

supplied on the VAR formula record or in the form of computer printouts or other comparable VAR supporting documentation. No concentration setting is permitted above the maximum recommended concentration supplied by the additive manufacturer, except as described in paragraph (f)(1)(vii) of this section.

(vi) The dates of the VAR period, which shall be no longer than thirty-one days. If the VAR period is contemporaneous with a calendar month, then specifying the month will fulfill this requirement; if not, then the beginning and ending dates and times of the VAR period must be listed. The times may be supplied on the VAR formula record or in supporting documentation. Any adjustment to any static dissipater additive package concentration rate initially set in the VAR period shall terminate that VAR period and initiate a new VAR period, except as provided in paragraph (f)(1)(vii) of this section.

(vii) The concentration setting for a static dissipater additive package injector may be changed from the concentration initially set in the VAR period without terminating that VAR period, provided that:

(A) The purpose of the change is to correct a batch under-additization prior to the end of the VAR period and prior to the transfer of the batch to another party, or to correct an equipment malfunction where there has been no over-additization of the additive;

(B) The concentration is immediately returned after the correction to a concentration that fulfills the requirements of this paragraph (f);

(C) The blender creates and maintains documentation establishing the date and adjustments of the correction; and

(D) If the correction is initiated only to rectify an equipment malfunction, and the amount of static dissipater additive package used in this procedure is not added to MVNRLM diesel fuel within the compliance period, then this amount is subtracted from the static dissipater additive package volume listed on the VAR formula record. In such a case, the addition of this amount of static dissipater additive must be reflected in the following VAR period.

(viii) The measured sulfur level for each batch of MVNRLM diesel fuel to which a static dissipater additive package is added during each VAR period. In cases where the storage tank that contains MVNRLM diesel fuel prior to additization contains multiple fuel batches, a measured sulfur level on each batch added to the storage tank during the current and previous VAR periods must be recorded.

(2) *Non-automated facilities.* In the case of a facility in which hand blending or any other non-automated method is used to blend static dissipater additive packages, for each static dissipater additive package and for each batch of MVNRLM diesel fuel to which the static dissipater additive package is being added, the following shall be recorded:

(i) The manufacturer and commercial identifying name of the static dissipater additive package being reconciled, the maximum recommended treatment level, the potential contribution to the sulfur content of the finished fuel that might result when the fuel is used at its maximum recommended treatment level, the intended treatment level, and the contribution to the sulfur content of the finished fuel that would result when the additive package is used at its intended treatment level.

(A) The maximum recommended treatment level and the intended treatment level must be expressed in terms of gallons of static dissipater additive package per thousand gallons of MVNRLM diesel fuel, and expressed to four significant figures.

(B) If the static dissipater additive package storage system which is the subject of the VAR formula record is a proprietary system under the control of a customer, this fact must be indicated on the record.

(ii) The date of the additization that is the subject of the VAR formula record.

(iii) The volume of added static dissipater additive package.

(iv) The volume of the MVNRLM diesel fuel to which the static dissipater additive package has been added.

(v) The brand (if known) of MVNRLM diesel fuel.

(vi) The actual static dissipater additive package concentration, calculated as the volume of added static dissipater additive package (pursuant to paragraph (f)(1)(ii)(B) of this section), divided by the volume of MVNRLM diesel fuel (pursuant to paragraph (f)(1)(iii) of this section). The concentration must be calculated and recorded to four significant figures.

(vii) The measured sulfur level for each batch of MVNRLM diesel fuel to which a static dissipater additive package is added during each VAR period. In cases where the storage tanks that contains MVNRLM diesel fuel prior to additization contains multiple fuel batches, a measured sulfur level on each batch added to the storage tank during the current and previous VAR periods must be recorded.

(3) *VAR formula records.* Every VAR formula record created pursuant to

paragraphs (f)(1) and (f)(2) of this section shall contain the following:

(i) The signature of the creator of the VAR record;

(ii) The date of the creation of the VAR record; and

(iii) A certification of correctness by the creator of the VAR record.

(4) *Electronically-generated VAR formula and supporting records.* (i) Electronically-generated records are acceptable for VAR formula records and supporting documentation (including PTDs), provided that they are complete, accessible, and easily readable. VAR formula records must also be stored with access and audit security, which must restrict to a limited number of specified people those who have the ability to alter or delete the records. In addition, parties maintaining records electronically must make available to EPA the hardware and software necessary to review the records.

(ii) Electronically-generated VAR formula records may use an electronic user identification code to satisfy the signature requirements of paragraph (f)(3)(i) of this section, provided that:

(A) The use of the identification is limited to the record creator; and

(B) A paper record is maintained, which is signed and dated by the VAR formula record creator, acknowledging that the use of that particular user ID on a VAR formula record is equivalent to his/her signature on the document.

(5) *Calibration requirements for automated blending facilities.* Automated static dissipater additive package blenders must calibrate their static dissipater additive package equipment at least once in each calendar half year, with the acceptable calibrations being no less than one hundred twenty days apart, except that calibrations may be closer in time so long as at least two calibrations meet the requirements to be in separate halves of the calendar year and no less than 120 days apart. Equipment recalibration is also required each time the static dissipater additive package is changed, unless written documentation indicates that the new static dissipater additive package has the same viscosity as the previous static dissipater additive package. Static dissipater package change calibrations may be used to satisfy the semiannual requirement provided that the calibrations occur in the appropriate half calendar year and are no less than one hundred twenty days apart.

(6) *Additional VAR documentation.* The following VAR supporting documentation must also be created and maintained:

(i) For all automated static dissipater additive package blending facilities, documentation reflecting performance of the calibrations required by paragraph (f)(5) of this section, and any associated adjustments of the automated static dissipater additive package injection equipment;

(ii) For all static dissipater additive package blending facilities, product transfer documents for all static dissipater additive packages, and static dissipater-additized MVNRLM diesel fuel transferred into or out of the facility;

(iii) For all automated static dissipater additive package blending facilities, documentation establishing the brands (if known) of the MVNRLM diesel fuel which is the subject of the VAR formula record; and

(iv) For all hand blending static dissipater additive package blenders, the documentation, if in the party's possession, supporting the volumes of MVNRLM diesel fuel and static dissipater additive package reported on the VAR formula record.

(7) *Document retention and availability.* All static dissipater additive package blenders shall retain the documents required under this section for a period of five years from the date the VAR formula records and supporting documentation are created, and shall deliver them upon request to the EPA Administrator or the Administrator's authorized representative.

(i) Except as provided in paragraph (f)(7)(iii) of this section, automated static dissipater additive package blender facilities and hand-blender facilities which are terminals, which physically blend static dissipater additive packages into MVNRLM diesel fuel, must make immediately available to EPA, upon request, the preceding twelve months of VAR formula records plus the preceding two months of VAR supporting documentation.

(ii) Except as provided in paragraph (f)(7)(iii) of this section, other hand-blending static dissipater additive package facilities which physically blend static dissipater additive package into MVNRLM diesel fuel must make immediately available to EPA, upon request, the preceding two months of VAR formula records and VAR supporting documentation.

(iii) Facilities which have centrally maintained records at other locations, or have customers who maintain their own records at other locations for their proprietary static dissipater additive package injection systems, and which can document this fact to the Agency, may have until the start of the next

business day after the EPA request to supply VAR supporting documentation, or longer if approved by the Agency.

(iv) In this paragraph (f)(7), the term "immediately available" means that the records must be provided, electronically or otherwise, within approximately one hour of EPA's request, or within a longer time frame as approved by EPA.

■ 72. A new § 80.615 is added to read as follows:

**§ 80.615 What penalties apply under this subpart?**

(a) Any person liable for a violation under § 80.612 is subject to civil penalties as specified in section 205 of the Clean Air Act (42 U.S.C. 7524) for every day of each such violation and the amount of economic benefit or savings resulting from each violation.

(b)(1) Any person liable under § 80.612(a)(1) for a violation of an applicable standard or requirement under this Subpart I or for causing another party to violate such standard or requirement, is subject to a separate day of violation for each and every day the non-complying diesel fuel remains any place in the distribution system.

(2) Any person liable under § 80.612(a)(2) for causing motor vehicle diesel fuel, NRLM diesel fuel, heating oil, or other distillate fuel to be in the distribution system which does not comply with an applicable standard or requirement of this Subpart I is subject to a separate day of violation for each and every day that the non-complying diesel fuel remains any place in the diesel fuel distribution system.

(3) Any person liable under § 80.612(a)(1) for blending into diesel fuel an additive violating the applicable sulfur standard pursuant to the requirements of § 80.521(a) or (b), as applicable, or of causing another party to so blend such an additive, is subject to a separate day of violation for each and every day the motor vehicle diesel fuel or NRLM diesel fuel into which the noncomplying additive was blended, remains any place in the fuel distribution system.

(4) For purposes of this paragraph (b) of this section, the length of time the motor vehicle diesel fuel, NRLM diesel fuel, heating oil or other distillate fuel in question remained in the diesel fuel distribution system is deemed to be 25 days, unless a person subject to liability or EPA demonstrates by reasonably specific showings, by direct or circumstantial evidence, that the non-complying motor vehicle, NR or NRLM diesel fuel, heating oil or distillate fuel remained in the distribution system for fewer than or more than 25 days.

(c) Any person liable under § 80.612(b) for failure to meet, or causing a failure to meet, a provision of this subpart is liable for a separate day of violation for each and every day such provision remains unfulfilled.

■ 73. Section 80.620 is amended by revising the section heading and paragraphs (a), (b), (c), (d)(2), (d)(3)(i)(D), (e)(1), (f)(2)(ii) introductory text, (f)(3)(ii), (g), (h) introductory text, (h)(2), (i)(1)(v), (i)(1)(vi), (i)(5), (j), (k)(1), (k)(3), (n), (o), (p), (q), (r), and (s) to read as follows:

**§ 80.620 What are the additional requirements for diesel fuel or distillates produced by foreign refineries subject to a temporary refiner compliance option, hardship provisions, or motor vehicle or NRLM diesel fuel credit provisions?**

(a) *Definitions.* (1) A foreign refinery is a refinery that is located outside the United States, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (collectively referred to in this section as "the United States").

(2) A foreign refiner is a person who meets the definition of refiner under § 80.2(i) for a foreign refinery.

(3) A diesel fuel program foreign refiner ("DFR") is a foreign refiner that has been approved by EPA for participation in any motor vehicle diesel fuel or NRLM diesel fuel provision of § 80.530 through 80.533, or §§ 80.535, 80.536, 80.540, 80.552, 80.553, 80.554, 80.560 or 80.561 (collectively referred to as "diesel foreign refiner program").

(4) "DFR-Diesel" means diesel fuel or distillate fuel as applicable under subpart I of this part produced at a DFR refinery that is imported into the United States.

(5) "Non-DFR-Diesel" means diesel fuel or distillate fuel that is produced at a foreign refinery that has not been approved as a DFR foreign refiner, diesel fuel produced at a DFR foreign refinery that is not imported into the United States, and diesel fuel produced at a DFR foreign refinery during a period when the foreign refiner has opted to not participate in the DFR-Diesel foreign refiner program under paragraph (c)(3) of this section.

(6) "Certified DFR-Diesel" means DFR-Diesel the foreign refiner intends to include in the foreign refinery's compliance calculations under any provisions of § 80.530 through 80.533, or §§ 80.535, 80.536, 80.540, 80.552, 80.553, 80.554, 80.560 or 80.561 and does include in these compliance calculations when reported to EPA.

(7) "Non-Certified DFR-Diesel" means DFR-Diesel fuel that a DFR foreign

refiner imports to the United States that is not Certified DFR-Diesel.

(b) *Baseline.* For any foreign refiner to obtain approval under the diesel foreign refiner program of this subpart for any refinery, it must apply for approval under the applicable provisions of this subpart. To obtain approval the refiner is required, as applicable, to demonstrate a volume baseline under subpart I of this part.

(1) The refiner shall follow the procedures, applicable to volume baselines and using diesel fuel, or if applicable, heating oil, instead of gasoline, in §§ 80.91 through 80.93 to establish the volume of motor vehicle diesel fuel that was produced at the refinery and imported into the United States during the applicable years for purposes of establishing a baseline under Subpart I for applicable fuels produced for use in the United States.

(2) In making determinations for foreign refinery baselines EPA will consider all information supplied by a foreign refiner, and in addition may rely on any and all appropriate assumptions necessary to make such determinations.

(3) Where a foreign refiner submits a petition that is incomplete or inadequate to establish an accurate baseline, and the refiner fails to correct this deficiency after a request for more information, EPA will not assign an individual refinery baseline.

(c) *General requirements for DFR foreign refiners.* A foreign refiner of a refinery that is approved under the diesel foreign refiner program of this subpart must designate each batch of diesel fuel produced at the foreign refinery that is exported to the United States as either Certified DFR-Diesel or as Non-Certified DFR-Diesel, except as provided in paragraph (c)(3) of this section. It must further designate all Certified DFR-Diesel as provided in § 80.598, and designate whether the diesel fuel is dyed or undyed, and for heating oil and/or locomotive or marine diesel fuel whether it is marked or unmarked under § 80.510(d) through (f). It must further designate any credits earned as either nonroad diesel credits or motor vehicle diesel credits.

(1) In the case of Certified DFR-Diesel, the foreign refiner must meet all requirements that apply to refiners under this subpart, except that:

(i) For purposes of complying with the compliance option requirements of § 80.530, motor vehicle diesel fuel produced by a foreign refinery must comply separately for each Credit Trading Area of import, as defined in § 80.531(a)(5).

(ii) For purposes of complying with the compliance option requirements of

§ 80.530, credits obtained from any other refinery or from any importer must have been generated in the same Credit Trading Area as the Credit Trading Area of import of the fuel for which credits are needed to achieve compliance.

(iii) For purposes of generating credits under § 80.531, credits shall be generated separately by Credit Trading Area of import and shall be designated by Credit Trading Area of importation and by port of importation.

(2) In the case of Non-Certified DFR-Diesel, the foreign refiner shall meet all the following requirements:

(i) The designation requirements in this section.

(ii) The reporting requirements in this section and in §§ 80.593, 80.594, 80.601, and 80.604.

(iii) The product transfer document requirements in this section and in §§ 80.590 and 80.591.

(iv) The prohibitions in this section and in § 80.610.

(3)(i) Any foreign refiner that has been approved to produce diesel fuel subject to the diesel foreign refiner program for a foreign refinery under this subpart may elect to classify no diesel fuel imported into the United States as DFR-Diesel provided the foreign refiner notifies EPA of the election no later than 60 calendar days prior to the beginning of the compliance period.

(ii) An election under paragraph (c)(3)(i) of this section shall be for a 12 month compliance period and apply to all diesel fuel that is produced by the foreign refinery that is imported into the United States, and shall remain in effect for each succeeding year unless and until the foreign refiner notifies EPA of the termination of the election. The change in election shall take effect at the beginning of the next annual compliance period.

(d) \* \* \*

(2) On each occasion when any person transfers custody or title to any DFR-Diesel prior to its being imported into the United States, it must include the following information as part of the product transfer document information in this section:

(i) Designation of the diesel fuel or distillate as Certified DFR-Diesel or as Non-Certified DFR-Diesel, and if it is Certified DFR-Diesel, further designate the fuel pursuant to § 80.598, and whether the diesel fuel or distillate is dyed or undyed, and for heating oil whether it is marked or unmarked under § 80.510(d) through (f), and all other applicable product transfer document information required under § 80.590; and

(ii) The name and EPA refinery registration number (under § 80.597) of the refinery where the DFR-Diesel was produced.

(3) \* \* \*

(i) \* \* \*

(D) In the case of Certified DFR-Diesel:

(1) The sulfur content as determined under paragraph (f) of this section, and the applicable designations stated in paragraph (d)(2)(i) of this section; and

(2) A declaration that the DFR-Diesel is being included in the applicable compliance calculations required by EPA under this subpart.

\* \* \* \* \*

(e) \* \* \*

(1)(i) The foreign refiner excludes:

(A) The volume of diesel from the refinery's compliance report under § 80.593, § 80.601, or § 80.604; and

(B) In the case of Certified DFR-Diesel, the volume of the diesel fuel from the compliance report under § 80.593, § 80.601, or § 80.604.

(ii) The exclusions under paragraph (e)(1)(i) of this section shall be on the basis of the designations under § 80.598 and this section, and volumes determined under paragraph (f) of this section.

\* \* \* \* \*

(f) \* \* \*

(2) \* \* \*

(ii) Determine the sulfur content value for each compartment, and if applicable, the marker content under § 80.510(d) through (f) using an approved methodology as specified in §§ 80.580 through 80.586 by one of the following:

\* \* \* \* \*

(3) \* \* \*

(ii) To the Administrator containing the information required under paragraphs (f)(1) and (f)(2) of this section, within thirty days following the date of the independent third party's inspection. This report shall include a description of the method used to determine the identity of the refinery at which the diesel fuel or distillate was produced, assurance that the diesel fuel or distillate remained segregated as specified in paragraph (n)(1) of this section, and a description of the diesel fuel's movement and storage between production at the source refinery and vessel loading.

\* \* \* \* \*

(g) *Comparison of load port and port of entry testing.* (1)(i) Any foreign refiner and any United States importer of Certified DFR-Diesel shall compare the results from the load port testing under paragraph (f) of this section, with the port of entry testing as reported under paragraph (o) of this section, for the

volume of diesel fuel and the sulfur content value; except as specified in paragraph (g)(1)(ii) of this section.

(ii) Where a vessel transporting Certified DFR-Diesel off loads this diesel fuel at more than one United States port of entry, and the conditions of paragraph (g)(2)(i) of this section are met at the first United States port of entry, the requirements of paragraph (g)(2) of this section do not apply at subsequent ports of entry if the United States importer obtains a certification from the vessel owner that meets the requirements of paragraph (s) of this section, that the vessel has not loaded any diesel fuel or blendstock between the first United States port of entry and the subsequent port of entry.

(2)(i) The requirements of this paragraph (g)(2) apply if—

(A) The temperature-corrected volumes determined at the port of entry and at the load port differ by more than one percent; or

(B) The sulfur content value determined at the port of entry is higher than the sulfur content value determined at the load port, and the amount of this difference is greater than the reproducibility amount specified for the port of entry test result by the American Society of Testing and Materials (ASTM) for a test method used for testing the port of entry sample under the provisions §§ 80.580 through 80.586.

(ii) The United States importer and the foreign refiner shall treat the diesel fuel as Non-Certified DFR-Diesel, and the foreign refiner shall exclude the diesel fuel volume from its diesel fuel volumes calculations and sulfur standard designations under § 80.598.

(h) *Attest requirements.* Refiners, for each annual compliance period, must arrange to have an attest engagement performed of the underlying documentation that forms the basis of any report required under this subpart. The attest engagement must comply with the procedures and requirements that apply to refiners under §§ 80.125 through 80.130, or other applicable attest engagement provisions, and must be submitted to the Administrator of EPA by August 31 of each year for the prior annual compliance period. The following additional procedures shall be carried out for any foreign refiner of DFR-Diesel.

(2) Obtain separate listings of all tenders of Certified DFR-Diesel and of Non-Certified DFR-Diesel, and obtain separate listings of Certified DFR-Diesel based on whether it is 15 ppm sulfur content diesel fuel, 500 ppm sulfur

content diesel fuel or high sulfur fuel having a sulfur content greater than 500 ppm (and if so, whether the fuel is heating oil, small refiner diesel fuel, diesel fuel produced through the use of credits, or other applicable designation under § 80.598). Agree the total volume of tenders from the listings to the diesel fuel inventory reconciliation analysis in § 80.128(b), and to the volumes determined by the third party under paragraph (f)(1) of this section.

\* \* \* \* \*

(i) \* \* \*

(1) \* \* \*

(v) Inspections and audits by EPA may include review and copying of any documents related to:

(A) Refinery baseline establishment, if applicable, including the volume, sulfur content and dye and marker status of diesel fuel, heating oil and other distillates; transfers of title or custody of any diesel fuel, heating oil or blendstocks whether DFR-Diesel or Non-DFR-Diesel, produced at the foreign refinery during the period January 1, 1998 through the date of the refinery baseline petition or through the date of the inspection or audit if a baseline petition has not been approved, and any work papers related to refinery baseline establishment;

(B) The volume and sulfur content of DFR-Diesel;

(C) The proper classification of diesel fuel as being DFR-Diesel or as not being DFR-Diesel, or as Certified DFR-Diesel or as Non-Certified DFR-Diesel, and all other relevant designations under this subpart, including § 80.598 and this section;

(D) Transfers of title or custody to DFR-Diesel;

(E) Sampling and testing of DFR-Diesel;

(F) Work performed and reports prepared by independent third parties and by independent auditors under the requirements of this section, including work papers; and

(G) Reports prepared for submission to EPA, and any work papers related to such reports.

(vi) Inspections and audits by EPA may include taking samples of diesel fuel, heating oil, other distillates, diesel fuel additives or blendstock, dyes and chemical markers and interviewing employees.

\* \* \* \* \*

(5) Submitting a petition for participation in the diesel foreign refiner program or producing and exporting diesel fuel or heating oil under any such program, and all other actions to comply with the requirements of this subpart relating to participation

in any diesel foreign refiner program, or to establish an individual refinery motor vehicle diesel fuel volume baseline or other baseline under subpart I of this part (if applicable) constitute actions or activities that satisfy the provisions of 28 U.S.C. 1605(a)(2), but solely with respect to actions instituted against the foreign refiner, its agents and employees in any court or other tribunal in the United States for conduct that violates the requirements applicable to the foreign refiner under this subpart, including conduct that violates the False Statements Accountability Act of 1996 (18 U.S.C. 1001) and section 113(c)(2) of the Clean Air Act (42 U.S.C. 7413).

\* \* \* \* \*

(j) *Sovereign immunity.* By submitting a petition for participation in any diesel foreign refiner program under this subpart (and baseline, if applicable) under this section, or by producing and exporting diesel fuel to the United States under any such program, the foreign refiner, and its agents and employees, without exception, become subject to the full operation of the administrative and judicial enforcement powers and provisions of the United States without limitation based on sovereign immunity, with respect to actions instituted against the foreign refiner, its agents and employees in any court or other tribunal in the United States for conduct that violates the requirements applicable to the foreign refiner under this subpart including conduct that violates the False Statements Accountability Act of 1996 (18 U.S.C. 1001) and section 113(c)(2) of the Clean Air Act (42 U.S.C. 7413).

(k) \* \* \*

(1) The foreign refiner shall post a bond of the amount calculated using the following equation:

Bond = G × \$ 0.01

Where:

Bond = amount of the bond in U.S. dollars  
G = the applicable volume baseline under Subpart I for diesel fuel or distillate produced at the foreign refinery and exported to the United States, in gallons.

\* \* \* \* \*

(3) Bonds posted under this paragraph (k) shall—

(i) Be used to satisfy any judicial judgment that results from an administrative or judicial enforcement action for conduct in violation of this subpart, including where such conduct violates the False Statements Accountability Act of 1996 (18 U.S.C. 1001) and section 113(c)(2) of the Clean Air Act (42 U.S.C. 7413);

(ii) Be provided by a corporate surety that is listed in the United States

Department of Treasury Circular 570 "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds;" and

(iii) Include a commitment that the bond will remain in effect for at least five years following the end of latest annual reporting period that the foreign refiner produces diesel fuel pursuant to the requirements of this subpart.

\* \* \* \* \*

(n) *Prohibitions.* (1) No person may combine Certified DFR-Diesel with any Non-Certified DFR-Diesel or Non-DFR-Diesel, and no person may combine Certified DFR-Diesel with any Certified DFR-Diesel produced at a different refinery, until the importer has met all the requirements of paragraph (o) of this section, except as provided in paragraph (e) of this section. No person may violate the product segregation requirements of § 80.511.

(2) No foreign refiner or other person may cause another person to commit an action prohibited in paragraph (n)(1) of this section, or that otherwise violates the requirements of this section.

(o) *United States importer requirements.* Any United States importer shall meet the following requirements:

(1) Each batch of imported diesel fuel and heating oil shall be classified by the importer as being DFR-Diesel or as Non-DFR-Diesel, and each batch classified as DFR-Diesel shall be further classified as Certified DFR-Diesel or as Non-Certified DFR-Diesel, and each batch of Certified DFR-Diesel shall be further designated pursuant to the designation requirements of § 80.598 and this section.

(2) Diesel fuel shall be classified as Certified DFR-Diesel or as Non-Certified DFR-Diesel according to the designation by the foreign refiner if this designation is supported by product transfer documents prepared by the foreign refiner as required in paragraph (d) of this section, unless the diesel fuel is classified as Non-Certified DFR-Diesel under paragraph (g) of this section. Additionally, the importer shall comply with all requirements of this subpart applicable to importers.

(3) For each diesel fuel batch classified as DFR-Diesel, any United States importer shall perform the following procedures:

(i) In the case of both Certified and Non-Certified DFR-Diesel, have an independent third party:

(A) Determine the volume of diesel fuel in the vessel;

(B) Use the foreign refiner's DFR-Diesel certification to determine the name and EPA-assigned registration

number of the foreign refinery that produced the DFR-Diesel;

(C) Determine the name and country of registration of the vessel used to transport the DFR-Diesel to the United States; and

(D) Determine the date and time the vessel arrives at the United States port of entry.

(ii) In the case of Certified DFR-Diesel, have an independent third party:

(A) Collect a representative sample from each vessel compartment subsequent to the vessel's arrival at the United States port of entry and prior to off loading any diesel fuel from the vessel;

(B) Obtain the compartment samples; and

(C) Determine the sulfur content value, and if applicable, the marker content, of each compartment sample using an appropriate methodology as specified in §§ 80.580 through 80.586 by the third party analyzing the sample or by the third party observing the importer analyze the sample.

(4) Any importer shall submit reports within 30 days following the date any vessel transporting DFR-Diesel arrives at the United States port of entry:

(i) To the Administrator containing the information determined under paragraph (o)(3) of this section; and

(ii) To the foreign refiner containing the information determined under paragraph (o)(3)(ii) of this section, and including identification of the port and Credit Trading Area at which the product was offloaded.

(5) Any United States importer shall meet the requirements specified in §§ 80.510 and 80.520 and all other requirements of this subpart, for any imported diesel fuel or heating oil that is not classified as Certified DFR-Diesel under paragraph (o)(2) of this section.

(p) *Truck imports of Certified DFR-Diesel produced at a foreign refinery.* (1) Any refiner whose Certified DFR-Diesel is transported into the United States by truck may petition EPA to use alternative procedures to meet the following requirements:

(i) Certification under paragraph (d)(5) of this section;

(ii) Load port and port of entry sampling and testing under paragraphs (f) and (g) of this section;

(iii) Attest under paragraph (h) of this section; and

(iv) Importer testing under paragraph (o)(3) of this section.

(2) These alternative procedures must ensure Certified DFR-Diesel remains segregated from Non-Certified DFR-Diesel and from Non-DFR-Diesel until it is imported into the United States. The petition will be evaluated based on

whether it adequately addresses the following:

(i) Provisions for monitoring pipeline shipments, if applicable, from the refinery, that ensure segregation of Certified DFR-Diesel from that refinery from all other diesel fuel;

(ii) Contracts with any terminals and/or pipelines that receive and/or transport Certified DFR-Diesel, that prohibit the commingling of Certified DFR-Diesel with any of the following:

(A) Other Certified DFR-Diesel from other refineries.

(B) All Non-Certified DFR-Diesel.

(C) All Non-DFR-Diesel.

(D) All diesel fuel or heating oil products required to be segregated under this subpart;

(iii) Procedures for obtaining and reviewing truck loading records and United States import documents for Certified DFR-Diesel to ensure that such diesel fuel is only loaded into trucks making deliveries to the United States;

(iv) Attest procedures to be conducted annually by an independent third party that review loading records and import documents based on volume reconciliation, or other criteria, to confirm that all Certified DFR-Diesel remains segregated throughout the distribution system and is only loaded into trucks for import into the United States.

(3) The petition required by this section must be submitted to EPA along with the application for temporary refiner relief individual refinery diesel sulfur standard under this subpart.

(q) *Withdrawal or suspension of a foreign refinery's temporary refinery flexibility program approval.* EPA may withdraw or suspend a diesel refiner baseline or standard approval for a foreign refinery where—

(1) A foreign refiner fails to meet any requirement of this section;

(2) A foreign government fails to allow EPA inspections as provided in paragraph (i)(1) of this section;

(3) A foreign refiner asserts a claim of, or a right to claim, sovereign immunity in an action to enforce the requirements in this subpart; or

(4) A foreign refiner fails to pay a civil or criminal penalty that is not satisfied using the foreign refiner bond specified in paragraph (k) of this section.

(r) *Early use of a foreign refiner motor vehicle diesel fuel baseline.* (1) A foreign refiner may begin using an individual refinery baseline under subpart I of this part before EPA has approved the baseline, provided that:

(i) A baseline petition has been submitted as required in paragraph (b) of this section;

(ii) EPA has made a provisional finding that the baseline petition is complete;

(iii) The foreign refiner has made the commitments required in paragraph (i) of this section;

(iv) The persons who will meet the independent third party and independent attest requirements for the foreign refinery have made the commitments required in paragraphs (f)(3)(iii) and (h)(7)(iii) of this section; and

(v) The foreign refiner has met the bond requirements of paragraph (k) of this section.

(2) In any case where a foreign refiner uses an individual refinery baseline before final approval under paragraph (r)(1) of this section, and the foreign refinery baseline values that ultimately are approved by EPA are more stringent than the early baseline values used by the foreign refiner, the foreign refiner shall recalculate its compliance, *ab initio*, using the baseline values approved by the EPA, and the foreign refiner shall be liable for any resulting violation of the motor vehicle highway diesel fuel requirements.

(s) *Additional requirements for petitions, reports and certificates.* Any petition for approval to produce diesel fuel subject to the diesel foreign refiner program, any alternative procedures under paragraph (p) of this section, any report or other submission required by paragraph (c), (f)(2), or (i) of this section, and any certification under paragraph (d)(3) of this section shall be—

(1) Submitted in accordance with procedures specified by the Administrator, including use of any forms that may be specified by the Administrator.

(2) Be signed by the president or owner of the foreign refiner company, or by that person's immediate designee, and shall contain the following declaration:

I hereby certify: (1) That I have actual authority to sign on behalf of and to bind [insert name of foreign refiner] with regard to all statements contained herein; (2) that I am aware that the information contained herein is being certified, or submitted to the United States Environmental Protection Agency, under the requirements of 40 CFR part 80, subpart I, and that the information is material for determining compliance under these regulations; and (3) that I have read and understand the information being certified or submitted, and this information is true, complete and correct to the best of my knowledge and belief after I have taken reasonable and appropriate steps to verify the accuracy thereof.

I affirm that I have read and understand the provisions of 40 CFR part 80, subpart I, including 40 CFR 80.620 apply to [insert

name of foreign refiner]. Pursuant to Clean Air Act section 113(c) and 18 U.S.C. 1001, the penalty for furnishing false, incomplete or misleading information in this certification or submission is a fine of up to \$10,000 U.S., and/or imprisonment for up to five years.

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

■ 74. The authority citation for part 86 continues to read as follows:

**Authority:** 42 U.S.C. 7401—7671(q).

■ 75. Section 86.007–35 is amended by revising paragraph (c) to read as follows:

**§ 86.007–35 Labeling.**

\* \* \* \* \*

(c) Model year 2007 and later diesel-fueled vehicles must include permanent readily visible labels on the dashboard (or instrument panel) and near all fuel inlets that state “Use Ultra Low Sulfur Diesel Fuel Only” or “Ultra Low Sulfur Diesel Fuel Only”.

\* \* \* \* \*

■ 76. Section 86.007–38 is amended by revising paragraph (i) to read as follows:

**§ 86.007–38 Maintenance instructions.**

\* \* \* \* \*

(i) For each new diesel-fueled engine subject to the standards prescribed in § 86.007–11, as applicable, the manufacturer shall furnish or cause to be furnished to the ultimate purchaser a statement that “This engine must be operated only with ultra low-sulfur diesel fuel (meeting EPA specifications for highway diesel fuel, including a 15 ppm sulfur cap).”

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

■ 77. The authority citation for part 89 continues to read as follows:

**Authority:** 42 U.S.C. 7521, 7522, 7523, 7524, 7525, 7541, 7542, 7543, 7545, 7547, 7549, 7550, and 7601(a).

■ 78. Section 89.1 is amended by adding paragraph (b)(6) to read as follows:

**§ 89.1 Applicability.**

\* \* \* \* \*

(b) \* \* \*  
(6) *Tier 4 engines.* This part does not apply to engines that are subject to emission standards under 40 CFR part 1039. See 40 CFR 1039.1 to determine when that part 1039 applies. Note that certain requirements and prohibitions apply to engines built on or after January 1, 2006 if they are installed in stationary applications or in equipment that will be used solely for competition, as described in 40 CFR 1039.1 and 40

CFR 1068.1; those provisions apply instead of the provisions of this part 89.

■ 79. Section 89.2 is amended by adding a definition for “Sulfur-sensitive technology” in alphabetical order to read as follows:

**§ 89.2 Definitions.**

\* \* \* \* \*

*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 up 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.

\* \* \* \* \*

■ 80. Section 89.112 is amended by revising the introductory text of paragraph (f)(1) and adding paragraph (g) to read as follows:

**§ 89.112 Oxides of nitrogen, carbon monoxide, hydrocarbon, and particulate matter exhaust emission standards.**

\* \* \* \* \*

(f) \* \* \*

(1) *Voluntary standards.* Engines may be designated “Blue Sky Series” engines by meeting the voluntary standards listed in Table 3, which apply to all certification and in-use testing, as follows:

\* \* \* \* \*

(g) Manufacturers of engines at or above 37 kW and below 56 kW from model years 2008 through 2012 that are subject to the standards of this section under 40 CFR 1039.102 must take the following additional steps:

(1) State the applicable PM standard on the emission control information label.

(2) Add information to the emission-related installation instructions to clarify the equipment manufacturer's obligations under 40 CFR 1039.104(f).

■ 81. Section 89.114 is amended by adding a new paragraph (b)(3) to read as follows:

**§ 89.114 Special and alternate test procedures.**

\* \* \* \* \*

(b) \* \* \*

(3) A manufacturer may elect to use the test procedures in 40 CFR part 1065 as an alternate test procedure without advance approval by the Administrator. The manufacturer must identify in its application for certification that the engines were tested using the procedures in 40 CFR part 1065.

■ 82. Section 89.203 is amended by adding a new paragraph (c)(6) to read as follows:

**§ 89.203 General provisions.**

\* \* \* \* \*

(c) \* \* \*

(6) Model year 2008 and 2009 engines rated under 8 kW that are allowed to certify under this part because they meet the criteria in 40 CFR 1039.101(c) may not generate emission credits.

■ 83. Section 89.330 is amended by revising paragraph (b)(3) and adding paragraph (e) to read as follows:

**§ 89.330 Lubricating oil and test fuels.**

\* \* \* \* \*

(b) \* \* \*

(3) Testing of Tier 1 and Tier 2 engines rated under 37 kW and Tier 2 and Tier 3 engines rated at or above 37 kW that is conducted by the Administrator shall be performed using test fuels that meet the specifications in Table 4 in Appendix A of this subpart and that have a sulfur content no higher than 0.20 weight percent.

\* \* \* \* \*

(e) *Low-sulfur test fuel.* (1) Upon request, for engines rated at or above 75 kW in model years 2006 or 2007, the diesel test fuel may be the low-sulfur diesel test fuel specified in 40 CFR part 1065, subject to the provisions of this paragraph (e)(1).

(i) To use this option, the manufacturer must—

(A) Ensure that ultimate purchasers of equipment using these engines are informed that the use of fuel meeting the 500 ppm specification is recommended.

(B) Recommend to equipment manufacturers that a label be applied at the fuel inlet recommending 500 ppm fuel.

(ii) None of the engines in the engine family may employ sulfur-sensitive technologies.

(iii) For engines rated at or above 130 kW, this option may be used in 2006 and 2007. For engines rated at or above 75 kW and under 130 kW, this option may be used only in 2007.

(2) For model years 2008 through 2010, except as otherwise provided, the diesel test fuel shall be the low-sulfur diesel test fuel specified in 40 CFR part 1065.

(3) The diesel test fuel shall be the ultra low-sulfur diesel test fuel specified in 40 CFR part 1065 for model years 2011 and later.

(4) For model years 2007 through 2010 engines that use sulfur-sensitive emission-control technology, the diesel test fuel is the ultra low-sulfur fuel specified in 40 CFR part 1065 if the

manufacturer demonstrates that the in-use engines will use only fuel with 15 ppm or less of sulfur.

(5) Instead of the test fuels described in paragraphs (e)(2) through (4) of this section, for model years 2008 and later, manufacturers may use the test fuel described in appendix A of this subpart. In such cases, the test fuel described in appendix A of this subpart shall be the test fuel for all manufacturer and EPA testing.

■ 84. Section 89.908 is amended by adding paragraph (c) to read as follows:

**§ 89.908 National security exemption.**

\* \* \* \* \*

(c) Manufacturers must add a legible label, written in block letters in English, to each engine 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, engine family identification (as applicable), and model year of the engine or whom to contact for further information.

(4) The statement “THIS ENGINE HAS AN EXEMPTION FOR NATIONAL SECURITY UNDER 40 CFR 89.908.”.

■ 85. Section 89.910 is amended by adding paragraph (c) to read as follows:

**§ 89.910 Granting of exemptions.**

\* \* \* \* \*

(c) Manufacturers may ask EPA to apply the provisions of 40 CFR 1068.201(i) to engines exempted or excluded under this subpart.

**PART 94—CONTROL OF AIR POLLUTION FROM MARINE COMPRESSION-IGNITION ENGINES**

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

**Authority:** 42 U.S.C. 7522, 7523, 7524, 7525, 7541, 7542, 7543, 7545, 7547, 7549, 7550, and 7601(a).

■ 87. Section 94.908 is amended by adding paragraph (c) to read as follows:

**§ 94.908 National security exemption.**

\* \* \* \* \*

(c) Manufacturers must add a legible label, written in block letters in English, to each engine 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, engine family identification (as applicable), and model year of the engine or whom to contact for further information.

(4) The statement “THIS ENGINE HAS AN EXEMPTION FOR NATIONAL SECURITY UNDER 40 CFR 94.908.”.

■ 88. A new part 1039 is added to subchapter U of chapter I, to read as follows:

**SUBCHAPTER U—AIR POLLUTION CONTROLS**

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

**Subpart A—Overview and Applicability**

Sec.

1039.1 Does this part apply for my engines?

1039.5 Which engines are excluded from this part's requirements?

1039.10 How is this part organized?

1039.15 Do any other regulation parts apply to me?

1039.20 What requirements from this part apply to excluded stationary engines?

**Subpart B—Emission Standards and Related Requirements**

1039.101 What exhaust emission standards must my engines meet after the 2014 model year?

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1039.105 What smoke standards must my engines meet?

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1039.110 [Reserved]

1039.115 What other requirements must my engines meet?

1039.120 What emission-related warranty requirements apply to me?

1039.125 What maintenance instructions must I give to buyers?

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1039.135 How must I label and identify the engines I produce?

1039.140 What is my engine's maximum engine power?

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1039.201 What are the general requirements for obtaining a certificate of conformity?

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- 1039.225 How do I amend my application for certification to include new or modified engines?
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- 1039.235 What emission testing must I perform for my application for a certificate of conformity?
- 1039.240 How do I demonstrate that my engine family complies with exhaust emission standards?
- 1039.245 How do I determine deterioration factors from exhaust durability testing?
- 1039.250 What records must I keep and what reports must I send to EPA?
- 1039.255 What decisions may EPA make regarding my certificate of conformity?
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**Subpart D—[Reserved]**

**Subpart E—In-use Testing**

- 1039.401 General provisions.

**Subpart F—Test Procedures**

- 1039.501 How do I run a valid emission test?
- 1039.505 How do I test engines using steady-state duty cycles, including ramped-modal testing?
- 1039.510 Which duty cycles do I use for transient testing?
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- 1039.520 What testing must I perform to establish deterioration factors?
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- 1039.601 What compliance provisions apply to these engines?
- 1039.605 What provisions apply to engines already certified under the motor-vehicle program?
- 1039.610 What provisions apply to vehicles already certified under the motor-vehicle program?
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- 1039.625 What requirements apply under the program for equipment-manufacturer flexibility?
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- 1039.627 What are the incentives for equipment manufacturers to use cleaner engines?
- 1039.630 What are the economic hardship provisions for equipment manufacturers?
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- 1039.640 What special provisions apply to branded engines?
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- 1039.650 [Reserved]
- 1039.655 What special provisions apply to engines sold in Guam, American Samoa,

or the Commonwealth of the Northern Mariana Islands?

- 1039.660 What special provisions apply to Independent Commercial Importers?

**Subpart H—Averaging, Banking, and Trading for Certification**

- 1039.701 General provisions.
- 1039.705 How do I generate and calculate emission credits?
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- 1039.745 What can happen if I do not comply with the provisions of this subpart?

**Subpart I—Definitions and Other Reference Information**

- 1039.801 What definitions apply to this part?
- 1039.805 What symbols, acronyms, and abbreviations does this part use?
- 1039.810 What materials does this part reference?
- 1039.815 What provisions apply to confidential information?
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- Appendix I to Part 1039—[Reserved]
- Appendix II to Part 1039—Steady-state Duty Cycles for Constant-Speed Engines
- Appendix III to Part 1039—Steady-state Duty Cycles for Variable-Speed Engines with Maximum Power below 19 kW
- Appendix IV to Part 1039—Steady-state Duty Cycles for Variable-Speed Engines with Maximum Power at or above 19 kW
- Appendix V to Part 1039—[Reserved]
- Appendix VI to Part 1039—Nonroad Compression-ignition Composite Transient Cycle

**Authority:** 42 U.S.C. 7401–7671(q).

**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 .....	<sup>1</sup> 2008
19 ≤ kW < 56 .....	<sup>2</sup> 2008

**TABLE 1 OF § 1039.1.—PART 1039 APPLICABILITY BY MODEL YEAR—Continued**

Power category	Model year
56 ≤ kW < 130 .....	2012
130 ≤ kW ≤ 560 .....	2011
kW > 560 .....	2011

<sup>1</sup> 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.

<sup>2</sup> 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 are not required to comply with this part, except for the requirements in § 1039.20. In addition, the prohibitions in 40 CFR 1068.101 restrict the use of stationary engines for nonstationary purposes.

(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.

**§ 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 subject to the standards of 40 CFR part 92.

(ii) Engines in locomotives that are exempt from the standards of 40 CFR part 92 pursuant to the provisions of 40 CFR part 92 (except for the provisions of 40 CFR 92.907). For example, an engine that is exempt under 40 CFR



92.906 because it is in a manufacturer-owned locomotive is not subject to the provisions of this part 1039.

(2) The following locomotive engines are subject to the provisions of this part 1039:

(i) Engines in locomotives exempt from 40 CFR part 92 pursuant to the provisions of 40 CFR 92.907.

(ii) Locomotive engines excluded from the definition of locomotive in 40 CFR 92.2.

(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). 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.

(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 with per-cylinder displacement below 50 cubic centimeters are not subject to the provisions of this part 1039.

#### **§ 1039.10 How is this part organized?**

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. Unless we specifically state otherwise, the term “you” means the engine manufacturer, as defined in § 1039.801. 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.

#### **§ 1039.15 Do any other regulation parts apply to me?**

(a) Part 1065 of this chapter describes procedures and equipment specifications for testing engines. Subpart F of this part 1039 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the 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.

#### **§ 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. 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 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 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.”.

#### **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 <sup>1</sup>

Maximum engine power	Application	PM	NO <sub>x</sub>	NMHC	NO <sub>x</sub> +NMHC	CO
kW < 19	All	<sup>2</sup> 0.40			7.5	<sup>3</sup> 6.6
19 ≤ kW < 56	All	0.03			4.7	45.0
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

<sup>1</sup> 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.

<sup>2</sup> See paragraph (c) of this section for provisions related to an optional PM standard for certain engines below 8 kW.

<sup>3</sup> The CO standard is 8.0 g/kW-hr for engines below 8 kW.

<sup>4</sup> 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<sub>x</sub>+NMHC emission credits under the

provisions of subpart H of this part. These engines may use PM or NO<sub>x</sub>+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 <sub>x</sub>	NO <sub>x</sub> +NMHC
kW < 19	All	0.80		19.5
19 ≤ kW < 56	All	0.05		7.5
56 ≤ kW < 130	All	0.04	0.80	
130 ≤ kW ≤ 560	All	0.04	0.80	
	Generator sets	0.05	1.07	
kW > 560	All except generator sets	0.07	6.2	

<sup>1</sup> For engines below 8 kW, the FEL cap is 10.5 g/kW-hr for NO<sub>x</sub>+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.

Maximum engine power	Starting model year <sup>1</sup>	PM FEL cap	NO <sub>x</sub> FEL cap
19 ≤ kW < 56	<sup>2</sup> 2016	0.30	
56 ≤ kW < 130	2016	<sup>3</sup> 0.30	<sup>3</sup> 3.8
130 ≤ kW ≤ 560	2015	0.20	3.8
kW > 560	2019	0.10	43.5

<sup>1</sup> See § 1039.104(g) for alternate FEL caps that apply in earlier model years.

<sup>2</sup> For manufacturers certifying engines under Option #1 of Table 3 of § 1039.102, these alternate FEL caps apply starting with the 2017 model year.

<sup>3</sup> 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<sub>x</sub> emissions.

<sup>4</sup> For engines above 560 kW, the provision for alternate NO<sub>x</sub> 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<sub>x</sub> 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:

NTE standard for each pollutant = (STD) × (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 <sub>x</sub> standard less than 2.50 g/kW-hr without using ABT.	The engine family is certified to a NO <sub>x</sub> FEL less than 2.50 g/kW-hr or a NO <sub>x</sub> +NMHC FEL less than 2.70 g/kW-hr.	The multiplier for NO <sub>x</sub> , NMHC, and NO <sub>x</sub> +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 if we determine that these engines will rarely operate longer than the alternate useful life. Your demonstration must include documentation from in-use engines. Your demonstration must also include

any overhaul interval that you recommend and any mechanical warranty that you offer 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.

**§ 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 <sub>x</sub> + NMHC	CO
kW < 8 .....	2008–2014	<sup>1</sup> 0.40	7.5	8.0
8 ≤ kW < 19 .....	2008–2014	0.40	7.5	6.6

<sup>1</sup>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 <sub>x</sub> + 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 <sup>1</sup>	Model years	PM	NO <sub>x</sub> + 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

<sup>1</sup>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 <sup>1</sup>	Phase-in option	PM	NO <sub>x</sub>	NMHC	NO <sub>x</sub> + 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

<sup>1</sup>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 <sup>1</sup>	Phase-in option	PM	NO <sub>x</sub>	NMHC	NO <sub>x</sub> + 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

<sup>1</sup> 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 <sup>1</sup>	Phase-in option	PM	NO <sub>x</sub>	NMHC	NO <sub>x</sub> + 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 <sub>x</sub>	NMHC	CO
2011–2014 .....	560 < kW ≤ 900 .....	All .....	0.10	3.5	0.40	3.5
		Generator sets .....	0.10	0.67	0.40	3.5
	kW > 900 .....	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<sub>x</sub> 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<sub>x</sub>+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<sub>x</sub>+NMHC credits from any Tier 2 engine at or above 37 kW certified under 40 CFR part 89 to meet the NO<sub>x</sub> phase-in standards or the NO<sub>x</sub>+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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> standards in this paragraph (e) instead of the phase-in and phase-out NO<sub>x</sub> and NO<sub>x</sub>+NMHC standards described in Tables 4 through 6 of this section. Engines certified 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<sub>x</sub> 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<sub>x</sub> standards and FEL caps:

(i) If you use the provisions of paragraph (d)(1) of this section, your alternate NO<sub>x</sub> 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<sub>x</sub> FEL cap of 3.0 g/kW-hr.

(ii) If you use the provisions of paragraph (d)(2) of this section, your alternate NO<sub>x</sub> 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<sub>x</sub> FEL cap of 4.4 g/kW-hr; engines at or above 75 kW certified to this standard may not exceed a NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> standard is 2.0 g/kW-hr for model years 2011 through 2013. Engines certified to this standard may not exceed a NO<sub>x</sub> FEL cap of 2.7 g/kW-hr.

(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<sub>x</sub>+NMHC emission credits, add the NO<sub>x</sub> FEL to the NMHC phase-in standard for comparison with the applicable NO<sub>x</sub>+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<sub>x</sub> 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<sub>x</sub>. When compared to the phase-out NO<sub>x</sub>+NMHC standard, this engine family would generate positive NO<sub>x</sub>+NMHC emission credits. When compared to the phase-in NO<sub>x</sub> standard, this engine family would generate negative NO<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub> 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<sub>x</sub>+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<sub>x</sub>, or NO<sub>x</sub>+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 <sup>1</sup>	PM	NO <sub>x</sub>	NO <sub>x</sub> +NMHC
kW < 19		2008–2014	0.80		29.5
19 ≤ kW < 37		2008–2012	0.60		9.5
37 ≤ kW < 56		<sup>3</sup> 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

TABLE 8 OF § 1039.102.—INTERIM TIER 4 FEL CAPS, G/kW-HR—Continued

Maximum engine power	Phase-in option	Model years <sup>1</sup>	PM	NO <sub>x</sub>	NO <sub>x</sub> +NMHC
130 ≤ kW ≤ 560	Phase-in	2011–2013	0.04	0.80	.....
130 ≤ kW ≤ 560	Phase-out	2011–2013	0.04	.....	<sup>5</sup> 6.4
kW > 560	.....	2011–2014	0.20	6.2	.....

<sup>1</sup> For model years before 2015 where this table does not specify FEL caps, apply the FEL caps shown in § 1039.101.

<sup>2</sup> For engines below 8 kW, the FEL cap is 10.5 g/kW-hr for NO<sub>x</sub>+NMHC emissions.

<sup>3</sup> 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 of § 1039.101 apply for model year 2012 and later; see 40 CFR part 89 for provisions that apply to earlier model years.

<sup>4</sup> For engines below 75 kW, the FEL cap is 7.5 g/kW-hr for NO<sub>x</sub>+NMHC emissions.

<sup>5</sup> For engines below 225 kW, the FEL cap is 6.6 g/kW-hr for NO<sub>x</sub>+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 take the following additional steps:

(i) State the applicable PM standard on the emission control information label.

(ii) Add information to the emission-related installation instructions to clarify the equipment manufacturer's obligations under § 1039.104(f).

**§ 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 <sup>1</sup> . . .	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. <sup>2</sup>
(iv) 1 engine	kW ≥ 19	Table 1 of § 1039.101 + 0.20 g/kW-hr NO <sub>x</sub> standard.	Standards in Tables 2 through 7 of § 1039.102 or standards in Table 1 of § 1039.101.	2 engines. <sup>2</sup>

<sup>1</sup> The engine must be certified to the PM standard applicable to model year 2013 engines, and to the NO<sub>x</sub>+NMHC and CO standards applicable to model year 2012 engines.

<sup>2</sup> 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 § 1039.260. 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<sub>x</sub>, NO<sub>x</sub>+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<sub>x</sub> adjustment applies only for engines with a NO<sub>x</sub> 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<sub>x</sub> and PM:

In model years . . .	If your engine's maximum power is . . .	The NO <sub>x</sub> 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 .....	0.01
		0.25 for operating hours 2001 to 3400 .....	
		0.34 for operating hours > 3400 .....	
2011–2015 .....	130 ≤ kW < 560 .....	0.16 for operating hours ≤ 2000 .....	0.01
		0.25 for operating hours 2001 to 3400 .....	
		0.34 for operating hours > 3400 .....	
2011–2016 .....	kW > 560 .....	0.16 for operating hours ≤ 2000 .....	0.01
		0.25 for operating hours 2001 to 3400 .....	
		0.34 for operating hours > 3400 .....	

(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.		
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:

$$\text{Minimum number} = [(T-O_1-F)/(T-F) - 0.05] \times P$$

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<sub>1</sub> = 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 a limited number of engines from your U.S.-directed production volume 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), subject to the following provisions:

(1) The provisions of this paragraph (g) apply during the model years shown in Table 1 of this section. During this period, 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. The sum of percentages over the four-year period must not exceed a total of 40 percent in each power category. 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.

(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<sub>x</sub> is 1.1.

(ii) The temporary compliance adjustment factor for PM is 1.5.

(iii) The adjusted FEL (FEL<sub>adj</sub>) for calculating emission credits is determined from the steady-state FEL (FEL<sub>ss</sub>) using the following equation:  
FEL<sub>adj</sub> = (FEL<sub>ss</sub>) × (TCAF)

(iv) The unadjusted FEL (FEL<sub>ss</sub>) 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 <sub>x</sub> FEL cap, g/kW-hr	Model years for the alternate NO <sub>x</sub> FEL cap
19 ≤ kW < 56 .....	0.30	<sup>1</sup> 2012–2015	.....	.....
56 ≤ kW < 130 <sup>2</sup> .....	0.30	<sup>3</sup> 2012–2015	3.8	<sup>3</sup> 2014–2015
130 ≤ kW ≤ 560 .....	0.20	2011–2014	3.8	2014

TABLE 1 OF § 1039.104.—ALTERNATE FEL CAPS—Continued

Maximum engine power	PM FEL cap, g/kW-hr	Model years for the alternate PM FEL cap	NO <sub>x</sub> FEL cap, g/kW-hr	Model years for the alternate NO <sub>x</sub> FEL cap
kW > 560 <sup>4</sup> .....	0.10	2015–2018	3.5	2015–2018

<sup>1</sup> For manufacturers certifying engines under Option #1 of Table 3 of § 1039.102, these alternate FEL caps apply for model years from 2013 through 2016.

<sup>2</sup> 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<sub>x</sub> emissions.

<sup>3</sup> For engines certified under the provisions of § 1039.102(d)(2) or (e)(1)(ii), the alternate NO<sub>x</sub> FEL cap in the table applies only for the 2015 model year.

<sup>4</sup> For engines above 560 kW, the provision for alternate NO<sub>x</sub> FEL caps is limited to generator-set engines. For example, if you produce 1,000 generator-set engines above 560 kW in 2015, up to 200 of them may be certified to the alternate NO<sub>x</sub> FEL caps.

#### § 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 must my engines meet?

Engines subject to 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, 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.

#### § 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 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 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 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 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 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.

**§ 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:

(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 maintenance instructions for the customer.

(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 3000 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 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) 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.

(d) *Noncritical emission-related maintenance.* You may schedule any amount of emission-related inspection or maintenance that is not covered by paragraph (a) of this section, as long as you 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 equipment 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 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.

#### **§ 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 consistent with the requirements of § 1039.205(u).

(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.

#### **§ 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.

(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 [MONTH and YEAR]. You may omit this from the label if you keep a record of the engine-manufacture dates and provide it to us upon request.

(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 consistent with SAE J1930 (incorporated by reference in § 1039.810). 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".

(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, 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 and the date you sent them.

#### **§ 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)).

#### **§ 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 (AECs) 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 AECs 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<sub>x</sub>, PM, and C<sub>o</sub> on an emission-data engine to show your engines meet the applicable duty-cycle emission standards we specify in § 1039.101. Show emission data figures before and after applying adjustment factors for regeneration and deterioration factors for each engine.

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 all test results, including those from invalid tests or from any other tests, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO<sub>2</sub>, 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.

(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 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 estimates of U.S.-directed production volumes.

(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.

#### **§ 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. 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.

#### **§ 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 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. We will disapprove your request if we determine that the amended instructions are inconsistent with maintenance you performed on emission-data engines.

(a) If you are decreasing 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. 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.

#### **§ 1039.225 How do I amend my application for certification to include new or modified engines?**

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 either of the following actions:

(1) Add an engine (that is, an additional engine configuration) to an engine family. In this case, the engine added must be consistent with other engines in the engine family with respect to the criteria listed in § 1039.230.

(2) Change an engine 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 with respect to showing compliance of the amended family 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 nonroad engine, include new test data showing that the new or modified nonroad engine 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 nonroad 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 nonroad engine 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 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, you must stop producing the new or modified nonroad engines.

**§ 1039.230 How do I select engine families?**

(a) Divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life. 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) Number of cylinders (for engines with aftertreatment devices only).
- (8) Cylinder arrangement (for engines with aftertreatment devices only).
- (9) Method of control for engine operation other than governing (*i.e.*, mechanical or electronic).
- (10) Power category.
- (11) 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) 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.

**§ 1039.235 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 § 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<sub>x</sub> and PM.

(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 § 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.

(d) 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:

(1) The engine family from the previous model year differs from the current engine family only with respect to model year.

(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.

**§ 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 applicable numerical emission standards in § 1039.101(a) and (b) or in § 1039.102(a) and (b) if all emission-data engines representing that family have test results showing deteriorated emission levels at or below these standards. (**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 engine representing that family has test results showing a deteriorated emission level above an applicable FEL or emission standard from § 1039.101 for any pollutant.

(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 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 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<sub>x</sub>+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:

$$\text{NMHC} = (0.98) \times (\text{THC}).$$

**§ 1039.245 How do I determine deterioration factors from exhaust durability testing?**

Establish deterioration factors to determine whether your engines will meet emission standards for each pollutant throughout the useful life, as described in §§ 1039.101 and 1039.240. This section describes how to determine deterioration factors, either with an engineering analysis, with pre-existing test data, or with new emission measurements. If you are required to perform durability testing, see § 1039.125 for limitations on the maintenance that you may perform on your emission-data engine.

(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<sub>x</sub>+NMHC standard or FEL greater than the Tier 3 NO<sub>x</sub>+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.

**§ 1039.250 What records must I keep and what reports must I send to EPA?**

(a) Within 30 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 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 engine maintenance instructions or explanations if we ask for them.

#### **§ 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 Act. Our decision may be based on a review of all information available to us. 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 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 § 1039.820).

#### **§ 1039.260 What provisions apply to engines that are conditionally exempted from certification?**

As specified elsewhere in this part or in 40 CFR part 1068, you may in some cases introduce engines into commerce that are exempt from the requirement to certify engines to the otherwise applicable standards. If we specify alternate standards as a condition of the exemption, all the following provisions apply:

(a) Your engines must meet the alternate standards we specify in the exemption section, and all other requirements applicable to engines that are subject to such standards.

(b) You need not apply for and receive a certificate for the exempt engines. However, you must comply with all the requirements and obligations that would apply to the engines if you had received a certificate of conformity for them, unless we specifically waive certain requirements.

(c) You must have emission data from testing engines using the appropriate procedures that demonstrate compliance with the alternate standards, unless the engines are identical in all material respects to engines that you have previously certified to standards that are the same as, or more stringent than, the alternate standards.

(d) Unless we specify otherwise elsewhere in this part or in 40 CFR part

1068, you must meet the labeling requirements in § 1039.135, with the following exceptions:

(1) Instead of the engine family designation specified in § 1039.135(c)(3), use a modified designation to identify the group of engines that would otherwise be included in the same engine family.

(2) Instead of the compliance statement in § 1039.135(c)(12), add the following statement: "THIS ENGINE MEETS U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1039.260."

(e) You may not generate ABT credits with engines meeting requirements under the provisions of this section.

(f) Keep records to show that you meet the alternate standards, as follows:

(1) If your exempted engines are identical to previously certified engines, keep your most recent application for certification for the certified engine family.

(2) If you previously certified a similar engine family, but have modified the exempted engine in a way that changes it from its previously certified configuration, keep your most recent application for certification for the certified engine family, a description of the relevant changes, and any test data or engineering evaluations that support your conclusions.

(3) If you have not previously certified a similar engine family, keep all the records we specify for the application for certification and the additional records we specify in § 1039.250(b)(3).

(g) We may require you to send us an annual report of the engines you produce under this section.

#### **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 § 1039.101(a) and (b). Measure the emissions of all the pollutants we regulate in § 1039.101 as specified in 40 CFR part 1065. Note that we do not allow partial-flow sampling for measuring PM emissions on a

laboratory dynamometer for transient testing. 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 § 1039.101(e).

(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.

#### **§ 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. In these cases, you must use the duty cycle you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will use the duty cycles you select for your own testing. We may also perform other testing as allowed by the Clean Air Act.

(a) You may perform steady-state testing with either discrete-mode or ramped-modal cycles, as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. Calculate cycle statistics for the sequence of modes and compare with the specified values in 40 CFR part 1065 to confirm that the test is valid. Operate the engine and sampling system as follows:

(i) *Engines with NO<sub>x</sub> aftertreatment.* For engines that depend on aftertreatment to meet the NO<sub>x</sub> emission standard, operate the engine for 5–6 minutes, then sample emissions for 1–3 minutes in each mode. You may extend the sampling time to improve measurement accuracy of PM emissions, using good engineering judgment. If you have a longer sampling time for PM emissions, calculate and validate cycle statistics separately for the gaseous and PM sampling periods.

(ii) *Engines without NO<sub>x</sub> aftertreatment.* For other engines, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute in each mode. Calculate cycle statistics for the sequence of modes and compare with the specified values in 40 CFR part 1065 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.

(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 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 Appendix III 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 Appendix IV of this part for variable-speed engines at or above 19 kW.

(c) During idle mode, operate the engine with the following parameters:

(1) Hold the speed within your specifications.

(2) Set the engine to operate at its minimum fueling rate.

(3) Keep engine torque under 5 percent of maximum test torque.

(d) For full-load operating modes, operate the engine at its maximum fueling rate. However, 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.

(e) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.

(f) For those cases where transient testing is not necessary, perform the steady-state test according to this section after an appropriate warm-up period, consistent with 40 CFR part 1065, subpart F.

#### **§ 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. Start sampling emissions immediately after you start the engine. Calculate the official transient emission result from the following equation:

Official transient emission result = 0.05 × cold-start emission rate + 0.95 × hot-start emission rate.

(c) Cool the engine down between tests as described in 40 CFR 86.1335–90.

(d) For validating cycle statistics, you may delete from your regression analysis speed, torque, and power points for the first 23 seconds and the last 25 seconds of the transient duty cycle.

#### **§ 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.

(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:

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

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

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

### **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 already 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. 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 the engine has been properly labeled as specified in paragraph (d)(5) of this section and you do not make any of the changes described in paragraph (d)(2) 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 paragraph (c) 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 § 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 85 or 40 CFR 1068.505.

(d) *Specific requirements.* If you are an engine 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 model's total sales for the model year, from all companies, are used in nonroad applications, 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 models you expect to produce under this exemption in the coming year.

(iii) State: "We produce each listed engine 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.

#### **§ 1039.610 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 nonroad engines or equipment 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 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 an engine manufacturer, you may produce nonroad equipment from motor vehicles under this section as long as the equipment has the labels specified in paragraph (d)(5) of this section and you do not make any of the changes described in paragraph (d)(2) 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 § 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 total sales as a motor vehicle or a piece of nonroad equipment, from all companies, are used in nonroad applications, 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.

(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 1039.610.”.

(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.

#### § 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.

(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 § 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 at least as stringent as the following:

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

(2) If you are using the provisions of paragraph (a)(2) of this section, engines must be 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
(ii) 56 ≤ kW < 130 .....	2012
(iii) 130 ≤ kW ≤ 560 .....	2011
(iv) kW > 560 .....	2011

(3) In all other cases, engines at or above 37 kW and at or below 560 kW must meet the appropriate Tier 3 standards described in § 89.112. Engines below 37 kW and engines above 560 kW must meet the appropriate Tier 2 standards described in § 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) The name, e-mail address, and phone number of a person to contact for further 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 January 1 of the first year you intend to use the provisions of this section, send the Designated Compliance Officer and the Designated Enforcement 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) Whom 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 the company that produces the engines you will be using for the equipment exempted 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 and the Designated Enforcement Officer a written report by March 31 of the following year. Include in your report the total number of engines you sold in the preceding year for each power category, based on actual U.S.-directed production information. Also identify 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.

(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). For engines produced under the provisions of paragraph (a)(2) of this section, you must certify the engines under this part 1039. For all other exempt engines, the engines must meet the emission standards in paragraph (e) of this section and you must meet all the requirements of § 1039.260. If you show under § 1039.260(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, but add the following statement instead of the compliance statement in 40 CFR 89.110(b)(10):

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.

(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)(1) of this section for 19–560 kW power categories or, if you are a small equipment manufacturer, under paragraph (b)(2) of this section for engines at or above 19 and below 37 kW. 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. After considering the circumstances, we may permit you to introduce into 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 and the Designated Enforcement 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) The additional allowances will not exceed 70 percent for each power category.

(ii) You must use up the allowances under paragraph (b)(1) of this section before using any additional allowance under this paragraph (m).

(iii) Any allowances we approve under this paragraph (m)(3) expire 24 months after the provisions of this section start for a given power category, as described in paragraph (a) of this section. You may use these allowances

only for the specific equipment models covered by your request.

(4) We may approve your request to increase the allowances for the 19–56 kW power category 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 are a small equipment manufacturer and you do not use the provisions of paragraph (m)(3) of this section to obtain additional allowances for the 19–56 kW power category.

(ii) You must use up all the available allowances for the 19–56 kW power category under paragraph (b)(2) of this section in a given year before using any additional allowances under this paragraph (m)(4).

(iii) Base your request only on equipment you produce with engines at or above 19 kW and below 37 kW. You may use any additional allowances only for equipment you produce with engines at or above 19 kW and below 37 kW.

(iv) The total allowances under either paragraph (b)(2)(i) or (ii) of this section for the 19–56 kW power category will not exceed 1,100 units.

(v) Any allowances we approve under this paragraph (m)(4) expire 36 months after the provisions of this section start for this power category, as described in paragraph (a) of this section. These additional allowances are not subject to the annual limits specified in paragraph (b)(2) of this section. You may use these allowances only for the specific equipment models covered by your request.

(5) For purposes of this paragraph (m), *small equipment manufacturer* means a small-business equipment manufacturer that had annual U.S.-directed production volume of equipment using nonroad diesel engines between 19 and 56 kW of no more than 3,000 units in 2002 and all earlier calendar years, and has 750 or fewer employees (500 or fewer employees for nonroad equipment manufacturers that produce no construction equipment or industrial trucks). 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.

**§ 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 of process located in the District of Columbia. 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 the Designated Enforcement Officer to approve a waiver from the bonding requirement, as long as you can show that you have assets of an appropriate liquidity and value readily available in the United States.

(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 paragraph (a)(9) if you need to satisfy any United States administrative final order or judicial judgment against you arising from your conduct in violation of 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.

(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 January 1 of the first year you intend to use the provisions of this section, send the Designated Compliance Officer and the Designated Enforcement 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 and the Designated Enforcement 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.

**§ 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.
(ii) 56 ≤ kW < 130 .....	Two engines .....	NO <sub>x</sub> standards in § 1039.102(d)(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 <sub>x</sub> standards in § 1039.102(d)(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.

**§ 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 <sup>1</sup>	Observed torque <sup>2</sup>	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

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> 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 <sup>1</sup>	Torque (percent) <sup>2,3</sup>
1a Steady-state .....	290	Intermediate Speed .....	75.
1b Transition .....	20	Intermediate Speed .....	Linear Transition.
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

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> The percent torque is relative to the maximum torque at the commanded engine speed.

<sup>3</sup> 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.

#### § 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 § 1039.260.

(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.

#### § 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.

#### 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<sub>x</sub>, NO<sub>x</sub>+NMHC, or PM.

(a) Calculate positive emission credits for an engine family that has an FEL below the otherwise applicable standard. Calculate negative emission credits for an engine family that has an FEL above the otherwise applicable standard.

(b) For each participating engine family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Round calculated 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) [Reserved]

(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.

#### **§ 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 averaging or trading in future model years. You may use banked emission credits only within the averaging set in which they were generated.

(b) In your application for certification, designate any emission credits you intend to bank. These emission credits will be considered reserved credits. During the model year and before the due date for the final report, you may redesignate these emission credits for averaging or trading.

(c) You may use banked emission credits from the previous model year for averaging or trading before we verify them, but we may revoke these emission credits if we are unable to verify them after reviewing your reports or auditing your records.

(d) Reserved credits become actual emission credits only when we verify them in reviewing your final report.

#### **§ 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.

(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.

#### **§ 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. If your engine family will generate positive emission credits, state specifically where the emission credits will be applied (for example, to which engine family they will be applied in averaging, whether they will be traded, or whether they will be reserved for banking). If you have projected negative emission credits for an engine family, state the source of positive emission credits to offset the negative emission credits. Describe whether the emission credits are actual or reserved and whether they will come from averaging, banking, trading, or a combination of these. Identify from which of your engine families or from which manufacturer the emission credits will come.

#### **§ 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 changed an FEL during the model year, identify each FEL you used and calculate the positive or negative emission credits under each FEL. Also, describe how the applicable FEL can be identified for each engine you produced. For example, you might keep a list of engine identification numbers that correspond with certain FEL values.

(4) The projected and actual production volumes for the model year with a point of retail sale in the United States. 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 sales-weighted average engine power 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 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 decrease 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 increase your balance of emission credits, you must correct the errors and recalculate the balance of emission credits.

**§ 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 eight years after the due date for the end-of-year report. You may use any appropriate storage formats or media, including paper, microfilm, or computer diskettes.

(c) Keep a copy of the reports we require in § 1039.725 and § 1039.730.

(d) Keep the following additional records for each engine you produce that generates or uses emission credits under the ABT program:

- (1) Engine family designation.
- (2) Engine identification number.
- (3) FEL and useful life.
- (4) Maximum engine power.
- (5) Build date and assembly plant.
- (6) Purchaser and destination.

(e) We may require you to keep additional records or to send us relevant information not required by this section.

**§ 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.

(c) *NO<sub>x</sub> and NO<sub>x</sub>+NMHC emission credits.* You may use NO<sub>x</sub> emission credits without adjustment to show compliance with NO<sub>x</sub>+NMHC standards. You may use NO<sub>x</sub>+NMHC

emission credits to show compliance with NO<sub>x</sub> standards, but you must adjust the NO<sub>x</sub>+NMHC emission credits downward by twenty percent when you use them, as shown in the following equation:

$$\text{NO}_x \text{ emission credits} = (0.8) \times (\text{NO}_x + \text{NMHC emission credits}).$$

(d) *Other restrictions.* Other sections of this part specify additional restrictions for using emission credits under certain special provisions.

**§ 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 reduce emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR) is not aftertreatment.

*Aircraft* means any vehicle capable of sustained air travel above treetop heights.

*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, heat, or cool 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 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* means engine operation with a governor that controls engine speed to a reference speed. There are two kinds of constant-speed governors. An isochronous governor changes reference speed temporarily during a load change, then returns it to the original reference speed after the engine stabilizes. Isochronous governors typically allow speed changes up to 1.0 percent. A speed-droop governor has a fixed reference speed at zero load and allows the reference speed to decrease as load increases. With speed-droop governors, speed typically decreases 3 to 10 percent below the reference speed at zero load, such that the minimum reference speed occurs near the engine's point of maximum power.

*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.

*Designated Compliance Officer* means the Manager, Engine Programs 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 § 1039.505.

*Emission-control system* means any device, system, or element of design that controls or reduces the regulated emissions 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.

*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* means relating to an engine that is not required to meet otherwise applicable standards. Exempted engines must conform to regulatory conditions specified for an exemption in this part 1039 or in 40 CFR part 1068. Exempted engines are deemed to be “subject to” the standards of this part, even though they are not required to comply with the otherwise applicable requirements. Engines exempted with respect to a certain tier of standards may be required to comply with an earlier tier of standards as a condition of the exemption; for example, engines exempted with respect to Tier 4 standards may be required to comply with Tier 3 standards.

*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* means judgments made consistent with generally accepted scientific and engineering principles and all available relevant information. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

*High-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 we give in 40 CFR 1065.515.

*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 someone installs or intends to install on a marine vessel. This does

not include portable auxiliary engines for which the fueling, cooling and exhaust systems are not integral parts 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, which generally includes all nonroad equipment 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 1065.515.

*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 motor-vehicle engine or a stationary engine, model year means the calendar year in which the engine was originally produced (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.

*Motor vehicle* has the meaning we give in 40 CFR 85.1703(a). In general, *motor vehicle* means any vehicle that EPA deems to be capable of safe and practical use on streets or highways.

*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 becomes new when it is fully assembled for the first time. The engine is no longer new when 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 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.

(3) A nonroad engine that has been previously placed into service in an application we exclude under § 1039.5, where 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 a marine diesel 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 new nonroad 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. This generally includes installation of used engines in new equipment.

(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 nonroad 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), becomes new 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 new nonroad engine (or equipment containing such an engine) is generally prohibited by 40 CFR part 1068.

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 hydrocarbon* 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 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.

*Oxides of nitrogen* has the meaning we give in 40 CFR part 1065.

*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* means to terminate the certificate or an exemption for an engine family. If we revoke a certificate or exemption, you must apply for a new certificate or exemption before continuing to introduce the affected engines into commerce. This does not apply to engines you no longer possess.

*Round* means to round numbers according to NIST Special Publication 811 (incorporated by reference in § 1039.810), 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 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* 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.

*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* means to temporarily discontinue the certificate or an exemption for an engine family. If we suspend a certificate, you may not introduce into commerce engines from that engine family unless we reinstate the certificate or approve a new one. If we suspend an exemption, you may not introduce into commerce engines that were previously covered by the exemption unless we reinstate the exemption.

*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* 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* means the sum of the carbon mass contributions of non-oxygenated hydrocarbons, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled engines. The hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

*Ultimate purchaser* means, with respect to any new nonroad equipment

or new nonroad engine, the first person who in good faith purchases such new nonroad equipment or new nonroad engine for purposes other than resale.

*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* means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, Guam, American Samoa, and the U.S. Virgin Islands.

*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 new 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* means to invalidate a certificate or an exemption *ab initio*. If we void a certificate, all the engines introduced into commerce under that engine family for that model year are considered noncompliant, and you are liable for each engine introduced into commerce under the certificate and may face civil or criminal penalties or both. This applies equally to all engines in the engine family, including engines introduced into commerce before we voided the certificate. If we void an exemption, all the engines introduced into commerce under that exemption are considered uncertified (or nonconforming), and you are liable for each engine introduced into commerce under the exemption and may face civil or criminal penalties or both. You may not introduce into commerce any additional engines using the voided exemption.

*Volatil 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.

**§ 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.
- CO carbon monoxide.
- CO<sub>2</sub> carbon dioxide.
- EPA Environmental Protection Agency.
- FEL Family Emission Limit.
- g/kW-hr grams per kilowatt-hour.
- HC hydrocarbon.
- kW kilowatts.
- NIST National Institute of Standards and Technology.
- NMHC nonmethane hydrocarbons.
- NO<sub>x</sub> oxides of nitrogen (NO and NO<sub>2</sub>).
- NTE not-to-exceed
- PM particulate matter.
- rpm revolutions per minute.
- SAE Society of Automotive Engineers.
- SEA Selective enforcement audit.
- THC total hydrocarbon.
- THCE total hydrocarbon equivalent.
- TRU transportation refrigeration unit.
- U.S.C. United States Code.

**§ 1039.810 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](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

(a) *NIST material.* Table 1 of this section lists material from the National Institute of Standards and Technology 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 Government Printing Office, Washington, DC 20402 or download them from the Internet at <http://physics.nist.gov/Pubs/SP811/>. Table 1 follows:

TABLE 1 OF § 1039.810.—NIST MATERIALS

Document number and name	Part 1039 reference
NIST Special Publication 811, Guide for the Use of the International System of Units (SI), 1995 Edition .....	1039.801

(b) *SAE material.* Table 2 of this section lists material from the Society of Automotive Engineering that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096. Table 2 follows:

TABLE 2 OF § 1039.810.—SAE MATERIALS

Document number and name	Part 1039 reference
SAE J1930, Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms, revised May 1998 .....	1039.135

**§ 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.

**Appendix I to Part 1039—[Reserved]**

**Appendix II to Part 1039—Steady-State Duty Cycles for Constant-Speed Engines**

(a) The following duty cycle applies for discrete-mode testing of constant-speed engines:

D2 mode number	Engine speed <sup>1</sup>	Torque (percent) <sup>2</sup>	Weighting factors
1 .....	Maximum test speed .....	100	0.05
2 .....	Maximum test speed .....	75	0.25
3 .....	Maximum test speed .....	50	0.30
4 .....	Maximum test speed .....	25	0.30
5 .....	Maximum test speed .....	10	0.10

<sup>1</sup> Maximum test speed is defined in 40 CFR part 1065.

<sup>2</sup> Except as noted in § 1039.505, the percent torque is relative to maximum test torque.

(b) The following duty cycle applies for ramped-modal testing of constant-speed engines:

RMC mode	Time in mode (seconds)	Engine speed	Torque (percent) <sup>1 2</sup>
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.

<sup>1</sup> The percent torque is relative to maximum test torque.

<sup>2</sup> 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.

**Appendix III to Part 1039—Steady-State Duty Cycles for Variable-Speed Engines With Maximum Power Below 19 kW**

(a) The following duty cycle applies for discrete-mode testing of variable-speed engines with maximum power below 19 kW:

G2 mode number	Engine speed <sup>1</sup>	Observed torque (percent) <sup>2</sup>	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 .....	Idle .....	0	0.05

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> The percent torque is relative to the maximum torque at the commanded test speed.

(b) The following duty cycle applies for ramped-modal testing of variable-speed engines with maximum power below 19 kW:

RMC mode	Time in mode (seconds)	Engine speed <sup>1 3</sup>	Torque (percent) <sup>2 3</sup>
1a Steady-state .....	41	Warm Idle .....	0.
1b Transition .....	20	Linear transition .....	Linear transition.
2a Steady-state .....	135	Maximum Test Speed .....	100.
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.

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> The percent torque is relative to the maximum torque at the commanded engine speed.

<sup>3</sup> 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.

**Appendix IV to Part 1039—Steady-State Duty Cycles for Variable-Speed Engines With Maximum Power at or Above 19 kW**

(a) The following duty cycle applies for discrete-mode testing of variable-speed

engines with maximum power at or above 19 kW:

C1 mode number	Engine speed <sup>1</sup>	Observed torque (percent) <sup>2</sup>	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	Idle	0	0.15

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> The percent torque is relative to the maximum torque at the commanded test speed.

(b) The following duty cycle applies for engines with maximum power at or above 19 kW:  
ramped-modal testing of variable-speed

RMC Mode	Time in mode (seconds)	Engine speed <sup>1 3</sup>	Torque (percent) <sup>2 3</sup>
1a Steady-state	126	Warm Idle	0.
1b Transition	20	Linear Transition <sup>2</sup>	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.

<sup>1</sup> Speed terms are defined in 40 CFR part 1065.

<sup>2</sup> The percent torque is relative to the maximum torque at the commanded engine speed.

<sup>3</sup> 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.

**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)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
20	0	0	44	105	47
21	0	0	45	98	70
22	0	0	46	104	36
23	0	0	47	104	65
24	1	3	48	96	71
25	1	3	49	101	62
26	1	3	50	102	51
27	1	3	51	102	50
28	1	3	52	102	46
29	1	3	53	102	41
30	1	6	54	102	31
31	1	6	55	89	2
32	2	1	56	82	0
33	4	13	57	47	1
34	7	18	58	23	1
35	9	21	59	1	3
36	17	20	60	1	8
37	33	42	61	1	3
38	57	46	62	1	5
39	44	33	63	1	6
40	31	0	64	1	4
41	22	27	65	1	4
42	33	43	66	0	6
43	80	49	67	1	4

Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
68	9	21	140	104	44	212	18	29
69	25	56	141	103	44	213	14	51
70	64	26	142	104	33	214	13	11
71	60	31	143	102	27	215	12	9
72	63	20	144	103	26	216	15	33
73	62	24	145	79	53	217	20	25
74	64	8	146	51	37	218	25	17
75	58	44	147	24	23	219	31	29
76	65	10	148	13	33	220	36	66
77	65	12	149	19	55	221	66	40
78	68	23	150	45	30	222	50	13
79	69	30	151	34	7	223	16	24
80	71	30	152	14	4	224	26	50
81	74	15	153	8	16	225	64	23
82	71	23	154	15	6	226	81	20
83	73	20	155	39	47	227	83	11
84	73	21	156	39	4	228	79	23
85	73	19	157	35	26	229	76	31
86	70	33	158	27	38	230	68	24
87	70	34	159	43	40	231	59	33
88	65	47	160	14	23	232	59	3
89	66	47	161	10	10	233	25	7
90	64	53	162	15	33	234	21	10
91	65	45	163	35	72	235	20	19
92	66	38	164	60	39	236	4	10
93	67	49	165	55	31	237	5	7
94	69	39	166	47	30	238	4	5
95	69	39	167	16	7	239	4	6
96	66	42	168	0	6	240	4	6
97	71	29	169	0	8	241	4	5
98	75	29	170	0	8	242	7	5
99	72	23	171	0	2	243	16	28
100	74	22	172	2	17	244	28	25
101	75	24	173	10	28	245	52	53
102	73	30	174	28	31	246	50	8
103	74	24	175	33	30	247	26	40
104	77	6	176	36	0	248	48	29
105	76	12	177	19	10	249	54	39
106	74	39	178	1	18	250	60	42
107	72	30	179	0	16	251	48	18
108	75	22	180	1	3	252	54	51
109	78	64	181	1	4	253	88	90
110	102	34	182	1	5	254	103	84
111	103	28	183	1	6	255	103	85
112	103	28	184	1	5	256	102	84
113	103	19	185	1	3	257	58	66
114	103	32	186	1	4	258	64	97
115	104	25	187	1	4	259	56	80
116	103	38	188	1	6	260	51	67
117	103	39	189	8	18	261	52	96
118	103	34	190	20	51	262	63	62
119	102	44	191	49	19	263	71	6
120	103	38	192	41	13	264	33	16
121	102	43	193	31	16	265	47	45
122	103	34	194	28	21	266	43	56
123	102	41	195	21	17	267	42	27
124	103	44	196	31	21	268	42	64
125	103	37	197	21	8	269	75	74
126	103	27	198	0	14	270	68	96
127	104	13	199	0	12	271	86	61
128	104	30	200	3	8	272	66	0
129	104	19	201	3	22	273	37	0
130	103	28	202	12	20	274	45	37
131	104	40	203	14	20	275	68	96
132	104	32	204	16	17	276	80	97
133	101	63	205	20	18	277	92	96
134	102	54	206	27	34	278	90	97
135	102	52	207	32	33	279	82	96
136	102	51	208	41	31	280	94	81
137	103	40	209	43	31	281	90	85
138	104	34	210	37	33	282	96	65
139	102	36	211	26	18	283	70	96



Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
284	55	95	356	72	49	428	76	57
285	70	96	357	56	27	429	76	72
286	79	96	358	29	0	430	85	72
287	81	71	359	18	13	431	84	60
288	71	60	360	25	11	432	83	72
289	92	65	361	28	24	433	83	72
290	82	63	362	34	53	434	86	72
291	61	47	363	65	83	435	89	72
292	52	37	364	80	44	436	86	72
293	24	0	365	77	46	437	87	72
294	20	7	366	76	50	438	88	72
295	39	48	367	45	52	439	88	71
296	39	54	368	61	98	440	87	72
297	63	58	369	61	69	441	85	71
298	53	31	370	63	49	442	88	72
299	51	24	371	32	0	443	88	72
300	48	40	372	10	8	444	84	72
301	39	0	373	17	7	445	83	73
302	35	18	374	16	13	446	77	73
303	36	16	375	11	6	447	74	73
304	29	17	376	9	5	448	76	72
305	28	21	377	9	12	449	46	77
306	31	15	378	12	46	450	78	62
307	31	10	379	15	30	451	79	35
308	43	19	380	26	28	452	82	38
309	49	63	381	13	9	453	81	41
310	78	61	382	16	21	454	79	37
311	78	46	383	24	4	455	78	35
312	66	65	384	36	43	456	78	38
313	78	97	385	65	85	457	78	46
314	84	63	386	78	66	458	75	49
315	57	26	387	63	39	459	73	50
316	36	22	388	32	34	460	79	58
317	20	34	389	46	55	461	79	71
318	19	8	390	47	42	462	83	44
319	9	10	391	42	39	463	53	48
320	5	5	392	27	0	464	40	48
321	7	11	393	14	5	465	51	75
322	15	15	394	14	14	466	75	72
323	12	9	395	24	54	467	89	67
324	13	27	396	60	90	468	93	60
325	15	28	397	53	66	469	89	73
326	16	28	398	70	48	470	86	73
327	16	31	399	77	93	471	81	73
328	15	20	400	79	67	472	78	73
329	17	0	401	46	65	473	78	73
330	20	34	402	69	98	474	76	73
331	21	25	403	80	97	475	79	73
332	20	0	404	74	97	476	82	73
333	23	25	405	75	98	477	86	73
334	30	58	406	56	61	478	88	72
335	63	96	407	42	0	479	92	71
336	83	60	408	36	32	480	97	54
337	61	0	409	34	43	481	73	43
338	26	0	410	68	83	482	36	64
339	29	44	411	102	48	483	63	31
340	68	97	412	62	0	484	78	1
341	80	97	413	41	39	485	69	27
342	88	97	414	71	86	486	67	28
343	99	88	415	91	52	487	72	9
344	102	86	416	89	55	488	71	9
345	100	82	417	89	56	489	78	36
346	74	79	418	88	58	490	81	56
347	57	79	419	78	69	491	75	53
348	76	97	420	98	39	492	60	45
349	84	97	421	64	61	493	50	37
350	86	97	422	90	34	494	66	41
351	81	98	423	88	38	495	51	61
352	83	83	424	97	62	496	68	47
353	65	96	425	100	53	497	29	42
354	93	72	426	81	58	498	24	73
355	63	60	427	74	51	499	64	71

Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
500	90	71	572	83	57	644	79	72
501	100	61	573	86	52	645	78	70
502	94	73	574	85	51	646	80	70
503	84	73	575	70	39	647	82	71
504	79	73	576	50	5	648	84	71
505	75	72	577	38	36	649	83	71
506	78	73	578	30	71	650	83	73
507	80	73	579	75	53	651	81	70
508	81	73	580	84	40	652	80	71
509	81	73	581	85	42	653	78	71
510	83	73	582	86	49	654	76	70
511	85	73	583	86	57	655	76	70
512	84	73	584	89	68	656	76	71
513	85	73	585	99	61	657	79	71
514	86	73	586	77	29	658	78	71
515	85	73	587	81	72	659	81	70
516	85	73	588	89	69	660	83	72
517	85	72	589	49	56	661	84	71
518	85	73	590	79	70	662	86	71
519	83	73	591	104	59	663	87	71
520	79	73	592	103	54	664	92	72
521	78	73	593	102	56	665	91	72
522	81	73	594	102	56	666	90	71
523	82	72	595	103	61	667	90	71
524	94	56	596	102	64	668	91	71
525	66	48	597	103	60	669	90	70
526	35	71	598	93	72	670	90	72
527	51	44	599	86	73	671	91	71
528	60	23	600	76	73	672	90	71
529	64	10	601	59	49	673	90	71
530	63	14	602	46	22	674	92	72
531	70	37	603	40	65	675	93	69
532	76	45	604	72	31	676	90	70
533	78	18	605	72	27	677	93	72
534	76	51	606	67	44	678	91	70
535	75	33	607	68	37	679	89	71
536	81	17	608	67	42	680	91	71
537	76	45	609	68	50	681	90	71
538	76	30	610	77	43	682	90	71
539	80	14	611	58	4	683	92	71
540	71	18	612	22	37	684	91	71
541	71	14	613	57	69	685	93	71
542	71	11	614	68	38	686	93	68
543	65	2	615	73	2	687	98	68
544	31	26	616	40	14	688	98	67
545	24	72	617	42	38	689	100	69
546	64	70	618	64	69	690	99	68
547	77	62	619	64	74	691	100	71
548	80	68	620	67	73	692	99	68
549	83	53	621	65	73	693	100	69
550	83	50	622	68	73	694	102	72
551	83	50	623	65	49	695	101	69
552	85	43	624	81	0	696	100	69
553	86	45	625	37	25	697	102	71
554	89	35	626	24	69	698	102	71
555	82	61	627	68	71	699	102	69
556	87	50	628	70	71	700	102	71
557	85	55	629	76	70	701	102	68
558	89	49	630	71	72	702	100	69
559	87	70	631	73	69	703	102	70
560	91	39	632	76	70	704	102	68
561	72	3	633	77	72	705	102	70
562	43	25	634	77	72	706	102	72
563	30	60	635	77	72	707	102	68
564	40	45	636	77	70	708	102	69
565	37	32	637	76	71	709	100	68
566	37	32	638	76	71	710	102	71
567	43	70	639	77	71	711	101	64
568	70	54	640	77	71	712	102	69
569	77	47	641	78	70	713	102	69
570	79	66	642	77	70	714	101	69
571	85	53	643	77	71	715	102	64