 of this Appendix illustrates the default NTE zone for variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers that are certified using the duty cycle specified in § 1042.505(b)(1), (2), or (3), as follows:

(1) Subzone 1 is defined by the following boundaries:

(i) Percent power ≥0.7 · (percent speed)$^{2.5}$.

(ii) Percent power ≥3.0 · (100% − percent speed).

(iii) Percent speed ≥78.9 percent.

(2) Subzone 2a is defined by the following boundaries:

(i) Percent power ≥0.7 · (percent speed)$^{2.5}$.

(ii) Percent speed ≥70 percent.

(iii) Percent speed <78.9 percent, for Percent power >63.3 percent.

(iv) Percent power <3.0 · (100% − percent speed), for Percent speed ≥78.9 percent.

(3) Subzone 2b is defined by the following boundaries:

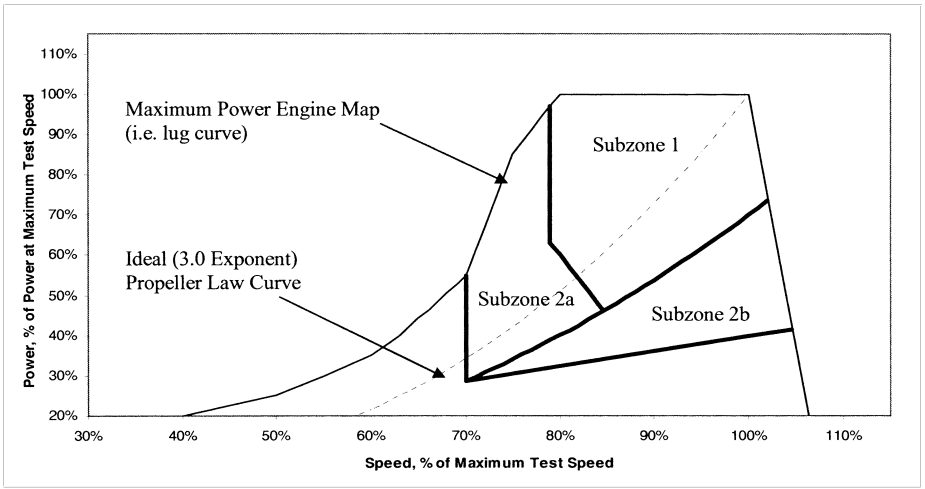
(i) The line formed by connecting the following two points on a plot of speed-vs.-power:

(A) Percent speed = 70 percent; Percent power = 28.7 percent.

(B) Percent speed = 40 percent at governed speed; Percent power = 40 percent.

(ii) Percent power <0.7 · (percent speed)$^{2.5}$.

Figure 3 of Appendix III — NTE Zone and Subzones for Variable-Pitch or Electronically Coupled Engines*



*shown for engines capable of operating on the E3 Duty Cycle

(e) Figure 4 of this Appendix illustrates the default NTE zone for constant-speed engines certified using a duty cycle specified in §1042.505(b)(3) or (b)(4), as follows:

(1) Subzone 1 is defined by the following boundaries:

(i) Percent power ≥70 percent.

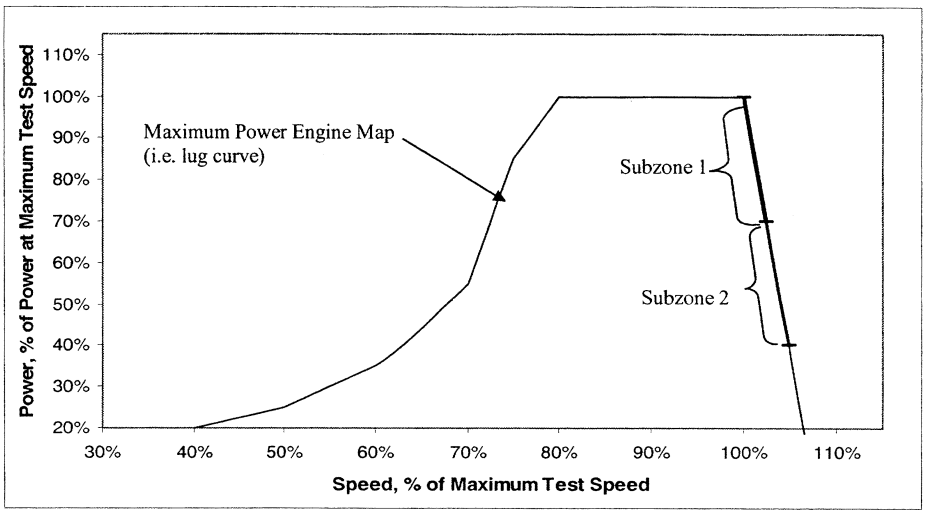
(ii) [Reserved]

(2) Subzone 2 is defined by the following boundaries:

(i) Percent power <70 percent.

(ii) Percent power ≥40 percent.

Figure 4 of Appendix III — NTE Zone and Subzones for Constant-Speed Marine Engines



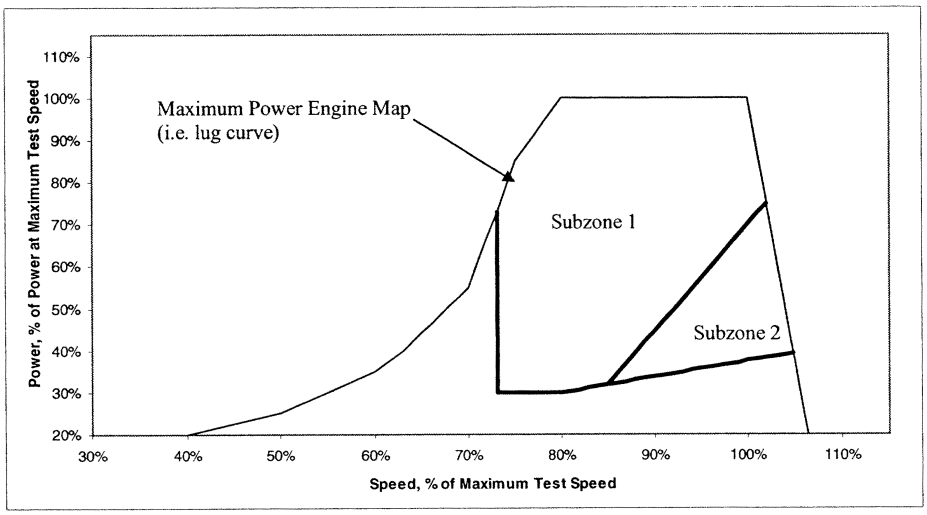
(f) Figure 5 of this Appendix illustrates the default NTE zone for variable-speed auxiliary marine engines certified using the duty cycle specified in §1042.505(b)(5)(ii) or (iii), as follows:

(1) The default NTE zone is defined by the boundaries specified in 40 CFR 86.1370–2007(b)(1) and (2).

(2) A special PM subzone is defined in 40 CFR 1039.515(b).

Figure 5 of Appendix III — NTE Zone and Subzones for

Variable-Speed Auxiliary Marine Engines (nonpropeller-law)



PART 1043—CONTROL OF NO_X, SO_X, AND PM EMISSIONS FROM MARINE ENGINES AND VESSELS SUBJECT TO THE MARPOL PROTOCOL

Sec.

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1043.97 Interim provisions.
1043.100 Reference materials.

AUTHORITY: 33 U.S.C. 1901–1912.

SOURCE: 75 FR 23013, Apr. 30, 2010, unless otherwise noted.

§ 1043.1 Overview.

The Act to Prevent Pollution from Ships (APPS) requires engine manufacturers, owners and operators of vessels, and other persons to comply with Annex VI of the MARPOL Protocol. This part implements portions of APPS as it relates to Regulations 13, 14 and 18 of Annex VI. These regulations clarify the application of some Annex VI provisions; provide procedures and criteria for the issuance of EIAPP certificates; and specify requirements applicable to ships that are not registered by Parties to Annex VI. This part includes provisions to apply the equivalency provisions of Regulation 4 of Annex VI with respect to Regulations 14 and 18 of Annex VI. Additional regulations may also apply with respect to the Annex VI, such as those issued separately by the U.S. Coast Guard. Note that references in this part to a specific subsection of an Annex VI regulation (such as Regulation 13.5.1) reflect the regulation numbering of the 2008 Annex

VI (incorporated by reference in § 1043.100).

(a) The general requirements for non-public U.S.-flagged and other Party vessels are specified in Annex VI, as implemented by 33 U.S.C. 1901–1915. These requirements apply to engine manufacturers, owners and operators of vessels, and other persons.

(b) The provisions of this part specify how Regulations 13, 14 and 18 of Annex VI, as implemented by APPS, will be applied to U.S.-flagged vessels that operate only domestically.

(c) This part implements section 33 U.S.C. 1902(e) by specifying that non-public vessels flagged by a country that is not a party to Annex VI are subject to certain provisions under this part that are equivalent to the substantive requirements of Regulations 13, 14 and 18 of Annex VI as implemented by APPS.

(d) This part also describes where the requirements of Regulation 13.5.1 of Annex VI and Regulation 14.4 of Annex VI will apply.

(e) This part 1043 does not limit the requirements specified in Annex VI, as implemented by APPS, except as specified in § 1043.10(a)(2) and (b)(3).

(f) Nothing in this part limits the operating requirements and restrictions applicable for engines and vessels subject to 40 CFR part 1042 or the requirements and restrictions applicable for fuels subject to 40 CFR part 80.

(g) The provisions of this part specify how to obtain EIAPP certificates and certificates for Approved Methods.

§ 1043.5 Effective dates.

(a) The requirement of APPS for marine vessels to comply with Annex VI of the MARPOL Protocol is in effect.

(b) [Reserved]

(c) Compliance with the applicable regulations of this part is required for all persons as of July 1, 2010. (Note that certain requirements begin later, as described in paragraph (d) of this section.) Note also that compliance with §§ 1043.40 and 1043.41 is required to obtain EIAPP certificates under this part whether the application is submitted before July 1, 2010 or later.

(d) Compliance with the requirements related to ECAs are effective as follows:

(1) Compliance with the ECA NO_X requirements (*see* § 1043.60(a)) is required beginning on the date on which the ECA enters into force for the United States under Annex VI.

(2) Compliance with the fuel content requirements applicable within ECAs and ECA associated areas (*see* § 1043.60(b)) is required beginning 12 months after date on which the ECA enters into force for the United States under Annex VI.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9112, Feb. 19, 2015]

§ 1043.10 Applicability.

(a) *U.S.-flagged vessels*. The provisions of this part apply for all U.S.-flagged vessels wherever they are located (including engines installed or intended to be installed on such vessels), except as specified in this paragraph (a) or in § 1043.95.

(1) Public vessels are excluded from this part.

(2) Vessels that operate only domestically and conform to the requirements of this paragraph (a)(2) are excluded from Regulation 13 of Annex VI and the NO_X-related requirements of this part (including the requirement to obtain an EIAPP certificate and to keep a Technical File and an Engine Book of Record Parameters). For the purpose of this exclusion, the phrase ''operate only domestically'' means the vessels do not enter waters subject to the jurisdiction or control of any foreign country, except for Canadian portions of the Great Lakes. (See §§ 1043.60 and 1043.70 for provisions related to fuel use by such vessels). To be excluded, the vessel must conform to each of the following provisions:

(i) All compression-ignition engines on the vessel must conform fully to all applicable provisions of 40 CFR parts 94 and 1042.

(ii) The vessel may not contain any engines with a specific engine displacement at or above 30.0 liters per cylinder.

(iii) Any engine installed in the vessel that is not covered by an EIAPP certificate must be labeled as specified in 40 CFR 1042.135 with respect to whether it meets the requirements of Regulation 13 of Annex VI.

(b) *Foreign-flagged vessels*. The provisions of this part apply for all non-public foreign-flagged vessels (including engines installed on such vessels) as follows:

(1) The requirements of this part apply for foreign-flagged vessels operating in U.S. navigable waters or the U.S. EEZ.

(2) For non-public vessels flagged by a country that is not a party to Annex VI, the requirements of this part apply in the same manner as apply for Party vessels, except as otherwise provided in this part. For example, see §1043.30(c)(4) for provisions related to showing compliance with this requirement without an EIAPP certificate. See §1043.60 for specific operating requirements.

(3) Canadian vessels that operate only within the Great Lakes and are subject to an alternative NO_X control measure established by the Canadian government are excluded from the NO_X-related requirements of this part.

(c) *Fuel suppliers*. The provisions of §1043.80 apply for all persons supplying fuel to any vessel subject to this part.

(d) *Sea bed mineral exploration*. This part does not apply to emissions directly arising from the exploration, exploitation, and associated offshore processing of sea-bed mineral resources. Note that other regulations apply with respect to these emissions in certain circumstances, and that engines that are not solely dedicated to such activities are otherwise subject to all requirements of this part.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9112, Feb. 19, 2015]

§1043.20 Definitions.

The following definitions apply to this part:

2008 Annex VI means Annex VI to the MARPOL Protocol, including the amendments from Annex 12, adopted through April 2014 (incorporated by reference in §1043.100). This version of Annex VI does not include any amendments that may be adopted in the future. This 2008 version applies for certain provisions of this part such as those applicable for internal waters and for non-Party vessels.

Administrator means the Administrator of the Environmental Protection Agency.

Annex VI means Annex VI of the MARPOL Protocol.

APPS means the Act to Prevent Pollution from Ships (33 U.S.C. 1901–1915).

Designated Certification Officer means the EPA official to whom the Administrator has delegated authority to issue EIAPP certificates. Note that the Designated Certification Officer is also delegated certain authorities under this part in addition to the authority to issue EIAPP certificates.

ECA associated area means the U.S. internal waters that are navigable from the ECA. This term does not include internal waters that are shoreward of ocean waters that are not part of an emission control area.

EIAPP certificate means a certificate issued to certify initial compliance with Regulation 13 of Annex VI. (Note that EIAPP stands for Engine International Air Pollution Prevention under Annex VI.)

Emission control area (ECA) means an area designated pursuant to Annex VI as an Emission Control Area that is in force.

Engine has the meaning given in 40 CFR 1068.30.

EPA means the United States Environmental Protection Agency.

Foreign-flagged vessel means a vessel of foreign registry or a vessel operated under the authority of a country other than the United States.

Good engineering judgment has the meaning given in 40 CFR 1068.30. We will evaluate engineering judgments as described in 40 CFR 1068.5.

Great Lakes means all the streams, rivers, lakes, and other bodies of water that are within the drainage basin of the St. Lawrence River, west of Anticosti Island.

IMO means the International Maritime Organization.

Major conversion has the meaning given in 2008 Annex VI (incorporated by reference in §1043.100).

MARPOL Protocol has the meaning given in 33 U.S.C. 1901.

Navigable waters has the meaning given in 33 U.S.C. 1901.

Non-Party vessel means a vessel flagged by a country that is not a party to Annex VI.

NO_X Technical Code means the ''Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines'' adopted by IMO (incorporated by reference in § 1043.100). The Technical Code is part of 2008 Annex VI.

Operator has the meaning given in 33 U.S.C. 1901.

Owner has the meaning given in 33 U.S.C. 1901.

Party vessel means a vessel flying the flag of, registered in, or operating under the authority of a country that is a party to Annex VI.

Person has the meaning given in 33 U.S.C. 1901.

Public vessels means warships, naval auxiliary vessels, and other vessels owned or operated by a sovereign country when engaged in noncommercial service. Vessels with a national security exemption under 40 CFR 80.606 or 1042.635 are deemed to be public vessels.

Secretary has the meaning given in 33 U.S.C. 1901.

U.S. EEZ means the Exclusive Economic Zone of the United States, as defined in Presidential Proclamation 5030 of March 10, 1983.

U.S.-flagged vessel means a vessel of U.S. registry or a vessel operated under the authority of the United States.

Vessel has the meaning given to ''ship'' in APPS.

We means EPA.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9112, Feb. 19, 2015]

§ 1043.30 General obligations.

(a) 33 U.S.C. 1907 prohibits any person from violating any provisions of the MARPOL Protocol, whether or not they are a manufacturer, owner or operator. For manufacturers, owners and operators of vessels subject to this part, it is the responsibility of such manufacturers, owners and operators to ensure that all employees and other agents operating on their behalf comply with these requirements.

(b) Manufacturers of engines to be installed on U.S. vessels subject to this part must obtain an EIAPP certificate for an engine prior to it being installed in a vessel.

(c) Engines with power output of more than 130 kW that are listed in this paragraph (c) must be covered by a valid EIAPP certificate, certifying the engine meets the applicable emission standards of Annex VI, unless the engine is excluded under § 1043.10 or paragraph (d) of this section. An EIAPP certificate is valid for a given engine only if it certifies compliance with the tier of standards applicable to that engine and the vessel into which it is being installed (or a later tier). Note that none of the requirements of this paragraph (c) are limited to new engines.

(1) Engines meeting any of the following criteria must be covered by a valid EIAPP certificate:

(i) Engines installed (or intended to be installed) on vessels that were constructed on or after January 1, 2000. This includes engines that met the definition of ''new marine engine'' in 40 CFR 1042.901 at any time on or after January 1, 2000, unless such engines are installed on vessels that were constructed before January 1, 2000.

(ii) Engines that undergo a major conversion on or after January 1, 2000, unless the engines have been exempt from this requirement under paragraph (e) of this section.

(2) For such engines intended to be installed on U.S.-flagged vessels, the engine may not be introduced into U.S. commerce before it is covered by a valid EIAPP certificate, except as allowed by this paragraph (c)(2).

(i) This paragraph (c)(2) does not apply for engines installed on vessels excluded under this part 1043.

(ii) Engines without a valid EIAPP certificate (because they are intended for domestic use only) may be introduced into U.S. commerce, but may not be installed on vessels that do not meet the requirements of § 1043.10(a)(2).

(iii) Engines that have been temporarily exempted by EPA under 40 CFR part 1042 or part 1068 may be introduced into U.S. commerce without a valid EIAPP certificate to the same extent they are allowed to be introduced into U.S. commerce without a valid part 1042 certificate of conformity, however, this allowance does not affect whether the engine must ultimately be

covered by an EIAPP certificate. Unless otherwise excluded or exempted under this part 1043, the engine must be covered by an EIAPP certificate before being placed into service. For example, engines allowed to be temporarily distributed in an uncertified configuration under 40 CFR 1068.260 would not be required to be covered by an EIAPP certificate while it is covered by the temporary exemption under 40 CFR 1068.260; however, it would be required to be covered by an EIAPP certificate before being placed into service.

(iv) All uninstalled marine engines within the United States are presumed to be intended to be installed on a U.S.-flagged vessel, unless there is clear and convincing evidence to the contrary.

(3) For engines installed on Party vessels, the engine may not operate in the U.S. navigable waters or the U.S. exclusive economic zone, or other areas designated under 33 U.S.C. 1902(a)(5)(B)(iii), (C)(iii), or (D)(iv) unless it is covered by a valid EIAPP certificate.

(4) Engines installed on non-Party vessels are not required to have EIAPP certificates, but the operator must have evidence of conformity with Regulation 13 of Annex VI issued by either the government of a country that is party to Annex VI or a recognized classification society. For the purposes of this paragraph, ''recognized classification society'' means a classification society that is a participating member of the International Association of Classification Societies (IACS).

(d) In addition to the engines excluded under § 1043.10, the following engines are excluded from the requirement to have an EIAPP certificate (or equivalent demonstration of compliance in the case of non-Party vessels) or otherwise meet the requirements of Regulation 13 of Annex VI.

(1) Spark-ignition engines.

(2) Non-reciprocating engines.

(3) Engines that do not use liquid fuel.

(4) Engines intended to be used solely for emergencies. This includes engines that power equipment such as pumps that are intended to be used solely for emergencies and engines installed in lifeboats intended to be used solely for emergencies. It does not include engines to be used for both emergency and non-emergency purposes.

(e) The following requirements apply to Party vessels, including U.S.-flagged vessels:

(1) The requirements specified in Annex VI apply for vessels subject to this part for operation in U.S. navigable waters or the U.S. EEZ. (*See* § 1043.60 for a summary of the standards included in these requirements.)

(2) Vessels operating in an ECA must also comply with the requirements of Annex VI applicable to operation in an ECA.

(3) Vessels operating in waters of an ECA associated area must also comply with the requirements in § 1043.60.

(f) The following requirements apply to non-Party vessels:

(1) Non-Party vessels operating in U.S. navigable waters or the U.S. EEZ must comply with the operating and recordkeeping requirements of the 2008 Annex VI (incorporated by reference in § 1043.100) related to Regulations 13, 14 and 18 of the 2008 Annex VI. This paragraph (f)(1) does not address requirements of other portions of Annex VI.

(2) Non-Party vessels operating in an ECA or ECA associated area must also comply with the requirements in § 1043.60.

(g) A replacement engine may be exempted by EPA from Regulation 13 of Annex VI and the NO_X-related requirements of this part if it is identical to the engine being replaced and the old engine was not subject to Regulation 13 of Annex VI. Send requests for such exemptions to the Designated Certification Officer.

(h) Compliance with the provisions of this part 1043 does not affect your responsibilities under 40 CFR part 1042 for engines subject to that part 1042.

§ 1043.40 EIAPP certificates.

(a) Engine manufacturers seeking EIAPP certificates for new engines to be used in U.S.-flagged vessels must apply to EPA for an EIAPP certificate in compliance with the requirements of this section (which references 40 CFR part 1042). Note that under APPS engine manufacturers must comply with

the applicable requirements of Regulation 13 of Annex VI to obtain a certificate. Note also that only the Administrator or the EPA official designated by the Administrator may issue EIAPP certificates on behalf of the U.S. Government.

(b) Persons other than engine manufacturers may apply for and obtain EIAPP certificates for new engines to be used in U.S.-flagged vessels by complying with the requirements of this section (which references 40 CFR part 1042) and the applicable requirements of Regulation 13 of Annex VI.

(c) In appropriate circumstances, EPA may issue an EIAPP certificate under this section for non-new engines or engines for vessels that will not initially be flagged in the U.S.

(d) EPA may issue both an EPA certificate and an EIAPP certificate for the same engine, as long as the manufacturer and the engine meet all applicable requirements. EPA may not issue an EIAPP certificate if the engine is certified with an FEL under 40 CFR part 1042 that is higher than the applicable NO_X emission standard under Annex VI.

(e) The process for obtaining an EIAPP certificate is described in § 1043.41. That section references regulations in 40 CFR part 1042, which apply under the Clean Air Act. References in that part to certificates of conformity are deemed to mean EIAPP certificates. References in that part to the Clean Air Act as the applicable statute are deemed to mean 33 U.S.C. 1901–1915.

(f) For engines that undergo a major conversion or for engines installed on imported vessels that become subject to the requirements of this part, we may specify alternate certification provisions consistent with the intent of this part.

(g) This paragraph (g) applies for engines that were originally excluded from this part because they were intended for domestic use and were introduced into U.S. commerce without an EIAPP certificate. Note that such engines must be labeled as specified under 40 CFR 1042.135 to indicate that they are intended for domestic use. Such engines may be installed on vessels not intended only for domestic operation provided the engine manufacturer, vessel manufacturer, or vessel owner obtains an EIAPP certificate. Similarly, vessels originally intended only for domestic operation may be used internationally provided the engine manufacturer, vessel manufacturer, or vessel owner obtains an EIAPP certificate. The limitations for engine manufacturers described in paragraphs (a) and (d) of this section also apply for all EIAPP certificates issued under this paragraph (g). In either case, the Technical File must specify that the engine was originally certified for domestic use only, prior to being covered by an EIAPP certificate. Engine manufacturers may provide a supplemental label to clarify that the engine is no longer limited to domestic service. An engine manufacturer, vessel manufacturer, or vessel owner may also ask to apply the provisions of this paragraph (g) to engines originally certified for public vessels.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9112, Feb. 19, 2015]

§ 1043.41 EIAPP certification process.

This section describes the process for obtaining the EIAPP certificate required by § 1043.40.

(a) You must send the Designated Certification Officer a separate application for an EIAPP certificate for each engine family. An EIAPP certificate is valid starting with the indicated effective date and is valid for any production until such time as the design of the engine family changes or more stringent emission standards become applicable, whichever comes first. You may obtain preliminary approval of portions of the application under 40 CFR 1042.210.

(b) The application must contain all the information required by this part. It must not include false or incomplete statements or information (*see* 40 CFR 1042.255). Include the information specified in 40 CFR 1042.205 except as follows:

(1) You must include the dates on which the test engines were built and the locations where the test engines were built.

(2) Include a copy of documentation required by this part related to maintenance and in-use compliance for operators, such as the Technical File and onboard NO_X verification procedures as specified by the NO_X Technical Code (incorporated by reference in §1043.100).

(3) You are not required to provide information specified in 40 CFR 1042.205 regarding useful life, emission labels, deterioration factors, PM emissions, or not-to-exceed standards.

(4) You must include a copy of your warranty instructions, but are not required to describe how you will meet warranty obligations.

(c) We may ask you to include less information than we specify in this section as long as you maintain all the information required by paragraph (b) of this section.

(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* 40 CFR 1042.255 for provisions describing how we will process your application.

(g) Your application, including the Technical File and onboard NO_X verification procedures, is subject to amendment as described in 40 CFR 1042.225.

(h) Perform emission tests as follows:

(1) Select an emission-data engine from each engine family for testing. For engines at or above 560 kW, you may use a development engine that is equivalent in design to the engine being certified. For Category 3 engines, you may use a single-cylinder version of the engine. Using good engineering judgment, select the engine configuration most likely to exceed an applicable emission standard, considering all exhaust emission constituents and the range of installation options available to vessel manufacturers.

(2) Test your emission-data engines using the procedures and equipment specified in 40 CFR part 1042, subpart F, or in the NO_X Technical Code (incorporated by reference in §1043.100). We may require that your test be witnessed by an EPA official.

(3) We may measure emissions from any of your test engines or other engines from the engine family, as follows:

(i) We may decide to do the testing at your plant or any other facility. You must deliver the test engine to any test facility we designate. The test 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.

(ii) If we measure emissions from one of your test 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.

(iii) Before we test one of your engines, we may set its adjustable parameters to any point within the specified adjustable ranges (*see* 40 CFR 1042.115(d)).

(iv) Before we test one of your engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter.

(4) We may require you to test a second engine of the same or different configuration in addition to the engine tested under paragraph (b) of this section.

(5) 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 otherwise required by this part, we may reject data you generated using the alternate procedure.

(i) Collect emission data using measurements to one more decimal place than the applicable standard, then round the value 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.

(j) Your engine family is considered in compliance with the emission standards in Regulation 13 of Annex VI if all emission-data engines representing

that family have test results showing emission levels at or below these standards. Your engine family is deemed not to comply if any emission-data engine representing that family has test results showing an emission level above an applicable emission standard for any pollutant.

(k) If we determine your application is complete and shows that the engines meet all the requirements of this part, we will issue an EIAPP certificate for your engines. We may make the approval subject to additional conditions.

§ 1043.50 Approval of methods to meet Tier 1 retrofit NO_X standards.

Regulation 13 of Annex VI provides for certification of Approved Methods, which are retrofit procedures that enable Pre-Tier 1 engines to meet the Tier 1 NO_X standard of regulation 13 of Annex VI. Any person may request approval of such a method by submitting an application for certification of an Approve Method to the Designated Certification Officer. If we determine that your application conforms to the requirements of Regulation 13 of Annex VI, we will issue a certificate and notify IMO that your Approved Method has been certified.

§ 1043.55 Applying equivalent controls instead of complying with fuel requirements.

Regulation 4 of Annex VI allows Administrations to approve the use of fuels not meeting the requirements of Regulation 14 of the Annex, provided the vessel applies a method that results in equivalent emission reductions. This section describes provisions related to applying this allowance.

(a) Any person may request approval of such equivalent methods for controlling emissions on U.S.-flagged vessels by submitting an application for certification of an equivalent control method to the Designated Certification Officer. If we determine that your control method achieves emission levels equivalent to those achieved by the use of fuels meeting the requirements of Regulation 14 of Annex VI, we will issue a certificate and notify IMO that your method has been certified.

(b) The provisions of this paragraph (b) apply for vessels equipped with controls certified by the Administration of a foreign flag vessel to achieve emission levels equivalent to those achieved by the use of fuels meeting the applicable fuel sulfur limits of Regulation 14 of Annex VI. Fuels not meeting the applicable fuel sulfur limits of Regulation 14 of Annex VI may be used on such vessels consistent with the provisions of the IAPP certificate, APPS and Annex VI.

(c) Compliance with the requirements of this section does not affect the applicability of requirements or prohibitions specified by other statutes or regulations with respect to water pollution.

§ 1043.60 Operating requirements for engines and vessels subject to this part.

This section specifies the operating requirements of this part. Note that it does not limit the operating requirements of APPS or Annex VI that are applicable to U.S.-flagged vessels outside of U.S. domestic waters.

(a) Except as specified otherwise in this part, NO_X emission limits apply to all vessels subject to this part as specified in the following table:

TABLE 1 TO § 1043.60 ANNEX VI NO_X EMISSION STANDARDS (g/kW-hr)

Tier	Area of applicability	Implementation date [a]	Maximum in-use engine speed		
			Less than 130 RPM	130–2000 RPM [b]	Over 2000 RPM
Tier I	All U.S. navigable waters and EEZ.	January 1, 2004–December 31, 2010.	17.0	$45.0 \cdot n^{(-0.20)}$	9.8
Tier II	All U.S. navigable waters and EEZ.	January 1, 2011–December 31, 2015.	14.4	$44.0 \cdot n^{(-0.23)}$	7.7
Tier II	All U.S. navigable waters and EEZ, exluding ECA and ECA associated areas.	January 1, 2016 and later.	14.4	$44.0 \cdot n^{(-0.23)}$	7.7

TABLE 1 TO § 1043.60 ANNEX VI NO_X EMISSION STANDARDS (g/kW-hr)—Continued

Tier	Area of applicability	Implementation date [a]	Maximum in-use engine speed		
			Less than 130 RPM	130–2000 RPM [b]	Over 2000 RPM
Tier III	ECA and ECA associated areas.	January 1, 2016 and later [c].	3.4	$9.0 \cdot n^{(-0.20)}$	2.0

[a] Standards apply for engines installed on vessels with a build date in the specified time frame, or for engines that undergo a major conversion in the specified time frame.
[b] Applicable standards are calculated from *n* (maximum in-use engine speed, in RPM, as specified in § 1042.140). Round the standards to one decimal place.
[c] In the case of recreational vessels of less than 500 gross tonnage with length at or above 24 meters, the Tier III standards start to apply January 1, 2021.

(b) Except as specified otherwise in this part, fuel sulfur limits apply to all vessels subject to this part as specified in the following table:

TABLE 2 TO § 1043.60 ANNEX VI FUEL SULFUR LIMITS (wt %) [a]

Calendar years	Sulfur limit in all U.S. navigable waters and EEZ (percent)	Sulfur limit in ECA and ECA associated areas (percent)
2010–2011	4.50	1.00
2012–2014	3.50	1.00
2015–2019	3.50	0.10
2020 and later	0.50	0.10

[a] Note that Regulation 3 and Regulation 4 of Annex VI allow for the use of noncompliant fuel in certain circumstances.

(c) Operators of non-Party vessels must comply with the requirements of paragraphs (a) and (b) of this section as well as other operating requirements and restrictions specified in 2008 Annex VI (incorporated by reference in § 1043.100) related to Regulations 13, 14, and 18.

(d) This paragraph (d) applies for vessels that are excluded from Regulation 13 of Annex VI and the NO_X-related requirements of this part under § 1043.10(a)(2) or (b)(3) because they operate only domestically. Where the vessels operate using only fuels meeting the specifications of 40 CFR part 80 for distillate fuel, they are deemed to be in full compliance with the fuel use requirements and prohibitions of this part and of Regulations 14 and 18 of Annex VI.

(e) Except as noted in paragraph (d) of this section, nothing in this section limits the operating requirements and restrictions of Annex VI, as implemented by APPS, for Party vessels, including U.S.-flagged vessels. Note also that nothing in this part limits the operating requirements and restrictions applicable for engines and vessels subject to 40 CFR part 1042 or the requirements and restrictions applicable for fuels subject to 40 CFR part 80.

(f) We may exempt historic steamships from the fuel requirements of this part for operation in U.S. internal waters. Send requests for exemptions to the Designated Certification Officer.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9112, Feb. 19, 2015]

§ 1043.70 General recordkeeping and reporting requirements.

(a) Under APPS, owners and operators of Party vessels must keep records related to NO_X standards and in-use fuel specifications such as the Technical File, the Engine Book of Record Parameters, and bunker delivery notes. Owners and operators of non-Party vessels must keep these records as specified in the NO_X Technical Code and Regulations 13, 14, and 18 of 2008 Annex VI (incorporated by reference in § 1043.100). We may inspect these records as allowed by APPS. As part of our inspection, we may require that the owner submit copies of these records to us.

(b) Nothing in this part limits recordkeeping and reporting the Secretary may require, nor does it preclude the Secretary from providing copies of any records to EPA.

(c) Nothing in this part limits the recordkeeping and reporting requirements applicable with respect to engines and vessels subject to 40 CFR part 1042 or with respect to fuels subject to 40 CFR part 80.

(d) This paragraph (d) applies for vessels that are excluded from Regulation 13 of Annex VI and the NO_X-related requirements of this part under

§ 1043.10(a)(2) or (b)(3) because they operate only domestically. Where the vessel operator has fuel receipts (or equivalent records) for the preceding three years showing it operated using only fuels meeting the specifications of 40 CFR part 80 for distillate fuel, they are deemed to be in full compliance with the fuel recordkeeping requirements and prohibitions of this part and Annex VI.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9113, Feb. 19, 2015]

§ 1043.80 Recordkeeping and reporting requirements for fuel suppliers.

Under APPS, fuel suppliers must provide bunker delivery notes to vessel operators for any fuel for an engine on any vessel identified in paragraph (a) of this section. Fuel suppliers must also keep copies of these records.

(a) The requirements of this section apply for fuel delivered to any of the following vessels:

(1) Vessels of 400 gross tonnage and above engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties.

(2) Platforms and drilling rigs engaged in voyages to waters under the sovereignty or jurisdiction of other Parties.

(b) Except as allowed by paragraph (c) of this section, the bunker delivery note must contain the following:

(1) The name and IMO number of the receiving vessel.

(2) Port (or other description of the location, if the delivery does not take place at a port).

(3) Date the fuel is delivered to the vessel (or date on which the delivery begins where the delivery begins on one day and ends on a later day).

(4) Name, address, and telephone number of fuel supplier.

(5) Fuel type and designation under 40 CFR part 80.

(6) Quantity in metric tons.

(7) Density at 15 °C, in kg/m^3.

(8) Sulfur content in weight percent.

(9) A signed statement by an authorized representative of the fuel supplier certifying that the fuel supplied conforms to Regulations 14 and 18 of Annex VI consistent with its designation, intended use, and the date on which it is to be used. For example, with respect to conformity to Regulation 14 of Annex VI, a fuel designated and intended for use in an ECA any time on or after January 1, 2015 may not have a sulfur content above 0.10 weight percent. This statement is not required if the vessel is not subject to fuel standards of Regulation 14 of Annex VI. The statement described in this paragraph (b)(9) is deemed to be a submission to EPA.

(c) You may measure density and sulfur content according to the specifications of Annex VI, or according to other equivalent methods that we approve. Where the density and/or sulfur content of the delivered fuel cannot be measured, we may allow the use of alternate methods to specify the density and/or sulfur content of the fuel. For example, where fuel is supplied from multiple tanks on a supply vessel, we may allow the density and sulfur content of the fuel to be calculated as a weighted average of the measured densities and sulfur contents of the fuel that is supplied from each tank.

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9113, Feb. 19, 2015]

§ 1043.90 [Reserved]

§ 1043.95 Great Lakes provisions.

The provisions of this section apply for vessels operating exclusively in the Great Lakes.

(a) Notwithstanding other provisions of this part, the requirements of this part do not apply for vessels propelled by steam turbine engines or reciprocating steam engines (also known as steamships), provided they were propelled by steam engines and operated within the Great Lakes before October 30, 2009 and continue to operate exclusively within the Great Lakes.

(b) The fuel-use requirements of this part do not apply through December 31, 2025, for a ship qualifying under paragraph (a) of this section if it was in service as a steamship on October 30, 2009 and it is repowered with one or more marine diesel engines, subject to the following conditions and requirements:

(1) Engines must meet exhaust emission standards using one of the following approaches:

(i) All the installed replacement engines must be certified to applicable standards under 40 CFR part 1042 based on the date the vessel enters dry dock for service.

(ii) We may approve the use of an engine meeting less stringent standards if the owner can demonstrate that it took possession of the engine before October 30, 2009, and that engine is a new engine that has not been installed in a non-marine application. Such an engine must at a minimum be certified to the Annex VI NO_X emission standard referenced in §1043.60 that applies based on its build date.

(2) The vessel owner must notify us regarding the intent to use this provision. The notification must include a description of the vessel and a summary of the project, including the expected timeline, and other relevant information.

(3) The vessel owner must notify the Designated Certification Officer when the project is complete. We will send the owner a statement that the repowered ship is exempt from fuel sulfur requirements through December 31, 2025; this statement must be kept onboard the vessel for compliance purposes.

(4) All other requirements under this part 1043 continue to apply, including requirements related to bunker delivery notes.

(5) This paragraph (b) applies only for vessels whose hull remains intact through the repowering process. For example, if a steamship is converted to a barge for use with tugboats, those vessels must use fuel meeting the requirements of this part 1043.

(c) In cases of serious economic hardship, we may exempt Great Lakes vessels from the otherwise applicable fuel use requirements under this part.

(1) To be eligible, you must demonstrate that all of the following are true:

(i) Unusual circumstances exist that impose serious economic hardship and significantly affect your ability to comply.

(ii) You have taken all reasonable steps to minimize the extent of the nonconformity.

(iii) No other allowances are available under the regulations in this chapter to avoid the impending violation.

(2) Send the Designated Certification Officer a written request for an exemption no later than January 1, 2014.

(3) Applicants must provide, at a minimum, the following information:

(i) Detailed description of existing contract freight rates, the additional operating costs attributed to complying with the regulations, any loan covenants or other requirements regarding vessel financial instruments or agreements.

(ii) Bond rating of entity that owns the vessels in question (in the case of joint ventures, include the bond rating of the joint venture entity and the bond ratings of all partners; in the case of corporations, include the bond ratings of any parent or subsidiary corporations).

(iii) Estimated capital investment needed to comply with the requirements of this part by the applicable date.

(4) In determining whether to grant the exemptions, we will consider all relevant factors, including the following:

(i) The number of vessels to be exempted.

(ii) The size of your company and your ability to endure the hardship.

(iii) The length of time a vessel is expected to remain out of compliance with this part.

(iv) The ability of an individual vessel to recover capital investments incurred to repower or otherwise modify a vessel to reduce air emissions.

(5) In addition to the application requirements of paragraphs (b)(1) through (4) of this section, your application for temporary relief under this paragraph (b) must also include a compliance plan that shows the period over which the waiver is needed.

(6) We may impose conditions on the waiver, including conditions to limit or recover any environmental loss.

(d) Prior to January 1, 2015, it is not a violation of this part for vessels operating exclusively in the Great Lakes to use a residual fuel not meeting the sulfur limits of Regulation 14.4.2 of Annex VI, where the operator bunkers with the lowest sulfur marine residual fuel that was available within the port area where the vessel bunkered the fuel. For purposes of this paragraph (c), port

area means the geographic limits of the port as specified by the Army Corps of Engineers. The reporting and recordkeeping requirements of this part continue to apply for such operation. In addition, if you operate using a residual fuel not meeting the sulfur limits of Regulation 14.4.2 under this paragraph (c), you must send a report to the Designated Certification Officer that identifies the fuel that was used and documents how you determined that no compliant fuel was available. You must send this report within three months after the fueling event.

[75 FR 23013, Apr. 30, 2010, as amended at 77 FR 2478, Jan. 18, 2012; 80 FR 9113, Feb. 19, 2015]

§ 1043.97 Interim provisions.

(a) The fuel-related requirements under APPS for operation in the North American ECA, the United States Caribbean Sea ECA, and ECA-associated areas do not apply until January 1, 2020 for steamships built on or before August 1, 2011 if they are powered by propulsion boilers that were not originally designed for continued operation on marine distillate fuel or natural gas.

(b) [Reserved]

[80 FR 9113, Feb. 19, 2015]

§ 1043.100 Reference materials.

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, (202) 566–1744, 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) *IMO material.* This paragraph (a) lists material from the International Maritime Organization that we have incorporated by reference. Anyone may purchase copies of these materials from the International Maritime Organization, 4 Albert Embankment, London SE1 7SR, United Kingdom, or *www.imo.org, or 44-(0)20–7735–7611.*

(1) MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships, Third Edition, 2013, and NO_X Technical Code 2008.

(i) Revised MARPOL Annex VI, Regulations for the Prevention of Pollution from Ships, Third Edition, 2013 (''2008 Annex VI''); IBR approved for § 1043.1 introductory text, 1043.20, 1043.30(f), 1043.60(c), and 1043.70(a).

(ii) NO_X Technical Code 2008, Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines, 2013 Edition, (''NO_X Technical Code''); IBR approved for §§ 1043.20, 1043.41(b) and (h), and 1043.70(a).

(iii) Annex 12, Resolution MEPC.251(66) from the Report of the Marine Environment Protection Committee on its Sixty-Sixth Sesson, April 25, 2014. This document describes new and revised provisions that are considered to be part of Annex VI and NO_X Technical Code 2008 as referenced in paragraphs (a)(1)(i) and (ii) of this section. IBR approved for § 1043.1 introductory text, 1043.20, 1043.30(f), 1043.41(b) and (h), 1043.60(c), and 1043.70(a).

(2) [Reserved]

(b) [Reserved]

[75 FR 23013, Apr. 30, 2010, as amended at 80 FR 9113, Feb. 19, 2015]

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

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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.

SOURCE: 73 FR 59194, Oct. 8, 2008, unless otherwise noted.

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 enignes 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 + NO_X	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 + NO_X 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 + NO_X emission standards. For CO emissions, you may generate or use emission credits for averaging as described in subpart H of this part, but such credits may not be banked or traded. 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 + NO_X is 81.0 g/kW-hr. For all other engines, the maximum value of the family emission limit for HC + NO_X is defined by the following formula, with results rounded to the nearest 0.1 g/kW-hr:

$$FEL_{max,HC+NO_x} = 6.0 + 0.25 \cdot \left(151 + \frac{557}{P^{0.9}}\right)$$

(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.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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:

Not-to-exceed standard = (STD) × (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	N/A	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/m^2/day if testing occurs at a nominal temperature of 28 °C, or 8.3 g/m^2/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 your 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 ENGINES [1]

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 (a)(3), (b), or (c) of this section.

(3) You may ask us to approve a maintenance interval shorter than that specified in paragraph (a)(2) of this section. In your request you must describe the proposed maintenance step, recommend the maximum feasible interval for this maintenance, include your rationale with supporting evidence to support the need for the maintenance at the recommended interval, and demonstrate that the maintenance will be done at the recommended interval on in-use engines. In considering your request, we will evaluate the information you provide and any other available information to establish alternate specifications for maintenance intervals, if appropriate.

(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. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address engine operation that is not atypical, or that

the maintenance is unlikely to occur in use. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

(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.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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 Web site 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 for engines above 30 kW and to the nearest 0.1 kilowatt for engines at or below 30 kW.

(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.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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. 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. For an engine to be exempt under this paragraph (a), you must contact us before January 1, 2011 or before you introduce such engines into U.S. commerce, whichever comes first. 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.

(o) *Banking early credits for jet boat engines.* Banked emission credits that were originally generated from outboard and personal watercraft engines under 40 CFR part 91 may be used to certify jet boat engines under the provisions § 1045.660.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010; 75 FR 68462, Nov. 8, 2010]

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)).

(h) For engines that become new after being placed into service, such as engines installed on imported vessels or engines converted to run on a different fuel, we may specify alternate certification provisions consistent with the intent of this part. *See* § 1045.645 and the definition of ''new propulsion marine engine'' in § 1045.801.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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 test results as follows:

(1) Report all test results involving measurement of pollutants for which emission standards apply. Include test results 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. 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.

(2) Report measured CO_2, N_2O, and CH_4 as described in § 1045.235. Small-volume engine manufacturers may omit reporting N_2O and CH_4.

(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.

[73 FR 59194, Oct. 8, 2008, as amended at 73 FR 73789, Dec. 4, 2008; 74 FR 56509, Oct. 30, 2009]

§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 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).

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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 (such as in-line or vee configuration), 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.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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.

(g) Measure CO_2 and CH_4 with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2011 and 2012 model years, respectively. Also measure N_2O with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2013 model year for any engine family that depends on NO_X aftertreatment to meet emission standards. Small-volume engine manufacturers may omit measurement of N_2O and CH_4. These measurements are not required for NTE testing. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/kW-hr.

(2) Round N_2O to the nearest 0.001 g/kW-hr.

(3) Round CH_4 to the nearest 0.001 g/kW-hr.

[73 FR 59194, Oct. 8, 2008, as amended at 74 FR 56510, Oct. 30, 2009]

§ 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 official emission results and deteriorated emission levels at or below these standards. This also applies for all test points for emission-data engines within the family used to establish deterioration factors. 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. *See* paragraph (e) of this section for provisions related to demonstrating compliance with NTE standards.

(b) Your engine family is deemed not to comply with the duty-cycle emission standards in § 1045.103 or § 1045.105 if any emission-data engine representing that family has test results showing an official emission result or 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. This also applies for all test points for emission-data engines within the family used to establish deterioration factors.

(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.

(e) Use good engineering judgment to demonstrate compliance with NTE standards throughout the useful life. You may, but are not required to, apply the same deterioration factors used to show compliance with the applicable duty-cycle standards.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23019, Apr. 30, 2010]

§ 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:

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

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 (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:

$$\sigma = \left[\sum \frac{(X_i - x)^2}{(n-1)} \right]^{\frac{1}{2}}$$

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, Ci, 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).

[73 FR 59194, Oct. 8, 2008, as amended at 73 FR 73789, Dec. 4, 2008]

§ 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 as described in this paragraph (c). Complete the testing within 36 months after we direct you to test a particular engine family. Send us a complete in-use testing plan according to the following deadlines:

(1) Within six 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 six months after we approve certification for engine families subject to the requirements of paragraph (b)(2) of this section.

(4) If we request additional information or require you to modify your plan to meet the requirements of this subpart, you must provide the information or the modified plan within 30 days of our request.

(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 allow more time to complete testing or 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.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23020, Apr. 30, 2010]

§ 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 exhaust constituents subject to emissions standards as specified in 40 CFR part 1065. Measure CO_2, N_2O, and CH_4 as described in § 1045.235. 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.

[73 FR 59194, Oct. 8, 2008, as amended at 74 FR 56510, Oct. 30, 2009]

§ 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:

Normalized torque = 1.5 × 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:

Normalized torque = (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.

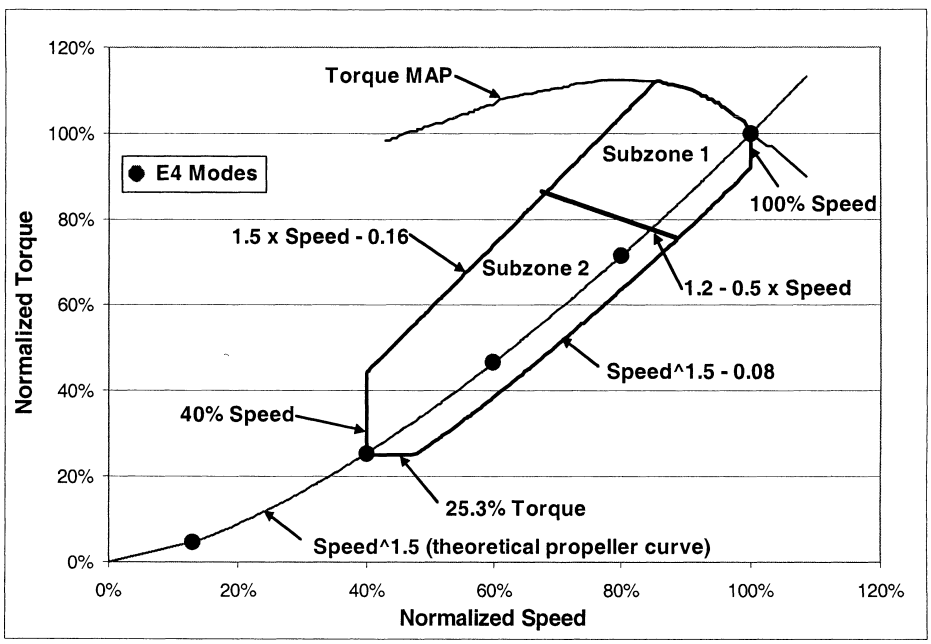
(4) For engines equipped with a catalyst, the NTE zone described in paragraph (c)(3) of this section is divided into the following subzones for determining the applicable NTE standards, as illustrated in Figure 1 of this section:

(i) Subzone 1 includes all operation in the NTE zone characterized by speeds and torques above the line represented by the following equation:

(percent torque) = 1.2 − 0.5 × (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 II 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.

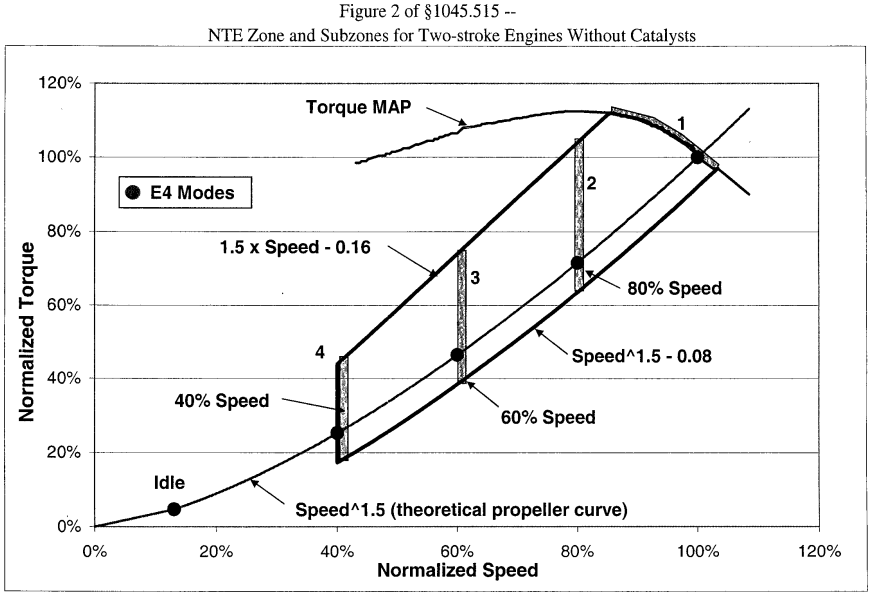
(ii) Mode 2: Operate the engine at a nominal speed that is 80 percent of maximum test speed at any torque value between the boundaries specified in paragraph (c)(3) of this section.

(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

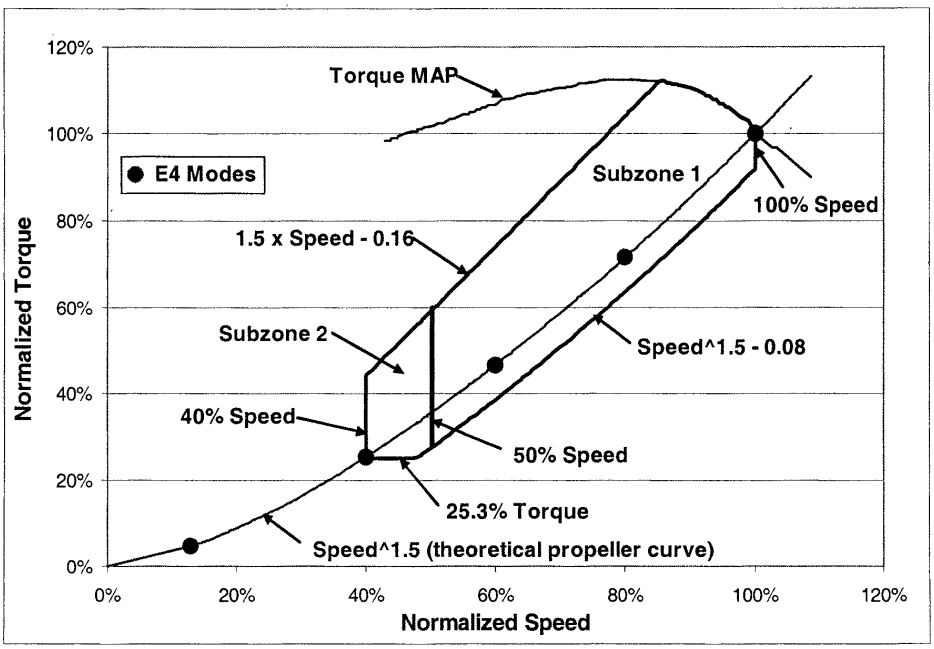


(6) For any engines not covered by paragraphs (c)(4) and (5) of this section, the NTE zone described in paragraph (c)(3) of this section is divided into the following subzones for determining the applicable NTE standards, as illustrated in Figure 2 of this section:

(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



[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23020, Apr. 30, 2010]

§ 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 catalysts), 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. Such emission credits that you generate under this part 1045 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 for averaging in the model year they are generated or banked for averaging in future model years, 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 § 1045.5.

(5) Any other engines or vessels where we indicate elsewhere in this part 1045 that they are not to be included in the calculations of this subpart.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23020, Apr. 30, 2010]

§ 1045.705 How do I generate and calculate exhaust emission credits?

The provisions of this section apply for calculating exhaust emission credits for HC + NO_X 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:

Emission credits (kg) = (STD − FEL) × (Volume) × (Power) × (UL) × (LF) × (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 engine family under 40 CFR 1065.10(c)(2), consistent with good engineering judgment.

(b) [Reserved]

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23020, Apr. 30, 2010]

§ 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:

Emission credits (kg) = (STD − FEL) × (Total Area) × (UL) × (AF) × (365) × (10^{-3})

Where:

STD = the emission standard, in g/m^2/day.

FEL = the family emission limit for the family, in g/m^2/day, as described in paragraph (b) of this section.

Total Area = The combined internal surface area of all fuel tanks in the family, in m^2.

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/m^2/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/m^2/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/m^2/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/m^2/day. This would apply without regard to whether any of these emission families have measured emission levels below 10.4 g/m^2/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/m^2/day, the assigned FEL of 10.4 g/m^2/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. 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 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 calendar year in which the engine was originally produced. For an engine that is converted to a propulsion marine 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 propulsion marine 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 propulsion marine nonroad engine,'' *model year* means the calendar year in which the engine is first 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.

[73 FR 59194, Oct. 8, 2008, as amended at 75 FR 23020, Apr. 30, 2010]

§ 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_2O 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 *http://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 + NO_X standard is 81.00 g/kW-hr.

(2) For engines above 4.3 kW, the following HC + NO_X standard applies:

$$STD = 6.00 + 0.250 \cdot (151 + 557/P^{0.9})$$

Where:

STD = The HC + NO_X 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 No.	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

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APPENDIX II TO PART 1048—LARGE SPARK-IGNITION (SI) COMPOSITE TRANSIENT CYCLE

AUTHORITY: 42 U.S.C. 7401–7671q.

SOURCE: 67 FR 68347, Nov. 8, 2002, unless otherwise noted.

Subpart A—Overview and Applicability

§ 1048.1 Does this part apply to me?

(a) The regulations in this part 1048 apply for all new, spark-ignition nonroad engines (defined in § 1048.801) with maximum engine power above 19 kW, except as provided in § 1048.5.

(b) This part 1048 applies for engines built on or after January 1, 2004. You need not follow this part for engines you produce before January 1, 2004. *See* §§ 1048.101 through 1048.115, § 1048.145, and the definition of model year in § 1048.801 for more information about the timing of new requirements.

(c) The definition of nonroad engine in 40 CFR 1068.30 excludes certain engines used in stationary applications. These engines may be required by 40 CFR part 60, subpart JJJJ, to comply with some of the provisions of this part 1048; otherwise, these engines are only required to comply with the requirements in § 1048.20. In addition, the prohibitions in 40 CFR 1068.101 restrict the use of stationary engines for nonstationary purposes unless they are certified under this part 1048 to the same standards that would apply to nonroad engines for the same model year.

(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.

[70 FR 40465, July 13, 2005, as amended at 73 FR 3613, Jan. 18, 2008; 73 FR 59231, Oct. 8, 2008]

§ 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.).

[73 FR 59231, Oct. 8, 2008]

§ 1048.5 Which 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, or are otherwise subject to 40 CFR part 1051 (for example, engines used in snowmobiles and all-terrain vehicles).

(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.

[70 FR 40465, July 13, 2005, as amended at 73 FR 59232, Oct. 8, 2008]

§ 1048.10 How is this part organized?

This part 1048 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of part 1048 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 §1048.145 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) [Reserved]

(i) Subpart I of this part contains definitions and other reference information.

[70 FR 40465, July 13, 2005, as amended at 73 FR 59232, Oct. 8, 2008]

§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-system component manufacturers for certifying their products.

(b) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1048 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 1048, 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.

[70 FR 40465, July 13, 2005, as amended at 73 FR 59232, Oct. 8, 2008; 74 FR 8426, Feb. 24, 2009; 75 FR 23021, Apr. 30, 2010]

§1048.20 What requirements from this part apply to excluded stationary engines?

(a) You must add a permanent label or tag to each new engine you produce or import that is excluded under §1048.1(c) as a stationary engine and is not required by 40 CFR part 60, subpart JJJJ, to meet the standards and other requirements of this part 1048 that are equivalent to the requirements applicable to nonroad SI engines for the same model year. To meet labeling requirements, you must do the following things:

(1) Attach the label or tag in one piece so no one can remove it without destroying or defacing it.

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

(3) Make sure it is durable and readable for the engine's entire life.

(4) Write it in English.

(5) Follow the requirements in §1048.135(g) regarding duplicate labels if the engine label is obscured in the final installation.

(b) Engine labels or tags required under this section must have the following information:

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

(2) Include your full corporate name and trademark. You may instead include the full corporate name and trademark of another company you choose to designate.

(3) State the engine displacement (in liters) and maximum engine power.

(4) State: ''THIS ENGINE IS EXCLUDED FROM THE REQUIREMENTS OF 40 CFR PART 1048 AS A ''STATIONARY ENGINE'' AND THE OWNER/OPERATOR MUST COMPLY WITH THE REQUIREMENTS OF 40 CFR PART 60. INSTALLING OR USING THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.''.

(c) Stationary engines required by 40 CFR part 60, subpart JJJJ, to meet the requirements of this part 1048 must meet the labeling requirements of 40 CFR 60.4242.

[70 FR 40466, July 13, 2005, as amended at 73 FR 3613, Jan. 18, 2008]

§ 1048.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to § 1048.825 and 40 CFR 1068.25 regarding recordkeeping requirements. Unless we specify otherwise, 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 § 1048.255 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* § 1048.801).

(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.

[75 FR 23021, Apr. 30, 2010]

Subpart B—Emission Standards and Related Requirements

§ 1048.101 What exhaust emission standards must my engines meet?

The exhaust emission standards of this section apply by model year. You may certify engines earlier than we require. The Tier 1 standards apply only to steady-state testing, as described in paragraph (b) of this section. The Tier 2 standards apply to steady-state, transient, and field testing, as described in paragraphs (a), (b), and (c) of this section.

(a) *Emission standards for transient testing*. Starting in the 2007 model year, transient exhaust emissions from your engines may not exceed the Tier 2 emission standards, as follows:

(1) Measure emissions using the applicable transient test procedures described in subpart F of this part.

(2) The Tier 2 HC + NO_X standard is 2.7 g/kW-hr and the Tier 2 CO standard is 4.4 g/kW-hr. For severe-duty engines, the Tier 2 HC + NO_X standard is 2.7 g/kW-hr and the Tier 2 CO standard is 130.0 g/kW-hr. The following engines are not subject to the transient standards in this paragraph (a):

(i) High-load engines.

(ii) Engines with maximum engine power above 560 kW.

(iii) Engines with maximum test speed above 3400 rpm.

(iv) Constant-speed engines and severe-duty engines.

(3) You may optionally certify your engines according to the following formula instead of the standards in paragraph (a)(1) of this section: $(HC + NO_X) \times CO^{0.784} \leq 8.57$. The HC + NO_X and CO emission levels you select to satisfy this formula, rounded to the nearest 0.1 g/kW-hr, become the emission standards that apply for those engines. You may not select an HC + NO_X emission standard higher than 2.7 g/kW-hr or a CO emission standard higher than 20.6 g/kW-hr. The following table illustrates a range of possible values under this paragraph (a)(3):

TABLE 1 OF § 1048.101—EXAMPLES OF POSSIBLE TIER 2 DUTY-CYCLE EMISSION STANDARDS

HC + NO_X (g/kW-hr)	CO (g/kW-hr)
2.7	4.4
2.2	5.6
1.7	7.9
1.3	11.1
1.0	15.5
0.8	20.6

(b) *Standards for steady-state testing.* Except as we allow in paragraph (d) of this section, steady-state exhaust emissions from your 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 following table shows the Tier 1 exhaust emission standards that apply to engines from 2004 through 2006 model years:

TABLE 2 OF § 1048.101—TIER 1 EMISSION STANDARDS (G/KW–HR)

Testing	General emission standards		Alternate emission standards for severe-duty engines	
	HC + NO_X	CO	HC + NO_X	CO
Certification and production-line testing	4.0	50.0	4.0	130.0
In-use testing	5.4	50.0	5.4	130.0

(3) Starting in the 2007 model year, steady-state exhaust emissions from your engines may not exceed the numerical emission standards in paragraph (a) of this section. See paragraph (d) of this section for alternate standards that apply for certain engines.

(c) *Standards for field testing.* Starting in 2007, exhaust emissions may not exceed field-testing standards, as follows:

(1) Measure emissions using the field-testing procedures in subpart F of this part:

(2) The HC + NO_X standard is 3.8 g/kW-hr and the CO standard is 6.5 g/kW-hr. For severe-duty engines, the HC + NO_X standard is 3.8 g/kW-hr and the CO standard is 200.0 g/kW-hr. For natural gas-fueled engines, you are not required to measure nonmethane hydrocarbon emissions or total hydrocarbon emissions for testing to show that the engine meets the emission standards of this paragraph (c); that is, you may assume HC emissions are equal to zero.

(3) You may apply the following formula to determine alternate emission standards that apply to your engines instead of the standards in paragraph (c)(1) of this section: $(HC + NO_X) \times CO^{0.791} \leq 16.78$. HC + NO_X emission levels may not exceed 3.8 g/kW-hr and CO emission levels may not exceed 31.0 g/kW-hr. The following table illustrates a range of possible values under this paragraph (c)(2):

TABLE 3 OF § 1048.101—EXAMPLES OF POSSIBLE TIER 2 FIELD-TESTING EMISSION STANDARDS

HC + NO_X (g/kW-hr)	CO (g/kW-hr)
3.8	6.5
3.1	8.5
2.4	11.7
1.8	16.8
1.4	23.1
1.1	31.0

(d) *Engine protection.* For engines that require enrichment at high loads to protect the engine, you may ask to meet alternate Tier 2 standards of 2.7 g/kW-hr for HC + NO_X and 31.0 g/kW-hr for CO instead of the emission standards described in paragraph (b)(2) of this section for steady-state testing. If we approve your request, you must still meet the transient testing standards in paragraph (a) of this section and the field-testing standards in paragraph (c) of this section. To qualify for this allowance, you must do all the following things:

(1) Show that enrichment is necessary to protect the engine from damage.

(2) Show that you limit enrichment to operating modes that require additional cooling to protect the engine from damage.

(3) Show in your application for certification that enrichment will rarely occur in use in the equipment in which

your engines are installed. For example, an engine that is expected to operate 5 percent of the time in use with enrichment would clearly not qualify.

(4) Include in your installation instructions any steps necessary for someone installing your engines to prevent enrichment during normal operation (see § 1048.130).

(e) *Fuel types*. The exhaust emission standards in this section apply for engines using each type of fuel specified in 40 CFR part 1065, subpart H, on which the engines in the engine family are designed to operate, except for engines certified under § 1048.625. For engines certified under § 1048.625, the standards of this section apply to emissions measured using the specified test fuel. 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) 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.

(g) *Useful life*. Your engines must meet the exhaust emission standards in paragraphs (a) through (c) of this section over their full useful life. For severe-duty engines, the minimum useful life is 1,500 hours of operation or seven years, whichever comes first. For all other engines, the minimum useful life is 5,000 hours of operation or seven years, whichever comes first.

(1) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild may indicate a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(2) 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) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40466, July 13, 2005; 73 FR 3613, Jan. 18, 2008; 73 FR 59232, Oct. 8, 2008]

§ 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 the November 1996 or November 2004

versions of SAE J2260 (both 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.

[73 FR 59232, Oct. 8, 2008, as amended at 78 FR 36396, June 17, 2013]

§ 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:

(a) *Equip your engines with a diagnostic system.* Starting in the 2007 model year, 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 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.

(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:

(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 MIL should go out after engine starting if the system detects no malfunction.

(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.

(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 on-board 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. This might include operation at altitudes over 8,000 feet.

(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:

(1) ISO 9141–2 Road vehicles-Diagnostic systems—Part 2: CARB requirements for interchange of digital information, February 1994.

(2) ISO 14230–4 Road vehicles—Diagnostic systems—Keyword Protocol 2000—Part 4: Requirements for emission-related systems, June 2000.

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59232, Oct. 8, 2008]

§ 1048.115 What other requirements apply?

Engines that are required to meet the emission standards of this part must meet the following requirements:

(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) 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) *Torque broadcasting.* 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. This information is necessary for testing engines in the field (see § 1048.515). This requirement applies beginning in the 2007 model year. Small-volume engine manufacturers may omit this requirement.

(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) [Reserved]

(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 to auxiliary-emission control devices you identify in your certification application if any of the following is true:

(1) The conditions of concern were substantially included in the applicable 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40467, July 13, 2005; 73 FR 59233, Oct. 8, 2008]

§ 1048.120 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 nonroad 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 for evaporative emission controls must be valid for at least two years. Your emission-related warranty for exhaust emission controls must be valid for at least 50 percent of the engine's useful life in hours of operation or at least three years, whichever comes first. In the case of a high-cost warranted part, the warranty must be valid for at least 70 percent of the engine's useful life in hours of operation or at least five years, whichever comes first. 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 when the engine is placed into service.

(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.

(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.

[70 FR 40467, July 13, 2005, as amended at 73 FR 59233, Oct. 8, 2008; 75 FR 23021, Apr. 30, 2010]

§ 1048.125 What maintenance instructions must I give to buyers?

Give the ultimate purchaser of each new nonroad engine written instructions for properly maintaining and using the engine, including the emission-control system. The maintenance instructions also apply to service accumulation on your emission-data engines, as described 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, if a lack of maintenance increases emissions, it 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 more frequently than the following minimum intervals, except as specified in paragraphs (a)(3), (b) and (c) of this section:

(i) For catalysts, fuel injectors, electronic control units, superchargers, and turbochargers: The useful life of the engine family.

(ii) For gaseous fuel-system components (cleaning without disassembly only) and oxygen sensors: 2,500 hours.

(3) If your engine family has an alternate useful life under § 1048.101(g) that is shorter than the period specified in paragraph (a)(2)(ii) of this section, you may not schedule critical emission-related maintenance more frequently than the alternate useful life, except as specified in paragraph (c) of this section.

(4) You may ask us to approve a maintenance interval shorter than that specified in paragraphs (a)(2) of this section. In your request you must describe the proposed maintenance step, recommend the maximum feasible interval for this maintenance, include your rationale with supporting evidence to support the need for the maintenance at the recommended interval, and demonstrate that the maintenance will be done at the recommended interval on in-use engines. In considering your request, we will evaluate the information you provide and any other available information to establish alternate specifications for maintenance intervals, if appropriate.

(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 substandard fuel or atypical engine operation. For example, you may specify more frequent cleaning of fuel system components for engines you have reason to believe will be using fuel that causes substantially more engine performance problems than commercial fuels of the same type that are generally available across the

United States. You must clearly state that this additional maintenance is associated with the special situation you are addressing. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address engine operation that is not atypical, or that the maintenance is unlikely to occur in use. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

(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 January 1, 2004.

(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.

[70 FR 40468, July 13, 2005, as amended at 73 FR 59233, Oct. 8, 2008; 75 FR 23021, Apr. 30, 2010]

§ 1048.130 What installation instructions must I give to equipment manufacturers?

(a) If you sell an engine for someone else to install in a piece of 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.

(b) Make sure these 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 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 the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of § 1048.205(v).

(4) Describe the steps needed to control evaporative emissions, as described in §§ 1048.105 and 1048.245.

(5) Describe any necessary steps for installing the diagnostic system described in § 1048.110.

(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 constant-speed operation, tell equipment manufacturers not to install the engines in variable-speed applications. Also, if you need to avoid sustained high-load operation to meet the field-testing emission standards we specify in § 1048.101(c) or to comply with the provisions of § 1048.101(d), describe how the equipment manufacturer must properly size the engines for a given application.

(7) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

(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 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 Web site 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40469, July 13, 2005]

§ 1048.135 How must I label and identify the engines I produce?

(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 § 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.

(d) You may add information to the emission control information label to identify other emission standards that the engine meets or does not meet (such as California standards). You may also add other information to ensure that the engine will be properly maintained and used.

(e) You may ask us to approve modified labeling requirements in this part 1048 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 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.

[70 FR 40469, July 13, 2005, as amended at 73 FR 59233, Oct. 8, 2008]

§ 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

[73 FR 59234, Oct. 8, 2008]

§ 1048.145 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 when these interim provisions expire.

(a) *Family banking*. This paragraph (a) allows you to reduce the number of engines subject to the Tier 2 standards by certifying some of your engines earlier than otherwise required, as follows:

(1) For early-compliant engines to generate offsets under this paragraph (a), you must meet the following general provisions:

(i) You must begin actual production of early-compliant engines by September 1, 2006.

(ii) Engines you produce after December 31, 2006 may not generate offsets.

(iii) Offset-generating engines must be certified to the Tier 2 standards and requirements under this part 1048.

(iv) If you certify engines under the voluntary standards of § 1048.140, you may not use them in your calculation under this paragraph (a).

(2) For every offset-generating engine certified to the Tier 2 standards, you may reduce the number of engines with the same maximum engine power that are required to meet the Tier 2 standards in later model years by one engine. You may calculate power-weighted offsets based on actual U.S.-directed sales volumes. For example, if you produce a total of 1,000 engines in 2005 and 2006 with an average maximum power of 60 kW certified to the Tier 2 standards, you may delay certification to that tier of standards for up to 60,000 kW-engine-years in any of the following ways:

(i) Delay certification of up to 600 engines with an average maximum power of 100 kW for one model year.

(ii) Delay certification of up to 200 engines with an average maximum power of 100 kW for three consecutive model years.

(iii) Delay certification of up to 400 engines with an average maximum power of 100 kW for one model year and up to 50 engines with an average maximum power of 200 kW for two model years.

(3) Offset-using engines (that is, those not required to certify to the Tier 2 standards) must be certified to the Tier 1 standards and requirements of this part 1048. You may delay compliance for up to three model years.

(4) By January 31 of each year in which you use the provisions of this paragraph (a), send us a report describing how many offset-generating or offset-using engines you produced in the preceding model year.

(b) *Hydrocarbon standards*. For 2004 through 2006 model years, engine manufacturers may use nonmethane hydrocarbon measurements to demonstrate compliance with applicable emission standards.

(c) [Reserved]

(d) *Tier 1 deterioration factors*. For Tier 1 engines, base the deterioration factor from § 1048.240 on 3500 hours of

operation. We may assign a deterioration factor for a Tier 1 engine family, but this would not affect your need to meet all emission standards that apply.

(e) [Reserved]

(f) *Optional early field testing.* You may optionally use the field-testing procedures in subpart F of this part for any in-use testing required under subpart E of this part to show that you meet Tier 1 standards. In this case, the same Tier 1 in-use emission standards apply to both steady-state testing in the laboratory and field testing.

(g) *Small-volume provisions.* If you qualify for the hardship provisions in § 1068.250 of this chapter, we may approve extensions of up to four years total.

(h) *2004 certification.* For the 2004 model year, you may choose to have the emission standards and other requirements that apply to these engines in California serve as the emission standards and other requirements applicable under this part, instead of those in subpart A of this part. To ask for a certificate under this paragraph (h), send us the application for certification that you prepare for the California Air Resources Board instead of the information we otherwise require in § 1048.205.

(i) *Recreational vehicles.* Engines or vehicles identified in the scope of 40 CFR part 1051 that are not yet regulated under that part are excluded from the requirements of this part. For example, snowmobiles produced in 2004 are not subject to the emission standards in this part. Once emission standards apply to these engines and vehicles, they are excluded from the requirements of this part under § 1048.5(a)(1).

(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).

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40470, July 13, 2005; 73 FR 59234, Oct. 8, 2008]

Subpart C—Certifying Engine Families

§ 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.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see § 1048.255).

(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 § 1048.250.

(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 § 1048.255 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 § 1048.235(c)).

(h) For engines that become new after being placed into service, such as engines converted to nonroad use after being used in motor vehicles, we may specify alternate certification provisions consistent with the intent of this part. *See* the definition of ''new nonroad engine'' in § 1048.801.

[70 FR 40470, July 13, 2005, as amended at 73 FR 59234, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

§ 1048.205 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 § 1048.201(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 types on which your engines are designed to operate (for example, gasoline and natural gas). List each distinguishable engine configuration in the engine family.

(b) Explain how the emission control systems operate. Describe the evaporative emission controls, 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. 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 § 1048.115.

(c) Explain how the engine diagnostic system works, describing especially the engine conditions (with the corresponding diagnostic trouble codes) that cause the malfunction-indicator light to go on. Propose what you consider to be extreme conditions under which the diagnostic system should disregard trouble codes, as described in § 1048.110.

(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 (see § 1048.501).

(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 each test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065, subpart H.

(h) Identify the engine family's useful life.

(i) Include the maintenance instructions you will give to the ultimate purchaser of each new nonroad engine (see § 1048.125).

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a piece of nonroad equipment (see § 1048.130).

(k) Identify each high-cost warranted part and show us how you calculated its replacement cost, including the estimated retail cost of the part, labor rates, and labor hours to diagnose and replace defective parts.

(l) Describe your emission control information label (see § 1048.135).

(m) Identify the emission standards to which you are certifying engines in the engine family.

(n) Identify the engine family's deterioration factors and describe how you developed them (see § 1048.240). Present any emission test data you used for this.

(o) 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.

(p) Present emission data to show that you meet emission standards, as follows:

(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.

(2) If your engine family includes a volatile liquid fuel (and you do not use design-based certification under § 1048.245), present evaporative test data to show your vehicles meet the evaporative emission standards we specify in subpart B of this part. Show these figures before and after applying deterioration factors, where applicable.

(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:

(1) Emission data from transient testing of engines using measurement systems designed for measuring in-use emissions.

(2) Comparison of the engine design for controlling transient emissions with that from engines for which you have emission data over the transient duty cycle for certification.

(3) Detailed descriptions of control algorithms and other design parameters for controlling transient emissions.

(s) Report test results as follows:

(1) Report all test results involving measurement of pollutants for which emission standards apply. Include test results 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. 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.

(2) Report measured CO_2, N_2O, and CH_4 as described in § 1048.235. Small-volume engine manufacturers may omit reporting N_2O and CH_4.

(t) Describe all adjustable operating parameters (see § 1048.115(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.

(u) Provide the information 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.

(v) Confirm that your emission-related installation instructions specify how to ensure that sampling of exhaust emissions will be possible after engines are installed in equipment and placed in service. If this cannot be done by simply adding a 20-centimeter extension to the exhaust pipe, show how to sample exhaust emissions in a way that prevents diluting the exhaust sample with ambient air.

(w) State whether your certification is intended to include engines used in stationary applications. Also 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) Constant-speed engines.

(2) Variable-speed engines.

(x) 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.

(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.

(z) Include other applicable information, such as information specified in this part or part 1068 of this chapter related to requests for exemptions.

(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.

[70 FR 40470, July 13, 2005, as amended at 73 FR 3613, Jan. 18, 2008; 73 FR 59234, Oct. 8, 2008; 74 FR 56510, Oct. 30, 2009]

§ 1048.210 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, and maintenance. 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 best-efforts to 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.

[70 FR 40472, July 13, 2005]

§ 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 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 a maintenance step 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).

[70 FR 40472, July 13, 2005, as amended at 73 FR 59235, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

§ 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.

[73 FR 59235, Oct. 8, 2008]

§ 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) Group engines in the same engine family if they are the same in all of the following aspects:

(1) The combustion cycle.

(2) The cooling system (water-cooled vs. air-cooled).

(3) Configuration of the fuel system (for example, fuel-injected vs. carbureted gasoline engines).

(4) Method of air aspiration.

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

(6) The number, arrangement (such as in-line or vee configuration), and approximate bore diameter of cylinders.

(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) 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.

(e) You may create separate families for exhaust emissions and evaporative emissions. If we do this, list both families on the emission control information label.

(f) Where necessary, you may divide an engine family into sub-families to meet different emission standards, as specified in § 1048.101(a)(2). For issues related to compliance and prohibited actions, we will generally apply decisions to the whole engine family. For engine labels and other administrative provisions, we may approve your request for separate treatment of sub-families.

[70 FR 40473, July 13, 2005, as amended at 73 FR 59235, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

§ 1048.235 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 §§ 1048.101(a) and (b) and 1048.105 during certification. See § 1048.205(q) regarding emission testing related to the field-testing standards. See § 1048.240 and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing.

(a) Test your emission-data engines using the procedures and equipment specified in subpart F of this part.

(b) Select emission-data engines according to the following criteria:

(1) *Exhaust testing.* For each fuel type from each engine family, select an emission-data 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 piece of equipment.

(2) *Evaporative testing.* For each engine family that includes a volatile liquid fuel, select a test fuel system with a configuration that is most likely to exceed the evaporative emission standards, using good engineering judgment.

(c) We may measure emissions from any of your test 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 test engine to a test facility we designate. The test 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 test 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) Before we test one of your engines, we may set its adjustable parameters to any point within the physically adjustable ranges (see § 1048.115(e)).

(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.

(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.

(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.

(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.

(g) Measure CO_2 and CH_4 with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2011 and 2012 model years, respectively. Also measure N_2O with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2013 model year for any engine family that depends on NOx aftertreatment to meet emission standards. Small-volume engine manufacturers may omit measurement of N_2O and CH_4. These measurements are not required for measurements using field-testing procedures. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/kW-hr.

(2) Round N_2O to the nearest 0.001 g/kW-hr.

(3) Round CH_4 to the nearest 0.001g/kW-hr.

[70 FR 40473, July 13, 2005, as amended at 73 FR 59235, Oct. 8, 2008; 74 FR 56510, Oct. 30, 2009]

§ 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 official emission results and deteriorated emission levels at or below these standards. This includes all test points over the course of the durability demonstration. This also applies for all test points for emission-data engines within the family used to establish deterioration factors. *See* paragraph (e) of this section for provisions related to demonstrating compliance with field-testing standards.

(b) Your engine family is deemed not to comply if any emission-data engine representing that family has test results showing an official emission result or a deteriorated emission level for any pollutant that is above an applicable emission standard from § 1048.101(a) and (b). 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 field-testing standard for any pollutant. This also applies for all test points for emission-data engines within the family used to establish deterioration factors.

(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 + NO_X 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.

(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, apply the deterioration factor to each pollutant and then add the results before rounding.

(e) Use good engineering judgment to demonstrate compliance with field-testing standards throughout the useful life. You may, but are not required to, apply the same deterioration factors used to show compliance with the applicable duty-cycle standards.

[70 FR 40474, July 13, 2005, as amended at 73 FR 59236, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

§ 1048.245 How do I demonstrate that my engine family complies with evaporative emission standards?

(a) For certification, your engine family is considered in compliance with the evaporative emission standards in subpart B of this part if you do either of the following:

(1) You have test results showing that evaporative emissions in the family are at or below the standards throughout the useful life.

(2) Where applicable, you comply with the design specifications in paragraph (e) of this section.

(b) Your engine family does not comply if any fuel system representing that family has test results showing emission levels above the 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.

(d) If you adjust the emission levels for deterioration, round them to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each test fuel system.

(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(c), 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(d), 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40474, July 13, 2005; 73 FR 59236, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

§ 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.

(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 § 1048.205 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40474, July 13, 2005; 73 FR 59236, Oct. 8, 2008]

§ 1048.255 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 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 despite our presenting a warrant or court order (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 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 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 § 1048.820).

[70 FR 40474, July 13, 2005, as amended at 73 FR 59236, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

Subpart D—Testing Production-line Engines

§ 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.

[73 FR 59236, Oct. 8, 2008]

§ 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.

(b) *Modifying a test engine.* Once an engine is selected for testing (see § 1048.310), 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 equipment.

(e) *Stabilizing emission levels.* Before you test production-line engines, you may operate the engine to stabilize the emission levels. 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) 50 hours.

(2) The number of hours you operated your emission-data engine for certifying the engine family (see 40 CFR part 1065, subpart E).

(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 § 1048.345, 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40475, July 13, 2005; 73 FR 59237, Oct. 8, 2008]

§ 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.

(b) Early in each calendar quarter, randomly select and test two engines from the end of the assembly line 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:

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

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.

(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:

Where:

$$\sigma = \left[\sum \frac{(X_i - x)^2}{(n-1)} \right]^{\frac{1}{2}}$$

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 § 1048.315(a)).

(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 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.

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

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40475, July 13, 2005; 73 FR 59237, Oct. 8, 2008]

§ 1048.315 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 § 1048.320 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 § 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 + NO_X and CO emissions:

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

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.

(c) Use final deteriorated test results to calculate the variables in the equation in paragraph (b) of this section (see § 1048.315(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.

(h) If you amend the application for certification for an engine family (see § 1048.225), do not change any previous calculations of sample size or CumSum statistics for the model year.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40475, July 13, 2005; 73 FR 59238, Oct. 8, 2008]

§ 1048.320 What happens if one of my production-line engines fails to meet emission standards?

If you have a production-line engine with final deteriorated test results exceeding one or more emission standards (see § 1048.315(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:

(a) Correct the problem and retest the engine to show it complies with all emission standards.

(b) Include the test results and describe the remedy for each engine in the written report required under § 1048.345.

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59238, Oct. 8, 2008]

§ 1048.325 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 § 1048.315. 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 § 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.

(d) Section 1048.335 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40475, July 13, 2005; 73 FR 59238, Oct. 8, 2008]

§ 1048.330 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 § 1048.315 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.

§ 1048.335 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.

§ 1048.340 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 § 1048.325 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.

§ 1048.345 What production-line testing records must I send to EPA?

(a) Within 30 calendar days of the end of each calendar quarter, 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 equipment.

(8) Provide the CumSum analysis required in § 1048.315 and the sample-size calculation required in § 1048.310 for each engine family.

(9) Report on each failed engine as described in § 1048.320.

(10) State the date the calendar quarter 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 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)

(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. See § 1048.815 for information on how we treat information you consider confidential.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40476, July 13, 2005; 73 FR 59238, Oct. 8, 2008]

§ 1048.350 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 § 1048.345.

(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 § 1048.345 that you do not include in your written reports.

(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.

(g) We may ask you to keep or send other information necessary to implement this subpart.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40476, July 13, 2005; 73 FR 59239, Oct. 8, 2008]

Subpart E—Testing In-use Engines

§ 1048.401 What testing requirements apply to my engines that have gone into service?

(a) If you produce engines that are subject to the requirements of this part, you must test them as described in this subpart. 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) Removing the engine from most of the applications for that engine family causes significant, irreparable damage to the equipment.

(3) 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 Act (see § 1048.415).

§ 1048.405 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. We will select engine families for testing before the end of the model year. When we select an engine family for testing, we may specify that you preferentially test engines based on fuel type or

equipment type. 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) Send us an in-use testing plan within six months after we direct you to test a particular engine family. If we request additional information or require you to modify your plan to meet the requirements of this subpart, you must provide the information or the modified plan within 30 days of our request. Complete the testing within 36 months after we direct you to test a particular engine family.

(c) You may need to test engines from more than one model year at a given time.

(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 allow more time to complete testing or 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.

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59239, Oct. 8, 2008; 75 FR 23022, Apr. 30, 2010]

§ 1048.410 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 § 1048.101(d));

(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 § 1048.235(c), 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 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.

(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 § 1048.205(p)). 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 steady-state and transient procedures in subpart F of this part to show compliance with the duty-cycle standards in § 1048.101(a) and (b). We may direct you to measure emissions on the dynamometer using the supplemental test procedures in § 1048.515 to show compliance with the field-testing standards in § 1048.101(c).

(2) Test the selected engines while they remain installed in the equipment. Use the field testing procedures in subpart F of this part. Measure emissions during normal operation of the equipment to show compliance with the field-testing standards in

§ 1048.101(c). 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.

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59239, Oct. 8, 2008]

§ 1048.415 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 § 1048.410(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 § 1048.420.

(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 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.

(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 § 1048.820).

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59239, Oct. 8, 2008]

§ 1048.420 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) For each engine inspected or considered for testing, identify whether the diagnostic system was functioning.

(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 § 1048.815 for information on how we treat information you consider confidential.

(d) We may ask for more information.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40476, July 13, 2005]

§ 1048.425 What records must I keep?

(a) Organize and maintain your records as described in this section. We may review your records at any time.

(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 § 1048.420.

(d) Keep any additional records related to the procurement process.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40476, July 13, 2005]

Subpart F—Test Procedures

§ 1048.501 How do I run a valid emission test?

(a) 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 § 1048.101(a) and (b). Measure the emissions of all the pollutants we regulate in § 1048.101 using the sampling procedures specified in 40 CFR part 1065. Measure CO_2, N_2O, and CH_4 as described in § 1048.235. Use the applicable duty cycles specified in §§ 1048.505 and 1048.510.

(b) Section 1048.515 describes the supplemental procedures for evaluating whether engines meet the field-testing emission standards in § 1048.101(c).

(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.

(d) In place of the provisions of 40 CFR 1065.405, you may consider emission levels stable without measurement after 50 hours of engine operation.

(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.

(f) You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10.

(g) 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.

[70 FR 40476, July 13, 2005, as amended at 73 FR 59239, Oct. 8, 2008; 74 FR 56510, Oct. 30, 2009]

§ 1048.505 How do I test engines using steady-state duty cycles, including ramped-modal 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; you may also choose between discrete-mode and ramped-modal testing. In all 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. If you submit certification test data using more than one duty cycle, any of the selected duty cycles may be used for any subsequent 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 described in 40 CFR Part 1065.

(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 No.	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

Mode No.	Engine speed	Torque (percent) [1]	Minimum time in mode (minutes)	Weighting factors
1	Maximum test speed	100	3.0	0.50

TABLE 3 OF § 1048.505—Continued

Mode No.	Engine speed	Torque (percent) [1]	Minimum time in mode (minutes)	Weighting factors
2	Maximum test speed	75	3.0	0.50

[1] The 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) For full-load operating modes, operate the engine at wide-open throttle.

[73 FR 59239, Oct. 8, 2008, as amended at 75 FR 23022, Apr. 30, 2010;79 FR 23751. Apr. 28, 2014]

§ 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) Calculate cycle statistics and compare with the established criteria as specified in 40 CFR 1065.514 to confirm that the test is valid.

(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.

(2) If the engine was already operating before a test, use good engineering judgment to let the engine cool down enough so measured emissions during the next test will accurately represent those from an engine starting at room temperature. For example, if an engine starting at room temperature warms up enough in three minutes to start closed-loop operation and achieve full catalyst activity, then minimal engine cooling is necessary before starting the next test.

(3) You are not required to measure emissions while the engine is warming up. However, you must design your emission-control system to start working as soon as possible after engine starting. In your application for certification, describe how your engine meets this objective (see § 1048.205(b)).

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40478, July 13, 2005; 73 FR 59241, Oct. 8, 2008; 75 FR 23023, Apr. 30, 2010]

§ 1048.515 What are the field-testing procedures?

(a) This section describes the procedures to determine whether your engines meet the field-testing emission standards in § 1048.101(c). These procedures may include any normal engine operation and ambient conditions that the engines may experience in use. Paragraph (b) of this section defines the limits of what we will consider normal engine operation and ambient conditions. Use the test procedures we specify in § 1048.501, 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 in the equipment. 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) An engine's emissions may not exceed the levels we specify in §1048.101(c) for any continuous sampling period of at least 120 seconds under the following ranges of operation and operating conditions:

(1) Engine operation during the emission sampling period may include any normal operation, subject to the following restrictions:

(i) Average power must be at least 5 percent of maximum brake power.

(ii) Continuous time at idle must not be greater than 120 seconds.

(iii) 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.

(iv) The sampling period may not include engine starting.

(v) For engines that qualify for the alternate Tier 2 emission standards in §1048.101(d), operation at 90 percent or more of maximum power must be less than 10 percent of the total sampling time. You may request our approval for a different power threshold.

(2) Engine testing may occur under any normal conditions without correcting measured emission levels, subject to the following restrictions:

(i) Barometric pressure must be between 80.0 and 103.3 kPa (600 and 775 mm Hg).

(ii) Ambient air temperature must be between 13° and 35 °C.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40478, July 13, 2005; 73 FR 59241, Oct. 8, 2008]

Subpart G—Compliance Provisions

§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.

[73 FR 59241, Oct. 8, 2008]

§ 1048.605 What provisions apply to engines certified under the motor vehicle program?

(a) *General provisions.* If you are an engine manufacturer, this section allows you to introduce new nonroad engines into commerce if they are already certified to the requirements that apply to engines under 40 CFR parts 85 and 86 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 for each engine to also be a valid certificate of conformity under this part 1048 for its model year, without a separate application for certification under the requirements of this part 1048. See § 1048.610 for similar provisions that apply to engines certified to chassis-based standards for motor vehicles.

(b) *Equipment-manufacturer provisions.* If you are not an engine manufacturer, you may produce nonroad equipment using motor-vehicle 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 motor-vehicle engine in any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new nonroad 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. This applies to engine manufacturers, equipment manufacturers who use these engines, and all other persons as if these engines were used in a motor vehicle. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new engines and equipment; however, we consider the certificate issued under 40 CFR part 86 for each engine to also be a valid certificate of conformity under this part 1048 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 40 CFR 1068.505.

(d) *Specific requirements.* If you are an engine manufacturer or equipment manufacturer and meet all the following criteria and requirements regarding your new nonroad 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.

(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 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 50 percent of the engine family's total sales in the United States are used in nonroad applications. This includes engines used in any application without regard to which company manufactures the vehicle 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.

(5) You must add a permanent supplemental label to the engine in a position where it will remain clearly visible after installation in the equipment. In the supplemental label, do the following:

(i) Include the heading: ''NONROAD 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 NONROAD USE WITHOUT AFFECTING ITS EMISSION CONTROLS. 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.''.

(iv) 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 equipment or, if the equipment obscures the engine's emission control information label, the equipment 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 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.

(iii) State: ''We produce each listed [engine or equipment] model for nonroad application without making any changes that could increase its certified emission levels, as described in 40 CFR 1048.605.''.

(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 1048 and the certificate issued under 40 CFR part 86 will not be deemed to also be a certificate issued under this part 1048. Introducing these engines into 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 any applicable nonroad duty cycles.

(g) *Participation in averaging, banking and trading*. Engines adapted for nonroad use under this section 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 that exceeds an applicable standard under 40 CFR part 86.

[70 FR 40479, July 13, 2005, as amended at 73 FR 59241, Oct. 8, 2008]

§ 1048.610 What provisions apply to vehicles certified under the motor vehicle program?

(a) *General provisions*. If you are a motor-vehicle manufacturer, this section allows you to introduce new nonroad engines or equipment into commerce if the vehicle is already certified to the requirements that apply under 40 CFR parts 85 and 86 for the appropriate model year. If you comply with all of the provisions of this section, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the engine under this part 1048 for its model year, without a

separate application for certification under the requirements of this part 1048. See §1048.605 or similar provisions that apply to motor-vehicle engines produced for nonroad equipment. The provisions of this section do not apply to engines certified to meet the requirements for highway motorcycles.

(b) *Equipment-manufacturer provisions.* If you are not a motor-vehicle manufacturer, you may produce nonroad equipment from motor vehicles under this section as long as you meet all the requirements and conditions specified in paragraph (d) of this section. If you modify the motor vehicle or its engine in any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new nonroad engine. Such modifications prevent you from using the provisions of this section.

(c) *Liability.* Engines, vehicles, and equipment 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. This applies to engine manufacturers, equipment manufacturers, and all other persons as if the nonroad equipment were motor vehicles. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new pieces of equipment; however, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the engine under this part 1048 for its model year. If we make a determination that these engines, vehicles, or equipment do not conform to the regulations during their useful life, we may require you to recall them under 40 CFR part 86 or 40 CFR 1068.505.

(d) *Specific requirements.* If you are a motor-vehicle manufacturer and meet all the following criteria and requirements regarding your new nonroad equipment and its engine, the engine is eligible for an exemption under this section:

(1) Your equipment must be covered by a valid certificate of conformity as a motor vehicle issued under 40 CFR part 86.

(2) You must not make any changes to the certified vehicle that we could reasonably expect to increase its exhaust emissions for any pollutant, or its evaporative emissions if it is subject to evaporative-emission standards. For example, if you make any of the following changes, you do not qualify for this exemption:

(i) Change any fuel system or evaporative system parameters from the certified configuration, including refueling emission controls.

(ii) Change, remove, or fail to properly install any other component, element of design, or calibration specified in the vehicle manufacturer's application for certification. This includes aftertreatment devices and all related components.

(iii) Modify or design the engine cooling system so that temperatures or heat rejection rates are outside the original vehicle manufacturer's specified ranges.

(iv) Add more than 500 pounds to the curb weight of the originally certified motor vehicle.

(3) You must show that fewer than 50 percent of the engine family's total sales in the United States are used in nonroad applications. This includes any type of vehicle, without regard to which company completes the manufacturing of the nonroad equipment. Show this as follows:

(i) If you are the original manufacturer of the vehicle, base this showing on your sales information.

(ii) In all other cases, you must get the original manufacturer of the vehicle to confirm this based on their sales information.

(4) The equipment must have the vehicle emission control information and fuel labels we require under 40 CFR 86.007–35.

(5) You must add a permanent supplemental label to the equipment in a position where it will remain clearly visible. In the supplemental label, do the following:

(i) Include the heading: ''NONROAD 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 VEHICLE WAS ADAPTED FOR NONROAD USE WITHOUT AFFECTING ITS EMISSION CONTROLS. 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.''.

(iv) State the date you finished modifying the vehicle (month and year), if applicable.

(6) The original and supplemental labels must be readily visible in the fully assembled equipment.

(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 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.

(ii) List the equipment models you expect to produce under this exemption in the coming year.

(iii) State: ''We produced each listed engine or equipment model for nonroad application without making any changes that could increase its certified emission levels, as described in 40 CFR 1048.610.''.

(e) *Failure to comply*. If your engines, vehicles, or equipment do not meet the criteria listed in paragraph (d) of this section, the engines will be subject to the standards, requirements, and prohibitions of this part 1048, and the certificate issued under 40 CFR part 86 will not be deemed to also be a certificate issued under this part 1048. Introducing these engines into 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 any applicable nonroad duty cycles.

(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.

[70 FR 40480, July 13, 2005, as amended at 73 FR 59241, Oct. 8, 2008]

§ 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]

[73 FR 59242, Oct. 8, 2008]

§ 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.

[73 FR 59242, Oct. 8, 2008]

§ 1048.620 What are the provisions for exempting large engines fueled by natural gas or liquefied petroleum gas?

(a) If an engine meets all the following criteria, it is exempt from the requirements of this part:

(1) The engine must operate solely on natural gas or liquefied petroleum gas.

(2) The engine must have maximum engine power at or above 250 kW.

(3) The engine must be in an engine family that has a valid certificate of conformity showing that it meets emission standards for engines of that power rating under 40 CFR part 89 or 1039.

(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 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 89 or 1039. The requirements and restrictions of 40 CFR part 89 or 1039 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 diesel engines.

(e) You may request an exemption under this section by submitting an application for certification for the engines under 40 CFR part 89 or 1039.

[70 FR 40481, July 13, 2005]

§ 1048.625 What special provisions apply to engines using noncommercial fuels?

In § 1048.115(e), we generally require that engines meet emission standards for any adjustment within the full range of any adjustable parameters. For engines that use noncommercial fuels significantly different than the specified test fuel of the same type, you may ask to use the parameter-adjustment provisions of this section instead of those in § 1048.115(e). Engines certified under this section must be in a separate engine family.

(a) If we approve your request, the following provisions apply:

(1) You must certify the engine using the test fuel specified in § 1048.501.

(2) You may produce the engine without limits or stops that keep the engine adjusted within the certified range.

(3) You must specify in-use adjustments different than the adjustable settings appropriate for the specified test fuel, consistent with the provisions of paragraph (b)(1) of this section.

(b) To produce engines under this section, you must do the following:

(1) Specify in-use adjustments needed so the engine's level of emission control for each regulated pollutant is equivalent to that from the certified configuration.

(2) Add the following information to the emission control information label specified in § 1048.135:

(i) Include instructions describing how to adjust the engine to operate in a way that maintains the effectiveness of the emission-control system.

(ii) State: ''THIS ENGINE IS CERTIFIED TO OPERATE IN APPLICATIONS USING NONCOMMERCIAL FUEL. MALADJUSTMENT OF THE ENGINE IS A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.''.

(3) Keep records to document the destinations and quantities of engines produced under this section.

[70 FR 40481, July 13, 2005]

§ 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.

[73 FR 59242, Oct. 8, 2008]

§ 1048.635 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 § 1048.135(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 § 1048.120. 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.

[70 FR 40481, July 13, 2005, as amended at 73 FR 59242, Oct. 8, 2008]

§ 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.

[73 FR 59242, Oct. 8, 2008]

Subpart H [Reserved]

Subpart I—Definitions and Other Reference Information

§ 1048.801 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 Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

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.

Aircraft means any vehicle capable of sustained air travel above treetop heights.

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.

All-terrain vehicle has the meaning given in 40 CFR 1051.801.

Amphibious vehicle means a vehicle with wheels or tracks that is designed primarily for operation on land and secondarily for operation in water.

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.

Blue Sky Series engine means an engine meeting the requirements of § 1048.140.

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 § 1048.235(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.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine.

Constant-speed engine means an engine that is certified only for constant-speed operation. This may include engines that allow the operator to adjust the set point for fixing the appropriate governed speed. See subparts B and C of this part for specific provisions related to certifying engines only for constant-speed operation. Engines whose constant-speed governor function is removed or disabled are no longer constant-speed engines.

Constant-speed operation has the meaning given in 40 CFR 1065.1001.

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, 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.

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, 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 § 1048.505.

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 or factors unrelated to emissions.

Engine family has the meaning given in § 1048.230.

Engine manufacturer means the manufacturer of the engine. See the definition of ''manufacturer'' in this section.

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.

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 § 1048.5, is not subject to this part 1048.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation 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.

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 winter-grade and summer-grade 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-cost warranted part means a component covered by the emission-related warranty with a replacement cost (at the time of certification) exceeding $400 (in 1998 dollars). Adjust this value using the most recent annual average consumer price index information published by the U.S. Bureau of Labor Statistics. For this definition, replacement cost includes the retail cost of the part plus labor and standard diagnosis.

High-load engine means an engine for which the engine manufacturer can provide clear evidence that operation below 75 percent of maximum load in its final application will be rare.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type, as described in § 1048.101(e).

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.

Intermediate test speed has the meaning given in 40 CFR 1065.1001.

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.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures an engine, vehicle, or piece of equipment for sale in the United States or otherwise introduces a new nonroad engine into commerce in the United States. This includes importers who import engines, equipment, or vehicles for resale.

Marine engine means a nonroad engine that is installed or intended to be installed on a marine vessel. This includes a portable auxiliary 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 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.

Maximum test speed has one of the following meanings:

(1) For variable-speed engines, maximum test speed has the meaning given in 40 CFR 1065.1001.

(2) For transient testing of constant-speed engines, maximum test speed means the highest speed at which the engine produces zero torque.

(3) For steady-state testing of constant-speed engines, maximum test speed means the speed at which the engine produces peak torque.

Maximum test torque has the meaning given in 40 CFR 1065.1001.

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.

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 §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.

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) An imported nonroad piece of equipment with an engine not covered by a certificate of conformity issued under this part at the time of importation and manufactured after January 1, 2004.

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.

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.

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. This part does not apply to all nonroad engines (see § 1048.5).

Nonroad equipment means a piece of equipment that is powered by one or more nonroad engines.

Off-highway motorcycle has the meaning given in 40 CFR 1051.801. (Note: highway motorcycles are regulated under 40 CFR part 86.)

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.

Piece of equipment means any vehicle, vessel, or other type of equipment using engines to which this part applies.

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.

Ramped-modal means relating to the ramped-modal type of steady-state test described in § 1048.505.

Rated speed means the maximum full-load governed speed for governed engines and the speed of maximum power for ungoverned engines.

Revoke has the meaning given in 40 CFR 1068.30.

Round has the meaning given in 40 CFR 1065.1001, unless otherwise specified.

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.

Sealed has the meaning given in 40 CFR 1060.801.

Severe-duty application includes concrete saws, concrete pumps, and any other application where an engine manufacturer can provide clear evidence that the majority of installations need air-cooled engines as a result of operation in a severe-duty environment.

Severe-duty engine means an engine from an engine family in which the majority of engines are installed in severe-duty applications.

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.

Snowmobile has the meaning given in 40 CFR 1051.801.

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 has the meaning given in 40 CFR 1065.1001.

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-fuel mass ratio of about 14.7.

Suspend has the meaning given in 40 CFR 1068.30.

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.

Tier 1 means relating to the emission standards and other requirements that apply beginning with the 2004 model year.

Tier 2 means relating to the emission standards and other requirements that apply beginning with the 2007 model year.

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.

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 means for an engine family 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 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.

Variable-speed engine means an engine that is not a constant-speed engine.

Variable-speed operation means engine operation that does not meet the definition of constant-speed operation.

Void has the meaning given in 40 CFR 1068.30.

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.

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.

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

[70 FR 40482, July 13, 2005, as amended at 73 FR 59242, Oct. 8, 2008; 74 FR 8426, Feb. 24, 2009; 75 FR 23023, Apr. 30, 2010]

§ 1048.805 What symbols, acronyms, and abbreviations does this part use?

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

°C degrees Celsius.
ASTM American Society for Testing and Materials.
cc cubic centimeters.
CFR Code of Federal Regulations.
CH_4 methane.
cm centimeter.
CO carbon monoxide.
CO_2 carbon dioxide.
EPA Environmental Protection Agency.
g/kW-hr grams per kilowatt-hour.
HC hydrocarbon.
ISO International Organization for Standardization.
kPa kilopascals.
kW kilowatts.
LPG liquefied petroleum gas.
m meters.
MIL malfunction-indicator light.
mm Hg millimeters of mercury.
N_2O nitrous oxide.
NARA National Archives and Records Administration.
NMHC nonmethane hydrocarbons.
NO_X oxides of nitrogen (NO and NO_2).
psi pounds per square inch of absolute pressure.
psig pounds per square inch of gauge pressure.
rpm revolutions per minute.
SAE Society of Automotive Engineers.
SI spark-ignition.
THC total hydrocarbon.
THCE total hydrocarbon equivalent.
U.S.C. United States Code.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40485, July 13, 2005; 74 FR 56510, Oct. 30, 2009]

§ 1048.810 What materials does this part reference?

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Environmental Protection Agency must publish a notice of the change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave. NW., Room B102, EPA West Building, Washington, DC 20460, (202) 202–1744, and is available from the sources listed below. It is also available for inspection 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*.

(b) Society of Automotive Engineers, 400 Commonwealth Dr., Warrendale, PA 15096–0001, (877) 606–7323 (U.S. and Canada) or (724) 776–4970 (outside the U.S. and Canada), *http://www.sae.org*.

(1) SAE J2260, Nonmetallic Fuel System Tubing with One or More Layers, November 2004; IBR approved for § 1048.105(a).

(2) SAE J2260, Nonmetallic Fuel System Tubing with One or More Layers, November 1996; IBR approved for § 1048.105(a).

(c) International Organization for Standardization, Case Postale 56, CH–1211 Geneva 20, Switzerland, (41) 22749 0111, *http://www.iso.org*, or *central@iso.org*.

(1) ISO 9141–2 Road vehicles—Diagnostic systems— Part 2: CARB requirements for interchange of digital information, February 1994; IBR approved for § 1048.110(g).

(2) ISO 14230–4 Road vehicles—Diagnostic systems—Keyword Protocol 2000—Part 4: Requirements for emission-related systems, June 2000; IBR approved for § 1048.110(g).

[78 FR 36397, June 17, 2013]

§ 1048.815 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.

[70 FR 40486, July 13, 2005]

§ 1048.820 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.

[70 FR 40486, July 13, 2005]

§ 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.

[73 FR 59245, Oct. 8, 2008]

APPENDIX I TO PART 1048 [RESERVED]

APPENDIX II TO PART 1048—LARGE SPARK-IGNITION (SI) COMPOSITE TRANSIENT CYCLE

The following table shows the transient duty-cycle for engines that are not constant-speed engines, as described in §1048.510:

Time(s)	Normalized speed (percent)	Normalized torque (percent)
0	0	0
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	1	8
10	6	54
11	8	61
12	34	59
13	22	46
14	5	51
15	18	51
16	31	50
17	30	56
18	31	49
19	25	66
20	58	55
21	43	31
22	16	45
23	24	38
24	24	27
25	30	33
26	45	65
27	50	49
28	23	42
29	13	42
30	9	45
31	23	30
32	37	45
33	44	50
34	49	52
35	55	49
36	61	46
37	66	38
38	42	33
39	17	41
40	17	37
41	7	50
42	20	32
43	5	55
44	30	42
45	44	53
46	45	56
47	41	52
48	24	41
49	15	40
50	11	44
51	32	31
52	38	54
53	38	47
54	9	55
55	10	50
56	33	55
57	48	56
58	49	47
59	33	44
60	52	43
61	55	43
62	59	38
63	44	28
64	24	37
65	12	44
66	9	47
67	12	52
68	34	21
69	29	44
70	44	54
71	54	62
72	62	57
73	72	56
74	88	71
75	100	69
76	100	34
77	100	42
78	100	54
79	100	58
80	100	38
81	83	17
82	61	15
83	43	22
84	24	35
85	16	39
86	15	45
87	32	34
88	14	42
89	8	48
90	5	51
91	10	41
92	12	37
93	4	47
94	3	49
95	3	50
96	4	49
97	4	48
98	8	43
99	2	51
100	5	46
101	8	41
102	4	47
103	3	49
104	6	45
105	3	48
106	10	42
107	18	27
108	3	50
109	11	41
110	34	29
111	51	57
112	67	63
113	61	32
114	44	31
115	48	54
116	69	65
117	85	65
118	81	29
119	74	21
120	62	23
121	76	58
122	96	75

Time(s)	Normalized speed (percent)	Normalized torque (percent)
123	100	77
124	100	27
125	100	79
126	100	79
127	100	81
128	100	57
129	99	52
130	81	35
131	69	29
132	47	22
133	34	28
134	27	37
135	83	60
136	100	74
137	100	7
138	100	2
139	70	18
140	23	39
141	5	54
142	11	40
143	11	34
144	11	41
145	19	25
146	16	32
147	20	31
148	21	38
149	21	42
150	9	51
151	4	49
152	2	51
153	1	58
154	21	57
155	29	47
156	33	45
157	16	49
158	38	45
159	37	43
160	35	42
161	39	43
162	51	49
163	59	55
164	65	54
165	76	62
166	84	59
167	83	29
168	67	35
169	84	54
170	90	58
171	93	43
172	90	29
173	66	19
174	52	16
175	49	17
176	56	38
177	73	71
178	86	80
179	96	75
180	89	27
181	66	17
182	50	18
183	36	25
184	36	24
185	38	40
186	40	50
187	27	48
188	19	48
189	23	50
190	19	45
191	6	51
192	24	48
193	49	67
194	47	49
195	22	44
196	25	40
197	38	54
198	43	55
199	40	52
200	14	49
201	11	45
202	7	48
203	26	41
204	41	59
205	53	60
206	44	54
207	22	40
208	24	41
209	32	53
210	44	74
211	57	25
212	22	49
213	29	45
214	19	37
215	14	43
216	36	40
217	43	63
218	42	49
219	15	50
220	19	44
221	47	59
222	67	80
223	76	74
224	87	66
225	98	61
226	100	38
227	97	27
228	100	53
229	100	72
230	100	49
231	100	4
232	100	13
233	87	15
234	53	26
235	33	27
236	39	19
237	51	33
238	67	54
239	83	60
240	95	52
241	100	50
242	100	36
243	100	25
244	85	16
245	62	16
246	40	26
247	56	39
248	81	75
249	98	86
250	100	76
251	100	51
252	100	78
253	100	83
254	100	100
255	100	66
256	100	85
257	100	72
258	100	45
259	98	58
260	60	30
261	43	32
262	71	36
263	44	32
264	24	38
265	42	17
266	22	51

Time(s)	Normalized speed (percent)	Normalized torque (percent)
267	13	53
268	23	45
269	29	50
270	28	42
271	21	55
272	34	57
273	44	47
274	19	46
275	13	44
276	25	36
277	43	51
278	55	73
279	68	72
280	76	63
281	80	45
282	83	40
283	78	26
284	60	20
285	47	19
286	52	25
287	36	30
288	40	26
289	45	34
290	47	35
291	42	28
292	46	38
293	48	44
294	68	61
295	70	47
296	48	28
297	42	22
298	31	29
299	22	35
300	28	28
301	46	46
302	62	69
303	76	81
304	88	85
305	98	81
306	100	74
307	100	13
308	100	11
309	100	17
310	99	3
311	80	7
312	62	11
313	63	11
314	64	16
315	69	43
316	81	67
317	93	74
318	100	72
319	94	27
320	73	15
321	40	33
322	40	52
323	50	50
324	11	53
325	12	45
326	5	50
327	1	55
328	7	55
329	62	60
330	80	28
331	23	37
332	39	58
333	47	24
334	59	51
335	58	68
336	36	52
337	18	42
338	36	52
339	59	73
340	72	85
341	85	92
342	99	90
343	100	72
344	100	18
345	100	76
346	100	64
347	100	87
348	100	97
349	100	84
350	100	100
351	100	91
352	100	83
353	100	93
354	100	100
355	94	43
356	72	10
357	77	3
358	48	2
359	29	5
360	59	19
361	63	5
362	35	2
363	24	3
364	28	2
365	36	16
366	54	23
367	60	10
368	33	1
369	23	0
370	16	0
371	11	0
372	20	0
373	25	2
374	40	3
375	33	4
376	34	5
377	46	7
378	57	10
379	66	11
380	75	14
381	79	11
382	80	16
383	92	21
384	99	16
385	83	2
386	71	2
387	69	4
388	67	4
389	74	16
390	86	25
391	97	28
392	100	15
393	83	2
394	62	4
395	40	6
396	49	10
397	36	5
398	27	4
399	29	3
400	22	2
401	13	3
402	37	36
403	90	26
404	41	2
405	25	2
406	29	2
407	38	7
408	50	13
409	55	10
410	29	3

Time(s)	Normalized speed (percent)	Normalized torque (percent)
411	24	7
412	51	16
413	62	15
414	72	35
415	91	74
416	100	73
417	100	8
418	98	11
419	100	59
420	100	98
421	100	99
422	100	75
423	100	95
424	100	100
425	100	97
426	100	90
427	100	86
428	100	82
429	97	43
430	70	16
431	50	20
432	42	33
433	89	64
434	89	77
435	99	95
436	100	41
437	77	12
438	29	37
439	16	41
440	16	38
441	15	36
442	18	44
443	4	55
444	24	26
445	26	35
446	15	45
447	21	39
448	29	52
449	26	46
450	27	50
451	13	43
452	25	36
453	37	57
454	29	46
455	17	39
456	13	41
457	19	38
458	28	35
459	8	51
460	14	36
461	17	47
462	34	39
463	34	57
464	11	70
465	13	51
466	13	68
467	38	44
468	53	67
469	29	69
470	19	65
471	52	45
472	61	79
473	29	70
474	15	53
475	15	60
476	52	40
477	50	61
478	13	74
479	46	51
480	60	73
481	33	84
482	31	63
483	41	42
484	26	69
485	23	65
486	48	49
487	28	57
488	16	67
489	39	48
490	47	73
491	35	87
492	26	73
493	30	61
494	34	49
495	35	66
496	56	47
497	49	64
498	59	64
499	42	69
500	6	77
501	5	59
502	17	59
503	45	53
504	21	62
505	31	60
506	53	68
507	48	79
508	45	61
509	51	47
510	41	48
511	26	58
512	21	62
513	50	52
514	39	65
515	23	65
516	42	62
517	57	80
518	66	81
519	64	62
520	45	42
521	33	42
522	27	57
523	31	59
524	41	53
525	45	72
526	48	73
527	46	90
528	56	76
529	64	76
530	69	64
531	72	59
532	73	58
533	71	56
534	66	48
535	61	50
536	55	56
537	52	52
538	54	49
539	61	50
540	64	54
541	67	54
542	68	52
543	60	53
544	52	50
545	45	49
546	38	45
547	32	45
548	26	53
549	23	56
550	30	49
551	33	55
552	35	59
553	33	65
554	30	67

Time(s)	Normalized speed (percent)	Normalized torque (percent)
555	28	59
556	25	58
557	23	56
558	22	57
559	19	63
560	14	63
561	31	61
562	35	62
563	21	80
564	28	65
565	7	74
566	23	54
567	38	54
568	14	78
569	38	58
570	52	75
571	59	81
572	66	69
573	54	44
574	48	34
575	44	33
576	40	40
577	28	58
578	27	63
579	35	45
580	20	66
581	15	60
582	10	52
583	22	56
584	30	62
585	21	67
586	29	53
587	41	56
588	15	67
589	24	56
590	42	69
591	39	83
592	40	73
593	35	67
594	32	61
595	30	65
596	30	72
597	48	51
598	66	58
599	62	71
600	36	63
601	17	59
602	16	50
603	16	62
604	34	48
605	51	66
606	35	74
607	15	56
608	19	54
609	43	65
610	52	80
611	52	83
612	49	57
613	48	46
614	37	36
615	25	44
616	14	53
617	13	64
618	23	56
619	21	63
620	18	67
621	20	54
622	16	67
623	26	56
624	41	65
625	28	62
626	19	60
627	33	56
628	37	70
629	24	79
630	28	57
631	40	57
632	40	58
633	28	44
634	25	41
635	29	53
636	31	55
637	26	64
638	20	50
639	16	53
640	11	54
641	13	53
642	23	50
643	32	59
644	36	63
645	33	59
646	24	52
647	20	52
648	22	55
649	30	53
650	37	59
651	41	58
652	36	54
653	29	49
654	24	53
655	14	57
656	10	54
657	9	55
658	10	57
659	13	55
660	15	64
661	31	57
662	19	69
663	14	59
664	33	57
665	41	65
666	39	64
667	39	59
668	39	51
669	28	41
670	19	49
671	27	54
672	37	63
673	32	74
674	16	70
675	12	67
676	13	60
677	17	56
678	15	62
679	25	47
680	27	64
681	14	71
682	5	65
683	6	57
684	6	57
685	15	52
686	22	61
687	14	77
688	12	67
689	12	62
690	14	59
691	15	58
692	18	55
693	22	53
694	19	69
695	14	67
696	9	63
697	8	56
698	17	49

Time(s)	Normalized speed (percent)	Normalized torque (percent)
699	25	55
700	14	70
701	12	60
702	22	57
703	27	67
704	29	68
705	34	62
706	35	61
707	28	78
708	11	71
709	4	58
710	5	58
711	10	56
712	20	63
713	13	76
714	11	65
715	9	60
716	7	55
717	8	53
718	10	60
719	28	53
720	12	73
721	4	64
722	4	61
723	4	61
724	10	56
725	8	61
726	20	56
727	32	62
728	33	66
729	34	73
730	31	61
731	33	55
732	33	60
733	31	59
734	29	58
735	31	53
736	33	51
737	33	48
738	27	44
739	21	52
740	13	57
741	12	56
742	10	64
743	22	47
744	15	74
745	8	66
746	34	47
747	18	71
748	9	57
749	11	55
750	12	57
751	10	61
752	16	53
753	12	75
754	6	70
755	12	55
756	24	50
757	28	60
758	28	64
759	23	60
760	20	56
761	26	50
762	28	55
763	18	56
764	15	52
765	11	59
766	16	59
767	34	54
768	16	82
769	15	64
770	36	53
771	45	64
772	41	59
773	34	50
774	27	45
775	22	52
776	18	55
777	26	54
778	39	62
779	37	71
780	32	58
781	24	48
782	14	59
783	7	59
784	7	55
785	18	49
786	40	62
787	44	73
788	41	68
789	35	48
790	29	54
791	22	69
792	46	53
793	59	71
794	69	68
795	75	47
796	62	32
797	48	35
798	27	59
799	13	58
800	14	54
801	21	53
802	23	56
803	23	57
804	23	65
805	13	65
806	9	64
807	27	56
808	26	78
809	40	61
810	35	76
811	28	66
812	23	57
813	16	50
814	11	53
815	9	57
816	9	62
817	27	57
818	42	69
819	47	75
820	53	67
821	61	62
822	63	53
823	60	54
824	56	44
825	49	39
826	39	35
827	30	34
828	33	46
829	44	56
830	50	56
831	44	52
832	38	46
833	33	44
834	29	45
835	24	46
836	18	52
837	9	55
838	10	54
839	20	53
840	27	58
841	29	59
842	30	62

Time(s)	Normalized speed (percent)	Normalized torque (percent)
843	30	65
844	27	66
845	32	58
846	40	56
847	41	57
848	18	73
849	15	55
850	18	50
851	17	52
852	20	49
853	16	62
854	4	67
855	2	64
856	7	54
857	10	50
858	9	57
859	5	62
860	12	51
861	14	65
862	9	64
863	31	50
864	30	78
865	21	65
866	14	51
867	10	55
868	6	59
869	7	59
870	19	54
871	23	61
872	24	62
873	34	61
874	51	67
875	60	66
876	58	55
877	60	52
878	64	55
879	68	51
880	63	54
881	64	50
882	68	58
883	73	47
884	63	40
885	50	38
886	29	61
887	14	61
888	14	53
889	42	6
890	58	6
891	58	6
892	77	39
893	93	56
894	93	44
895	93	37
896	93	31
897	93	25
898	93	26
899	93	27
900	93	25
901	93	21
902	93	22
903	93	24
904	93	23
905	93	27
906	93	34
907	93	32
908	93	26
909	93	31
910	93	34
911	93	31
912	93	33
913	93	36
914	93	37
915	93	34
916	93	30
917	93	32
918	93	35
919	93	35
920	93	32
921	93	28
922	93	23
923	94	18
924	95	18
925	96	17
926	95	13
927	96	10
928	95	9
929	95	7
930	95	7
931	96	7
932	96	6
933	96	6
934	95	6
935	90	6
936	69	43
937	76	62
938	93	47
939	93	39
940	93	35
941	93	34
942	93	36
943	93	39
944	93	34
945	93	26
946	93	23
947	93	24
948	93	24
949	93	22
950	93	19
951	93	17
952	93	19
953	93	22
954	93	24
955	93	23
956	93	20
957	93	20
958	94	19
959	95	19
960	95	17
961	96	13
962	95	10
963	96	9
964	95	7
965	95	7
966	95	7
967	95	6
968	96	6
969	96	6
970	89	6
971	68	6
972	57	6
973	66	32
974	84	52
975	93	46
976	93	42
977	93	36
978	93	28
979	93	23
980	93	19
981	93	16
982	93	15
983	93	16
984	93	15
985	93	14
986	93	15

Time(s)	Normalized speed (percent)	Normalized torque (percent)
987	93	16
988	94	15
989	93	32
990	93	45
991	93	43
992	93	37
993	93	29
994	93	23
995	93	20
996	93	18
997	93	16
998	93	17
999	93	16
1000	93	15
1001	93	15
1002	93	15
1003	93	14
1004	93	15
1005	93	15
1006	93	14
1007	93	13
1008	93	14
1009	93	14
1010	93	15
1011	93	16
1012	93	17
1013	93	20
1014	93	22
1015	93	20
1016	93	19
1017	93	20
1018	93	19
1019	93	19
1020	93	20
1021	93	32
1022	93	37
1023	93	28
1024	93	26
1025	93	24
1026	93	22
1027	93	22
1028	93	21
1029	93	20
1030	93	20
1031	93	20
1032	93	20
1033	93	19
1034	93	18
1035	93	20
1036	93	20
1037	93	20
1038	93	20
1039	93	19
1040	93	18
1041	93	18
1042	93	17
1043	93	16
1044	93	16
1045	93	15
1046	93	16
1047	93	18
1048	93	37
1049	93	48
1050	93	38
1051	93	31
1052	93	26
1053	93	21
1054	93	18
1055	93	16
1056	93	17
1057	93	18
1058	93	19
1059	93	21
1060	93	20
1061	93	18
1062	93	17
1063	93	17
1064	93	18
1065	93	18
1066	93	18
1067	93	19
1068	93	18
1069	93	18
1070	93	20
1071	93	23
1072	93	25
1073	93	25
1074	93	24
1075	93	24
1076	93	22
1077	93	22
1078	93	22
1079	93	19
1080	93	16
1081	95	17
1082	95	37
1083	93	43
1084	93	32
1085	93	27
1086	93	26
1087	93	24
1088	93	22
1089	93	22
1090	93	22
1091	93	23
1092	93	22
1093	93	22
1094	93	23
1095	93	23
1096	93	23
1097	93	22
1098	93	23
1099	93	23
1100	93	23
1101	93	25
1102	93	27
1103	93	26
1104	93	25
1105	93	27
1106	93	27
1107	93	27
1108	93	24
1109	93	20
1110	93	18
1111	93	17
1112	93	17
1113	93	18
1114	93	18
1115	93	18
1116	93	19
1117	93	22
1118	93	22
1119	93	19
1120	93	17
1121	93	17
1122	93	18
1123	93	18
1124	93	19
1125	93	19
1126	93	20
1127	93	19
1128	93	20
1129	93	25
1130	93	30

Time(s)	Normalized speed (percent)	Normalized torque (percent)
1131	93	31
1132	93	26
1133	93	21
1134	93	18
1135	93	20
1136	93	25
1137	93	24
1138	93	21
1139	93	21
1140	93	22
1141	93	22
1142	93	28
1143	93	29
1144	93	23
1145	93	21
1146	93	18
1147	93	16
1148	93	16
1149	93	16
1150	93	17
1151	93	17
1152	93	17
1153	93	17
1154	93	23
1155	93	26
1156	93	22
1157	93	18
1158	93	16
1159	93	16
1160	93	17
1161	93	19
1162	93	18
1163	93	16
1164	93	19
1165	93	22
1166	93	25
1167	93	29
1168	93	27
1169	93	22
1170	93	18
1171	93	16
1172	93	19
1173	93	19
1174	93	17
1175	93	17
1176	93	17
1177	93	16
1178	93	16
1179	93	15
1180	93	16
1181	93	15
1182	93	17
1183	93	21
1184	93	30
1185	93	53
1186	93	54
1187	93	38
1188	93	30
1189	93	24
1190	93	20
1191	95	20
1192	96	18
1193	96	15
1194	96	11
1195	95	9
1196	95	8
1197	96	7
1198	94	33
1199	93	46
1200	93	37
1201	16	8
1202	0	0
1203	0	0
1204	0	0
1205	0	0
1206	0	0
1207	0	0
1208	0	0
1209	0	0

PART 1051—CONTROL OF EMISSIONS FROM RECREATIONAL ENGINES AND VEHICLES

Subpart A—Determining How To Follow This Part

Sec.

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1051.105 What are the exhaust emission standards for off-highway motorcycles?
1051.107 What are the exhaust emission standards for all-terrain vehicles (ATVs) and offroad utility vehicles?
1051.110 What evaporative emission standards must my vehicles meet?
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1051.125 What maintenance instructions must I give to buyers?
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1051.135 How must I label and identify the vehicles I produce?
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1051.145 What provisions apply only for a limited time?

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1051.205 What must I include in my application?
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1051.225 How do I amend my application for certification to include new or modified vehicle configurations or to change an FEL?
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1051.320 What happens if one of my production-line vehicles or engines fails to meet emission standards?
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1051.330 May I sell vehicles from an engine family with a suspended certificate of conformity?
1051.335 How do I ask EPA to reinstate my suspended certificate?
1051.340 When may EPA revoke my certificate under this subpart and how may I sell these vehicles again?
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Subpart F—Test Procedures

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1051.505 What special provisions apply for testing snowmobiles?
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1051.605 What provisions apply to engines already certified under the motor vehicle program or the Large Spark-ignition program?
1051.610 What provisions apply to vehicles already certified under the motor vehicle program?
1051.615 What are the special provisions for certifying small recreational engines?
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1051.625 What special provisions apply to unique snowmobile designs for small-volume manufacturers?
1051.630 What special provisions apply to unique snowmobile designs for all manufacturers?
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1051.710 How do I generate and bank emission credits?
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1051.725 What must I include in my applications for certification?
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1051.740 Are there special averaging provisions for snowmobiles?
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Subpart I—Definitions and Other Reference Information

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1051.820 How do I request a hearing?
1051.825 What reporting and recordkeeping requirements apply under this part?

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Subpart A—Overview and Applicability

§ 1051.1 Does this part apply for my vehicles or engines?

(a) The regulations in this part 1051 apply for all the following new recreational vehicles or new engines used in the following recreational vehicles, except as provided in § 1051.5:

(1) Snowmobiles.

(2) Off-highway motorcycles.

(3) All-terrain vehicles (ATVs.)

(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.

(b) In certain cases, the regulations in this part 1051 apply to new engines under 50 cc used in motorcycles that are motor vehicles. See 40 CFR 86.447–2006 or 86.448–2006 for provisions related to this allowance.

(c) This part 1051 applies for new recreational vehicles starting in the 2006 model year, except as described in subpart B of this part. You need not follow this part for vehicles you produce before the 2006 model year, unless you certify voluntarily. See §§ 1051.103 through 1051.110, § 1051.145, and the definition of ''model year'' in § 1051.801 for more information about the timing of the requirements.

(d) The requirements of this part begin to apply when a vehicle is new. See the definition of ''new'' in § 1051.801 for more information. In some cases, vehicles or engines that have been previously used may be considered ''new'' for the purposes of this part.

(e) The evaporative emission requirements of this part apply to highway motorcycles, as specified in 40 CFR part 86, subpart E.

[70 FR 40486, July 13, 2005, as amended at 73 FR 59245, Oct. 8, 2008]

§ 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.).

[73 FR 59245, Oct. 8, 2008]

§ 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.

(b) We may require you to label an engine or vehicle (or both) if this section excludes it and other requirements in this chapter do not apply.

[70 FR 40486, July 13, 2005, as amended at 73 FR 59245, Oct. 8, 2008]

§ 1051.10 How is this part organized?

This part 1051 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of part 1051 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

§ 1051.145 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) [Reserved]

(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 emission credits to certify your engines.

(i) Subpart I of this part contains definitions and other reference information.

[70 FR 40486, July 13, 2005, as amended at 73 FR 59245, Oct. 8, 2008]

§ 1051.15 Do any other regulation parts apply to me?

(a) Parts 86 and 1065 of this chapter describe procedures and equipment specifications for testing vehicles and engines to measure exhaust emissions. Subpart F of this part 1051 describes how to apply the provisions of parts 86 and 1065 of this chapter to determine whether vehicles meet the exhaust emission standards in this part.

(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.

(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 vehicles subject to this part 1051, or vehicles containing these engines. Part 1068 of this chapter describes general provisions, including these seven areas:

(1) Prohibited acts and penalties for manufacturers and others.

(2) Rebuilding and other aftermarket changes.

(3) Exclusions and exemptions for certain vehicles and engines.

(4) Importing vehicles and 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.

[70 FR 40487, July 13, 2005, as amended at 73 FR 59245, Oct. 8, 2008; 75 FR 23023, Apr. 30, 2010]

§ 1051.20 May I certify a recreational engine instead of the vehicle?

(a) You may certify engines sold separately from vehicles in either of two cases:

(1) If you manufacture recreational engines but not recreational vehicles, you may ask to certify the engine alone. In your request, explain why you cannot certify the entire vehicle.

(2) If you manufacture complete recreational vehicles containing engines you also sell separately, you may ask to certify all these engines in a single engine family or in separate engine families.

(b) If you certify an engine under this section, you must use the test procedures in subpart F of this part. If the test procedures require vehicle testing, use good engineering judgment to install the engine in an appropriate vehicle for measuring emissions.

(c) If we allow you to certify recreational engines, the vehicles must meet the applicable emission standards (including evaporative emission standards) with the engines installed in the appropriate vehicles. You must prepare installation instructions as described in § 1051.130 and use good engineering judgment so that the engines will meet emission standards after proper installation in the vehicle.

(d) Identify and label engines you produce under this section consistent with the requirements of § 1051.135. On the emission control information label, identify the manufacturing date of the engine rather than the vehicle.

(e) You may not use the provisions of this section to circumvent or reduce the stringency of this part's standards or other requirements.

(f) If you certify under paragraph (a)(1) of this section, you may ask us to

allow you to perform production-line testing on the engine. If you certify under paragraph (a)(2) of this section, use good engineering judgment to ensure that these engines are produced in the same manner as the engines you produce for your vehicles, so that your production-line testing results under subpart D of this part would apply to them.

(g) Apply the provisions of 40 CFR part 1068 for engines certified under this section as if they were subject to engine-based standards. For example, you may rely on the provisions of 40 CFR 1068.261 to have vehicle manufacturers install catalysts that you describe in your application for certification.

[70 FR 40489, July 13, 2005, as amended at 75 FR 23023, Apr. 30, 2010]

§ 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).

(b) You must follow the engine manufacturer's emission-related installation instructions, as described in § 1051.135 and 40 CFR 1068.105. For example, you must use a fuel system that meets the permeation requirements of this part, consistent with the engine manufacturer's instructions.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59245, Oct. 8, 2008]

§ 1051.30 Submission of information.

(a) This part includes various requirements to record data or other information. Refer to § 1051.825 and 40 CFR 1068.25 regarding recordkeeping requirements. Unless we specify otherwise, 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 § 1051.255 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* § 1051.801).

(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.

[75 FR 23023, Apr. 30, 2010]

Subpart B—Emission Standards and Related Requirements

§ 1051.101 What emission standards and other requirements must my vehicles meet?

(a) You must show that your vehicles meet the following:

(1) The applicable exhaust emission standards in § 1051.103, § 1051.105, § 1051.107, or § 1051.145.

(i) For snowmobiles, see § 1051.103.

(ii) For off-highway motorcycles, see § 1051.105.

(iii) For all-terrain vehicles and offroad utility vehicles subject to this part, see § 1051.107 and § 1051.145.

(2) The evaporative emission standards in § 1051.110.

(3) All the requirements in § 1051.115.

(b) The certification regulations in subpart C of this part describe how you make this showing.

(c) These standards and requirements apply to all testing, including certification, production-line, and in-use testing.

(d) Other sections in this subpart describe other requirements for manufacturers such as labeling or warranty requirements.

(e) It is important that you read § 1051.145 to determine if there are other interim requirements or interim compliance options that apply for a limited time.

(f) As described in § 1051.1(a)(4), offroad utility vehicles that are subject to this part are subject to the same requirements as ATVs.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40487, July 13, 2005]

§ 1051.103 What are the exhaust emission standards for snowmobiles?

(a) Apply the exhaust emission standards in this section by model year. Measure emissions with the snowmobile test procedures in subpart F of this part.

(1) Follow Table 1 of this section for exhaust emission standards. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC and CO emissions, as described in subpart H of this part. This requires that you 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 applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit. The phase-in values specify the percentage of your U.S.-directed production that must comply with the emission standards for those model years. Calculate this compliance percentage based on a simple count of your U.S.-directed production units within each certified engine family compared with a simple count of your total U.S.-directed production units. Table 1 also shows the maximum value you may specify for a family emission limit, as follows:

TABLE 1 OF § 1051.103—EXHAUST EMISSION STANDARDS FOR SNOWMOBILES (G/KW-HR)

Phase	Model year	Phase-in (percent)	Emission standards		Maximum allowable family emission limits	
			HC	CO	HC	CO
Phase 1	2006	50	100	275		
Phase 1	2007–2009	100	100	275		
Phase 2	2010 and 2011	100	75	275		
Phase 3	2012 and later	100	(1)	(1)	150	400

[1] See § 1051.103(a)(2).

(2) For Phase 3, the HC and CO standards are defined by a functional relationship. Choose your corporate average HC and CO standards for each year according to the following criteria:

(i) Prior to production, select the HC standard and CO standard (specified as g/kW-hr) so that the combined percent reduction from baseline emission levels is greater than or equal to 100 percent; that is, that the standards comply with the following equation:

$$\left(1-\frac{HC_{STD}}{150}\right)\times 100+\left(1-\frac{CO_{STD}}{400}\right)\times 100\geq 100$$

(ii) Your corporate average HC standard may not be higher than 75 g/kW-hr.

(iii) Your corporate average CO standard may not be higher than 275 g/kW-hr.

(iv) You may use the averaging and banking provisions of subpart H of this part to show compliance with these HC and CO standards at the end of the model year under paragraph (a)(2)(i) of this section. You must comply with these final corporate average emission standards.

(b) The exhaust emission standards in this section apply for snowmobiles using the fuel type on which they 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 snowmobiles powered by the following fuels:

(1) Natural gas-fueled snowmobiles: NMHC emissions.

(2) Alcohol-fueled snowmobiles: THCE emissions.

(3) Other snowmobiles: THC emissions.

(c) Your snowmobiles must meet emission standards over their full useful life. The minimum useful life is 8,000 kilometers, 400 hours of engine operation, or five calendar years, whichever comes first. You must specify a longer useful life in terms of kilometers and hours for the engine family if the average service life of your vehicles is longer than the minimum value, as follows:

(1) Except as allowed by paragraph (c)(2) of this section, your useful life (in kilometers and hours) may not be less than either of the following:

(i) Your projected operating life from advertisements or other marketing materials for any vehicles in the engine family.

(ii) Your basic mechanical warranty for any engines in the engine family.

(2) 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 (c)(1) of this section, but more than the minimum useful life (8,000 kilometers or 400 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40487, July 13, 2005; 73 FR 35951, June 25, 2008; 73 FR 59246, Oct. 8, 2008]

§ 1051.105 What are the exhaust emission standards for off-highway motorcycles?

(a) Apply the exhaust emission standards in this section by model year. Measure emissions with the off-highway motorcycle test procedures in subpart F of this part.

(1) Follow Table 1 of this section for exhaust emission standards. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC + NO_X and CO emissions, as described in subpart H of this part. This requires that you 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 applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit. The phase-in values specify the percentage of your U.S.-directed production that must comply with the emission standards for those model years. Calculate this compliance percentage based on a simple count of your U.S.-directed production units within each certified engine family compared with a simple count of your total U.S.-directed production units. Table 1 follows:

TABLE 1 OF § 1051.105—EXHAUST EMISSION STANDARDS FOR OFF-HIGHWAY MOTORCYCLES (G/KM)

Phase	Model year	Phase-in (percent)	Emission standards		Maximum allowable family emission limits	
			HC + NO_X	CO	HC + NO_X	CO
Phase 1	2006	50	2.0	25	20.0	50
	2007 and later	100	2.0	25	20.0	50

(2) For model years 2007 and later you may choose to certify all of your off-highway motorcycles to an HC + NO_X standard of 4.0 g/km and a CO standard of 35 g/km, instead of the standards listed in paragraph (a)(1) of this section. To certify to the standards in this paragraph (a)(2), you must comply with the following provisions:

(i) You may not request an exemption for any off-highway motorcycles under § 1051.620

(ii) At least ten percent of your off-highway motorcycles for the model year must have four of the following features:

(A) The absence of a headlight or other lights.

(B) The absence of a spark arrestor.

(C) The absence of manufacturer warranty.

(D) Suspension travel greater than 10 inches.

(E) Engine displacement greater than 50 cc.

(F) The absence of a functional seat.

(iii) You may use the averaging and banking provisions of subpart H of this part to show compliance with this HC + NO_X standard, but not this CO standard. If you use the averaging or banking provisions to show compliance, your FEL for HC + NO_X may not exceed 8.0 g/km for any engine family. You may not use the trading provisions of subpart H of this part.

(3) You may certify off-highway motorcycles with engines that have total displacement of 70 cc or less to the exhaust emission standards in § 1051.615 instead of certifying them to the exhaust emission standards of this section. Count all such vehicles in the phase-in (percent) requirements of this section.

(b) The exhaust emission standards in this section apply for off-highway motorcycles using the fuel type on which they 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 off-highway motorcycles powered by the following fuels:

(1) Natural gas-fueled off-highway motorcycles: NMHC emissions.

(2) Alcohol-fueled off-highway motorcycles: THCE emissions.

(3) Other off-highway motorcycles: THC emissions.

(c) Your off-highway motorcycles must meet emission standards over their full useful life. For off-highway motorcycles with engines that have total displacement greater than 70 cc, the minimum useful life is 10,000 kilometers or five years, whichever comes first. For off-highway motorcycles with engines that have total displacement of 70 cc or less, the minimum useful life is 5,000 kilometers or five years, whichever comes first. You must specify a longer useful life for the engine family in terms of kilometers if the average service life of your vehicles is longer than the minimum value, as follows:

(1) Except as allowed by paragraph (c)(2) of this section, your useful life (in kilometers) may not be less than either of the following:

(i) Your projected operating life from advertisements or other marketing materials for any vehicles in the engine family.

(ii) Your basic mechanical warranty for any engines in the engine family.

(2) 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 (c)(1) of this section, but more than the minimum useful life (10,000 kilometers). 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40487, July 13, 2005; 73 FR 59246, Oct. 8, 2008]

§ 1051.107 What are the exhaust emission standards for all-terrain vehicles (ATVs) and offroad utility vehicles?

This section specifies the exhaust emission standards that apply to ATVs. As is described in § 1051.1(a)(4), offroad utility vehicles that are subject to this part are subject to these same standards.

(a) Apply the exhaust emission standards in this section by model year. Measure emissions with the ATV test procedures in subpart F of this part.

(1) Follow Table 1 of this section for exhaust emission standards. 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. This requires that you 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 applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit. Table 1 also shows the maximum value you may specify for a family emission limit. The phase-in values in the table specify the percentage of your total U.S.-directed production that must comply with the emission standards for those model years.

Calculate this compliance percentage based on a simple count of your U.S.-directed production units within each certified engine family compared with a simple count of your total U.S.-directed production units. This applies to your total production of ATVs and offroad utility vehicles that are subject to the standards of this part; including both ATVs and offroad utility vehicles subject to the standards of this section and ATVs and offroad utility vehicles certified to the standards of other sections in this part 1051 (such as § 1051.615, but not including vehicles certified under other parts in this chapter (such as 40 CFR part 90). Table 1 follows:

TABLE 1 OF § 1051.107—EXHAUST EMISSION STANDARDS FOR ATVS (G/KM)

Phase	Model year	Phase-in (percent)	Emission standards		Maximum allowable family emission limits	
			HC + NO_X	CO	HC + NO_X	CO
Phase 1	2006	50	1.5	35	20.0	
	2007 and later	100	1.5	35	20.0	

(2) You may certify ATVs with engines that have total displacement of less than 100 cc to the exhaust emission standards in § 1051.615 instead of certifying them to the exhaust emission standards of this section. Count all such vehicles in the phase-in (percent) requirements of this section.

(b) The exhaust emission standards in this section apply for ATVs using the fuel type on which they 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 ATVs powered by the following fuels:

(1) Natural gas-fueled ATVs: NMHC emissions.

(2) Alcohol-fueled ATVs: THCE emissions.

(3) Other ATVs: THC emissions.

(c) Your ATVs must meet emission standards over their full useful life. For ATVs with engines that have total displacement of 100 cc or greater, the minimum useful life is 10,000 kilometers, 1000 hours of engine operation, or five years, whichever comes first. For ATVs with engines that have total

displacement of less than 100 cc, the minimum useful life is 5,000 kilometers, 500 hours of engine operation, or five years, whichever comes first. You must specify a longer useful life for the engine family in terms of kilometers and hours if the average service life of your vehicles is longer than the minimum value, as follows:

(1) Except as allowed by paragraph (c)(2) of this section, your useful life (in kilometers) may not be less than either of the following:

(i) Your projected operating life from advertisements or other marketing materials for any vehicles in the engine family.

(ii) Your basic mechanical warranty for any engines in the engine family.

(2) 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 (c)(1) of this section, but more than the minimum useful life (10,000 kilometers or 1,000 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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40488, July 13, 2005; 73 FR 59246, Oct. 8, 2008]

§ 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.

(a) Beginning with the 2008 model year, permeation emissions from your vehicle's fuel tank(s) may not exceed 1.5 grams per square-meter per day when measured with the test procedures for tank permeation in subpart F of this part. You may generate or use emission credits under the averaging, banking, and trading (ABT) program, as described in subpart H of this part.

(b) Beginning with the 2008 model year, permeation emissions from your vehicle's fuel lines may not exceed 15 grams per square-meter per day when measured with the test procedures for fuel-line permeation in subpart F of this part. Use the inside diameter of the hose to determine the surface area of the hose.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40488, July 13, 2005; 73 FR 59246, Oct. 8, 2008]

§ 1051.115 What other requirements apply?

Vehicles that are required to meet the emission standards of this part must meet the following requirements:

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

(b) [Reserved]

(c) *Adjustable parameters.* Vehicles that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. Note that parameters that control the air-fuel ratio may be treated separately under paragraph (d) of this section. 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.

(d) *Other adjustments.* This provision applies if an experienced mechanic can change your engine's air-fuel ratio in less than one hour with a few parts whose total cost is under $50 (in 2001 dollars). Examples include carburetor jets and needles. In the case of carburetor jets and needles, your vehicle must meet all the requirements of this part for any air-fuel ratio within the adjustable range described in paragraph (d)(1) of this section.

(1) In your application for certification, specify the adjustable range of air-fuel ratios you expect to occur in

use. You may specify it in terms of engine parts (such as the carburetor jet size and needle configuration as a function of atmospheric conditions).

(2) This adjustable range (specified in paragraph (d)(1) of this section) must include all air-fuel ratios between the lean limit and the rich limit, unless you can show that some air-fuel ratios will not occur in use.

(i) The lean limit is the air-fuel ratio that produces the highest engine power output (averaged over the test cycle).

(ii) The rich limit is the richest of the following air-fuel ratios:

(A) The air-fuel ratio that would result from operating the vehicle as you produce it at the specified test conditions. This paragraph (d)(2)(ii)(A) does not apply if you produce the vehicle with an unjetted carburetor so that the vehicle must be jetted by the dealer or operator.

(B) The air-fuel ratio of the engine when you do durability testing.

(C) The richest air-fuel ratio that you recommend to your customers for the applicable ambient conditions.

(3) If the air-fuel ratio of your vehicle is adjusted primarily by changing the carburetor jet size and/or needle configuration, you may submit your recommended jetting chart instead of the range of air-fuel ratios required by paragraph (d)(1) of this section if the following criteria are met:

(i) Good engineering judgment indicates that vehicle operators would not have an incentive to operate the vehicle with richer air-fuel ratios than recommended.

(ii) The chart is based on use of a fuel that is equivalent to the specified test fuel(s). As an alternative you may submit a chart based on a representative in-use fuel if you also provide instructions for converting the chart to be applicable to the test fuel(s).

(iii) The chart is specified in units that are adequate to make it practical for an operator to keep the vehicle properly jetted during typical use. For example, charts that specify jet sizes based on increments of temperature smaller than 20 °F (11.1 °C) or increments of altitude less than 2000 feet would not meet this criteria. Temperature ranges must overlap by at least 5 °F (2.8 °C).

(iv) You follow the jetting chart for durability testing.

(v) You do not produce your vehicles with jetting richer than the jetting chart recommendation for the intended vehicle use.

(vi) The adjustable range of carburetor screws, such as air screw, fuel screw, and idle-speed screw must be defined by stops, limits, or specification on the jetting chart consistent with the requirements for specifying jet sizes and needle configuration in this section.

(4) We may require you to adjust the engine to any specification within the adjustable range during certification testing, production-line testing, selective enforcement auditing, or in-use testing. If we allow you to submit your recommended jetting chart instead of the range of air-fuel ratios required by paragraph (d)(1) of this section, adjust the engine to the richest specification within the jetting chart for the test conditions, unless we specify a leaner setting. We may not specify a setting leaner than that described in paragraph (d)(2)(i) of this section.

(e) *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.

(f) *Defeat devices.* You may not equip your vehicles with a defeat device. A defeat device is an auxiliary emission-control device that reduces the effectiveness of emission controls under conditions that the vehicle may reasonably be expected to encounter during normal operation and use. This does not apply to auxiliary emission-control devices you identify in your certification application if any of the following is true:

(1) The conditions of concern were substantially included in the applicable test procedures described in subpart F of this part.

(2) You show your design is necessary to prevent vehicle damage or accidents.

(3) The reduced effectiveness applies only to starting the engine.

(g) *Noise standards.* There are no noise standards specified in this part 1051. See 40 CFR Chapter I, Subchapter G, to determine if your vehicle must meet noise emission standards under another part of our regulations.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40488, July 13, 2005; 73 FR 59246, Oct. 8, 2008]

§ 1051.120 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 for at least 50 percent of the vehicle's minimum useful life in kilometers or hours of engine operation (where applicable), or at least 30 months, whichever comes first. 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 a vehicle has no odometer, base warranty periods in this paragraph (b) only on the vehicle's age (in years). The warranty period begins when the engine is placed into service.

(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. You may ask us to allow you to exclude from your emission-related warranty certified vehicles that have been used significantly for competition, especially certified motorcycles that meet at least four of the criteria in § 1051.620(b)(1).

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

[70 FR 40489, July 13, 2005, as amended at 73 FR 59246, Oct. 8, 2008]

§ 1051.125 What maintenance instructions must I give to buyers?

Give the ultimate purchaser of each new vehicle written instructions for properly maintaining and using the vehicle, including the emission-control system. The maintenance instructions also apply to service accumulation on your emission-data vehicles, as described in § 1051.240, § 1051.245, and 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 vehicles. We will accept scheduled maintenance as reasonably likely to occur if you satisfy any of the following conditions:

(i) You present data showing that, if a lack of maintenance increases emissions, it also unacceptably degrades the vehicle's performance.

(ii) You present survey data showing that at least 80 percent of vehicles 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 minimum useful life period for aftertreatment devices, pulse-air valves, fuel injectors, oxygen sensors, electronic control units, superchargers, or turbochargers.

(3) You may ask us to approve a maintenance interval shorter than that specified in paragraph (a)(2) of this section. In your request you must describe the proposed maintenance step, recommend the maximum feasible interval for this maintenance, include your rationale with supporting evidence to support the need for the maintenance at the recommended interval, and demonstrate that the maintenance will be done at the recommended interval on in-use engines. In considering your request, we will evaluate the information you provide and any other available information to establish alternate specifications for maintenance intervals, if appropriate.

(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 vehicles from in-use testing or deny a warranty claim. Do not take these maintenance steps during service accumulation on your emission-data vehicles.

(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. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address engine operation that is not atypical, or that the maintenance is unlikely to occur in use. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

(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 owner's 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.

(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 vehicles, 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, or adjusting chain tension, clutch position, or tire pressure. You may perform this nonemission-related maintenance on emission-data vehicles at the least frequent intervals that you recommend to the ultimate purchaser (but

not the intervals recommended for severe service). You may also visually inspect test vehicles or engines, including emission-related components, as needed to ensure safe operation.

(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 vehicle 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 vehicle will work properly only with the identified component or service.

(g) *Payment for scheduled maintenance.* Owners are responsible for properly maintaining their vehicles. 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 vehicles before the 2006 model year.

(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 vehicle.

(4) Failure to perform the maintenance would not cause clear problems that would significantly degrade the vehicle's performance.

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

[70 FR 40489, July 13, 2005, as amended at 73 FR 59246, Oct. 8, 2008; 75 FR 23023, Apr. 30, 2010]

§ 1051.130 What installation instructions must I give to vehicle manufacturers?

(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.

(b) Make sure these 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 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 the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of § 1051.205(r).

(4) Describe the steps needed to comply with the evaporative emission standards in § 1051.110.

(5) 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 to the snowmobile standards, tell vehicle manufacturers not to install the engines in other vehicles.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

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

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

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available Web site 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.

[70 FR 40490, July 13, 2005]

§ 1051.135 How must I label and identify the vehicles I produce?

Each of your vehicles must have three labels: a vehicle identification number as described in paragraph (a) of this section, an emission control information label as described in paragraphs (b) through (e) of this section, and a consumer information label as described in § 1051.137.

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

(b) At the time of manufacture, affix a permanent and legible emission control information label identifying each vehicle. The label must be

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

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

(3) Durable and readable for the vehicle'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 § 1051.645.

(3) Include EPA's standardized designation for engine families, as described in § 1051.230.

(4) State the engine's displacement (in liters). You may omit this from the emission control information label if the vehicle is permanently labeled with a unique model name that corresponds to a specific displacement. Also, you may omit displacement from the label if all the engines in the engine family have the same per-cylinder displacement and total displacement.

(5) State: ''THIS VEHICLE IS CERTIFIED TO OPERATE ON [specify operating fuel or fuels].''.

(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 owner's 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.

(10) Identify the fuel type and 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.

(11) State the useful life for your engine family if it is different than the minimum value.

(12) State: ''THIS VEHICLE MEETS U.S. EPA REGULATIONS FOR [MODEL YEAR] [SNOWMOBILES or OFF–ROAD MOTORCYCLES or ATVs or OFFROAD UTILITY VEHICLES].''

(13) Identify evaporative emission controls as specified in 40 CFR 1060.135.

(d) You may add information to the emission control information label to identify other emission standards that the vehicle meets or does not meet (such as California standards). You may also add other information to ensure that the engine will be properly maintained and used.

(e) You may ask us to approve modified labeling requirements in this part 1051 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) [Reserved]

(g) Label every vehicle certified under this part with a removable hang-tag showing its emission characteristics relative to other models, as described in § 1051.137.

[70 FR 40490, July 13, 2005, as amended at 59246, Oct. 8, 2008; 75 FR 23024, Apr. 30, 2010]

§ 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).

(a) For snowmobiles, use the following equation:

$$NER = 16.61 \times \log(2.667 \times HC + CO) - 38.22$$

Where:

HC and CO are the cycle-weighted FELs (or emission rates) for hydrocarbons and carbon monoxide in g/kW-hr.

(b) For off-highway motorcycles, use the following equations:

(1) For off-highway motorcycles certified to the standards in § 1051.105, use one of the equations specified below.

(i) If the vehicle has $HC + NO_X$ emissions less than or equal to 2.0 g/km, use the following equation:

$$NER = 2.500 \times (HC + NO_X)$$

Where:

$HC + NO_X$ is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(ii) If the vehicle has $HC + NO_X$ emissions greater than 2.0 g/km, use the following equation:

$$NER = 5.000 \times \log(HC + NO_X) + 3.495$$

Where:

$HC + NO_X$ is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(2) For off-highway motorcycles certified to the standards in § 1051.615(b), use the following equation:

$$NER = 8.782 \times \log(HC + NO_X) - 5.598$$

Where:

$HC + NO_X$ is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/kW-hr.

(c) For ATVs, use the following equations:

(1) For ATVs certified to the standards in § 1051.107, use one of the equations specified below.

(i) If the vehicle has $HC + NO_X$ emissions less than or equal to 1.5 g/km, use the following equation:

$$NER = 3.333 \times (HC + NO_X)$$

Where:

$HC + NO_X$ is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(ii) If the vehicle has $HC + NO_X$ emissions greater than 1.5 g/km, use the following equation:

$$NER = 4.444 \times \log(HC + NO_X) + 4.217$$

Where:

$HC + NO_X$ is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(2) For ATVs certified to the standards in § 1051.615(a), use the following equation:

$$NER = 8.782 \times \log(HC + NO_X) - 7.277$$

Where:

$HC + NO_X$ is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/kW-hr.

[70 FR 40491, July 13, 2005, as amended at 73 FR 59246, Oct. 8, 2008]

§ 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 to 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.

[73 FR 59247, Oct. 8, 2008]

§ 1051.145 What provisions apply only for a limited time?

Apply the following provisions instead of others in this part for the periods and circumstances specified in this section.

(a) *Provisions for small-volume manufacturers.* Special provisions apply to you if you are a small-volume manufacturer subject to the requirements of this part. Contact us before 2006 if you intend to use these provisions.

(1) You may delay complying with otherwise applicable emission standards (and other requirements) for two model years.

(2) If you are a small-volume manufacturer of snowmobiles, only 50 percent of the models you produce (instead of all of the models you produce) must meet emission standards in the first two years they apply to you as a small-volume manufacturer, as described in paragraph (a)(1) of this section. For example, this alternate phase-in allowance would allow small-volume snowmobile manufacturers to comply with the Phase 1 exhaust standards by certifying 50 percent of their snowmobiles in 2008, 50 percent of their snowmobiles in 2009, and 100 percent in 2010.

(3) Your vehicles for model years before 2011 may be exempt from the exhaust standards of this part if you meet the following criteria:

(i) Produce your vehicles by installing engines covered by a valid certificate of conformity under 40 CFR part 90 that shows the engines meet standards for Class II engines for each engine's model year.

(ii) Do not change the engine in a way that we could reasonably expect to increase its exhaust emissions.

(iii) The engine meets all applicable requirements from 40 CFR part 90. This applies to engine manufacturers, vehicle manufacturers who use these engines, and all other persons as if these engines were not used in recreational vehicles.

(iv) Show that fewer than 50 percent of the engine family's total sales in the United States are used in recreational vehicles regulated under this part. This includes engines used in any application, without regard to which company

manufactures the vehicle or equipment.

(v) 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.

(vi) Engines exempted under this paragraph (a)(3) are subject to all the requirements affecting engines under 40 CFR part 90. The requirements and restrictions of 40 CFR part 90 apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as other engines subject to 40 CFR part 90.

(4) All vehicles produced under this paragraph (a) must be labeled according to our specifications. The label must include the following:

(i) The heading ''EMISSION CONTROL INFORMATION''.

(ii) Your full corporate name and trademark.

(iii) A description of the provisions under which this section applies to your vehicle .

(iv) Other information that we specify to you in writing.

(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 No.	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:

$$NER = 9.898 \times \log (HC + NO_X) - 4.898$$

Where:

$HC + NO_X$ 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:

$$NER = 9.898 \times \log [(HC + NO_X) \times 0.83] - 4.898$$

Where:

$HC + NO_X$ is the sum of the cycle-weighted emission rates for hydrocarbons and oxides of nitrogen in g/kW-hr.

(c) [Reserved]

(d) *Phase-in flexibility*. For model years before 2014, if you make a good faith effort to comply, but fail to meet the sales requirements of this part during a phase-in period for new standards, or fail to meet the average emission standards, we may approve an alternative remedy to offset the emission reduction deficit using future emission credits under this part. To apply for this, you must:

(1) Submit a plan during the certification process for the first model year of the phase-in showing how you project to meet the sales requirement of the phase-in.

(2) Notify us less than 30 days after you determine that you are likely to fail to comply with the sales requirement of the phase-in.

(3) Propose a remedy that will achieve equivalent or greater emission reductions compared to the specified phase-in requirements, and that will offset the deficit within one model year.

(e) *Raw sampling procedures*. Using good engineering judgment, you may use the alternate raw-sampling procedures instead of the procedures described in 40 CFR part 1065 for emission testing certain vehicles, as follows:

(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.

(2) *ATV*. You may use the raw sampling procedures described in 40 CFR part 90 or 91 for ATVs certified using engine-based test procedures as specified in § 1051.615 before the 2015 model year. You may use these raw sampling procedures for any ATVs certified using engine-based test procedures as specified in paragraph (b) of this section.

(f) *Early credits*. Snowmobile manufacturers may generate early emission credits in one of the following ways, by certifying some or all of their snowmobiles prior to 2006. Credit generating snowmobiles must meet all other applicable requirements of this part. No early credits may be generated by off-highway motorcycles or ATVs.

(1) You may certify one or more snowmobile engine families to FELs (HC and CO) below the numerical level of the Phase 2 standards prior to the date when compliance with the Phase 1 standard is otherwise required. Credits are calculated relative to the Phase 2 standards. Credits generated under this paragraph (f)(1) may be used at any time before 2012.

(2) You may certify a snowmobile engine family to FELs (HC and CO) below the numerical level of the Phase 1

standards prior to the date when compliance with the Phase 1 standard is otherwise required. Credits are calculated relative to the Phase 1 standards. Credits generated under this paragraph (f)(2) may only be used for compliance with the Phase 1 standards. You may generate credits under this paragraph (f)(2) without regard to whether the FELs are above or below the numerical level of the Phase 2 standards.

(g) *Pull-ahead option for permeation emissions.* Manufacturers choosing to comply with an early tank permeation standard of 3.0 g/m²/day prior to model year 2008 may be allowed to delay compliance with the 1.5 g/m²/day standard by earning credits, as follows:

(1) Calculate earned credits using the following equation:

$$\text{Credit} = (\text{Baseline emissions} - \text{Pull-ahead level}) \times \left[\Sigma_i(\text{Production})_i \times (\text{UL})_i\right]$$

Where:

Baseline emissions = the baseline emission rate, as determined in paragraph (g)(2) of this section.

Pull-ahead level = the permeation level to which you certify the tank, which must be at or below 3.0 g/m²/day.

$(\text{Production})_i$ = the annual production volume of vehicles in the engine family for model year ''i'' times the average internal surface area of the vehicles' fuel tanks.

$(\text{UL})_i$ = The useful life of the engine family in model year ''i''.

(2) Determine the baseline emission level for calculating credits using any of the following values:

(i) 7.6 g/m²/day.

(ii) The emission rate measured from your lowest-emitting, uncontrolled fuel tank from the current or previous model year using the procedures in § 1051.515. For example, this would generally involve the fuel tank with the greatest wall thickness for a given material.

(iii) The emission rate measured from an uncontrolled fuel tank that is the same as or most similar to the model you have used during the current or previous model year. However, you may use this approach only if you use it to establish a baseline emission level for each unique tank model you produce using the procedures in § 1051.515.

(3) Pull-ahead tanks under this option must be certified and must meet all applicable requirements other than those limited to compliance with the exhaust standards.

(4) You may use credits generated under this paragraph (g) as specified in subpart H of this part.

(h) *Deficit credits for permeation standards.* For 2008 through 2010 model years, you may have a negative balance of emission credits relative to the permeation emission standards at the end of each model year, subject to the following provisions:

(1) You must eliminate any credit deficit we allow under this paragraph (h) by the end of the 2011 model year. If you are unable to eliminate your credit deficit by the end of the 2011 model year, we may void the certificates for all families certified to FELs above the allowable average, for all affected model years.

(2) State in your application for certification a statement whether you will have a negative balance of permeation emission credits for that model year. If you project that you will have a negative balance, estimate the credit deficit for each affected model year and present a detailed plan to show where and when you will get credits to offset the deficit by the end of the 2011 model year.

(3) In your end-of-year report under § 1051.730, state whether your credit deficit is larger or smaller than you projected in your application for certification. If the deficit is larger than projected, include in your end-of-year report an update to your detailed plan to show how you will eliminate the credit deficit by the end of the 2011 model year.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40491, July 13, 2005; 72 FR 20735, Apr. 26, 2007; 73 FR 59247, Oct. 8, 2008]

Subpart C—Certifying Engine Families

§ 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.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see § 1051.255).

(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 § 1051.250.

(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 § 1051.255 for provisions describing how we will process your application.

(g) We may require you to deliver your test vehicles or engines to a facility we designate for our testing (see § 1051.235(c)).

(h) For vehicles that become new after being placed into service, such as vehicles converted to run on a different fuel, we may specify alternate certification provisions consistent with the intent of this part. *See* § 1051.650 and the definition of ''new'' in § 1051.801.

[70 FR 40492, July 13, 2005, as amended at 73 FR 59248, Oct. 8, 2008; 75 FR 23024, Apr. 30, 2010]

§ 1051.205 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 § 1051.201(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 vehicle's design and emission controls. List the fuel type on which your engines are designed to operate (for example, gasoline, liquefied petroleum gas, methanol, or natural gas). List vehicle configurations and model names that are included in the engine family.

(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 (AECDs) 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 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 § 1051.115.

(c) [Reserved]

(d) Describe the vehicles or 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 (see § 1051.501).

(f) Describe how you operated the emission-data vehicle before testing, including the duty cycle and the extent of engine operation 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 instructions you will give to the ultimate purchaser of each new vehicle (see § 1051.125).

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vehicle (see § 1051.130).

(k) Describe the labels you create to meet the requirements of § 1051.135.

(l) Identify the exhaust 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 §1051.243 and §1051.245). Present any emission test data you used for this.

(n) State that you operated your emission-data vehicles 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 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.

(2) Present evaporative test data for hydrocarbons to show your vehicles meet the evaporative emission standards we specify in subpart B of this part. Show emission figures before and after applying deterioration factors for each vehicle or engine, where applicable. If you did not perform the testing, identify the source of the test data.

(3) Note that §1051.235 and §1051.245 allow you to submit an application in certain cases without new emission data.

(p) Report test results as follows:

(1) Report all test results involving measurement of pollutants for which emission standards apply. Include test results 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. 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 86 and 1065.

(2) Report measured CO_2, N_2O, and CH_4 as described in §1051.235. Small-volume manufacturers may omit reporting N_2O and CH_4.

(q) Describe all adjustable operating parameters (see §1051.115(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.

(r) Confirm that your emission-related installation instructions specify how to ensure that sampling of exhaust emissions will be possible after engines are installed in equipment and placed in service. If this cannot be done by simply adding a 20-centimeter extension to the exhaust pipe, show how to sample exhaust emissions in a way that prevents diluting the exhaust sample with ambient air.

(s) Unconditionally certify that all the vehicles and/or engines in the engine family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(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.

(u) Include the information required by other subparts of this part. For example, include the information required by §1051.725 if you participate in the ABT program.

(v) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(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.

[70 FR 40493, July 13, 2005, as amended at 73 FR 59248, Oct. 8, 2008; 74 FR 56510, Oct. 30, 2009]

§ 1051.210 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, and maintenance. 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 best-efforts to 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.

[70 FR 40494, July 13, 2005]

§ 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 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 a maintenance step 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).

[70 FR 40494, July 13, 2005, as amended at 73 FR 59248, Oct. 8, 2008; 75 FR 23024, Apr. 30, 2010]

§ 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.

[73 FR 59249, Oct. 8, 2008]

§ 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) For exhaust emissions, group vehicles in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle.

(2) The cooling system (liquid-cooled vs. air-cooled).

(3) Configuration of the fuel system (for example, port fuel injection vs. carburetion).

(4) Method of air aspiration.

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

(6) Type of fuel.

(7) The number, arrangement (such as in-line or vee configuration), and approximate bore diameter of cylinders.

(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.

(c) For evaporative emissions, group vehicles in the same engine family if fuel tanks are similar and fuel lines are similar considering all the following aspects:

(1) Type of material (including additives such as pigments, plasticizers, and UV inhibitors).

(2) Emission-control strategy.

(3) Production methods. This does not apply to differences in production methods that would not affect emission characteristics.

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

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

(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.

(2) If you are a small-volume manufacturer, you may group engines from any vehicles subject to the same emission standards into a single engine family. This does not change any of the requirements of this part for showing that an engine family meets emission standards.

(f) You may divide your product line into engine families based on a combined consideration of exhaust and evaporative emission-control systems, consistent with the requirements of this section. This would allow you to use a single engine-family designation for each engine family instead of having separate engine-family designations for exhaust and evaporative emission-control systems for each model.

(g) Select test engines from the engine family as described in 40 CFR 1065.401. Select test components related to evaporative emission-control systems that are most likely to exceed the applicable emission standards. For example, select a fuel tank with the smallest average wall thickness (or barrier thickness, as appropriate) of those tanks you include in the same family.

[70 FR 40495, July 13, 2005, as amended at 73 FR 59249, Oct. 8, 2008; 75 FR 23024, Apr. 30, 2010]

§ 1051.235 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 emission-data vehicles using the procedures and equipment specified in subpart F of this part. Where specifically required or allowed, test the engine instead of the vehicle. For evaporative emissions, test the fuel system components separate from the vehicle.

(b) Select from each engine family an emission-data vehicle, and a fuel system for each fuel type with a configuration that is most likely to exceed the

emission standards, using good engineering judgment. Consider the emission levels of all exhaust constituents over the full useful life of the vehicle.

(c) We may measure emissions from any of your test vehicles or engines (or any other vehicles or 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 test vehicle or engine to a test facility we designate. The test vehicle or 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 test vehicles or engines, the results of that testing become the official emission results. Unless we later invalidate these data, we may decide not to consider your data in determining if your engine family meets applicable requirements.

(3) Before we test one of your vehicles or engines, we may set its adjustable parameters to any point within the physically adjustable ranges (see §1051.115(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) You may use previously generated emission data in the following cases:

(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.

(ii) The emission-data vehicle from the previous model year remains the appropriate emission-data vehicle under paragraph (b) of this section.

(iii) The data show that the emission-data vehicle would meet all the requirements that apply to the engine family covered by the application for certification.

(2) You may submit emission data for equivalent engine families performed to show compliance with other standards (such as California standards) instead of doing new tests, but only if the data show that the test vehicle or engine would meet all of this part's requirements.

(3) You may submit evaporative emission data measured by a fuel system supplier. We may require you to verify that the testing was conducted in accordance with the applicable regulations.

(e) We may require you to test a second vehicle or engine of the same or different configuration in addition to the vehicle or engine 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.

(g) If you are a small-volume manufacturer, you may certify by design on the basis of preexisting exhaust emission data for similar technologies and other relevant information, and in accordance with good engineering judgment. In those cases, you are not required to test your vehicles. This is called ''design-certification'' or ''certifying by design.'' To certify by design, you must show that the technology used on your engines is sufficiently similar to the previously tested technology that a person reasonably familiar with emission-control technology would believe that your engines will comply with the emission standards.

(h) For fuel tanks that are certified based on permeability treatments for plastic fuel tanks, you do not need to test each engine family. However, you must use good engineering judgment to determine permeation rates for the

tanks. This requires that more than one fuel tank be tested for each set of treatment conditions. You may not use test data from a given tank for any other tanks that have thinner walls. You may, however, use test data from a given tank for other tanks that have thicker walls. This applies to both low-hour (i.e., baseline testing) and durability testing. Note that §1051.245 allows you to use design-based certification instead of generating new emission data.

(i) Measure CO_2 and CH_4 with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2011 and 2012 model years, respectively. Also measure N_2O with each low-hour certification test using the analytical equipment and procedures specified in 40 CFR part 1065 starting in the 2013 model year for any engine family that depends on NOx aftertreatment to meet emission standards. Small-volume manufacturers may omit measurement of N_2O and CH_4; other manufacturers may provide appropriate data and/or information and omit measurement of N_2O and CH_4 as described in 40 CFR 1065.5. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/kW-hr or 1 g/km, as appropriate.

(2) Round N_2O to the nearest 0.001 g/kW-hr or 0.001 g/km, as appropriate.

(3) Round CH_4 to the nearest 0.001 g/kW-hr or 0.001 g/km, as appropriate.

[70 FR 40495, July 13, 2005, as amended at 73 FR 59249, Oct. 8, 2008; 74 FR 56510, Oct. 30, 2009]

§ 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) To compare emission levels from the emission-data vehicle with the applicable emission standards, apply deterioration factors to the measured emission levels. Section 1051.243 specifies how to test your vehicle to develop deterioration factors that represent the deterioration expected in emissions over your vehicle's full useful life. Your deterioration factors must take into account any available data from in-use testing with similar engines. Small-volume manufacturers may use assigned deterioration factors that we establish. Apply deterioration factors as follows:

(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.

(2) For vehicles that do not use aftertreatment technology, use an additive deterioration factor for exhaust emissions. An additive deterioration factor for a pollutant is the difference between 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 adding the factor to the measured emissions. If the factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable 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 vehicle. In the case of HC + NO_X standards, add the 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.

[70 FR 40496, July 13, 2005, as amended at 73 FR 59250, Oct. 8, 2008]

§ 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.

(a) You may ask us to approve deterioration factors for an engine family based on emission measurements from similar vehicles or engines if you have already given us these data for certifying other vehicles in the same or earlier model years. Use good engineering judgment to decide whether the two vehicles or engines are similar. We will approve your request if you show us that the emission measurements from other vehicles or engines reasonably represent in-use deterioration for the engine family for which you have not yet determined deterioration factors.

(b) If you are unable to determine deterioration factors for an engine family under paragraph (a) of this section, select vehicles, engines, subsystems, or components for testing. Determine deterioration factors based on service accumulation and related testing to represent the deterioration expected from in-use vehicles over the full useful life, as follows:

(1) You must measure emissions from the emission-data vehicle at a low-hour test point and the end of the useful life. You may also test at evenly spaced intermediate points.

(2) Operate the vehicle or engine over a representative duty cycle for a period at least as long as the useful life (in hours or kilometers). You may operate the vehicle or engine continuously.

(3) You may perform maintenance on emission-data vehicles as described in § 1051.125 and 40 CFR part 1065, subpart E.

(4) 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.

(5) Use good engineering judgment for all aspects of the effort to establish deterioration factors under this paragraph (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) 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 a rationale for selecting the service-accumulation period and the method you use to accumulate hours.

[70 FR 40496, July 13, 2005, as amended at 73 FR 59250, Oct. 8, 2008]

§ 1051.245 How do I demonstrate that my engine family complies with evaporative emission standards?

(a) For purposes of certification, your engine family is considered in compliance with the evaporative emission standards in subpart B of this part if you do either of the following:

(1) You have test results showing permeation emission levels from the fuel tanks and fuel lines in the family are at or below the standards in § 1051.110 throughout the useful life.

(2) You comply with the design specifications in paragraph (e) of this section.

(b) Your engine family is deemed not to comply if any fuel tank or fuel line representing that family has test results showing a deteriorated emission level above the standard.

(c) To compare emission levels with the emission standards, apply deterioration factors to the measured emission levels. For permeation emissions, use the following procedures to establish an additive deterioration factor, as described in § 1051.240(c)(2):

(1) Section 1051.515 specifies how to test your fuel tanks to develop deterioration factors. Small-volume manufacturers may use assigned deterioration factors that we establish. Apply the deterioration factors as follows:

(i) Calculate the deterioration factor from emission tests performed before and after the durability tests as described in § 1051.515(c) and (d), using good engineering judgment. The durability tests described in § 1051.515(d) represent the minimum requirements for determining a deterioration factor. You may not use a deterioration factor that is less than the difference between evaporative emissions before and after the durability tests as described in § 1051.515(c) and (d).

(ii) Do not apply the deterioration factor to test results for tanks that have already undergone these durability tests.

(2) Determine the deterioration factor for fuel lines using good engineering judgment.

(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 vehicle.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 69 FR 2442, Jan. 15, 2004; 70 FR 40497, July 13, 2005; 73 FR 59250, Oct. 8, 2008]

§ 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.

(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 § 1051.205 that you were not required to include in your application.

(3) A detailed history of each emission-data vehicle. For each vehicle, describe all of the following:

(i) The emission-data vehicle's construction, including its origin and buildup, steps you took to ensure that it represents production vehicles, any components you built specially for it, and all the components you include in your application for certification.

(ii) How you accumulated vehicle or engine operating hours, 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 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.

[70 FR 40497, July 13, 2005, as amended at 73 FR 59250, Oct. 8, 2008]

§ 1051.255 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 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 despite our presenting a warrant or court order (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 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 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 § 1051.820).

[70 FR 40497, July 13, 2005, as amended at 75 FR 23024, Apr. 30, 2010]

Subpart D—Testing Production-Line Vehicles and Engines

§ 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).

(b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line vehicles or engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§ 1051.325 and 1051.340).

(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 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.

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

(g) The requirements of this subpart do not apply to engine families certified under the provisions of § 1051.630.

(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:

(1) Phase I or Phase 2 standards in § 1051.103

(2) Phase I standards in § 1051.105

(3) Phase I standards in § 1051.107.

(4) The standards in § 1051.615.

(5) The standards in § 1051.145.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40498, July 13, 2005; 73 FR 59250, Oct. 8, 2008]

§ 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.

(a) *Test procedures.* Test your production-line vehicles or 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 vehicle or engine.* Once a vehicle or engine is selected for testing (see § 1051.310), 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 vehicles or engines and make the action routine for all the vehicles or engines in the engine family.

(2) This subpart otherwise specifically allows your action.

(3) We approve your action in advance.

(c) *Malfunction.* If a vehicle or engine malfunction prevents further emission testing, ask us to approve your decision to either repair it 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 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).

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

(1) 50 hours or 500 kilometers.

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

(f) *Damage during shipment.* If shipping a vehicle or 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 vehicle or engine. Report to us, in your written report under § 1051.345, all adjustments or repairs you make on test vehicles or engines before each test.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40498, July 13, 2005; 73 FR 59251, Oct. 8, 2008]

§ 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:

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

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 (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:

$$\sigma = \left[\sum \frac{(X_i - x)^2}{(n-1)} \right]^{\frac{1}{2}}$$

Where:

X_i = Emission test result for an individual vehicle or 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 § 1051.315(a)).

(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 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.

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

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40498, July 13, 2005; 73 FR 59251, Oct. 8, 2008]

§ 1051.315 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 § 1051.320 for the requirements that apply to individual vehicles or engines that fail a production-line test.

(a) Calculate your test results. Round them to the number of decimal places in the emission standard expressed to one more decimal place.

(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:

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

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).

(c) Use final deteriorated test results to calculate the variables in the equation in paragraph (b) of this section (see § 1051.315(a)).

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

(e) If you test more than the required number of vehicles or 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 engine family as described in § 1051.225(f).

(h) If you amend the application for certification for an engine family under § 1051.225, do not change any previous calculations of sample size or CumSum statistics for the model year.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40499, July 13, 2005; 73 FR 59252, Oct. 8, 2008]

§ 1051.320 What happens if one of my production-line vehicles or engines fails to meet emission standards?

(a) If you have a production-line vehicle or engine with final deteriorated test results exceeding one or more emission standards (see § 1051.315(a)), the certificate of conformity is automatically suspended for that failing vehicle or engine. You must take the following actions before your certificate of conformity can cover that vehicle or engine:

(1) Correct the problem and retest the vehicle or 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 § 1051.345.

(b) You may request to amend the application for certification to raise the FEL of the entire engine family at this point (see § 1051.225).

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59252, Oct. 8, 2008]

§ 1051.325 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 § 1051.315. The suspension may apply to all facilities producing vehicles or engines from an engine family, even if you find noncompliant vehicles or 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 § 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.

(d) Section 1051.335 specifies steps you must take to remedy the cause of the engine family's production-line failure. All the vehicles 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 § 1051.225(f). We will approve your request if it is clear that you used good engineering judgment in establishing the original FEL.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40499, July 13, 2005; 73 FR 59252, Oct. 8, 2008]

§ 1051.330 May I sell vehicles from an engine family with a suspended certificate of conformity?

You may sell vehicles that you produce after we suspend the engine family's certificate of conformity under § 1051.315 only if one of the following occurs:

(a) You test each vehicle or 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 vehicles and remedy any noncompliance at no expense to the owner if later testing shows that the engine family still does not comply.

§ 1051.335 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.

§ 1051.340 When may EPA revoke my certificate under this subpart and how may I sell these vehicles 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 § 1051.325 is inadequate to solve the problem or requires you to change the vehicle's design or emission-control system.

(b) To sell vehicles 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 vehicle'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 vehicles or engines as described in this subpart.

(3) We will issue a new or updated certificate of conformity when you have met these requirements.

§ 1051.345 What production-line testing records must I send to EPA?

(a) Within 30 calendar 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 vehicles or 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 vehicles or engines.

(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.

(5) Identify how you accumulated hours of operation on the vehicles or 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 vehicle or 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 vehicle.

(8) Provide the CumSum analysis required in § 1051.315 and the sample-size calculation required in § 1051.310 for each engine family.

(9) Report on each failed vehicle or engine as described in § 1051.320.

(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 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)

(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. See § 1051.815 for information on how we treat information you consider confidential.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40499, July 13, 2005; 73 FR 59253, Oct. 8, 2008]

§ 1051.350 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 § 1051.345.

(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 vehicles or engines.

(2) The names of supervisors involved in each test.

(3) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test vehicle or engine and the names of all supervisors who oversee this work.

(4) If you shipped the vehicle or engine for testing, the date you shipped it, the associated storage or port facility, and the date the vehicle or 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 § 1051.345 that you do not include in your written reports.

(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.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40499, July 13, 2005; 73 FR 59253, Oct. 8, 2008]

Subpart E—Testing In-use Engines [Reserved]

Subpart F—Test Procedures

§ 1051.501 What procedures must I use to test my vehicles or engines?

This section describes test procedures that you use to determine whether vehicles meet the emission standards of this part. See § 1051.235 to determine when testing is required for certification. See subpart D of this part for the production-line testing requirements.

(a) *Snowmobiles*. For snowmobiles, use the equipment and procedures for spark-ignition engines in 40 CFR part 1065 to determine whether your snowmobiles meet the duty-cycle emission standards in § 1051.103. Measure the emissions of all the pollutants we regulate in § 1051.103. Measure CO_2, N_2O, and CH_4 as described in § 1051.235. Use the duty cycle specified in § 1051.505.

(b) *Motorcycles and ATVs*. For motorcycles and ATVs, use the equipment, procedures, and duty cycle in 40 CFR part 86, subpart F, to determine whether your vehicles meet the exhaust emission standards in § 1051.105 or § 1051.107. Measure the emissions of all the pollutants we regulate in § 1051.105 or § 1051.107. Measure CO_2, N_2O, and CH_4 as described in § 1051.235. If we allow you to certify ATVs based on engine testing, use the equipment, procedures, and duty cycle described or referenced in the section that allows engine testing. For motorcycles with engine displacement at or below 169 cc and all ATVs, use the driving schedule in paragraph (b) of appendix I to 40 CFR part 86. For all other motorcycles, use the driving schedule in paragraph (a) of Appendix I to part 86. With respect to vehicle-speed governors, test motorcycles and ATVs in their ungoverned configuration, unless we approve in advance testing in a governed configuration. We will only approve testing in a governed configuration if you can show that the governor is permanently installed on all production vehicles and is unlikely to be removed in use. With respect to engine-speed governors, test motorcycles and ATVs in their governed configuration. Run the test engine, with all emission-control systems operating, long enough to stabilize emission levels; you may consider emission levels stable without measurement if you accumulate 12 hours of operation.

(c) *Permeation testing*. (1) Use the equipment and procedures specified in § 1051.515 to measure fuel tank permeation emissions.

(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]

(g) *Special procedures for engine testing.* (1) You may use special or alternate procedures, as described in §1065.10 of this chapter.

(2) We may reject data you generate using alternate procedures if later testing with the procedures in part 1065 of this chapter shows contradictory emission data.

(3) You may test engines using a test speed based on the point of maximum power if that represents in-use operation better than testing based on maximum test speed.

(h) *Special procedures for vehicle testing.* (1) You may use special or alternate procedures, as described in paragraph (f)(3) of this section.

(2) We may reject data you generate using alternate procedures if later testing with the otherwise specified procedures shows contradictory emission data.

(3)(i) The test procedures specified for vehicle testing are intended to produce emission measurements equivalent to those that would result from measuring emissions during in-use operation using the same vehicle configuration. If good engineering judgment indicates that use of the procedures in this part for a vehicle would result in measurements that are not representative of in-use operation of that vehicle, you must notify us. If we determine that using these procedures would result in measurements that are significantly unrepresentative and that changes to the procedures will result in more representative measurements that do not decrease the stringency of emission standards or other requirements, we will specify changes to the procedures. In your notification to us, you should recommend specific changes you think are necessary.

(ii) You may ask to use emission data collected using other test procedures, such as those of the California Air Resources Board or the International Organization for Standardization. We will allow this only if you show us that these data are equivalent to data collected using our test procedures.

(iii) You may ask to use alternate procedures that produce measurements equivalent to those obtained using the specified procedures. In this case, send us a written request showing that your alternate procedures are equivalent to the test procedures of this part. If you prove to us that the procedures are equivalent, we will allow you to use them. You may not use alternate procedures until we approve them.

(iv) You may ask to use special test procedures if your vehicle cannot be tested using the specified test procedures (for example, it is incapable of operating on the specified transient cycle). In this case, send us a written request showing that you cannot satisfactorily test your engines using the test procedures of this part. We will allow you to use special test procedures if we determine that they would produce emission measurements that are representative of those that would result from measuring emissions during in-use operation. You may not use

special procedures until we approve them.

[67 FR 68347, Nov. 8, 2002, as amended at 69 FR 2442, Jan. 15, 2004; 70 FR 40499, July 13, 2005; 73 FR 59253, Oct. 8, 2008; 74 FR 56511, Oct. 30, 2009; 80 FR 9113, Feb. 19, 2015]

§ 1051.505 What special provisions apply for testing snowmobiles?

Use the following special provisions 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 No.	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.

(c) For the full-load operating mode, operate the engine at wide-open throttle.

(d) Ambient temperatures during testing must be between 20 °C and 30 °C (68 °F and 86 °F), or other representative test temperatures, as specified in paragraph (f) of this section.

(e) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

(f) You may test snowmobiles at ambient temperatures below 20 °C or using intake air temperatures below 20 °C if you show that such testing complies with 40 CFR 1065.10(c)(1). You must get our approval before you begin the emission testing. For example, the following approach would be appropriate to show that such testing complies with 40 CFR 1065.10(c)(1):

(1) Using good engineering judgment, instrument a representative snowmobile built with a representative engine from the family being tested with an appropriate temperature measuring device located in the intake air plenum where fuel spitback is not likely to occur.

(2) Choose a time and location with the following weather conditions: windspeed less than 10 knots, no falling precipitation, air temperature between −20 °C and 0 °C (−4 °F and 32 °F).

(3) Operate the snowmobile until its engine reaches a steady operating temperature.

(4) Operate the snowmobile on a level surface free of other vehicle traffic. Operate the snowmobile at each specified engine speed corresponding to each mode in the emissions test specific to the engine being tested. When readings are stable, record the temperature in the intake air plenum and the ambient temperature. Calculate the temperature difference between the air in the plenum and the ambient air for each mode.

(5) Calculate the nominal intake air test temperature for each test mode as −10 °C (14 °F) plus the temperature difference for the corresponding mode determined in paragraph (f)(4) of this section.

(6) Before the emissions test, select the appropriate carburetor jetting for −10 °C (14 °F) conditions according to the jet chart. For each mode, maintain the inlet air temperature within 5 °C (9 °F) of the corresponding modal temperature calculated in paragraph (f)(5) of this section.

(7) Adjust other operating parameters to be consistent with operation at −10 °C (14 °F). For example, this may require that you modify the engine cooling system used in the laboratory to make its performance representative of cold-temperature operation.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40500, July 13, 2005; 73 FR 59253, Oct. 8, 2008]

§ 1051.510 What special provisions apply for testing ATV engines? [Reserved]

§ 1051.515 How do I test my fuel tank for permeation emissions?

Measure permeation emissions by weighing a sealed fuel tank before and after a temperature-controlled soak.

(a) *Preconditioning fuel soak.* To precondition your fuel tank, follow these five steps:

(1) Fill the tank with the fuel specified in §1051.501(d)(2)(i), seal it, and allow it to soak at 28 ±5 °C for 20 weeks. Alternatively, the tank may be soaked for a shorter period of time at a higher temperature if you can show that the hydrocarbon permeation rate has stabilized.

(2) 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.

(3) Fill the fuel tank with the test fuel specified in §1051.501(d)(2)(ii) to its nominal capacity. If you fill the tank inside the temperature-controlled room or enclosure, do not spill any fuel.

(4) Allow the tank and its contents to equilibrate to 28 ±2 °C.

(5) Seal the fuel tank using fuel caps and other fittings (excluding petcocks) that can be used to seal openings in a production fuel tank. In cases where openings are not normally sealed on the fuel tank (such as hose-connection fittings and vents in fuel caps), these openings may be sealed using nonpermeable fittings such as metal or fluoropolymer plugs.

(b) *Permeation test run.* To run the test, take the following steps for a tank that was preconditioned as specified in paragraph (a) of this section:

(1) Weigh the sealed fuel tank and record the weight to the nearest 0.1 grams. You may use less precise weights as long as the difference in mass from the start of the test to the end of the test has at least three significant figures. Take this measurement within 8 hours of filling the tank with test fuel as specified in paragraph (a)(3) of this section.

(2) Carefully place the tank within a ventilated, temperature-controlled room or enclosure. Do not spill or add any fuel.

(3) Close the room or enclosure and record the time.

(4) Ensure that the measured temperature in the room or enclosure is 28 ±2 °C.

(5) Leave the tank in the room or enclosure for 14 days.

(6) Hold the temperature of the room or enclosure to 28 ±2 °C; measure and record the temperature at least daily.

(7) At the end of the soak period, weigh the sealed fuel tank and record the weight to the nearest 0.1 grams. You may use less precise weights as long as the difference in mass from the start of the test to the end of the test has at least three significant figures. Unless the same fuel is used in the preconditioning fuel soak and the permeation test run, record weight measurements on five separate days per week of testing. The test is void if a linear plot of tank weight vs. test days for the full soak period for permeation testing specified in paragraph (b)(5) of this section yields r^2 below 0.8. See 40 CFR 1065.602 for the equation to calculate r^2.

(8) Subtract the weight of the tank at the end of the test from the weight of the tank at the beginning of the test; 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 three significant figures) to calculate the g/m^2/day emission rate. Example: If a tank with an internal surface area of 0.72 m^2 weighed 31882.3 grams at the beginning of the test and weighed 31813.8 grams after soaking for 14.03 days, then the g/m^2/day emission rate would be—

$$(31882.3\ \text{g} - 31813.8\ \text{g})/0.72\ \text{m}^2/14.03\ \text{days} = 6.78\ \text{g/m}^2/\text{day}.$$

(9) Round your result to the same number of decimal places as the emission standard.

(10) In cases where consideration of permeation rates, using good engineering judgment, leads you to conclude that soaking for 14 days is not long enough to measure weight change to at least three significant figures, you may soak for 14 days longer. In this case, repeat the steps in paragraphs (b)(8) and (9) of this section to determine the weight change for the full 28 days.

(c) *Determination of final test result.* To determine the final test result, apply a deterioration factor to the measured emission level. The deterioration factor is the difference between permeation emissions measured before and after the durability testing described in paragraph (d) of this section. Adjust the baseline test results for each tested fuel tank by adding the deterioration factor to the measured emissions. The deterioration factor determination must be based on good engineering judgement. Therefore, during the durability testing, the test tank may not exceed the fuel tank permeation standard described in §1051.110 (this is known as ''line-crossing''). If the deterioration factor is less than zero, use zero.

(d) *Durability testing.* You normally need to perform a separate durability demonstration for each substantially different combination of treatment approaches and tank materials. Perform these demonstrations before an emission test by taking the following steps, unless you can use good engineering

judgment to apply the results of previous durability testing with a different fuel system. You may ask to exclude any of the following durability tests if you can clearly demonstrate that it does not affect the emissions from your fuel tank.

(1) *Pressure cycling*. Perform a pressure test by sealing the tank and cycling it between + 2.0 psig and −0.5 psig and back to + 2.0 psig for 10,000 cycles at a rate 60 seconds per cycle.

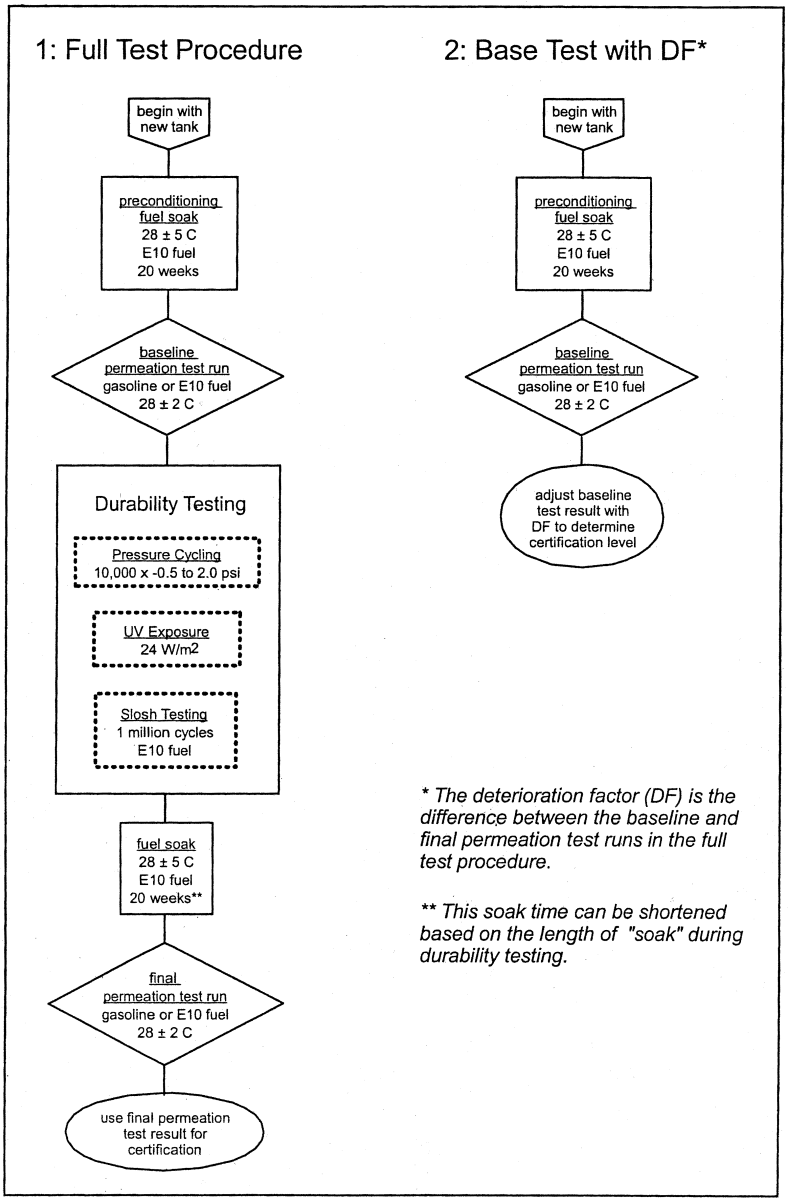
(2) *UV exposure*. Perform a sunlight-exposure test by exposing the tank to an ultraviolet light of at least 24 W/m^2 (0.40 $W\text{-}hr/m^2/min$) on the tank surface for at least 450 hours. Alternatively, the fuel tank may be exposed to direct natural sunlight for an equivalent period of time, as long 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 percent of its capacity with the fuel specified in §1051.501(d)(2)(i) and rocking it at a rate of 15 cycles per minute until you reach one million total cycles. Use an angle deviation of + 15° to −15° from level. This test must be performed at a temperature of 28 °C ±5 °C.

(4) *Final test result*. Following the durability testing, the fuel tank must be soaked (as described in paragraph (a) of this section) to ensure that the permeation rate is stable. The period of slosh testing and the period of ultraviolet testing (if performed with fuel in the tank consistent with paragraph (a)(1) of this section) may be considered to be part of this soak, provided that the soak begins immediately after the slosh testing. To determine the final permeation rate, drain and refill the tank with fresh fuel, and repeat the permeation test run (as described in paragraph (b) of this section) immediately after this soak period. The same test fuel must be used for this permeation test run as for the permeation test run performed prior to the durability testing.

(e) *Flow chart*. The following figure presents a flow chart for the permeation testing described in this section, showing the full test procedure with durability testing, as well as the simplified test procedure with an applied deterioration factor:

Figure 1051.515-1: Flow Chart of Permeation Test Procedure with and without DF Determination



[67 FR 68347, Nov. 8, 2002, as amended at 69 FR 2442, Jan. 15, 2004; 70 FR 40501, July 13, 2005]

§ 1051.520 How do I perform exhaust durability testing?

Sections 1051.240 and 1051.243 describe the method for testing that must be performed to establish deterioration factors for an engine family.

[70 FR 40501, July 13, 2005]

Subpart G—Compliance Provisions

§ 1051.601 What compliance provisions apply to vehicles and engines subject to this part?

Engine and vehicle manufacturers, as well as owners, operators, and rebuilders of these vehicles, and all other persons, must observe the requirements and prohibitions in part 1068 of this chapter and the requirements of the Act. The compliance provisions in this subpart apply only to the vehicles and engines we regulate in this part.

§ 1051.605 What provisions apply to engines already certified under the motor vehicle program or the Large Spark-ignition program?

(a) *General provisions.* If you are an engine manufacturer, this section allows you to introduce into commerce new recreational vehicles, and engines for recreational vehicles, if the engines are already certified to the requirements that apply to spark-ignition engines under 40 CFR parts 85 and 86 or 40 CFR 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 1051 for its model year, without a separate application for certification under the requirements of this part 1051. See § 1051.610 for similar provisions that apply to vehicles that are already certified to the vehicle-based standards for motor vehicles.

(b) *Vehicle-manufacturer provisions.* If you are not an engine manufacturer, you may install an engine certified for the appropriate model year under 40 CFR part 86 or 1048 in a recreational vehicle as long as you meet all the requirements and conditions specified in paragraph (d) of this section. If you modify the non-recreational engine in any of the ways described in paragraph (d)(2) of this section for installation in a recreational vehicle, we will consider you a manufacturer of recreational vehicles. 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 40 CFR part 1048. This paragraph (c) applies to engine manufacturers, vehicle manufacturers who use such an engine, and all other persons as if the engine were used in its originally intended application. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new engines and vehicles; 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 1051 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 this part 1051 or under 40 CFR part 85 or 1068.505.

(d) *Specific requirements.* If you are an engine or vehicle manufacturer and meet all the following criteria and requirements regarding your new engine or vehicle, the vehicle using 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 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 50 percent of the engine family's total sales in the United States are used in recreational vehicles. This includes engines used in any application, without regard to which company manufactures the vehicle 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 emission control information 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 vehicle. In the supplemental label, do the following:

(i) Include the heading: ''RECREATIONAL VEHICLE 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 A RECREATIONAL USE WITHOUT AFFECTING ITS EMISSION CONTROLS.''.

(iv) State the date you finished installation (month and year), if applicable.

(6) The original and supplemental labels must be readily visible after the engine is installed in the vehicle or, if the vehicle obscures the engine's emission control information label, the make sure the vehicle manufacturer attaches 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 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.

(iii) State: ''We produce each listed [engine or vehicle] model for recreational application without making any changes that could increase its certified emission levels, as described in 40 CFR 1051.605.''.

(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 1051 and the certificate issued under 40 CFR part 86 or 1048 will not be deemed to also be a certificate issued under this part 1051. Introducing these engines into 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 any applicable nonroad duty cycles.

(g) *Participation in averaging, banking and trading*. Engines or vehicles adapted for recreational use under this section may not generate or use emission credits under this part 1051. These engines or vehicles may generate credits under the ABT provisions in 40 CFR part 86. These engines or vehicles must use emission credits under 40 CFR part 86 if they are certified to an FEL that exceeds an applicable standard.

[70 FR 40501, July 13, 2005, as amended at 73 FR 59254, Oct. 8, 2008]

§ 1051.610 What provisions apply to vehicles already certified under the motor vehicle program?

(a) *General provisions*. If you are a motor-vehicle manufacturer, this section allows you to introduce new recreational vehicles into commerce if the vehicle is already certified to the requirements that apply under 40 CFR parts 85 and 86. If you comply with all

of the provisions of this section, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the engine under this part 1051 for its model year, without a separate application for certification under the requirements of this part 1051. This section applies especially for highway motorcycles that are modified for recreational nonroad use. See §1051.605 for similar provisions that apply to motor-vehicle engines or Large SI engines produced for recreational vehicles.

(b) *Nonroad vehicle-manufacturer provisions.* If you are not a motor-vehicle manufacturer, you may produce recreational vehicles from motor vehicles under this section as long as you meet all the requirements and conditions specified in paragraph (d) of this section. If you modify the motor vehicle or its engine in any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new recreational vehicle. Such modifications prevent you from using the provisions of this section.

(c) *Liability.* Engines and vehicles 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. This applies to engine manufacturers, vehicle manufacturers, and all other persons as if the recreational vehicles were motor vehicles. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new recreational vehicles; however, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the recreational vehicle under this part 1051 for its model year. If we make a determination that these engines or vehicles do not conform to the regulations during their useful life, we may require you to recall them under 40 CFR part 86 or 40 CFR 1068.505.

(d) *Specific requirements.* If you are a motor-vehicle manufacturer and meet all the following criteria and requirements regarding your new recreational vehicle and its engine, the vehicle is eligible for an exemption under this section:

(1) Your vehicle must be covered by a valid certificate of conformity as a motor vehicle issued under 40 CFR part 86.

(2) You must not make any changes to the certified vehicle that we could reasonably expect to increase its exhaust emissions for any pollutant, or its evaporative emissions if it is subject to evaporative-emission standards. For example, if you make any of the following changes, you do not qualify for this exemption:

(i) Change any fuel system parameters from the certified configuration.

(ii) Change, remove, or fail to properly install any other component, element of design, or calibration specified in the vehicle manufacturer's application for certification. This includes aftertreatment devices and all related components.

(iii) Modify or design the engine cooling system so that temperatures or heat rejection rates are outside the original vehicle manufacturer's specified ranges.

(iv) Add more than 500 pounds to the curb weight of the originally certified motor vehicle.

(3) You must show that fewer than 50 percent of the engine family's total sales in the United States are used in recreational vehicles. This includes any type of vehicle, without regard to which company completes the manufacturing of the recreational vehicle. Show this as follows:

(i) If you are the original manufacturer of the vehicle, base this showing on your sales information.

(ii) In all other cases, you must get the original manufacturer of the vehicle to confirm this based on their sales information.

(4) The vehicle must have the vehicle emission control information we require under 40 CFR part 86.

(5) You must add a permanent supplemental label to the vehicle in a position where it will remain clearly visible. In the supplemental label, do the following:

(i) Include the heading: ''RECREATIONAL VEHICLE 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 VEHICLE WAS ADAPTED FOR RECREATIONAL USE WITHOUT AFFECTING ITS EMISSION CONTROLS.''.

(iv) State the date you finished modifying the vehicle (month and year), if applicable.

(6) The original and supplemental labels must be readily visible in the fully assembled vehicle.

(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 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.

(iii) State: ''We produced each listed engine or vehicle model for recreational application without making any changes that could increase its certified emission levels, as described in 40 CFR 1051.610.''.

(e) *Failure to comply*. If your engines or vehicles do not meet the criteria listed in paragraph (d) of this section, the engines will be subject to the standards, requirements, and prohibitions of this part 1051, and the certificate issued under 40 CFR part 86 will not be deemed to also be a certificate issued under this part 1051. Introducing these engines into 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 any applicable nonroad duty cycles.

(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.

[70 FR 40502, July 13, 2005, as amended at 73 FR 59254, Oct. 8, 2008]

§ 1051.615 What are the special provisions for certifying small recreational engines?

(a) You may certify ATVs with engines that have total displacement of less than 100 cc to the following exhaust emission standards instead of certifying them to the exhaust emission standards of subpart B of this part:

(1) 25.0 g/kW-hr HC + NO_X, with an FEL cap of 40.0 g/kW-hr HC + NO_X.

(2) 500 g/kW-hr CO.

(b) You may certify off-highway motorcycles with engines that have total displacement of 70 cc or less to the following exhaust emission standards instead of certifying them to the exhaust emission standards of subpart B of this part:

(1) 16.1 g/kW-hr HC + NO_X, with an FEL cap of 32.2 g/kW-hr HC + NO_X.

(2) 519 g/kW-hr CO.

(c) You may use the averaging, banking, and trading provisions of subpart H of this part to show compliance with this HC + NO_X standards (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 meet the applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit). You may not use averaging to meet the CO standards of this section.

(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:

(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 for the sequence of modes and compare with the specified values 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.

(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 No.	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.

(5) For the full-load operating mode, operate the engine at wide-open throttle.

(6) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

(e) All other requirements and prohibitions of this part apply to these engines and vehicles.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40503, July 13, 2005; 73 FR 59254, Oct. 8, 2008]

§ 1051.620 When may a manufacturer obtain an exemption for competition recreational vehicles?

(a) We may grant you an exemption from the standards and requirements of this part for a new recreational vehicle on the grounds that it is to be used solely for competition. The provisions of this part other than those in this section do not apply to recreational vehicles that we exempt for use solely for competition.

(b) We will exempt vehicles that we determine will be used solely for competition. The basis of our determinations are described in paragraphs (b)(1), (b)(2), and (c) 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 vehicles will not be used solely for competition.

(1) *Off-highway motorcycles.* Motorcycles that are marketed and labeled as only for competitive use and that meet at least four of the criteria listed in paragraphs (b)(1)(i) through (vi) of this section are considered to be used solely for competition, except in cases where other information is available that indicates that they are not used solely for competition. The following features are indicative of motorcycles used solely for competition:

(i) The absence of a headlight or other lights.

(ii) The absence of a spark arrestor.

(iii) The absence of manufacturer warranty.

(iv) Suspension travel greater than 10 inches.

(v) Engine displacement greater than 50 cc.

(vi) The absence of a functional seat. (For example, a seat with less than 30 square inches of seating surface would generally not be considered a functional seat).

(2) *Snowmobiles and ATVs.* Snowmobiles and ATVs meeting all of the following criteria are considered to be used solely for competition, except in cases where other information is available that indicates that they are not used solely for competition:

(i) The vehicle or engine may not be displayed for sale in any public dealership.

(ii) Sale of the vehicle must be limited to professional racers or other qualified racers.

(iii) The vehicle must have performance characteristics that are substantially superior to noncompetitive models.

(c) Vehicles not meeting the applicable criteria listed in paragraph (b) of this section will be exempted only in cases where the manufacturer has clear and convincing evidence that the vehicles will be used solely for competition.

(d) You must permanently label vehicles exempted under this section to clearly indicate that they are to be used only for competition. Failure to properly label a vehicle will void the exemption for that vehicle.

(e) If we request it, you must provide us any information we need to determine whether the vehicles are used solely for competition.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40504, July 13, 2005]

§ 1051.625 What special provisions apply to unique snowmobile designs for small-volume manufacturers?

(a) If you are a small-volume manufacturer, we may permit you to produce up to 600 snowmobiles per year that are certified to less stringent emission standards than those in § 1051.103, as long as you meet all the conditions and requirements in this section.

(b) To apply for alternate standards under this section, send the Designated Officer a written request. In your request, do two things:

(1) Show that the snowmobile has unique design, calibration, or operating characteristics that make it atypical and infeasible or highly impractical to meet the emission standards in § 1051.103, considering technology, cost, and other factors.

(2) Identify the level of compliance you can achieve, including a description of available emission-control technologies and any constraints that may prevent more effective use of these technologies.

(c) You must give us other relevant information if we ask for it.

(d) 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.''.

(e) 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.

(f) If we approve your request, we will set alternate standards for your qualifying snowmobiles. These standards will not be above 400 g/kW-hr for CO or 150 g/kW-hr for HC.

(g) You may produce these snowmobiles to meet the alternate standards we establish under this section as long as you continue to produce them at the same or lower emission levels.

(h) You may not include snowmobiles you produce under this section in any averaging, banking, or trading calculations under Subpart H of this part.

(i) You must meet all the requirements of this part, except as noted in this section.

§ 1051.630 What special provisions apply to unique snowmobile designs for all manufacturers?

(a) We may permit you to produce up to 600 snowmobiles per year that are certified to the FELs listed in this section without new test data, as long as you meet all the conditions and requirements in this section.

(b) You may certify these snowmobiles with FELs of 560 g/kW-hr for CO and 270 g/kW-hr for HC (using the normal certification procedures).

(c) The emission levels described in this section are intended to represent worst-case emission levels. You may not certify snowmobiles under this section if good engineering judgment indicates that they have emission rates higher than these levels.

(d) Include snowmobiles you produce under this section in your averaging calculations under Subpart H of this part.

(e) You must meet all the requirements of this part, unless the regulations of this part specify otherwise.

§ 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.

(b) We may set other reasonable conditions that are consistent with the intent of this section and the Act. For example, we may place sales limits on companies that we designate to be small-volume manufacturers under this section.

[67 FR 68347, Nov. 8, 2002, as amended at 73 FR 59255, Oct. 8, 2008]

§ 1051.640 What special provisions apply for custom off-highway motorcycles that are similar to highway motorcycles?

You may ask to exempt custom-designed off-highway motorcycles that are substantially similar to highway motorcycles under the display exemption provisions of 40 CFR 86.407–78(c). Motorcycles exempt under this provision are subject to the restrictions of 40 CFR 86.407–78(c) and are considered to be motor vehicles for the purposes of this part 1051.

[69 FR 2445, Jan. 15, 2004]

§ 1051.645 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 § 1051.135(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 § 1051.120. 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.

[70 FR 40504, July 13, 2005, as amended at 73 FR 59255, Oct. 8, 2008]

§ 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.

[73 FR 59255, Oct. 8, 2008]

Subpart H—Averaging, Banking, and Trading for Certification

§ 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).

(b) The following averaging set restrictions apply:

(1) You may not average together engine families that are certified to different standards. You may, however, use banked credits that were generated relative to different standards, except as prohibited by paragraphs (b)(2) and (3) of this section, paragraph (e) of this section, or by other provisions in this part. For example, you may not average together within a model year off-highway motorcycles that are certified

to the standards in §1051.105(a)(1) and §1051.105(a)(2); but you may use banked credits generated by off-highway motorcycles that are certified to the standards in §1051.105(a)(1) to show compliance with the standards in §1051.105(a)(2) in a later model year, and vice versa.

(2) There are separate averaging, banking, and trading programs for snowmobiles, ATVs, and off-highway motorcycles. You may not average or exchange banked or traded credits from engine families of one type of vehicle with those from engine families of another type of vehicle.

(3) You may not average or exchange banked or traded credits with other engine families if you use fundamentally different measurement procedures for the different engine families (for example, ATVs certified to chassis-based vs. engine-based standards). This paragraph (b)(3) does not restrict you from averaging together engine families that use test procedures that we determine provide equivalent emission results.

(4) You may not average or exchange banked or traded exhaust credits with evaporative credits, or vice versa.

(c) 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) *Average standard* means a standard that allows you comply by averaging all your vehicles under this part. See subpart B of this part to determine which standards are average standards.

(3) *Averaging set* means a set of engines in which emission credits may be exchanged only with other engines in the same averaging set.

(4) *Broker* means any entity that facilitates a trade of emission credits between a buyer and seller.

(5) *Buyer* means the entity that receives emission credits as a result of a trade.

(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) *Trade* means to exchange emission credits, either as a buyer or seller.

(d) In your application for certification, base your showing of compliance on projected production volumes for vehicles whose point of first retail sale is in the United States. As described in §1051.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for vehicles whose point of first retail sale is in the United States. Do not include any of the following vehicles to calculate emission credits:

(1) Vehicles exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported vehicles.

(3) Vehicles not subject to the requirements of this part, such as those excluded under §1051.5.

(4) Vehicles for which the location of first retail sale is in a state that has applicable state emission regulations 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 these vehicles sold in such a state will not generate credits under the state program. For example, you may not include vehicles certified for California if it has more stringent emission standards for these vehicles or those vehicles generate or use emission credits under the California program.

(5) Any other vehicles, where we indicate elsewhere in this part 1051 that they are not to be included in the calculations of this subpart.

(e) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard, except as specified in §1051.225(f)(1). This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing.

(f) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under § 1051.225.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40504, July 13, 2005; 73 FR 59256, Oct. 8, 2008]

§ 1051.705 How do I average emission levels?

(a) As specified in subpart B of this part, certify each vehicle to an FEL, subject to the FEL caps in subpart B of this part.

(b) Calculate a preliminary average emission level according to § 1051.720 for each averaging set using projected U.S.-directed production volumes from your application for certification, excluding vehicles described in § 1051.701(d)(4).

(c) After the end of your model year, calculate a final average emission level according to § 1051.720 for each type of recreational vehicle or engine you manufacture or import. Use actual U.S.-directed production volumes, excluding vehicles described in § 1051.701(d)(4).

(d) If your preliminary average emission level is below the allowable average standard, see § 1051.710 for information about generating and banking emission credits. These credits will be considered reserved until we verify them in reviewing the end-of-year report.

(e) If your average emission level is above the allowable average standard, you must obtain enough emission credits to offset the deficit by the due date for the final report required in § 1051.730. The emission credits used to address the deficit may come from emission credits you have banked or from emission credits you obtain through trading.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40505, July 13, 2005]

§ 1051.710 How do I generate and bank emission credits?

(a) Banking is the retention of emission credits by the manufacturer generating the emission credits for use in averaging or trading in future model years. You may use banked emission credits only within the averaging set in which they were generated.

(b) If your average emission level is below the average standard, you may calculate credits according to § 1051.720. Credits you generate do not expire.

(c) You may generate credits if you are a certifying manufacturer.

(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.

[70 FR 40505, July 13, 2005, as amended at 73 FR 59256, Oct. 8, 2008]

§ 1051.715 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.

(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.

(c) [Reserved]

(d) 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 § 1051.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer having a negative balance of emission credits. See § 1051.745.

[70 FR 40505, July 13, 2005, as amended at 73 FR 59256, Oct. 8, 2008]

§ 1051.720 How do I calculate my average emission level or emission credits?

(a) Calculate your average emission level for each type of recreational vehicle or engine for each model year according to the following equation and round it to the nearest tenth of a g/km or g/kW-hr. Use consistent units throughout the calculation.

(1) For exhaust emissions:

(i) Calculate the average emission level as:

$$\text{Emission level} = \left[\sum_i (\text{FEL})_i \times (\text{UL})_i \times (\text{Production})_i\right] \Big/ \left[\sum_i (\text{Production})_i \times (\text{UL})_i\right]$$

Where:

FEL_i = The FEL to which the engine family is certified.

UL_i = The useful life of the engine family.

$Production_i$ = The number of vehicles in the engine family.

(ii) Use U.S.-directed production projections for initial certification, and actual U.S.-directed production volumes to determine compliance at the end of the model year.

(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) × Maximum Engine Power (kW) ÷ 30 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.)

(3) For evaporative emission standards expressed as $g/m^2/day$, use the useful life value in years multiplied by 365.24 and calculate the average emission level as:

$$\text{Emission level} = \left[\sum_i (\text{FEL})_i \times (\text{UL})_i \times (\text{Production})_i\right] / \left[\sum_i (\text{Production})_i \times (\text{UL})_i\right]$$

Where:

FEL_i = The FEL to which the engine family is certified, as described in paragraph (a)(4) of this section.

$Production_i$ = The number of vehicles in the engine family times the average internal surface area of the vehicles' fuel tanks.

(4) Determine the FEL for calculating credits under paragraph (a)(3) of this section using any of the following values:

(i) The FEL to which the tank is certified, as long as the FEL is at or below 3.0 $g/m^2/day$.

(ii) 10.4 $g/m^2/day$. However, if you use this value to establish the FEL for any of your tanks, you must use this value to establish the FEL for every tank not covered by paragraph (a)(4)(i) of this section.

(iii) The measured permeation rate of the tank or the measured permeation rate of a thinner-walled tank of the same material. However, if you use this approach to establish the FEL for any of your tanks, you must establish an FEL based on emission measurements for every tank not covered by paragraph (a)(4)(i) of this section.

(b) If your average emission level is below the average standard, calculate credits available for banking according to the following equation and round them to the nearest tenth of a gram:

$$\text{Credit} = \left[(\text{Average standard} - \text{Emission level})\right] \times \left[\sum_i (\text{Production})_i \times (\text{UL})_i\right]$$

(c) If your average emission level is above the average standard, calculate your preliminary credit deficit according to the following equation, rounding to the nearest tenth of a gram:

$$\text{Deficit} = \left[(\text{Emission level} - \text{Average standard})\right] \times \left[\sum_i (\text{Production})_i \times (\text{UL})_i\right]$$

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40505, July 13, 2005; 73 FR 59256, Oct. 8, 2008]

§ 1051.725 What must I include in my applications for certification?

(a) You must declare in your applications for certification your intent to use the provisions of this subpart. You must also declare the FELs you select for each engine family. 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 applicable standards.

(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. This means that if you believe that your average emission level will be above the standard (*i.e.*, that you will have a deficit for the model year), you must have banked credits (or project to have received traded credits) to offset the deficit.

(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.

[70 FR 40506, July 13, 2005, as amended at 73 FR 59256, Oct. 8, 2008]

§ 1051.730 What ABT reports must I send to EPA?

(a) If any of your engine 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 engine family:

(1) Engine-family designation.

(2) The emission standards that would otherwise apply to the engine 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 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.

(6) Useful life.

(7) Calculated positive or negative emission credits. 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 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 engine 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 engine 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.

[70 FR 40506, July 13, 2005, as amended at 73 FR 59256, Oct. 8, 2008]

§ 1051.735 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 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.

(c) Keep a copy of the reports we require in § 1051.725 and § 1051.730.

(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.

[70 FR 40506, July 13, 2005, as amended at 73 FR 59257, Oct. 8, 2008]

§ 1051.740 Are there special averaging provisions for snowmobiles?

For snowmobiles, you may only use credits for the same phase or set of standards against which they were generated, except as allowed by this section.

(a) *Restrictions.* (1) You may not use any Phase 1 or Phase 2 credits for Phase 3 compliance.

(2) You may not use Phase 1 HC credits for Phase 2 HC compliance. However, because the Phase 1 and Phase 2 CO standards are the same, you may use Phase 1 CO credits for compliance with the Phase 2 CO standards.

(b) *Special credits for next phase of standards.* You may choose to generate credits early for banking for purposes of compliance with later phases of standards as follows:

(1) If your corporate average emission level at the end of the model year exceeds the applicable (current) phase of standards (without the use of traded or previously banked credits), you may choose to redesignate some of your snowmobile production to a calculation to generate credits for a future phase of standards. To generate credits the snowmobiles designated must have an FEL below the emission level of that set of standards. This can be done on a pollutant specific basis.

(2) Do not include the snowmobiles that you redesignate in the final compliance calculation of your average emission level for the otherwise applicable (current) phase of standards. Your average emission level for the remaining (non-redesignated) snowmobiles must comply with the otherwise applicable (current) phase of standards.

(3) Include the snowmobiles that you redesignate in a separate calculation of your average emission level for redesignated engines. Calculate credits using this average emission level relative to the specific pollutant in the future phase of standards. These credits may be used for compliance with the future standards.

(4) For generating early Phase 3 credits, you may generate credits for HC or CO separately as described:

(i) To determine if you qualify to generate credits in accordance with paragraphs (b)(1) through (3) of this section, you must meet the credit trigger level. For HC this value is 75 g/kW-hr. For CO this value is 200 g/kW-hr.

(ii) HC and CO credits for Phase 3 are calculated relative to 75 g/kW-hr and 200 g/kW-hr values, respectively.

(5) Credits can also be calculated for Phase 3 using both sets of standards. Without regard to the trigger level values, if your net emission reduction for the redesignated averaging set exceeds the requirements of Phase 3 in § 1051.103 (using both HC + NO_X and CO in the Phase 3 equation in § 1051.103), then your credits are the difference between the Phase 3 reduction requirement of that section and your calculated value.

[70 FR 40507, July 13, 2005, as amended at 73 FR 35952, June 25, 2008; 73 FR 59257, Oct. 8, 2008]

§ 1051.745 What can happen if I do not comply with the provisions of this subpart?

(a) For each engine 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 an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FEL above an applicable standard based on a projection that you will have enough emission credits to avoid a negative credit balance for each averaging set for the applicable model year. However, except as allowed in § 1051.145(h), 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 an engine family.

(c) We may void the certificate of conformity for an engine 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 § 1051.820).

[70 FR 40507, July 13, 2005]

Subpart I—Definitions and Other Reference Information

§ 1051.801 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 Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

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 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.

All-terrain vehicle means a land-based or amphibious nonroad vehicle that meets the criteria listed in paragraph (1) of this definition; or, alternatively the criteria of paragraph (2) of this definition but not the criteria of paragraph (3) of this definition:

(1) Vehicles designed to travel on four low pressure tires, having a seat designed to be straddled by the operator and handlebars for steering controls, and intended for use by a single operator and no other passengers are all-terrain vehicles.

(2) Other all-terrain vehicles have three or more wheels and one or more seats, are designed for operation over rough terrain, are intended primarily for transportation, and have a maximum vehicle speed higher than 25 miles per hour. Golf carts generally do not meet these criteria since they are generally not designed for operation over rough terrain.

(3) Vehicles that meet the definition of ''offroad utility vehicle'' in this section are not all-terrain vehicles. However, § 1051.1(a) specifies that some offroad utility vehicles are required to meet the same requirements as all-terrain vehicles.

Amphibious vehicle means a vehicle with wheels or tracks that is designed primarily for operation on land and secondarily for operation in water.

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.

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.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition 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.

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.

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 vehicle.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point, 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.

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 vehicle means a vehicle or engine that is tested for certification. This includes vehicles or engines tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

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.

Engine family has the meaning given in § 1051.230.

Evaporative means relating to fuel emissions that result from permeation of fuel through the fuel system materials and 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 is excluded from this part 1051 under the provisions of § 1051.5.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation 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 with respect to all required testing.

Fuel line means all hoses or tubing designed to contain liquid fuel or fuel vapor. This includes all hoses or tubing for the filler neck, for connections between dual fuel tanks, and for connecting a carbon canister to the fuel tank. This does not include hoses or tubing for routing crankcase vapors to the engine's intake or any other hoses or tubing that are open to the atmosphere.

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 winter-grade and all-season gasoline.

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.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type. For alcohol-fueled engines, HC means total hydrocarbon equivalent (THCE). For all other engines, HC means nonmethane hydrocarbon (NMHC).

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular vehicle or engine from other similar engines.

Low-hour means relating to an engine with stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 24 hours or 240 kilometers of operation.

Low-permeability material has the meaning given in 40 CFR 1060.801.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a vehicle or engine for sale in the United States or otherwise introduces a new vehicle or engine into commerce in the United States. This includes importers that import vehicles or engines for resale.

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.

Maximum test speed has the meaning given in 40 CFR 1065.1001.

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.

Motor vehicle has the meaning given in 40 CFR 85.1703(a).

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.

Noncompliant means relating to a vehicle 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 means relating to vehicle 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.

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.

Off-highway motorcycle means a two-wheeled vehicle with a nonroad engine and a seat (excluding marine vessels and aircraft). (Note: highway motorcycles are regulated under 40 CFR part 86.)

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.

Offroad utility vehicle means a nonroad vehicle that has four or more wheels, seating for two or more persons, is designed for operation over rough terrain, and has either a rear payload capacity of 350 pounds or more or seating for six or more passengers. Vehicles intended primarily for recreational purposes that are not capable of transporting six passengers (such as dune buggies) are not offroad utility vehicles. (NOTE: §1051.1(a) specifies that some offroad utility vehicles are required to meet the requirements that apply for all-terrain vehicles.) Unless there is significant information to the contrary, we consider vehicles to be intended primarily for recreational purposes if they are marketed for recreational use, have a rear payload capacity no greater than 1,000 pounds, and meet at least five of the following criteria:

(1) Front and rear suspension travel is greater than 18 cm.

(2) The vehicle has no tilt bed.

(3) The vehicle has no mechanical power take-off (PTO) and no permanently installed hydraulic system for operating utility-oriented accessory devices.

(4) The engine has in-use operating speeds at or above 4,000 rpm.

(5) Maximum vehicle speed is greater than 35 miles per hour.

(6) The speed at which the engine produces peak power is above 4,500 rpm and the engine is equivalent to engines in ATVs certified by the same manufacturer. For the purpose of this paragraph (6), the engine is considered equivalent if it could be included in the same emission family based on the characteristics specified in §1051.230(b).

(7) Gross Vehicle Weight Rating is no greater than 3,750 pounds. This is the maximum design loaded weight of the vehicle as defined in 40 CFR 86.1803–01, including passengers and cargo.

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.

Phase 1 means relating to Phase 1 standards of §§1051.103, 1051.105, or 1051.107, or other Phase 1 standards specified in subpart B of this part.

Phase 2 means relating to Phase 2 standards of §1051.103, or other Phase 2 standards specified in subpart B of this part.

Phase 3 means relating to Phase 3 standards of §1051.103, or other Phase 3 standards specified in subpart B of this part.

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.

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.

Revoke has the meaning given in 40 CFR 1068.30.

Round has the meaning given in 40 CFR 1065.1001, unless otherwise specified.

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 manufacturer means one of the following:

(1) For motorcycles and ATVs, a manufacturer that sold motorcycles or ATVs before 2003 and had annual U.S.-directed production of no more than 5,000 off-road motorcycles and ATVs (combined number) in 2002 and all earlier calendar years. For manufacturers owned by a parent company, the limit applies to the production of the parent company and all of its subsidiaries.

(2) For snowmobiles, a manufacturer that sold snowmobiles before 2003 and had annual U.S.-directed production of no more than 300 snowmobiles in 2002 and all earlier model years. For manufacturers owned by a parent company, the limit applies to the production of the parent company and all of its subsidiaries.

(3) A manufacturer that we designate to be a small-volume manufacturer under § 1051.635.

Snowmobile means a vehicle designed to operate outdoors only over snow-covered ground, with a maximum width of 1.5 meters or less.

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.

Suspend has the meaning given in 40 CFR 1068.30.

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.

Test vehicle or engine means an engine in a test sample.

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.

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.

Ultraviolet light means electromagnetic radiation with a wavelength between 300 and 400 nanometers.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for an engine family the model year after the one currently in production.

U.S.-directed production volume means the number of vehicle 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. This includes vehicles for which the location of first retail sale is in a state that has applicable state emission regulations for that model year, unless we specify otherwise.

Useful life means the period during which a vehicle is required to comply with all applicable emission standards, specified as a given number of calendar years and kilometers (whichever comes

first). In some cases, useful life is also limited by a given number of hours of engine operation. If an engine has no odometer (or hour meter), the specified number of kilometers (or hours) does not limit the period during which an in-use vehicle is required to comply with emission standards, unless the degree of service accumulation can be verified separately. The useful life for an engine family must be at least as long as both of the following:

(1) The expected average service life before the vehicle is remanufactured or retired from service.

(2) The minimum useful life value.

Void has the meaning given in 40 CFR 1068.30.

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.

[70 FR 40507, July 13, 2005, as amended at 73 FR 59257, Oct. 8, 2008; 75 FR 23024, Apr. 30, 2010]

§ 1051.805 What symbols, acronyms, and abbreviations does this part use?

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

°—degrees.
ASTM—American Society for Testing and Materials.
ATV—all-terrain vehicle.
cc—cubic centimeters.
CFR—Code of Federal Regulations.
CH_4 methane.
cm—centimeter.
C—Celsius.
CO—carbon monoxide.
CO_2—carbon dioxide.
EPA—Environmental Protection Agency.
F—Fahrenheit.
g—grams.
g/gal/day—grams per gallon per test day.
g/m^2/day—grams per meter-square per test day.
HC—hydrocarbon.
Hg—mercury.
hr—hours.
km—kilometer.
kW—kilowatt.
LPG—liquefied petroleum gas.
m—meters.
mm—millimeters.
mW—milliwatts.
N_2O nitrous oxide.
NARA—National Archives and Records Administration.
NMHC—nonmethane hydrocarbons.
NO_X—oxides of nitrogen (NO and NO_X).
psig—pounds per square inches of gauge pressure.
rpm—revolutions per minute.
SAE—Society of Automotive Engineers.
SI—spark-ignition.
THC—total hydrocarbon.
THCE—total hydrocarbon equivalent.
U.S.C.—United States Code.

[67 FR 68347, Nov. 8, 2002, as amended at 70 FR 40510, July 13, 2005; 74 FR 56511, Oct. 30, 2009]

§ 1051.815 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.

[70 FR 40511, July 13, 2005]

§ 1051.820 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.

[70 FR 40511, July 13, 2005]

§ 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.

[73 FR 59258, Oct. 8, 2008]

PART 1054—CONTROL OF EMISSIONS FROM NEW, SMALL NONROAD SPARK-IGNITION ENGINES AND EQUIPMENT

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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 new engines used solely for competition beginning January 1, 2010.

(ii) The provisions of §§ 1054.660 and 1054.801 apply for new 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.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23024, Apr. 30, 2010]

§ 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. 40 CFR 1068.101 prohibits the introduction into commerce or importation of such nonhandheld equipment except as specified in this paragraph (e). 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.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 68462, Nov. 8, 2010]

§ 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 + NO_X	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 + 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) 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

[1] Or "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.

[73 FR 59259, Oct. 8, 2008, as amended at 73 FR 73789, Dec. 4, 2008]

§ 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.

(4) You may ask us to approve a maintenance interval shorter than that specified in paragraph (a)(3) of this section. In your request you must describe the proposed maintenance step, recommend the maximum feasible interval for this maintenance, include your rationale with supporting evidence to support the need for the maintenance at the recommended interval, and demonstrate that the maintenance will be done at the recommended interval on in-use engines. In considering your request, we will evaluate the information you provide and any other available information to establish alternate specifications for maintenance intervals, if appropriate.

(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. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address engine operation that is not atypical, or that the maintenance is unlikely to occur in use. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

(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.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23024, Apr. 30, 2010]

§ 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 Web site 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 are an integrated equipment manufacturer certifying engines with respect to exhaust emissions and meeting all applicable evaporative emission requirements under 40 CFR part 1060, state—

''THIS ENGINE MEETS U.S. EPA EXH/EVP REGS FOR [MODEL YEAR].''

(ii) In all other cases, state—

''THIS ENGINE MEETS U.S. EPA EXH 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.

[73 FR 59259, Oct. 8, 2008, as amended at 80 FR 9114, Feb. 19, 2015]

§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 peforming 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 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/m^2/day (or 2.5 g/m^2/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/m^2/day (or 2.5 g/m^2/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/m^2/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 Californa 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) *California test fuel.* You may perform testing with a fuel meeting the requirements for certifying the engine in California instead of the fuel specified in §1054.501(b)(2), as follows:

(1) You may certify individual engine families using data from testing conducted with California Phase 2 test fuel. Any EPA testing with such an engine family may use either this same certification fuel or the test fuel specified in §1054.501.

(2) Starting in model year 2013, you may certify individual engine families using data from testing conducted with California Phase 3 test fuel. Any EPA testing with such an engine family may use either this same certification fuel or the test fuel specified in §1054.501, unless you certify to the more stringent CO standards specified in this paragraph (n)(2). If you meet these alternate CO standards, we will also use California Phase 3 test fuel for any testing we perform with engines from that engine family. The following alternate CO standards apply instead of the CO standards specified in §1054.103 or §1054.105:

TABLE 1 TO §1054.145—ALTERNATE CO STANDARDS FOR TESTING WITH CALIFORNIA PHASE 3 TEST FUEL

[g/kW-hr]

Engine type	Alternate CO standard
Class I	549
Class II	549
Class III	536
Class IV	536
Class V	536
Marine generators	4.5

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23025, Apr. 30, 2010; 78 FR 36397, June 17, 2013; 80 FR 9114, Feb. 19, 2015]

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)).

(h) For engines that become new after being placed into service, such as engines converted to run on a different fuel, we may specify alternate certification provisions consistent with the intent of this part. *See* § 1054.645 and the definition of ''new nonroad engine'' in § 1054.801.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23025, Apr. 30, 2010]

§ 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. 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 test results as follows:

(1) Report all test results involving measurement of pollutants for which emission standards apply. Include test results 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. 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.

(2) Report measured CO_2, N_2O, and CH_4 as described in § 1054.235. Small-volume engine manufacturers may omit reporting N_2O and CH_4.

(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.

[73 FR 59259, Oct. 8, 2008, as amended at 74 FR 56511, Oct. 30, 2009; 75 FR 23025, Apr. 30, 2010]

§ 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 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).

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23025, Apr. 30, 2010]

§ 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 engines 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 (such as in-line or vee configuration) 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.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23025, Apr. 30, 2010]

§ 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.

(g) Measure CO_2 and CH_4 with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2011 and 2012 model years, respectively. Also measure N_2O with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2013 model year for any engine family that depends on NOx aftertreatment to meet emission standards. Small-volume engine manufacturers may omit measurement of N_2O and CH_4. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

(1) Round CO_2 to the nearest 1 g/kW-hr.

(2) Round N_2O to the nearest 0.001 g/kW-hr.

(3) Round CH_4 to the nearest 0.001 g/kW-hr.

[73 FR 59259, Oct. 8, 2008, as amended at 74 FR 56511, Oct. 30, 2009]

§ 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:

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

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 (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

n	t_{95}	n	t_{95}	n	t_{95}
10	1.83	20	1.73	30	1.70
11	1.81	21	1.72	31 +	1.65

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

$$\sigma = \left[\sum \frac{(X_i - x)^2}{(n-1)} \right]^{\frac{1}{2}}$$

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 + NO_X and CO emissions:

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

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 exhaust constituents subject to emissions standards as specified in § 1054.505 and 40 CFR part 1065. Measure CO_2, N_2O, and CH_4 as described in § 1054.235. See § 1054.650 for special provisions that apply for variable-speed engines (including engines shipped without governors).

(2) Use the appropriate 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 specified 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. Note that § 1054.145(n) allows for testing with gasoline test fuels specified by the California Air Resources Board for any individual engine family.

(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.

[73 FR 59259, Oct. 8, 2008, as amended at 74 FR 56511, Oct. 30, 2009; 78 FR 36397, June 17, 2013; 80 FR 9114, Feb. 19, 2015]

§ 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, as described in 40 CFR Part 1065. 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. 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) 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.

[73 FR 59259, Oct. 8, 2008, as amended at 79 FR 23751, Apr. 28, 2014]

§ 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?

(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.

(c) The provisions of 40 CFR 1068.215 apply for cases in which the manufacturer takes possession of engines for purposes of recovering components as described in this paragraph (c). Note that this paragraph (c) does not apply for certified engines that still have the emission control information label since such engines do not need an exemption.

(1) You must label the engine as specified in 40 CFR 1068.215(c)(3), except that the label may be removable as specified in 40 CFR 1068.45(b).

(2) You may not resell the engine. For components other than the engine block, you may generate revenue from the sale of the components that you recover, or from the sale of new engines containing these components. You may also use components other than the engine block for engine rebuilds as otherwise allowed under the regulations. You may use the engine block from an engine that is exempted under this paragraph (c) only to make a new engine, and then only where such an engine has a separate identity from the original engine.

(3) Once the engine has reached its final destination, you may stop collecting records describing the engine's final disposition and how you use the engine. This does not affect the requirement to maintain the records you have already collected under 40 CFR 1068.215. This also does not affect the requirement to maintain records for new engines.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23025, Apr. 30, 2010]

§ 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 Web site 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?

This section generally applies for certifying engine manufacturers. It also applies to importers that do not certify engines as described in paragraph (j) of this section.

(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 with respect to engines certified under this part 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. Note that you might also need to post bond under this section to meet your obligations under § 1054.120(f).

(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) Determine the value of the bond as follows:

(1) Calculate a value based on the per-engine bond values shown in Table 1 to this section and on the projected U.S.-directed production volume from each displacement grouping for the model 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 calculated bond amount is $750,000. If the calculated value is less than $500,000, the appropriate bond amount is $500,000. If the calculated value exceeds the applicable threshold value specified in paragraph (b) of this section, use the applicable threshold value as the appropriate value of the bond. These values may be adjusted as described in paragraphs (d)(2) through (4) of this section. You may generally change your projected U.S.-directed production volume under § 1054.225 during the model year; however, you may not decrease your bond based on new projected U.S.-directed production volumes once you have imported or otherwise introduced into U.S. commerce your first engine from that model year.

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

(2) If your estimated or actual U.S.-directed production volume 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 in a given year, but you may calculate a lower bond value in a later year based on the highest actual U.S.-directed production volumes from the preceding three years.

(3) 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.

(4) The minimum bond value is $25,000 instead of $500,000 if you are a small-volume engine manufacturer or a small-volume equipment manufacturer that has been a certificate holder in each of the preceding five years without failing a test conducted by EPA officials or having been found by EPA to be noncompliant under applicable regulations.

(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. We will adjust these values for 2020 and later, and every 10 years after that, by considering the current Consumer Price Index values published by the Bureau of Labor Statistics relative to 2008. We will generally round values for thresholds and total bond obligations as follows:

(1) Round calculated values at or below $125,000 to the nearest $5,000.

(2) Round calculated values above $125,000 and at or below $2.25 million to the nearest $50,000.

(3) Round calculated values above $2.25 million to the nearest $500,000.

(f) If you are required to post a bond under this section, you must get the 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. The surety agent remains responsible for obligations under the bond for two years after the bond is cancelled or expires without being replaced.

(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 § 1054.120.

(2) You do not need to post bond if you or 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).

[73 FR 59259, Oct. 8, 2008, as amended at 74 FR 8426, Feb. 24, 2009; 75 FR 23025, Apr. 30, 2010; 80 FR 9114, Feb. 19, 2015]

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 U.S.-directed production volumes for the model year, 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.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23026, Apr. 30, 2010]

§ 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 multipositionally, 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 life 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 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 an atomic hydrocarbon with a hydrogen-to-carbon 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 atomic 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.

[73 FR 59259, Oct. 8, 2008, as amended at 75 FR 23026, Apr. 30, 2010]

§ 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_2O 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 + NO_X	NMHC + NO_X	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 No.	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 No. [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	*
2a Steady-state	135	100
2b Transition	20	*
3a Steady-state	112	10
3b Transition	20	*
4a Steady-state	337	75
4b Transition	20	*
5a Steady-state	518	25
5b Transition	20	*
6a Steady-state	494	50
6b Transition	20	*
7 Steady-state	43	0

* Linear transition.

[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.

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1039.525 Introductory text revised; eff. 8-7-12 34147
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