

section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after April 3, 2007, a comment to OMB is best assured of having its full effect if OMB receives it by May 3, 2007. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

(1) Certification

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this action on small entities, small

entity is defined as: (1) A small business that meets the default definition for small business (based on SBA size standards), as described in Table IX-1; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. The following table provides an overview of the primary SBA small business categories potentially affected by this regulation.

TABLE IX-1.—PRIMARY SBA SMALL BUSINESS CATEGORIES POTENTIALLY AFFECTED BY THIS REGULATION

Industry	NAICS ^a Codes	Defined by SBA as a small business if less than or equal to: ^b
<i>Locomotive:</i>		
Manufacturers, remanufacturers and importers of locomotives and locomotive engines.	333618, 336510	1,000 employees.
Railroad owners and operators	482110, 482111, 482112	1,500 employees. 500 employees.
Engine repair and maintenance	488210	\$6.5 million annual sales.
<i>Marine:</i>		
Manufacturers of new marine diesel engines	333618	1,000 employees.
Ship and boat building; ship building and repairing	336611, 346611	1,000 employees.
Engine repair and maintenance	811310	\$6.5 million annual sales.
Water transportation, freight and passenger	483	500 employees.
Boat building (watercraft not built in shipyards and typically of the type suitable or intended for personal use).	336612	500 employees.

Notes:

^aNorth American Industry Classification System.

^bAccording to SBA's regulations (13 CFR 121), businesses with no more than the listed number of employees or dollars in annual receipts are considered "small entities" for RFA purposes.

The proposed regulations would apply to the business sectors shown in Table IX-1 and not to small governmental jurisdictions or small non-profit organizations.

After considering the economic impacts of this proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. (Our analysis of the impacts of the proposal on small entities can be found in the docket for this rulemaking.¹⁶⁵) We have determined that about six small entities representing less than one percent of the total number of companies affected will have an estimated impact exceeding one percent of their annual sales revenues. About four of these small companies will have an estimated impact exceeding three percent of their annual sales revenues.

¹⁶⁵ U.S. EPA, Assessment and Standards Division, Memorandum from Chester J. France to Alexander Cristofaro of U.S. EPA's Office of Policy, Economics, and Innovation, Locomotive and Marine Diesel RFA/SBREFA Screening Analysis, September 25, 2006.

Although this proposed rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities, as described in section IX.C.(2) below.

We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

(2) Outreach Efforts and Special Compliance Provisions for Small Entities

We sought the input of a number of small entities, which would be affected by the proposed rule, on potential regulatory flexibility provisions and the needs of small businesses. For marine diesel engine manufacturers, we had separate meetings with the four small companies in this sector, which are post-manufacture marinizers (companies that purchase a complete or semi-complete engine from an engine manufacturer and modify it for use in the marine environment by changing the

engine in ways that may affect emissions). We also met individually with one small commercial vessel builder and a few vessel trade associations whose members include small vessel builders. For locomotive manufacturers and remanufacturers, we met separately with the three small businesses in these sectors, which are remanufacturers. In addition, we met with a railroad trade association whose members include small railroads. For nearly all meetings, EPA provided each small business with an outreach packet that included background information on this proposed rulemaking; and a document outlining some flexibility provisions for small businesses that we have implemented in past rulemakings. (This outreach packet and a complete summary of our discussions with small entities can be found in the docket for this rulemaking.)¹⁶⁶

¹⁶⁶ U.S. EPA, Summary of Small Business Outreach for Locomotive and Marine Diesel NPRM, Memorandum to Docket EPA-HQ-OAR-2003-0190 from Bryan Manning, January 18, 2007.

The primary feedback we received from small entities was to continue the flexibility provisions that we have provided to small entities in earlier locomotive and marine diesel rulemakings; and a number of these provisions are listed below. Therefore, we propose to largely continue the existing flexibility provisions finalized in the 1998 Locomotive and Locomotive Engines Rule (April 16, 1998; 63 FR 18977); our 1999 Commercial Marine Diesel Engines Rule (December 29, 1999; 64 FR 73299) and our 2002 Recreational Diesel Marine program (November 8, 2002; 67 FR 68304). For a complete description of the flexibilities be proposed in this notice, please refer to the Certification and Compliance Program, section IV.A.(14)—Small Business Provisions.

(a) *Transition Flexibilities*

(i) *Locomotive Sector*

- Small locomotive remanufacturers would be granted a waiver from production-line and in-use testing for up to five calendar years after this proposed program becomes effective.

- Railroads qualifying as small businesses would be exempt from new Tier 0, 1, and 2 remanufacturing requirements for locomotives in their existing fleets.

- Railroads qualifying as small businesses would continue being exempt from the in-use testing program.

(ii) *Marine Sector*

- Post-manufacture marinizers and small-volume manufacturers (annual worldwide production of fewer than 1,000 engines) would be allowed to group all engines into one engine family based on the worst-case emitter.

- Small-volume manufacturers producing engines less than or equal to 800 hp (600 kW) would be exempted from production-line and deterioration testing (assigned deterioration factors) for Tier 3 standards.

- Post-manufacture marinizers qualifying as small businesses and producing engines less than or equal to 800 hp (600 kW) would be permitted to delay compliance with the Tier 3 standards by one model year.

- Post-manufacture marinizers qualifying as small businesses and producing engines less than or equal to 800 hp (600 kW) could delay compliance with the Not-to-Exceed requirements for Tier 3 standards by up to three model years.

- Marine engine dressers (modify base engine without affecting the emission characteristics of the engine) would be exempted from certification and compliance requirements.

- Post-manufacture marinizers, small-volume manufacturers, and small-

volume boat builders (less than 500 employees and annual worldwide production of fewer than 100 boats) would have hardship relief provisions—i.e., apply for additional time.

EPA invites comments on all aspects of the proposal and its impacts on the regulated small entities.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), P.L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with “Federal mandates” that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of \$100 million or more in any one year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

This rule contains no federal mandates for state, local, or tribal governments as defined by the provisions of Title II of the UMRA. The rule imposes no enforceable duties on any of these governmental entities. Nothing in the rule would significantly or uniquely affect small governments. EPA has determined that this rule contains federal mandates that may result in expenditures of more than

\$100 million to the private sector in any single year. Accordingly, EPA has evaluated under section 202 of the UMRA the potential impacts to the private sector. EPA believes that the proposal represents the least costly, most cost-effective approach to achieve the statutory requirements of the rule. The costs and benefits associated with the proposal are included in the Draft Regulatory Impact Analysis, as required by the UMRA. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments.

E. Executive Order 13132: (Federalism)

Executive Order 13132, entitled “Federalism” (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.”

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Although section 6 of Executive Order 13132 does not apply to this rule, EPA did consult with representatives of various State and local governments in developing this rule. EPA consulted with representatives from the National Association of Clean Air Agencies (NACAA, formerly STAPPA/ALAPCO), the Northeast States for Coordinated Air Use Management (NESCAUM), and the California Air Resources Board (CARB).

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed rule from State and local officials.

F. Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments)

Executive Order 13175, entitled “Consultation and Coordination with Indian Tribal Governments” (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to

ensure “meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.” This proposed rule does not have tribal implications, as specified in Executive Order 13175. The rule will be implemented at the Federal level and impose compliance costs only on manufacturers of locomotives, locomotive engines, marine engines, and marine vessels. Tribal governments will be affected only to the extent they purchase and use the regulated engines and vehicles. Thus, Executive Order 13175 does not apply to this rule.

EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

Executive Order 13045: “Protection of Children from Environmental Health Risks and Safety Risks” (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be “economically significant” as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This proposed rule is not subject to Executive Order 13045 because the Agency does not have reason to believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children. Nonetheless, we have evaluated the environmental health or safety effects of emissions from locomotive and marine diesels on children. The results of this evaluation are contained in the draft RIA for this proposed rule, which has been placed in the public docket under Docket ID number EPA-HQ-OAR-2003-0190.

The public is invited to submit or identify peer-reviewed studies and data, of which EPA may not be aware, that assessed results of early life exposure to the pollutants addressed by this rule.

H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution, or Use

Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use” (66 FR 28355 (May 22, 2001)), requires EPA to prepare and

submit a Statement of Energy Effects to the Office of Information and Regulatory Affairs, Office of Management and Budget, for certain actions identified as “significant energy actions.” This proposed rule’s potential effects on energy supply, distribution, or use have been analyzed and are discussed in detail in section 5.9 of the draft RIA. In summary, while we project that this proposed rule would result in an energy effect that exceeds the 4,000 barrel per day threshold noted in E.O. 13211 in or around the year 2026 and thereafter, the program consists of performance based standards with averaging, banking, and trading provisions that make it likely that our estimated impact is overstated. Further, the fuel consumption estimates upon which we are basing this energy effect analysis, which are discussed in full in section 5.4.3 of the draft RIA, do not reflect the potential fuel savings associated with automatic engine stop/start (AESS) systems or other idle reduction technologies. Such technologies can provide significant fuel savings which could offset our projected estimates of increased fuel consumption. Nonetheless, our projections show that the proposed rule could result in energy usage exceeding the 4,000 barrel per day threshold noted in E.O. 13211.

I. National Technology Transfer Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (“NTTAA”), Public Law No. 104-113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

The proposed rulemaking involves technical standards. Therefore, the Agency conducted a search to identify potentially applicable voluntary consensus standards. The International Organization for Standardization (ISO) has a voluntary consensus standard that can be used to test engines. However, the test procedures in this proposal reflect a level of development that goes substantially beyond the ISO or other published procedures. The proposed procedures incorporate new

specifications for transient emission measurements, measuring PM emissions at very low levels, measuring emissions using field-testing procedures. The procedures we adopt in this rule will form the working template for ISO and national and state governments to define test procedures for measuring engine emissions. As such, we have worked extensively with the representatives of other governments, testing organizations, and the affected industries.

EPA welcomes comments on this aspect of the proposed rulemaking and, specifically, invites the public to identify potentially-applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

X. Statutory Provisions and Legal Authority

Statutory authority for the controls proposed in today’s document can be found in sections 213 (which specifically authorizes controls on emissions from nonroad engines and vehicles), 203–209, 216, and 301 of the Clean Air Act (CAA), 42 U.S.C. 7547, 7522, 7523, 7424, 7525, 7541, 7542, 7543, 7550, and 7601.

List of Subjects

40 CFR Part 92

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Railroads, Reporting and recordkeeping requirements, Warranties.

40 CFR Part 94

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Vessels, Reporting and recordkeeping requirements, Warranties.

40 CFR Part 1033

Environmental protection, Administrative practice and procedure, Confidential business information, Incorporation by reference, Labeling, Penalties, Reporting and recordkeeping requirements.

40 CFR Part 1039

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Vessels, Railroads, Reporting

and recordkeeping requirements, Warranties.

40 CFR Part 1042

Environmental protection, Administrative practice and procedure, Air pollution control, Confidential business information, Imports, Incorporation by reference, Labeling, Penalties, Vessels, Reporting and recordkeeping requirements, Warranties.

40 CFR Part 1065

Confidential business information, Penalties, Research, Reporting and recordkeeping requirements.

40 CFR Part 1068

Confidential business information, Penalties, Reporting and recordkeeping requirements, Warranties.

Dated: March 1, 2007.

Stephen L. Johnson, Administrator.

For the reasons set forth in the preamble, chapter I of title 40 of the Code of Federal Regulations is proposed to be amended as follows:

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

1. The authority citation for part 92 continues to read as follows:

Authority: 42 U.S.C. 7401—7671q.

2. Section 92.1 is amended by revising paragraph (a) introductory text and adding paragraph (e) to read as follows:

§ 92.1 Applicability.

(a) Except as noted in paragraphs (b), (d) and (e) of this section, the provisions of this part apply to manufacturers, remanufacturers, owners and operators of:

* * * * *

(e) The provisions of this part do not apply for locomotives that are subject to the emissions standards of 40 CFR part 1033.

3. Section 92.12 is amended by revising paragraph (b) and adding paragraphs (i) and (j) to read as follows:

§ 92.12 Interim provisions.

* * * * *

(b) Production line and in-use testing. (1) The requirements of Subpart F of this part (i.e., production line testing) do not apply prior to January 1, 2002.

(2) The requirements of Subpart F of this part (i.e., production line testing) do not apply to small remanufacturers prior to January 1, 2013.

(3) The requirements of Subpart G of this part (i.e., in-use testing) only apply

for locomotives and locomotive engines that become new on or after January 1, 2002.

(4) For locomotives and locomotive engines that are covered by a small business certificate of conformity, the requirements of Subpart G of this part (i.e., in-use testing) only apply for locomotives and locomotive engines that become new on or after January 1, 2007. We will also not require small remanufacturers to perform any in-use testing prior to January 1, 2013.

* * * * *

(i) Diesel test fuels. Manufacturers and remanufacturers may use LSD or ULSD test fuel to certify to the standards of this part, instead of the otherwise specified test fuel, provided PM emissions are corrected as described in this paragraph (i). Measure your PM emissions and determine your cycle-weighted emission rates as specified in subpart B of this part. If you test using LSD or ULSD, add 0.07 g/bhp-hr to these weighted emission rates to determine your official emission result.

(j) Subchapter U provisions. For model years 2008 through 2012, certain locomotives will be subject to the requirements of this part 92 while others will be subject to the requirements of 40 CFR subchapter U. This paragraph (j) describes allowances for manufacturers or remanufacturers to ask for flexibility in transitioning to the new regulations.

(1) You may ask to use a combination of the test procedures of this part and those of 40 CFR part 1033. We will approve your request only if you show us that it does not affect your ability to show compliance with the applicable emission standards. Generally this requires that the combined procedures would result in emission measurements at least as high as those that would be measured using the procedures specified in this part. Alternatively, you may demonstrate that the combined effects of the procedures is small relative to your compliance margin (the degree to which your locomotives are below the applicable standards).

(2) You may ask to comply with the administrative requirements of 40 CFR part 1033 and 1068 instead of the equivalent requirements of this part.

4. Section 92.208 is amended by revising paragraph (a) to read as follows:

§ 92.208 Certification.

(a) This paragraph (a) applies to manufacturers of new locomotives and new locomotive engines. If, after a review of the application for certification, test reports and data acquired from a freshly manufactured locomotive or locomotive engine or

from a development data engine, and any other information required or obtained by EPA, the Administrator determines that the application is complete and that the engine family meets the requirements of the Act and this part, he/she will issue a certificate of conformity with respect to such engine family except as provided by paragraph (c)(3) of this section. The certificate of conformity is valid for each engine family starting with the indicated effective date, but it is not valid for any production after December 31 of the model year for which it is issued (except as specified in § 92.12). The certificate of conformity is valid upon such terms and conditions as the Administrator deems necessary or appropriate to ensure that the production engines covered by the certificate will meet the requirements of the Act and of this part.

* * * * *

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

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

Authority: 42 U.S.C. 7401—7671q.

6. Section 94.1 is amended by adding paragraph (b)(3) to read as follows:

§ 94.1 Applicability.

(b) * * *

(3) Marine engines subject to the standards of 40 CFR part 1042.

* * * * *

7. In § 94.2, paragraph (b) is amended by adding definitions for “Nonroad” and “Nonroad engine” in alphabetical order to read as follows:

§ 94.2 Definitions.

* * * * *

(b) * * *

Nonroad means relating to nonroad engines, or vessels, or equipment that includes nonroad engines.

Nonroad engine has the meaning given in 40 CFR 1068.30. In general, this means all internal-combustion engines except motor vehicle engines, stationary engines, engines used solely for competition, or engines used in aircraft.

* * * * *

8. Section 94.12 is amended by adding paragraph (i) to read as follows:

§ 94.12 Interim provisions.

* * * * *

(i) Subchapter U provisions. For model years 2009 through 2013, certain marine engines will be subject to the requirements of this part 94 while others will be subject to the requirements of 40 CFR subchapter U.

This paragraph (j) describes allowances for manufacturers to ask for flexibility in transitioning to the new regulations.

(1) You may ask to use a combination of the test procedures of this part and those of 40 CFR part 1033. We will approve your request only if you show us that it does not affect your ability to show compliance with the applicable emission standards. Generally this requires that the combined procedures would result in emission measurements at least as high as those that would be measured using the procedures specified in this part. Alternatively, you may demonstrate that the combined effects of the procedures is small relative to your compliance margin (the degree to which your locomotive are below the applicable standards).

(2) You may ask to comply with the administrative requirements of 40 CFR part 1033 and 1068 instead of the equivalent requirements of this part.

9. Section 94.108 is amended by revising paragraph (d) to read as follows:

§ 94.108 Test fuels.

* * * * *

(d) Correction for sulfur. (1) High sulfur fuel. (i) Particulate emission measurements from Category 1 or Category 2 engines without exhaust aftertreatment obtained using a diesel fuel containing more than 0.40 weight percent sulfur may be adjusted to a sulfur content of 0.40 weight percent.

(ii) Adjustments to the particulate measurement for using high sulfur fuel shall be made using the following equation:

$$PM_{adj} = PM - [BSFC * 0.0917 * (FSF - 0.0040)]$$

Where:

PM_{adj} = Adjusted measured PM level [g/kW-hr].

PM = Measured weighted PM level [g/KW-hr].

BSFC = Measured brake specific fuel consumption [g/KW-hr].

FSF = Fuel sulfur weight fraction.

(2) Low sulfur fuel. (i) Particulate emission measurements from Category 1 or Category 2 engines without exhaust aftertreatment obtained using diesel fuel containing less than 0.03 weight percent sulfur may be adjusted to a sulfur content of 0.20 weight percent.

(ii) Adjustments to the particulate measurement for using ultra low sulfur fuel shall be made using the following equation:

$$PM_{adj} = PM + [BSFC * 0.0917 * (0.0020 - FSF)]$$

Where:

PM_{adj} = Adjusted measured PM level [g/kW-hr].

PM = Measured weighted PM level [g/KW-hr].

BSFC = Measured brake specific fuel consumption [g/KW-hr].

FSF = Fuel sulfur weight fraction.

* * * * *

10. Section 94.208 is amended by revising paragraph (a) to read as follows:

§ 94.208 Certification.

(a) If, after a review of the application for certification, test reports and data acquired from an engine or from a development data engine, and any other information required or obtained by EPA, the Administrator determines that the application is complete and that the engine family meets the requirements of the Act and this part, he/she will issue a certificate of conformity with respect to such engine family, except as provided by paragraph (c)(3) of this section. The certificate of conformity is valid for each engine family starting with the indicated effective date, but it is not valid for any production after December 31 of the model year for which it is issued. The certificate of conformity is valid upon such terms and conditions as the Administrator deems necessary or appropriate to ensure that the production engines covered by the certificate will meet the requirements of the Act and of this part.

* * * * *

11. Section 94.209 is amended by revising paragraph (a) introductory text to read as follows:

§ 94.209 Special provisions for post-manufacture marinizers and small-volume manufacturers.

* * * * *

(a) *Broader engine families.* Instead of the requirements of § 94.204, an engine family may consist of any engines all of a manufacturers engines within a given category. This does not change any of the requirements of this part for showing that an engine family meets emission standards. To be eligible to use the provisions of this paragraph (a), the manufacturer must demonstrate one of the following:

* * * * *

12. A new part 1033 is added to subchapter U of chapter I to read as follows:

PART 1033—CONTROL OF EMISSIONS FROM LOCOMOTIVES

Sec.

Subpart A—Overview and Applicability

1033.1 Applicability

1033.5 Exemptions and exclusions.

1033.10 Organization of this part.

1033.15 Do any other regulation parts apply to me?

Subpart B—Emission Standards and Related Requirements

1033.101 Exhaust emission standards.

1033.102 Transition to the standards of this part for model years before 2015.

1033.110 Emission diagnostics—general requirements.

1033.112 Emission diagnostics for SCR systems.

1033.115 Other requirements.

1033.120 Emission-related warranty requirements.

1033.125 Maintenance instructions.

1033.130 Instructions for engine remanufacturing or engine installation.

1033.135 Labeling.

1033.140 Rated power.

1033.150 Interim provisions.

Subpart C—Certifying Engine Families

1033.201 General requirements for obtaining a certificate of conformity.

1033.205 Applying for a certificate of conformity.

1033.210 Preliminary approval.

1033.220 Amending maintenance instructions.

1033.225 Amending applications for certification.

1033.230 Grouping locomotives into engine families.

1033.235 Emission testing required for certification.

1033.240 Demonstrating compliance with exhaust emission standards.

1033.245 Deterioration factors.

1033.250 Reports and recordkeeping.

1033.255 EPA decisions.

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

1033.301 Applicability.

1033.305 General Requirements

1033.310 Sample selection for testing.

1033.315 Test procedures.

1033.325 Calculation and reporting of test results.

1033.330 Maintenance of records; submittal of information.

1033.335 Compliance with criteria for production line testing.

1033.340 Remanufactured locomotives: installation audit requirements.

1033.345 Suspension and revocation of certificates of conformity.

Subpart E—In-use Testing

1033.401 Applicability.

1033.405 General provisions.

1033.410 In-use test procedure.

1033.415 General testing requirements.

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

1033.425 In-use test program reporting requirements.

Subpart F—Test Procedures

1033.501 General test provisions.

1033.503 Test conditions.

1033.505 Locomotive and engine testing.

1033.510 Ramped modal testing.

1033.520 Duty cycles and idle calculation.

1033.525 Adjusting emission levels to account for infrequently regenerating aftertreatment devices.

Subpart G—Special Compliance Provisions

- 1033.601 General compliance provisions.
- 1033.610 Small railroad provisions.
- 1033.615 Voluntarily subjecting locomotives to the standards of this part.
- 1033.620 Hardship provisions for manufacturers and remanufacturers.
- 1033.625 Design certification for non-locomotive-specific engines.
- 1033.630 Staged-assembly exemption.
- 1033.640 Provisions for repowered and refurbished locomotives.
- 1033.650 Incidental use exemption for Canadian and Mexican locomotives.

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

- 1033.701 General provisions.
- 1033.705 Calculate emission credits.
- 1033.710 Averaging emission credits.
- 1033.715 Banking emission credits.
- 1033.720 Trading emission credits.
- 1033.722 Transferring emission credits.
- 1033.725 Requirements for your application for certification.
- 1033.730 ABT reports.
- 1033.735 Required records.
- 1033.740 Credit restrictions.
- 1033.745 Compliance with the provisions of this subpart.
- 1033.750 Changing a locomotive's FEL at remanufacture.

Subpart I—Requirements for Owners and Operators

- 1033.801 Applicability.
- 1033.805 Remanufacturing requirements.
- 1033.810 In-use testing program.
- 1033.815 Maintenance, operation, and repair.
- 1033.820 In-use locomotives.
- 1033.825 Refueling requirements.

Subpart J—Definitions and Other Reference Information

- 1033.901 Definitions.
- 1033.905 Symbols, acronyms, and abbreviations.
- 1033.920 How to request a hearing.

Authority: 42 U.S.C. 7401–7671q.

Subpart A—Overview and Applicability**§ 1033.1 Applicability.**

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

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

(b) Standards apply to the locomotive. However, in certain cases, the manufacturer/remanufacturer is allowed to test a locomotive engine instead of a complete locomotive, such as for certification.

(c) Standards apply based on the year in which the locomotive was originally

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

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

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

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

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

(e) The provisions of this part apply as specified for locomotives manufactured or remanufactured on or after January 1, 2008. See § 1033.102 to determine the whether the standards of this part or the standards of 40 CFR part 92 apply for model years 2008 through 2012. For example, for a locomotive that was originally manufactured in 2007 and remanufactured on April 10, 2014, the provisions of this part begin to apply on April 10, 2014.

§ 1033.5 Exemptions and exclusions.

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

(b) The definition of “locomotive” in § 1033.901 excludes certain vehicles. In general, the engines used in such

excluded equipment are subject to standards under other regulatory parts. For example, see 40 CFR part 1039 for requirements that apply to diesel engines used in equipment excluded from the definition of “locomotive” in § 1033.901. The following locomotives are also excluded from the provisions of this part 1033:

(1) Historic locomotives powered by steam engines. To be excluded under this paragraph (b)(1), a locomotive may not use any internal combustion engines and must be used only for historical purposes such as at a museum or similar public attraction.

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

(c) The provisions of this part do not apply for any locomotive that has not become a “new locomotive” (as defined in § 1033.901) after December 31, 2007.

§ 1033.10 Organization of this part.

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

(a) Subpart A of this part defines the applicability of part 1033 and gives an overview of regulatory requirements.

(b) Subpart B of this part describes the emission standards and other requirements that must be met to certify locomotives under this part. Note that § 1033.150 discusses certain interim requirements and compliance provisions that apply only for a limited time.

(c) Subpart C of this part describes how to apply for a certificate of conformity.

(d) Subpart D of this part describes general provisions for testing and auditing production locomotives.

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

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

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

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

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

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

§ 1033.15 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 1033 describes how to apply the provisions of part 1065 of this chapter to test locomotives to determine whether they 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, remanufactures, imports, maintains, owns, or operates any of the

locomotives subject to this part 1033. See § 1033.601 to determine how to apply the part 1068 regulations for locomotives. Part 1068 of this chapter describes general provisions, including these seven areas:

- (1) Prohibited acts and penalties for locomotive manufacturer/remanufacturers and others.
- (2) Exclusions and exemptions for certain locomotives.
- (3) Importing locomotives.
- (4) Selective enforcement audits of your production.
- (5) Defect reporting and recall.
- (6) Procedures for hearings.
- (c) Other parts of this chapter apply if referenced in this part.

Subpart B—Emission Standards and Related Requirements

§ 1033.101 Exhaust emission standards.

See §§ 1033.102 and 1033.150 to determine the model years for which emission standards of this section apply before 2015.

(a) *Emission standards for line-haul locomotives.* Exhaust emissions from your new locomotives may not exceed the applicable emission standards in Table 1 of this section during the useful life of the locomotive. (Note: § 1033.901 defines locomotives to be “new” when originally manufactured and when remanufactured.) Measure emissions using the applicable test procedures described in subpart F of this part.

TABLE 1 OF § 1033.101.—LINE-HAUL LOCOMOTIVE EMISSION STANDARDS

Year of original manufacture	Tier of standards	Standards (g/bhp-hr)			
		NO _x	PM	HC	CO
1973–1992 ^f	Tier 0 ^a	8.0	0.22	1.00	5.0
1993 ^f –2004	Tier 1 ^a	7.4	0.22	0.55	2.2
2005–2011	Tier 2 ^a	5.5	0.10 ^d	0.30	1.5
2012–2014	Tier 3 ^b	5.5	0.10	0.30	1.5
2015 or later	Tier 4	1.3 ^c	0.03	0.14 ^e	1.5

^a Line-haul locomotives subject to the Tier 0 through Tier 2 emission standards must also meet switch standards of the same tier.

^b Tier 3 line-haul locomotives must also meet Tier 2 switch standards.

^c Model year 2015 and 2016 Tier 4 line-haul locomotives are subject to the Tier 3 NO_x standard at the time of initial manufacture (instead of the Tier 4 NO_x standard), but must meet the Tier 4 NO_x standard at the time of any remanufacture after January 1, 2017.

^d The PM standard for new Tier 2 line-haul locomotives is 0.20 g/bhp-hr until January 1, 2013.

^e Manufacturers may elect to meet a combined NO_x+HC standard of 1.3 g/bhp-hr instead of the otherwise applicable Tier 4 NO_x and HC standards, as described in paragraph (j) of this section. For model years, 2015 and 2016, manufacturers may elect to meet a combined NO_x+HC standard of 5.5 g/bhp-hr instead of the otherwise applicable NO_x and HC standards.

^f Locomotive models that were originally manufactured in model years 1993 through 2001, but that were not originally equipped with a separate coolant system for intake air are subject to the Tier 0 rather than the Tier 1 standards.

(b) *Emission standards for switch locomotives.* Exhaust emissions from your new locomotives may not exceed the applicable emission standards in

Table 2 of this section during the useful life of the locomotive.

(Note: § 1033.901 defines locomotives to be “new” when originally manufactured and

when remanufactured.) Measure emissions using the applicable test procedures described in subpart F of this part.

TABLE 2 OF § 1033.101.—SWITCH LOCOMOTIVE EMISSION STANDARDS

Year of original manufacture	Tier of standards	Standards (g/bhp-hr)			
		NO _x	PM	HC	CO
1973–2001	Tier 0	11.8	0.26	2.10	8.0
2002–2004	Tier 1 ^a	11.0	0.26	1.20	2.5
2005–2010	Tier 2 ^a	8.1	0.13 ^d	0.60	2.4
2011–2014	Tier 3	5.0	0.10	0.60	2.4
2015 or later	Tier 4	1.3 ^c	0.03	0.14 ^e	2.4

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

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

^c Manufacturers may elect to meet a combined NO_x+HC standard of 1.3 g/bhp-hr instead of the otherwise applicable Tier 4 NO_x and HC standards, as described in paragraph (j) of this section.

(c) *Smoke standards.* The smoke opacity standards specified in Table 3 of this section apply only for locomotives

certified to one or more PM standards or FELs greater than 0.05 g/bhp-hr. Smoke emissions, when measured in

accordance with the provisions of Subpart F of this part, shall not exceed these standards.

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

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

(d) *Averaging, banking, and trading.* You may generate or use emission credits under the averaging, banking, and trading (ABT) program as described in subpart H of this part to comply with the NO_x and/or PM standards of this part. You may also use ABT to comply with the Tier 4 HC standards of this part as described in paragraph (j) of this section. Generating or using emission credits requires that you specify a family emission limit (FEL) for each pollutant you include in the ABT program for each engine family. These FELs serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in paragraphs (a) and (b) of this section. No FEL may be higher than the previously applicable Tier of standards. For example, no FEL for a Tier 1 locomotive may be higher than the Tier 0 standard.

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

(2) Except as specified in paragraph (e)(5) of this section, calculate the applicable notch standards for each pollutant for each notch from the certified notch emission rate as follows:
$$\text{Notch standard} = (E_i) \times (1.1 + (1 - ELH_i / \text{std}))$$

Where:

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

ELH_i = The deteriorated line-haul duty-cycle weighted brake-specific emission rate for pollutant I, as reported in the application for certification, except for Tier 3 or later switch locomotives, where ELH_i equals the deteriorated switch duty-cycle weighted brake-specific emission rate for pollutant I.

std = The applicable line-haul duty-cycle standard or FEL, except for Tier 3 or later switch locomotives, where std equals the switch duty-cycle standard for pollutant I.

(3) Exhaust emissions that exceed the notch standards specified in paragraph

(e)(2) of this section are allowed only if one of the following is true:

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

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

(A) Necessary for safety;

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

(C) Otherwise allowed by this part.

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

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

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

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

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

(ii) Gaseous-fueled locomotives: NMHC emissions.

(iii) Diesel-fueled and other locomotives: THC emissions for Tier 3 and earlier locomotives and NMHC for Tier 4.

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

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

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

(iii) Certify your Tier 3 and earlier diesel-fueled locomotives for operation

with either ULSD fuel or Low Sulfur Diesel (LSD) fuel if they do not include sulfur-sensitive technology or if you demonstrate compliance using an LSD test fuel.

(iv) For Tier 2 and earlier diesel-fueled locomotives, if you demonstrate compliance using a ULSD test fuel, you must adjust the measured PM emissions upward by 0.01 g/bhp-hr to make them equivalent to tests with LSD.

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

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

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

(3) Manufacturers/remanufacturers of locomotive with non-locomotive-specific engines (as defined in § 1033.901) may ask us (before certification) to allow a shorter useful life for an engine family containing only non-locomotive-specific engines. This petition must include the full rationale behind the request together with any other supporting evidence. Based on this or other information, we may allow a shorter useful life.

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

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

testing, production-line testing, selective enforcement audits, and in-use testing.

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

(j) *Alternate NO_x+NMHC standards for Tier 4.* Manufacturers/remanufacturers may certify Tier 4 locomotives to an alternate NO_x+NMHC emission standard of 1.3 g/bhp-hr (instead of the otherwise applicable NO_x and NMHC standards). You may use NO_x credits to show compliance with this standard by certifying your family to a NO_x+NMHC FEL. Calculate the NO_x credits needed as specified in subpart H of this part using the NO_x+NMHC emission standard and FEL in the calculation instead of the otherwise applicable NO_x standard and FEL.

§ 1033.102 Transition to the standards of this part for model years before 2015.

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

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

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

§ 1033.110 Emission diagnostics—general requirements.

The provisions of this section apply if you equip your locomotives with a diagnostic system that will detect significant malfunctions in its emission-control system. See § 1033.420 for information about how to select and maintain diagnostic-equipped locomotives for in-use testing. Notify the owner/operator that the presence of this diagnostic system affects their maintenance obligations under § 1033.815.

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

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

(c) Control when the MIL can go out. If the MIL goes on to show a malfunction, it must remain on during all later engine operation until servicing corrects the malfunction. If the engine is not serviced, but the malfunction does not recur during the next 24 hours, the MIL may stay off during later engine operation.

(d) Record and store in computer memory any diagnostic trouble codes showing a malfunction that should illuminate the MIL. The stored codes must identify the malfunctioning system or component as uniquely as possible. Make these codes available through the data link connector as described in paragraph (e) of this section. You may store codes for conditions that do not turn on the MIL. The system must store a separate code to show when the diagnostic system is disabled (from malfunction or tampering). Provide instructions to the owner/operator regarding how to interpret malfunction codes.

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

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

§ 1033.112 Emission diagnostics for SCR systems.

Engines equipped with SCR systems must meet the requirements of this section in addition to the requirements of § 1033.110.

(a) The diagnostic system must monitor urea quality and tank levels and alert operators to the need to refill the urea tank before it is empty using a

malfunction-indicator light (MIL) as specified in § 1033.110 and an audible alarm. You do not need to separately monitor urea quality if you include an exhaust NO_x sensor (or other sensor) that allows you to determine inadequate urea quality.

(b) Your onboard computer must record in nonvolatile computer memory all incidents of engine operation with inadequate urea injection or urea quality.

§ 1033.115 Other requirements.

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

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

(1) Locomotives may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. If you take advantage of this exception, you must do the following things:

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

(ii) Account for deterioration in crankcase emissions when determining exhaust deterioration factors.

(2) For purposes of this paragraph (a), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operations are not considered to be discharged directly into the ambient atmosphere.

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

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

(2) Limit the physical range of adjustability to the maximum extent practicable to the range that is necessary

for proper operation of the locomotive or locomotive engine.

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

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

(e) *Altitude requirements.* All locomotives prior to sale, introduction into service, or return to service, must be designed to include features that compensate for changes in altitude to ensure that the locomotives will comply with the applicable emission standards when operated at any altitude less than 7000 feet above sea level.

(f) *Defeat devices.* You may not equip your locomotives with a defeat device. A defeat device is an auxiliary emission control device (AECD) that reduces the effectiveness of emission controls under conditions that the locomotive may reasonably be expected to encounter during normal operation and use.

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

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

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

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

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

(v) The AECD reduces urea flow for an SCR aftertreatment system and meets the requirements of this paragraph (f)(1)(v). For operation outside the range of ambient test conditions specified in § 1033.503 where emissions exceed one or more notch caps, your SCR system

must function so that at least one of the following conditions is met at all applicable speeds and loads:

(A) You maintain the mass flow of urea into the catalyst in the same proportion as the same notch point under test conditions.

(B) You maintain the mass flow of urea into the catalyst at the highest level possible without emitting ammonia at excessive levels (excessive levels would generally be levels higher than would occur at other operations at the same notch point under test conditions).

(C) The temperature of the exhaust is too low to allow urea to be converted to ammonia (consistent with good engineering judgment).

(2) If your locomotive is designed to allow operation at points other than those included as test points, the provisions of paragraphs (f)(1)(iv) and (v) of this section apply as specified for the most similar test point.

(g) *Idle controls.* All new locomotives must be equipped with automatic engine stop/start as described in this paragraph (g). All new locomotives must be designed to allow the engine(s) to be restarted at least six times per day without engine damage.

(1) Except as allowed by paragraph (g)(2) of this section, the stop/start systems must shut off the main locomotive engine(s) after 30 minutes of idling (or less) and must prevent the engine(s) from being restarted to resume extended idling.

(2) Stop/start systems may restart or continue idling for the following reasons:

(i) To prevent engine damage such as to prevent the engine coolant from freezing.

(ii) To maintain air brake pressure.

(iii) To perform necessary maintenance.

(iv) To otherwise comply with federal regulations.

(3) You may ask to use alternate stop/start systems that will achieve equivalent idle control.

§ 1033.120 Emission-related warranty requirements.

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

(1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.

(2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.

(b) *Warranty period.* Except as specified in this paragraph, the

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

(c) *Components covered.* The emission-related warranty covers all components whose failure would increase a locomotive's emissions of any 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 a locomotive'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 locomotive.

§ 1033.125 Maintenance instructions.

Give the owner of each new locomotive written instructions for properly maintaining and using the locomotive, including the emission-control system. Include in the instructions a notification that owners and operators must comply with the requirements of subpart I of this part 1033. The maintenance instructions also apply to any service accumulation on your emission-data locomotives, as described in § 1033.245 and in 40 CFR part 1065.

§ 1033.130 Instructions for engine remanufacturing or engine installation.

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

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

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

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

(3) State one of the following as applicable:

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

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

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

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

§ 1033.135 Labeling.

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

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

the locomotive and engine in a legible way.

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

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

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

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

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

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

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

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

(A) The label heading: "ORIGINAL LOCOMOTIVE EMISSION CONTROL INFORMATION." Manufacturers/remanufacturers may add a subheading to distinguish this label from the engine label described in paragraph (c) of this section.

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

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

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

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

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

(c) *Engine labels.* (1) Engine labels meeting the specifications of paragraph (c)(2) of this section shall be applied by:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(E) The useful life of the locomotive.

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

(G) Engine tune-up specifications and adjustments, as recommended by the manufacturer/remanufacturer, in accordance with the applicable emission standards. This includes but is not limited to idle speed(s), injection timing or ignition timing (as applicable), and valve lash (as applicable).

(H) Other critical operating instructions such as those related to urea use for SCR systems.

(d) Manufacturers/remanufacturers may also provide other information on the labels that they deem necessary for the proper operation and maintenance of the locomotive. Manufacturers/remanufacturers may also include other features to prevent counterfeiting of labels.

(e) You may ask us to approve modified labeling requirements in this part 1033 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the requirements of this part.

§ 1033.140 Rated power.

This section describes how to determine the rated power of a locomotive for the purposes of this part. Note that rated power is used as the maximum test power in subpart F of this part for testing of locomotives and locomotive engines.

(a) A locomotive configuration's rated power is the maximum brake power

point on the nominal power curve for the locomotive configuration, as defined in this section. See § 1033.901 for the definition of brake power. Round the power value to the nearest whole horsepower. Generally, this will be the brake power of the engine in notch 8.

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

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

§ 1033.150 Interim provisions.

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

(a) *Early availability of Tier 0, Tier 1, or Tier 2 systems.* For model years 2008 and 2009, you may remanufacture locomotives to meet the applicable standards in 40 CFR part 92 only if no remanufacture system has been certified to meet the standards of this part and is available at a reasonable cost at least three months prior to the completion of the remanufacture. For model years 2008 through 2012, you may remanufacture Tier 2 locomotives to meet the applicable standards in 40 CFR part 92 only if no remanufacture system has been certified to meet the standards of this part and is available at a reasonable cost at least three months prior to the completion of the remanufacture. For the purpose of this paragraph (a), available at a reasonable cost means available for use where all of the following are true:

(1) The total incremental cost to the owner and operators of the locomotive due to meeting the new standards (including initial hardware, increased fuel consumption, and increased

maintenance costs) during the useful life of the locomotive is less than \$220,000.

(2) The initial incremental hardware costs are reasonably related to the technology included in the remanufacturing system and are less than \$125,000.

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

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

(b) *Delayed NO_x standards for Tier 4.* For model years 2015 and 2016, freshly manufactured locomotives are not required to meet the Tier 4 NO_x standards, but must comply with all other applicable standards and requirements. Model year 2015 and 2016 locomotives must comply with all Tier 4 requirements when remanufactured on or after January 1, 2017.

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

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

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

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

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

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

(f) *In-use compliance limits.* For purposes of determining compliance after title or custody of a new Tier 4 locomotive has transferred to the ultimate purchaser (or the locomotive has been placed into service), calculate

the applicable in-use compliance limits by adjusting the applicable standards/FELs. (Note that this means that these adjustments do not apply for certification or production-line testing.) The PM adjustment applies only for model year 2015–2017 locomotives and does not apply for locomotives with a PM FEL higher than 0.03 g/bhp-hr. The

NO_x adjustment applies only for model year 2017–2019 line-haul locomotives and 2015–2017 switch locomotives and does not apply for locomotives with a NO_x FEL higher than 2.0 g/bhp-hr. Add the applicable adjustments in Tables 1 or 2 of this section (which follow) to the otherwise applicable standards (or FELs) and notch caps.

TABLE 1 OF § 1033.150—IN-USE ADJUSTMENTS FOR TIER 4 LINE-HAUL LOCOMOTIVES

Fraction of useful life already used	In-use adjustments (g/bhp-hr)	
	For model year 2017–2019 Tier 4 NO _x standards	For model year 2015–2017 Tier 4 PM standards
0 < MW-hrs = 50% of UL	0.7	0.01
50 < MW-hrs = 75% of UL	1.0	
75 < MW-hrs = 100% of UL	1.3	

TABLE 2 OF § 1033.150.—IN-USE ADJUSTMENTS FOR TIER 4 SWITCH LOCOMOTIVES

Fraction of useful life already used	In-use adjustments (g/bhp-hr)	
	For model year 2015–2017 Tier 4 NO _x standards	For model year 2015–2017 Tier 4 PM standards
0 < useful life = 50%	0.7	0.01
50 < useful life = 75%	1.0	
75 < useful life = 100%	1.3	

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

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

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

procedures is small relative to your compliance margin (the degree to which your locomotives are below the applicable standards).

Subpart C—Certifying Engine Families

§ 1033.201 General requirements for obtaining a certificate of conformity.

Certification is the process by which you demonstrate to us that your freshly manufactured or remanufactured locomotives will meet the applicable emission standards throughout their useful lives (explaining to us how you plan to manufacture or remanufacture locomotives, and providing test data showing that such locomotives will comply with all applicable emission standards.) Anyone meeting the definition of manufacturer in § 1033.901 may apply for a certificate of conformity for freshly manufactured locomotives. Anyone meeting the definition of remanufacturer in § 1033.901 may apply for a certificate of conformity for remanufactured locomotives.

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid starting

with the indicated effective date, but it is not valid for any production after December 31 of the model year for which it is issued.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see § 1033.255).

(c) We may ask you to include less information than we specify in this subpart, as long as you maintain all the information required by § 1033.250.

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

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

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

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

(h) By applying for a certificate of conformity, you are accepting responsibility for the in-use emission performance of all properly maintained and used locomotives covered by your

certificate. This responsibility applies without regard to whether you physically manufacture or remanufacture the entire locomotive. If you do not physically manufacture or remanufacture the entire locomotive, you must take reasonable steps (including those specified by this part) to ensure that the locomotives produced under your certificate conform to the specifications of your application for certification.

§ 1033.205 Applying for a certificate of conformity.

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

(b) The application must be approved and signed by the authorized representative of your company.

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

(d) Include the following information in your application:

(1) A description of the basic engine design including, but not limited to, the engine family specifications listed in § 1033.230. For freshly manufactured locomotives, a description of the basic locomotive design. For remanufactured locomotives, a description of the basic locomotive designs to which the remanufacture system will be applied. Include in your description, a list of distinguishable configurations to be included in the engine family.

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

(i) All emission control system components.

(ii) Injection or ignition timing for each notch (*i.e.*, degrees before or after top-dead-center), and any functional dependence of such timing on other operational parameters (*e.g.*, engine coolant temperature).

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

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

(v) Diagnostics.

(3) A description of the test locomotive.

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

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

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

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

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

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

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

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

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

(8) All test data obtained by the manufacturer/remanufacturer on each test engine or locomotive. As described in § 1033.235, we may allow you to demonstrate compliance based on results from previous emission tests, development tests, or other testing information.

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

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

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

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

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

(f) Provide the information to read, record, and interpret all the information broadcast by a locomotive's onboard computers and electronic control units.

State that, upon request, you will give us any hardware, software, or tools we would need to do this. You may reference any appropriate publicly released standards that define conventions for these messages and parameters. Format your information consistent with publicly released standards.

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

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

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

(j) For imported locomotives, identify the following:

(1) The port(s) at which you will import your engines.

(2) The names and addresses of the agents you have authorized to import your engines.

(3) The location of test facilities in the United States where you can test your engines if we select them for testing under a selective enforcement audit, as specified in 40 CFR part 1068, subpart E.

§ 1033.210 Preliminary approval.

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

(b) Decisions made under this section are considered to be preliminary approval, subject to final review and approval. We will generally not reverse a decision where we have given you preliminary approval, unless we find new information supporting a different decision.

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

(d) You must obtain preliminary approval for your plan to develop deterioration factors prior to the start of

any service accumulation to be used to develop the factors.

§ 1033.220 Amending maintenance instructions.

You may amend your emission-related maintenance instructions after you submit your application for certification, as long as the amended instructions remain consistent with the provisions of § 1033.125. You must send the Designated Compliance Officer a request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. We will disapprove your request if we determine that the amended instructions are inconsistent with maintenance you performed on emission-data locomotives. If owners/operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those locomotives from in-use testing or deny a warranty claim.

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

(b) If your requested change would not decrease the specified maintenance, you may distribute the new maintenance instructions anytime after you send your request. For example, this paragraph (b) would cover adding instructions to increase the frequency of filter changes for locomotives in severe-duty applications.

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

§ 1033.225 Amending applications for certification.

Before we issue you a certificate of conformity, you may amend your application to include new or modified locomotive configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or modified locomotive

configurations within the scope of the certificate, subject to the provisions of this section.

You must also amend your application if any changes occur with respect to any information included in your application. For example, you must amend your application if you determine that your actual production variation for an adjustable parameter exceeds the tolerances specified in your application.

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

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

(2) Change a locomotive already included in an engine family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the locomotive's lifetime. For example, you must amend your application if you want to change a part supplier if the part was described in your original application and is different in any material respect than the part you described.

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

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

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

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

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

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

(d) For engine families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your new or modified locomotive. You may ask for a hearing if we deny your request (see § 1033.920).

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

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

(1) You may ask to raise your FEL for your engine family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. If you amend your application by submitting new test data to include a newly added or modified locomotive, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding production volumes to calculate your production-weighted average FEL for the model year, as described in subpart H of this part. If you amend your application without submitting new test data, you must use the higher FEL for the entire family to calculate your production-weighted average FEL under subpart H of this part.

(2) You may ask to lower the FEL for your emission family only if you have test data from production locomotives

showing that emissions are below the proposed lower FEL. The lower FEL applies only to engines or fuel-system components you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate your production-weighted average FEL for the model year, as described in subpart H of this part.

§ 1033.230 Grouping locomotives into engine families.

(a) Divide your product line into engine families of locomotives that are expected to have similar emission characteristics throughout the useful life. Your engine family is limited to a single model year. Freshly manufactured locomotives may not be included in the same engine family as remanufactured locomotives, except as allowed by paragraph (f) of this section.

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

- (1) The combustion cycle (*e.g.*, diesel cycle).
- (2) The type of engine cooling employed and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fan(s), radiator shutters, etc.).
- (3) The bore and stroke dimensions.
- (4) The approximate intake and exhaust event timing and duration (valve or port).
- (5) The location of the intake and exhaust valves (or ports).
- (6) The size of the intake and exhaust valves (or ports).
- (7) The overall injection or ignition timing characteristics (*i.e.*, the deviation of the timing curves from the optimal fuel economy timing curve must be similar in degree).
- (8) The combustion chamber configuration and the surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions.
- (9) The location of the piston rings on the piston.
- (10) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown).
- (11) The general performance characteristics of the turbocharger or supercharger (*e.g.*, approximate boost pressure, approximate response time, approximate size relative to engine displacement).
- (12) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled).
- (13) The intake manifold induction port size and configuration.

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

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

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

(17) The type of smoke control system.

(18) The exhaust manifold port size and configuration.

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

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

- (1) The combustion cycle (*e.g.*, diesel cycle).
- (2) The type of engine cooling employed and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fan(s), radiator shutters, etc.).
- (3) The approximate bore and stroke dimensions.
- (4) The approximate location of the intake and exhaust valves (or ports).
- (5) The combustion chamber general configuration and the approximate surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions.
- (6) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown).
- (7) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled).
- (8) The type of fuel and general fuel system configuration.
- (9) The general configuration of the fuel injectors and approximate injection pressure.
- (10) The type of fuel injection system control (electronic or mechanical).

(d) You may subdivide a group of locomotives that is identical under paragraph (b) or (c) of this section into different engine families if you show the expected emission characteristics are different during the useful life. For the purposes of determining whether an engine family is a small engine family in § 1033.405(a)(2), we will consider the number of locomotives that could have been classed together under paragraph (b) or (c) of this section, instead of the number of locomotives that are included in a subdivision allowed by this paragraph (d).

- (e) In unusual circumstances, you may group locomotives that are not identical with respect to the things

listed in paragraph (b) or (c) of this section in the same engine family if you show that their emission characteristics during the useful life will be similar.

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

§ 1033.235 Emission testing required for certification.

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

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

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

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

(1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the test locomotive to a test facility we designate. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need.

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

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

(4) Before we test one of your locomotives, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter.

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

(1) The engine family from the previous model year differs from the current engine family only with respect to model year, or other factors not related to emissions. You may include additional configurations subject to the provisions of § 1033.225.

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

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

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

(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.

§ 1033.240 Demonstrating compliance with exhaust emission standards.

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

(1) If you include your locomotive in the ABT program in subpart H of this part, your FELs are considered to be the applicable emission standards with which you must comply.

(2) If you do not include your locomotive in the ABT program in subpart H of this part, but it was previously included in the ABT program in subpart H of this part, the previous FELs are considered to be the applicable emission standards with which you must comply.

(b) Your engine family is deemed not to comply if any emission-data locomotive representing that family has test results showing a deteriorated emission level above an applicable FEL or emission standard from § 1033.101 for any pollutant. Use the following steps to determine the deteriorated emission level for the test locomotive:

(1) Collect emission data using measurements with enough significant figures to calculate the cycle-weighted emission rate to at least one more decimal place than the applicable standard. Apply any applicable humidity corrections before weighting emissions.

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

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

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

§ 1033.245 Deterioration factors.

Establish deterioration factors for each pollutant to determine whether your locomotives will meet emission standards for each pollutant throughout the useful life, as described in §§ 1033.101 and 1033.240. Determine deterioration factors as described in this section, either with an engineering analysis, with pre-existing test data, or with new emission measurements. The deterioration factors are intended to reflect the deterioration expected to result during the useful life of a locomotive maintained as specified in § 1033.125. If you perform durability testing, the maintenance that you may perform on your emission-data locomotive is limited to the maintenance described in § 1033.125.

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

(b) Deterioration factors may be additive or multiplicative.

(1) *Additive deterioration factor for exhaust emissions.* Except as specified in paragraph (b)(2) of this section, use an additive deterioration factor for

exhaust emissions. An additive deterioration factor for a pollutant is the difference between exhaust emissions at the end of the useful life and exhaust emissions at the low-hour test point. In these cases, adjust the official emission results for each tested locomotive at the selected test point by adding the factor to the measured emissions. The deteriorated emission level is intended to represent the highest emission level during the useful life. Thus, if the factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable standard.

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

A multiplicative deterioration factor may not be appropriate in cases where testing variability is significantly greater than locomotive-to-locomotive variability. Multiplicative deterioration factors must be specified to one more significant figure than the applicable standard.

(c) Deterioration factors for smoke are always additive.

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

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

(1) If you 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

onengineering analysis, explain why this is appropriate and include a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

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

§ 1033.250 Reporting and recordkeeping.

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

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

(2) If you produced exempted locomotives, report the number of exempted locomotives you produced for each locomotive model and identify the buyer or shipping destination for each exempted locomotive.

(b) Organize and maintain the following records:

(1) A copy of all applications and any summary information you send us.

(2) Any of the information we specify in § 1033.205 that you were not required to include in your application.

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

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

(ii) How you accumulated locomotive operating hours (service accumulation), including the dates and the number of hours accumulated.

(iii) All maintenance, including modifications, parts changes, and other service, and the dates and reasons for the maintenance.

(iv) All your emission tests, including documentation on routine and standard tests, as specified in part 40 CFR part 1065, and the date and purpose of each test.

(v) All tests to diagnose locomotive or emission control performance, giving the date and time of each and the reasons for the test.

(vi) Any other significant events.

(4) If you test a development engine for certification, you may omit information otherwise required by

paragraph (b)(3) of this section that is unrelated to emissions and emission-related components.

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

(6) Keep a list of locomotive identification numbers for all the locomotives you produce under each certificate of conformity.

(c) Keep data from routine emission tests (such as test cell temperatures and relative humidity readings) for one year after we issue the associated certificate of conformity. Keep all other information specified in paragraph (a) of this section for eight years after we issue your certificate.

(d) Store these records in any format and on any media, as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

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

§ 1033.255 EPA decisions.

(a) If we determine your application is complete and shows that the engine family meets all the requirements of this part and the Clean Air Act, we will issue a certificate of conformity for your engine family for that model year. We may make the approval subject to additional conditions.

(b) We may deny your application for certification if we determine that your engine family fails to comply with emission standards or other requirements of this part or the Clean Air Act. 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. This includes a failure to provide reasonable assistance.

(5) Produce locomotives for importation into the United States at a location where local law prohibits us from carrying out authorized activities.

(6) Fail to supply requested information or amend your application to include all locomotives being produced.

(7) Take any action that otherwise circumvents the intent of the Clean Air Act or this part.

(d) We may void your certificate if you do not keep the records we require or do not give us information when we ask for it.

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

(f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see § 1033.920).

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

§ 1033.301 Applicability.

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

(a) The requirements of §§ 1033.310, 1033.315, 1033.320, 1033.325, and 1033.335 apply only to manufacturers of freshly manufactured locomotives or locomotive engines (including those used for repowering). We may also

apply these requirements to remanufacturers of any locomotives for which there is reason to believe production problems exist that could affect emission performance. When we make a determination that production problems may exist that could affect emission performance, we will notify the remanufacturer(s). The requirements of §§ 1033.305, 1033.310, 1033.315, 1033.320, 1033.325, and 1033.335 will apply as specified in the notice.

(b) The requirements of § 1033.340 apply only to remanufacturers.

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

§ 1033.305 General requirements.

(a) Manufacturers (and remanufacturers, where applicable) are required to test production line locomotives using the test procedures specified in § 1033.315. While this subpart refers to locomotive testing, you may test locomotive engines instead of testing locomotives, unless we specifically require you to conduct production line testing on locomotives. If we determine that locomotive testing is required, we will notify you and will specify how to complete the testing (including specifying the time period in which you must complete the testing).

(b) Remanufacturers are required to conduct audits according to the

requirements of § 1033.340 to ensure that remanufactured locomotives comply with the requirements of this part.

(c) If you certify an engine family with carryover emission data, as described in § 1033.235, and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of locomotives that have failed emission tests.

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

§ 1033.310 Sample selection for testing.

(a) At the start of each model year, begin randomly selecting locomotives from each engine family for production line testing at a rate of one percent. Make the selection of the test locomotive after it has been assembled. Perform the testing throughout the entire model year to the extent possible.

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

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

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

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

(d) If one or more locomotives fail a production line test, then you must test two additional locomotives from the next fifteen produced in that engine family for each locomotive that fails. For example, if you are required to test four locomotives under paragraph (a) of this section and the second locomotive fails to comply with one or more standards, then you must test two additional locomotives from the next fifteen produced in that engine family. If both of those locomotives pass all standards, you are required to test two additional locomotives. If they both pass, you are done with testing for that family for the year since you tested six locomotives (the four originally required plus the two additional locomotives).

§ 1033.315 Test procedures.

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

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

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

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

(1) You document the need for doing so in your procedures for assembling and inspecting all your production engines and make the action routine for all the engines in the engine family.

(2) This subpart otherwise specifically allows your action.

(3) We approve your action in advance.

(c) *Adjustable parameters.* (1) Confirm that adjustable parameters are set to values or positions that are within the range recommended to the ultimate purchaser.

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

(d) *Stabilizing emissions.* You may stabilize emissions from the locomotives to be tested through service

accumulation by running the engine through a typical duty cycle. Emissions are considered stabilized after 300 hours of operation. You may accumulate fewer hours, consistent with good engineering judgment. You may establish a green engine factor for each regulated pollutant for each engine family, instead of (or in combination with) accumulating actual operation, to be used in calculating emissions test results. You must obtain our approval prior to using a green engine factor.

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

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

(g) *Retesting.* If you determine that any production line emission test of a locomotive is invalid, you must retest it in accordance with the requirements of this subpart. Report emission results from all tests to us, including test results you determined are invalid. You must also include a detailed explanation of the reasons for invalidating any test in the quarterly report required in § 1033.325(e). In the event a retest is performed, you may ask us within ten days of the end of the production quarter for permission to substitute the after-repair test results for the original test results. We will respond to the request within ten working days of our receipt of the request.

§ 1033.325 Calculation and reporting of test results.

(a) Calculate initial test results using the applicable test procedure specified in § 1033.315(a). Include applicable non-deterioration adjustments such as a green engine factor or regeneration adjustment factor. Round the results to the number of decimal places in the applicable emission standard expressed to one additional significant figure.

(b) If you conduct multiple tests on any locomotives, calculate final test results by summing the initial test results derived in paragraph (a) of this section for each test locomotive, dividing by the number of tests conducted on the locomotive, and

rounding to the same number of decimal places in the applicable standard expressed to one additional significant figure.

(c) Calculate the final test results for each test locomotive by applying the appropriate deterioration factors, derived in the certification process for the engine family, to the final test results, and rounding to the same number of decimal places in the applicable standard expressed to one additional significant figure.

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

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

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

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

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

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

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

(A) Configuration and engine family identification.

(B) Year, make, and build date.

(C) Engine identification number.

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

(E) Description of green engine factor; how it is determined and how it is applied.

(ii) Location(s) where service accumulation was conducted and description of accumulation procedure and schedule, if applicable.

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

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

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

(5) For each failed locomotive as defined in § 1033.335(a), a description of the remedy and test results for all retests as required by § 1033.345(g).

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

We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1033. We have not changed production processes or quality-control procedures for the test locomotives in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

§ 1033.330 Maintenance of records; submittal of information.

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

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

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

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

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

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

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

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

(vi) A complete record of all emission tests or audits performed under to this subpart (except tests performed directly by us), including all individual worksheets and/or other documentation relating to each test, or exact copies

thereof, according to the record requirements specified in subpart F of this part and 40 CFR part 1065.

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

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

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

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

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

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

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

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

§ 1033.335 Compliance with criteria for production line testing.

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

(a) A failed locomotive is one whose final test results pursuant to § 1033.325(c), for one or more of the applicable pollutants, exceed an applicable emission standard or FEL.

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

§ 1033.340 Remanufactured locomotives: installation audit requirements.

The section specifies the requirements for certifying remanufacturers to audit the remanufacture of locomotives covered by their certificates of conformity for proper components,

component settings and component installations on randomly chosen locomotives in an engine family.

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

(b) Audit at least five percent of your annual sales per model year per installer or ten per engine family per installer, whichever is less. You must perform more audits if there are any failures. Randomly select the locomotives to be audited after the remanufacture is complete. We may allow you to select locomotives prior to the completion of the remanufacture, if the preselection would not have the potential to affect the manner in which the locomotive was remanufactured (e.g., where the installer is not aware of the selection prior to the completion of the remanufacture).

(c) The remanufactured locomotive may accumulate no more than 10,000 miles prior to an audit.

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

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

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

(g) Within 30 calendar days of the end of each quarter, each remanufacturer must send the Designated Compliance Officer a report which includes the following information:

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

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

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

(4) For each audit conducted:

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

(A) Configuration and engine family identification;

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

(C) Engine identification number;

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

(5) For each failed locomotive as defined in paragraph (d) of this section, a description of the remedy as required by § 1033.345(g);

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

We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line auditing conformed completely with the requirements of 40 CFR part 1033. We have not changed production processes or quality-control procedures for the audited locomotives in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

§ 1033.345 Suspension and revocation of certificates of conformity.

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

(1) The certificate of conformity is automatically suspended for any locomotive that fails a production line test pursuant to § 1033.335(a), effective from the time the testing of that locomotive is completed.

(2) The certificate of conformity is automatically suspended for any locomotive that fails an audit pursuant to § 1033.340(d), effective from the time that auditing of that locomotive is completed.

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

(1) We may suspend the certificate of conformity for an engine family that is in noncompliance pursuant to § 1033.335(b), thirty days after the engine family is deemed to be in noncompliance.

(2) We may suspend the certificate of conformity for an engine family that is determined to have failed an audit pursuant to § 1033.340(f). This suspension will not occur before thirty days after the engine family is deemed to be in noncompliance.

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

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

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

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

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

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

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

(e) We will notify you in writing of any suspension or revocation of a certificate of conformity in whole or in part; a suspension or revocation is effective upon receipt of such notification or thirty days from the time an engine family is deemed to be in noncompliance under §§ 1033.325(d), 1033.335(a), 1033.335(b), or 1033.340(f) is made, whichever is earlier, except that the certificate is immediately suspended with respect to any failed locomotives as provided for in paragraph (a) of this section.

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

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

(1) Remedy the nonconformity.

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

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

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

(1) Submit a written report to us identifying the reason for the noncompliance of the locomotives,

describing the remedy, including a description of any quality control measures you will use to prevent future occurrences of the problem, and stating the date on which the remedies will be implemented.

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

(i) If the certificate has been revoked for an engine family, you must take the following actions before we will issue a certificate that would allow you to continue introduction into commerce of a modified version of that family:

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

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

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

sampling methods have been properly applied. (See § 1033.920.)

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

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

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

Subpart E—In-use Testing

§ 1033.401 Applicability.

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

§ 1033.405 General provisions.

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

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

(2) For engine families of less than 10 locomotives per year, no in-use testing will be required, unless we have reason to believe that those engine families are

not complying with the applicable emission standards in use.

(b) Test a sample of in-use locomotives from an engine family, as specified in § 1033.415. We will use these data, and any other data available to us, to determine the compliance status of classes of locomotives, including for purposes of recall under 40 CFR part 1068, and whether remedial action is appropriate.

§ 1033.410 In-use test procedure.

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

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

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

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

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

§ 1033.415 General testing requirements.

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

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

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

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

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

(c) *Collection of in-use locomotives.* Procure in-use locomotives that have been operated for 50 to 75 percent of the locomotive's useful life for testing under this subpart. Complete testing required by this section for any engine family before useful life of the locomotives in the engine family passes.

(Note: § 1033.820 specifies that railroads must make reasonable efforts to enable you to perform this testing.)

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

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

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

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

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

(c) If the locomotive selected for testing is equipped with emission diagnostics as described in § 1033.110 and the MIL is illuminated, you may read the code and repair the malfunction to the degree that an owner/operator would be required to repair the malfunction under § 1033.815.

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

(e) If in-use testing results show that an in-use locomotive fails to comply

with any applicable emission standards, you must determine the reason for noncompliance and report your findings in the quarterly in-use test result report described in § 1033.425.

§ 1033.425 In-use test program reporting requirements.

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

- (1) Engine family, and configuration.
- (2) Locomotive and engine models.
- (3) Locomotive and engine serial numbers.
- (4) Date of manufacture or remanufacture, as applicable.
- (5) Megawatt-hours of use (or miles, as applicable).
- (6) Date and time of each test attempt.
- (7) Results of all emission testing.
- (8) Results (if any) of each voided or failed test attempt.
- (9) Summary of all maintenance and/or adjustments performed.
- (10) Summary of all modifications and/or repairs.

(11) Determinations of noncompliance.

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

We submit this report under sections 208 and 213 of the Clean Air Act. Our in-use testing conformed completely with the requirements of 40 CFR part 1033. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

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

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

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

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

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

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

Subpart F—Test Procedures

§ 1033.501 General provisions.

(a) Except as specified in this subpart, use the equipment and procedures for compression-ignition engines in 40 CFR part 1065 to determine whether your locomotives meet the duty-cycle emission standards in § 1033.101. Use the applicable duty cycles specified in this subpart. Measure emissions of all the pollutants we regulate in § 1033.101. The general test procedure is the procedure specified in 40 CFR part 1065 for steady-state discrete-mode cycles. However, if you use the optional ramped modal cycle in § 1033.514, follow the procedures for ramped modal testing in 40 CFR part 1065. The following exceptions from the 1065 procedures apply:

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

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

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

(b) [Reserved]

(c) This part allows (with certain limits) testing of either a complete locomotive or a separate uninstalled engine. When testing a locomotive, you must test the complete locomotive in its in-use configuration, except that you may disconnect the power output and fuel input for the purpose of testing.

(d) For locomotives subject to smoke standards, measure smoke emissions using the procedures in § 1033.520.

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

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

fuel (see §§ 1033.101 and 1033.135). For example, do not test with ultra low-sulfur diesel fuel if you intend to label your locomotives to allow use of diesel fuel with sulfur concentrations up to 500 ppm.

(2) You may ask to use as a test fuel commercially available diesel fuel similar but not identical to the applicable fuel specified in 40 CFR part 1065, subpart H. If your locomotive uses sulfur-sensitive technology, you may not use an in-use fuel that has a lower sulfur content than the range specified for the otherwise applicable test fuel in 40 CFR part 1065. If your locomotive does not use sulfur-sensitive technology, we may allow you to use an in-use fuel that has a lower sulfur content than the range specified for the otherwise applicable test fuel in 40 CFR part 1065, but may require that you correct PM emissions to account for the sulfur differences.

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

(f) See § 1033.504 for information about allowable ambient testing conditions for testing.

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

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

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

(j) For passenger locomotives that can generate hotel power from the main propulsion engine, the locomotive must comply with the emission standards when in either hotel or non-hotel setting.

§ 1033.503 Auxiliary power units.

If your locomotive is equipped with an auxiliary power unit (APU) that operates during an idle shutdown mode, you must account for the APU's emissions rates as specified in this section.

(a) Adjust the locomotive main engine's idle emission rate (g/hr) as specified in § 1033.520. Add the APU emission rate (g/hr) that you determine under paragraph (b) of this section. Use the locomotive main engine's idle power as specified in § 1033.520.

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

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

(2) *Uninstalled APU tested separately.* If you separately measure emission rates (g/hr) over an appropriate duty-cycle for each pollutant from the APU when it is not installed in the locomotive, you may use the measured emissions rates (g/hr) as the locomotive's idle emissions rates when the locomotive is shutdown and the APU is operating. For the purpose of this paragraph (2), an appropriate duty-cycle is one that approximates the APU engine's cycle-weighted power when operating in the locomotive. Apply appropriate deterioration factors to the measured emission rates. You may ask to carryover APU emission data for a previous test, or use data for the same APU installed on locomotives in another engine family.

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

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

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

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

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

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

§ 1033.504 Ambient conditions.

This section specifies the allowable ambient conditions of temperature, pressure, and humidity under which testing may be performed to determine compliance with the emission standards of § 1068.101. Manufacturers/remanufacturers may ask to perform testing at conditions other than those allowed by this section. We will allow such testing provided it does not affect your ability to demonstrate compliance with the applicable standards. See §§ 1033.101 and 1033.115 for more information about the requirements that apply at other conditions.

(a) *Temperature.* Testing may be performed with ambient temperatures from 15.5 °C (60 °F) to 40.5 °C (105 °F). Do not correct emissions for temperature effects within this range. If we allow you to perform testing at lower ambient temperatures, you must correct NO_x emissions for temperature effects, consistent with good engineering judgment. For example, if the intake air temperature (at the manifold) is lower at the test temperature than at 15.5 °C, you generally will need to adjust your measured NO_x emissions upward to account for the effect of the lower intake air temperature. However, if you maintain a constant manifold air temperature, you will generally not need to correct emissions.

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

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

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

§ 1033.510 Discrete-mode steady-state emission tests of locomotives and locomotive engines.

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

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

(b) Begin the test by operating the locomotive over the pre-test portion of the cycle specified in Table 1 of this section.

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

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

(2) Start measuring gaseous emissions, power, and fuel consumption at the start of the test mode A and continue until the completion of test mode 8.

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

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

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

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

(4) If applicable, begin the smoke test at the start of the test mode A. Continue collecting smoke data until the completion of test mode 8. Refer to § 1033.101 to determine applicability of smoke testing and § 1033.515 for details on how to conduct a smoke test.

(5) Begin proportional sampling of PM emissions at the beginning of each sampling period and terminate sampling once the minimum time in each test mode is reached, ± 5 seconds.

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

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

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

TABLE 1 OF § 1033.510.—LOCOMOTIVE TEST CYCLE

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

¹ The time in each notch and sample averaging period may be extended as needed to allow for collection of a sufficiently large PM sample.

² Omit if not so equipped.

(f) There are two approaches for sampling PM emissions during discrete-mode steady-state testing as described in this paragraph (f).

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

time limits for each of the numbered modes in Table 1 of § 1033.510.

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

(ii) You may use a single PM filter for sampling PM over all of the test modes

of the locomotive test cycle as specified in this paragraph. Vary the sample time to be proportional the applicable line-haul or switch weighting factors specified in § 1033.520 for each mode. The minimum sampling time for each mode is 400 seconds multiplied by the weighting factor. For example, for a mode with a weighting factor of 0.030, the minimum sampling time is 12.0 seconds. PM sampling in each mode must be proportional to engine exhaust flow as specified in 40 CFR part 1065. Begin proportional sampling of PM emissions at the beginning of each test mode as is specified in paragraph (c) of this section. End the sampling period for each test mode so that sampling times are proportional to the weighting

factors for the applicable duty cycles. If necessary, you may extend the time limit for each of the test modes beyond the sampling times in Table 1 of § 1033.510 to increase the sampled mass of PM emissions or to account for proper weighting of the PM emission sample over the entire cycle, using good engineering judgment.

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

(1) Specify a second-by-second set of engine speed and load points that are representative of in-use locomotive operation for each of the set-points of the locomotive test cycle described in Table 1 of § 1033.510, including transitions from one notch to the next. This is your reference cycle for validating your cycle. You may ignore points between the end of the sampling period for one mode and the point at which you change the notch setting to begin the next mode.

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

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

§ 1033.514 Alternative ramped modal cycles.

(a) Locomotive testing over a ramped modal cycle is intended to improve measurement accuracy at low emission levels by allowing the use of batch sampling of PM and gaseous emissions over multiple locomotive notch settings. Ramped modal cycles combine multiple

test modes of a discrete-mode steady-state into a single sample period. Time in notch is varied to be proportional to weighting factors. The ramped modal cycle for line-haul locomotives is shown in Table 1 of this section. The ramped modal cycle for switch locomotives is shown in Table 2 of this section. Both ramped modal cycles consist of a warm-up followed by three test phases that are each weighted in a manner that maintains the duty cycle weighting of the line-haul and switch locomotive duty cycles in § 1033.520. You may use ramped modal cycle testing for any locomotives certified under this part.

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

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

(d) Begin the test by operating the locomotive over the pre-test portion of the cycle.

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

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

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

for sample system residence times longer than 10 seconds.

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

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

(A) Ending batch sampling of the previous phase.

(B) Starting batch sampling of the next phase.

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

(ii) Avoid the following:

(A) Overlapping batch sampling of the two phases.

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

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

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

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

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

(4) If applicable, begin the smoke test at the start of the first test phase of the applicable ramped modal cycle.

Continue collecting smoke data until the completion of final test phase. Refer to § 1033.101 to determine applicability of the smoke standards and § 1033.515 for details on how to conduct a smoke test.

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

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

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

TABLE 1 OF § 1033.514.—LINE-HAUL LOCOMOTIVE RAMPED MODAL CYCLE

RMC Test phase	Weighting factor	RMC mode	Time in mode (seconds)	Notch setting
Pre-test idle	NA	NA	600 to 900	Lowest idle setting
Phase 1	0.380	A	600	Low Idle ¹
(Idle test) .....	.....	B	600	Normal Idle
Phase Transition				
.....	.....	C	1000	Dynamic Brake ²
.....	.....	1	520	Notch 1
.....	.....	2	520	Notch 2
Phase 2	0.458	3	416	Notch 3

TABLE 1 OF § 1033.514.—LINE-HAUL LOCOMOTIVE RAMPED MODAL CYCLE—Continued

RMC Test phase	Weighting factor	RMC mode	Time in mode (seconds)	Notch setting
	4	352	Notch 4
	5	304	Notch 5
	6	312	Notch 6
	7	240	Notch 7
Phase Transition				
Phase 3	0.162	8	600	Notch 8

¹ Operate at normal idle for modes A and B if not equipped with multiple idle settings.

² Operate at normal idle if not equipped with a dynamic brake.

TABLE 2 OF § 1033.514.—SWITCH LOMOTIVE RAMPED MODAL CYCLE

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

¹ Operate at normal idle for modes A and B if not equipped with multiple idle settings.

§ 1033.515 Smoke testing.

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

(a) This section specifies how to measure smoke emissions using a full-flow, open path light extinction smokemeter. A light extinction meter consists of a built-in light beam that traverses the exhaust smoke plume that issues from the exhaust duct. The light beam must be at right angles to the axis of the plume. Where the exhaust is not circular at its discharge, align the light beam to go through the plume along the hydraulic diameter, which is defined in 1065.1001. The light extinction meter must meet the requirements of paragraph (b) of this section and the following requirements:

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

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

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

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

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

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

(7) Minimize distance from the optical centerline to the exhaust outlet; in no case may it be more than 3.0 meters. The maximum allowable distance of unducted space upstream of the optical centerline is 0.5 meters. Center the full

flow of the exhaust stream between the source and detector apertures (or windows and lenses) and on the axis of the light beam.

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

(b) All smokemeters must meet the following specifications:

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

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

- (i) Three decibel point: 10 Hz.
- (ii) Insertion loss: 0 ~0.5 dB.
- (iii) Selectivity: 12 dB down at 40 Hz minimum.
- (iv) Attenuation: 27 dB down at 40 Hz minimum.

(c) Perform the smoke test by continuously recording smokemeter response over the entire locomotive test cycle in percent opacity to within one

percent resolution and also simultaneously record operator demand set point (e.g., notch position). Compare the recorded opacities, uncorrected for path length, to the smoke standards applicable to your locomotive.

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

installation, calibration, operation, and maintenance procedures.

§ 1033.520 Duty cycles and calculations.

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

(a) *Standard duty cycles and calculations.* Tables 1 and 2 of this section show the duty cycle to use to

calculate cycle-weighted average emission rates for locomotives equipped with two idle settings, eight propulsion notches, and at least one dynamic brake notch and tested using the Locomotive Test Cycle. Use the appropriate weighting factors for your locomotive application and calculate cycle-weighted average emissions as specified in 40 CFR part 1065, subpart G.

TABLE 1 OF § 1033.520.—STANDARD DUTY CYCLE WEIGHTING FACTORS FOR CALCULATING EMISSION RATES FOR LOCOMOTIVES WITH MULTIPLE IDLE SETTINGS

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

TABLE 2 OF § 1033.520.—STANDARD DUTY CYCLE WEIGHTING FACTORS FOR CALCULATING EMISSION RATES FOR LOCOMOTIVES WITH MULTIPLE IDLE SETTINGS

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

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

(c) *Nonstandard notches or no notches.* If your locomotive is equipped with more or less than 8 propulsion notches, recommend an alternate test cycle based on the in-use locomotive configuration. Unless you have data demonstrating that your locomotive will

be operated differently from conventional locomotives, recommend weighting factors that are consistent with the power weightings of the specified duty cycle. For example, the average load factor for your recommended cycle (cycle-weighted power divided by rated power) should be equivalent to those of conventional locomotives. We may also allow the use of the standard power levels shown in Table 3 of this section for nonstandard locomotive testing subject to our prior approval.

TABLE 3 OF § 1033.520.—STANDARD NOTCH POWER LEVELS EXPRESSED AS A PERCENTAGE OF MAXIMUM TEST POWER

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

(d) *Optional Ramped Modal Cycle Testing.* Tables 1 and 2 of § 1033.514 show the weighting factors to use to calculate cycle-weighted average emission rates for the applicable locomotive ramped modal cycle. Use the weighting factors for the ramped modal cycle for your locomotive application and calculate cycle-weighted average emissions as specified in 40 CFR part 1065, subpart G.

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

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

§ 1033.525 Adjusting emission levels to account for infrequently regenerating aftertreatment devices.

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

(a) *Developing adjustment factors.* Develop an upward adjustment factor and a downward adjustment factor for each pollutant based on measured emission data and observed regeneration frequency. Adjustment factors should generally apply to an entire engine family, but you may

develop separate adjustment factors for different configurations within an engine family. If you use adjustment factors for certification, you must identify the frequency factor, F, from paragraph (b) of this section in your application for certification and use the adjustment factors in all testing for that engine family. You may use carryover or carry-across data to establish adjustment factors for an engine family, as described in § 1033.235, consistent with good engineering judgment. All adjustment factors for regeneration are additive. Determine adjustment factors separately for different test segments as described in paragraphs (e) and (f) of this section. You may use either of the following different approaches for locomotives that use aftertreatment with infrequent regeneration events:

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

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

(b) *Calculating average emission factors.* Calculate the average emission factor (EFA) 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. You may determine F from in-use operating data or running replicate tests.

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

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

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

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

$$UAF = EF_A - EF_L$$

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

$$DAF = EF_H - EF_A$$

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

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

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

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

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

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

Subpart G—Special Compliance Provisions

§ 1033.601 General compliance provisions.

Locomotive manufacturer/remanufacturers, as well as owners and operators of locomotives subject to the requirements of this part, and all other persons, must observe the provisions of this part, the requirements and prohibitions in 40 CFR part 1068, and the provisions of the Clean Air Act. The provisions of 40 CFR part 1068 apply for locomotives as specified in that part, except as otherwise specified in this section.

(a) *Meaning of manufacturer.* When used in 40 CFR part 1068, the term “manufacturer” means manufacturer and/or remanufacturer.

(b) *Engine rebuilding.* The provisions of 40 CFR 1068.120 do not apply when remanufacturing locomotives.

(c) *Exemptions.* (1) The exemption provisions of 40 CFR 1068.240, 1068.250, 1068.255, and 1068.260 do not apply for domestic or imported locomotives.

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

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

(d) *SEAs, defect reporting, and recall.*

The provisions of 40 CFR part 1068, subparts E and F, apply to certificate holders for locomotives as specified in that part. When there are multiple persons meeting the definition of manufacturer or remanufacturer, each person meeting the definition of manufacturer or remanufacturer must comply with the requirements of 40 CFR part 1068, subparts E and F, as needed so that the certificate holder can fulfill its obligations under those subparts.

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

§ 1033.610 Small railroad provisions.

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

(a) Locomotives become subject to the provisions of this part when they become “new” as defined in § 1033.901. Under that definition, a locomotive is “new” when first assembled, and generally becomes “new” again when remanufactured. As an exception to this general concept, locomotives that are owned and operated by railroads meeting the definition of “small railroad” in § 1033.901 do not become “new” when remanufactured, unless they were previously certified to EPA emission standards.

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

(c) We may exempt new locomotives that are owned and operated by small railroads from the prohibition against remanufacturing a locomotive without a certificate of conformity as specified in this paragraph (c). This exemption is only available in cases where no certified remanufacturing system is available for the locomotive. For example, it is possible that no

remanufacturer will certify a system for very old locomotive models that comprise a tiny fraction of the fleet and that are remanufactured infrequently. Send your request for such exemptions to the Designated Compliance Officer. We may consider the issue of excessive costs in determining the availability of certified systems. If we grant this exemption, you are required to return the locomotive to its previously certified configuration.

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

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

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

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

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

§ 1033.620 Hardship provisions for manufacturers and remanufacturers.

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

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

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

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

(ii) The manufacture of the locomotives was substantially completed prior to the applicability date of the standards from which you seek relief.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(4) The number of such locomotives certified under this section does not exceed 15 in any three-year period. We may waive this sales limit for locomotive models that have previously demonstrated compliance with the locomotive standards of § 1033.101 in-use.

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

(b) To certify your locomotives by design under this section, submit your application as specified in § 1033.205, except include the following instead of the locomotive test data otherwise required:

(1) A description of the engines to be used, including the name of the engine

manufacturer and engine family identifier for the engines.

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

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

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

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

§ 1033.630 Staged-assembly exemption.

You may ask us to provide a temporary exemption to allow you to complete production of your engines and locomotives at different facilities, as long as you maintain control of the engines until they are in their certified configuration. We may require you to take specific steps to ensure that such locomotives are in their certified configuration before reaching the ultimate purchaser. You may request an exemption under this section in your application for certification, or in a separate submission.

§ 1033.640 Provisions for repowered and refurbished locomotives.

The provisions of this section apply for locomotives that are produced from an existing locomotive so that the new locomotive contains both previously used parts and parts that have never been used before. A single existing locomotive cannot be divided into parts and combined with new parts to create more than one remanufactured locomotive.

(a) Repowered locomotives are used locomotives in which a freshly manufactured propulsion engine is installed. Refurbished locomotives are new locomotives that are produced using more unused parts than previously used parts, as described in paragraph (b) of this section.

(b) The relative amount of previously used parts is determined as follows:

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

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

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

(c) If the weighted fraction of the locomotive that is comprised of previously used parts is less than 50 percent, then the locomotive is considered to be a refurbished locomotive.

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

(1) If you produce a new locomotive that includes a used frame, but all other parts are unused, then the locomotive is considered to be a freshly manufactured locomotive because the value of the frame would be less than 25 percent of the total value of the locomotive. Its date of original manufacture is the date on which you complete its assembly.

(2) If you produce a new locomotive by replacing the engine in a 1990 locomotive with a freshly manufactured engine, but all other parts are used, then the locomotive is considered to be a remanufactured locomotive and its date of original manufacture is the date on which assembly was completed in 1990.

(Note: Such a locomotive would also be considered to be a repowered locomotive.)

§ 1033.650 Incidental use exemption for Canadian and Mexican locomotives.

You may ask us to exempt from the requirements and prohibitions of this part locomotives that are operated primarily outside of the United States and that enter the United States temporarily from Canada or Mexico. We will approve this exemption only where we determine that the locomotive's operation within the United States will

not be extensive and will be incidental to its primary operation. For example, we would generally exempt locomotives that will not operate more than 25 miles from the border and will operate in the United States less than 5 percent of their operating time. For existing operations, you must request this exemption before January 1, 2011. In your request, identify the locomotives for which you are requesting an exemption, and describe their projected use in the United States. We may grant the exemption broadly or limit the exemption to specific locomotives and/or specific geographic areas. However, we will typically approve exemptions for specific rail facilities rather than specific locomotives. In unusual circumstances, such as cases in which new rail facilities are created, we may approve requests submitted after January 1, 2011.

Subpart H—Averaging, Banking, and Trading for Certification

§ 1033.701 General provisions.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart to show compliance with the standards of this part. Participation in this program is voluntary.

(b) Section 1033.740 restricts the use of emission credits to certain averaging sets.

(c) The definitions of Subpart J of this part apply to this subpart. The following definitions also apply:

(1) *Actual emission credits* means emission credits you have generated that we have verified by reviewing your final report.

(2) *Averaging set* means a set of locomotives in which emission credits may be exchanged only with other locomotives 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 locomotives not participating in the ABT program of this subpart.

(8) *Trade* means to exchange emission credits, either as a buyer or seller.

(9) *Transfer* means to convey control of credits generated for an individual

locomotive to the purchaser, owner or operator of the locomotive at the time of manufacture or remanufacture; or to convey control of previously generated credits from the purchaser, owner or operator of an individual locomotive to the manufacturer/remanufacturer at the time of manufacture/remanufacture.

(d) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard. This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing.

However, if emissions from a locomotive exceed an FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FEL that applies only to future production.

(e) Engine families that use emission credits for one or more pollutants may not generate positive emission credits for another pollutant.

(f) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under § 1033.225. The new FEL may apply only to locomotives you have not already introduced into commerce. Each locomotive's emission control information label must include the applicable FELs. You must conduct production line testing to verify that the emission levels are achieved.

(h) Credits may be generated by any certifying manufacturer/remanufacturer and may be held by any of the following entities:

(1) Locomotive or engine manufacturers.

(2) Locomotive or engine remanufacturers.

(3) Locomotive owners.

(4) Locomotive operators.

(5) Other entities after notification to EPA.

(i) All locomotives that are certified to an FEL that is different from the emission standard that would otherwise apply to the locomotives are required to comply with that FEL for the remainder of their service lives, except as allowed by § 1033.750.

(1) Manufacturers must notify the purchaser of any locomotive that is certified to an FEL that is different from the emission standard that would otherwise apply that the locomotive is required to comply with that FEL for the remainder of its service life.

(2) Remanufacturers must notify the owner of any locomotive or locomotive

engine that is certified to an FEL that is different from the emission standard that would otherwise apply that the locomotive (or the locomotive in which the engine is used) is required to comply with that FEL for the remainder of its service life.

(j) The FEL to which the locomotive is certified must be included on the locomotive label required in § 1033.135. This label must include the notification specified in paragraph (i) of this section.

§ 1033.705 Calculate emission credits.

The provisions of this section apply separately for calculating emission credits for NO_x or PM.

(a) Calculate positive emission credits for an engine family that has an FEL below the otherwise applicable 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. Prior to the end of year report, round calculated emission credits to the nearest one hundredth of a Megagram (0.01 Mg). Round your end of year emission credit balance to the nearest Megagram (Mg). Use consistent units throughout the calculation. When useful life is expressed in terms of megawatt-hrs, calculate credits for each engine family from the following equation:

$$\text{Emission credits} = (\text{Std} - \text{FEL}) \times (1.341) \times (\text{UL}) \times (\text{Production}) \times (\text{F}_p) \times (10^{-3} \text{ kW-Mg/MW-g}).$$

Where:

Std = The applicable locomotive and locomotive engine NO_x or PM emission standard in g/bhp-hr (except that Std = previous FEL in g/bhp-hr for locomotives that were certified under this part to an FEL other than the standard during the previous useful life).

FEL = The family emission limit for the engine family in g/bhp-hr.

UL = The sales-weighted average useful life in megawatt-hours (or the subset of the engine family for which credits are being calculated), as specified in the application for certification.

Production = The number of locomotives participating in the averaging, banking, and trading program within the given engine family during the calendar year (or the number of locomotives in the subset of the engine family for which credits are being calculated). Quarterly production projections are used for initial certification. Actual applicable production/sales volumes are used for end-of-year compliance determination.

F_p = The proration factor as determined in paragraph (d) of this section.

(c) When useful life is expressed in terms of miles, calculate the useful life

in terms of megawatt-hours (UL) by dividing the useful life in miles by 100,000, and multiplying by the sales-weighted average rated power of the engine family. For example, if your useful life is 800,000 miles for a family with an average rated power of 3500 hp, then your equivalent MW-hr useful life would be 28,000 MW-hrs. Credits are calculated using this UL value in the equations of paragraph (b) of this section.

(d) The proration factor is an estimate of the fraction of a locomotive's service life that remains as a function of age. The proration factor is 1.00 for freshly manufactured locomotives.

(1) The locomotive's age is the length of time in years from the date of original manufacture to the date at which the remanufacture (for which credits are being calculated) is completed, rounded to the next higher year.

(2) The proration factors for line-haul locomotives ages 1 through 20 are specified in Table 1 of this section. For line-haul locomotives more than 20 years old, use the proration factor for 20 year old locomotives. The proration factors for switch locomotives ages 1 through 40 are specified in Table 2 of this section. For switch locomotives more than 40 years old, use the proration factor for 40 year old locomotives.

(3) For replacement or repower engines, the proration factor is based on the age of the locomotive chassis, not the age of the engine, except for remanufactured switch locomotives that qualify as refurbished. Use a proration factor of 0.60 for remanufactured switch locomotives meeting the definition of refurbished. (Note: The proration factor is 1.00 for all refurbished locomotives that also meet the definition of freshly manufactured.)

TABLE 1 OF § 1033.705.—PRORATION FACTORS FOR LINE-HAUL LOCOMOTIVES

Locomotive age (years)	Proration factor (F _P)
1	0.96
2	0.92
3	0.88
4	0.84
5	0.81
6	0.77
7	0.73
8	0.69
9	0.65
10	0.61
11	0.57
12	0.54
13	0.50
14	0.47
15	0.43

TABLE 1 OF § 1033.705.—PRORATION FACTORS FOR LINE-HAUL LOCOMOTIVES—Continued

Locomotive age (years)	Proration factor (F _P)
16	0.40
17	0.36
18	0.33
19	0.30
20	0.27

TABLE 2 OF § 1033.705.—PRORATION FACTORS FOR SWITCH LOCOMOTIVES

Locomotive age (years)	Proration factor
1	0.98
2	0.96
3	0.94
4	0.92
5	0.9
6	0.88
7	0.86
8	0.84
9	0.82
10	0.8
11	0.78
12	0.76
13	0.74
14	0.72
15	0.7
16	0.68
17	0.66
18	0.64
19	0.62
20	0.6
21	0.58
22	0.56
23	0.54
24	0.52
25	0.5
26	0.48
27	0.46
28	0.44
29	0.42
30	0.4
31	0.38
32	0.36
33	0.34
34	0.32
35	0.3
36	0.28
37	0.26
38	0.24
39	0.22
40	0.2

(e) In your application for certification, base your showing of compliance on projected production volumes for locomotives that will be placed into service in the United States. As described in § 1033.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for locomotives that will be placed into service in the United States. Do not include any of the following

locomotives to calculate emission credits:

(1) Locomotives exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported locomotives. You may ask to include locomotives sold to Mexican or Canadian railroads if they will likely operate within the United States and you include all such locomotives (both credit using and credit generating locomotives).

(3) Locomotives not subject to the requirements of this part, such as those excluded under § 1033.5.

(4) [Reserved]

(5) Any other locomotives, where we indicate elsewhere in this part 1033 that they are not to be included in the calculations of this subpart.

§ 1033.710 Averaging emission credits.

(a) Averaging is the exchange of emission credits among your engine families. You may average emission credits only as allowed by § 1033.740.

(b) You may certify one or more engine families to an FEL above the applicable 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 § 1033.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model year, from emission credits you have banked, or from emission credits you obtain through trading or by transfer.

§ 1033.715 Banking emission credits.

(a) Banking is the retention of emission credits by the manufacturer/remanufacturer generating the emission credits (or owner/operator, in the case of transferred credits) for use in averaging, trading, or transferring in future model years. You may use banked emission credits only as allowed by § 1033.740.

(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, trading, or transferring 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 after reviewing your final report.

§ 1033.720 Trading emission credits.

(a) Trading is the exchange of emission credits between certificate holders. You may use traded emission credits for averaging, banking, or further trading transactions. Traded emission credits may be used only as allowed by § 1033.740.

(b) You may trade actual emission credits as described in this subpart. You may also trade reserved emission credits, but we may revoke these emission credits based on our review of your records or reports or those of the company with which you traded emission credits.

(c) If a negative emission credit balance results from a transaction, both the buyer and seller are liable, except in cases we deem to involve fraud. See § 1033.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer/remanufacturer having a negative balance of emission credits. See § 1033.745.

§ 1033.722 Transferring emission credits.

(a) Credit transfer is the conveying of control over credits, either:

- (1) From a certifying manufacturer/remanufacturer to an owner/operator.
- (2) From an owner/operator to a certifying manufacturer/remanufacturer.

(b) Transferred credits can be:

- (1) Used by a certifying manufacturer/remanufacturer in averaging.
- (2) Transferred again within the model year.

(3) Reserved for later banking. Transferred credits may not be traded unless they have been previously banked.

(c) Owners/operators participating in credit transfers must submit the reports specified in § 1033.730.

§ 1033.725 Requirements for your application for certification.

(a) You must declare in your application for certification your intent to use the provisions of this subpart for each engine family that will be certified using the ABT program. You must also declare the FELs you select for the engine family for each pollutant for which you are using the ABT program. Your FELs must comply with the specifications of subpart B of this part,

including the FEL caps. FELs must be expressed to the same number of decimal places as the applicable 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, transferring or a combination of these. Identify from which of your engine families or from which manufacturer/remanufacturer the emission credits will come.

§ 1033.730 ABT reports.

(a) If any of your engine families are certified using the ABT provisions of this subpart, you must send an end-of-year report within 90 days after the end of the model year and a final report within 270 days after the end of the model year. We may waive the requirement to send the end-of-year report, as long as you send the final report on time.

(b) Your end-of-year and final reports must include the following information for each engine family participating in the ABT program:

- (1) Engine family designation.
- (2) The emission standards that would otherwise apply to the engine family.
- (3) The FEL for each pollutant. If you 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 locomotive you produced. For example, you might keep a list of locomotive identification numbers that correspond with certain FEL values.

(4) The projected and actual production volumes for the model year that will be placed into service in the United States as described in § 1033.705. If you changed an FEL during the model year, identify the

actual production volume associated with each FEL.

(5) Rated power for each locomotive configuration, and the sales-weighted average locomotive 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 or transferred, as described in paragraph (d)(1) or (e) of this section.

(c) Your end-of-year and final reports must include the following additional information:

(1) Show that your net balance of emission credits from all your engine families in each averaging set in the applicable model year is not negative.

(2) State whether you will 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) If you transfer emission credits, you must send us a report within 90 days after the first transfer to an owner/operator, as follows:

(1) Include the following information:

(i) The corporate names of the owner/operator receiving the credits.

(ii) A copy of any contracts related to the trade.

(iii) The serial numbers and engine families for the locomotive that generated the transferred emission credits and the number of emission credits from each family.

(2) The requirements of this paragraph (e) apply separately for each owner/operator.

(3) We may require you to submit additional 90-day reports under this paragraph (e).

(f) Send your reports electronically to the Designated Compliance Officer

using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.

(g) Correct errors in your end-of-year report or final report as follows:

(1) You may correct any errors in your end-of-year report when you prepare the final report, as long as you send us the final report by the time it is due.

(2) If you or we determine within 270 days after the end of the model year that errors mistakenly 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 (g)(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.

(h) We may modify these requirements for owners/operators required to submit reports because of their involvement in credit transferring.

§ 1033.735 Required records.

(a) You must organize and maintain your records as described in this section. We may review your records at any time.

(b) Keep the records required by this section for eight years after the due date for the end-of-year report. You may not use emission credits on any engines if you do not keep all the records required under this section. You must therefore keep these records to continue to bank valid credits. Store these records in any format and on any media, as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

(c) Keep a copy of the reports we require in § 1033.725 and § 1033.730.

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

- (1) Engine family designation.
- (2) Locomotive identification number.
- (3) FEL.
- (4) Rated power and useful life.
- (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.

§ 1033.740 Credit restrictions.

Use of emission credits generated under this part 1033 or 40 CFR part 92

is restricted depending on the standards against which they were generated.

(a) *Credits from 40 CFR part 92.* (1) PM credits generated under 40 CFR part 92 may not be used under this part.

(2) NO_x credits generated under 40 CFR part 92 may be used under this part in the same manner as NO_x credits generated under this part.

(b) *General cycle restriction.* Locomotives subject to both switch cycle standards and line-haul cycle standards (such as Tier 2 locomotives) may generate both switch and line-haul credits. Except as specified in paragraph (c) of this section, such credits may only be used to show compliance with standards for the same cycle for which they were generated. For example, a Tier 2 locomotive that is certified to a switch cycle NO_x FEL below the applicable switch cycle standard and a line-haul cycle NO_x FEL below the applicable line-haul cycle standard may generate switch cycle NO_x credits for use in complying with switch cycle NO_x standards and line-haul cycle NO_x credits for use in complying with line-haul cycle NO_x standards.

(c) *Single cycle locomotives.* As specified in § 1033.101, Tier 0 switch locomotives, Tier 3 and later switch locomotives, and Tier 4 and later line-haul locomotives are not subject to both switch cycle and line-haul cycle standards.

(1) When using credits generated by locomotives covered by paragraph (b) of this section for single cycle locomotives covered by this paragraph (c), you must use both switch and line-haul credits as described in this paragraph (c)(1).

(i) For locomotives subject only to switch cycle standards, calculate the negative switch credits for the credit using locomotive as specified in § 1033.705. Such locomotives also generate an equal number of negative line-haul cycle credits (in Mg).

(ii) For locomotives subject only to line-haul cycle standards, calculate the negative line-haul credits for the credit using locomotive as specified in § 1033.705. Such locomotives also generate an equal number of negative switch cycle credits (in Mg).

(2) Credits generated by Tier 0, Tier 3, or Tier 4 switch locomotives may be used to show compliance with any switch cycle or line-haul cycle standards.

(3) Credits generated by any line-haul locomotives may not be used by Tier 3 or later switch locomotives.

(d) *Tier 4 credit use.* The number of Tier 4 locomotives that can be certified using credits in any year may not exceed 50 percent of the total number of

Tier 4 locomotives you produce in that year for U.S. sales.

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

§ 1033.745 Compliance with the provisions of this subpart.

The provisions of this section apply to certificate holders.

(a) For each engine family participating in the ABT program, the certificate of conformity is conditional upon full compliance with the provisions of this subpart during and after the model year. You are responsible to establish to our satisfaction that you fully comply with applicable requirements. We may void the certificate of conformity for an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FEL above an applicable standard based on a projection that you will have enough emission credits to offset the deficit for the engine family. However, we may void the certificate of conformity if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in an engine family.

(c) We may void the certificate of conformity for an engine family if you fail to keep records, send reports, or give us information we request.

(d) You may ask for a hearing if we void your certificate under this section (see § 1033.920).

§ 1033.750 Changing a locomotive's FEL at remanufacture.

Locomotives are generally required to be certified to the previously applicable standard or FEL when remanufactured. This section describes provisions that allow a remanufactured locomotive to be certified to a different FEL (higher or lower).

(a) A remanufacturer may choose to certify a remanufacturing system to change the FEL of a locomotive from a previously applicable FEL or standard. Any locomotives remanufactured using that system are required to comply with the revised FEL for the remainder of their service lives, unless it is changed again under this section during a later remanufacture. Remanufacturers must notify the owner of the locomotive that it is required to comply with that FEL for the remainder of its service life.

(b) Calculate the credits needed or generated as specified in § 1033.705, except as specified in this paragraph. If the locomotive was previously certified to an FEL for the pollutant, use the previously applicable FEL as the standard.

Subpart I—Requirements for Owners and Operators

§ 1033.801 Applicability.

The requirements of this subpart are applicable to railroads and all other owners and operators of locomotives subject to the provisions of this part, except as otherwise specified. The prohibitions related to maintenance in § 1033.815 also applies to anyone performing maintenance on a locomotive subject to the provisions of this part.

§ 1033.805 Remanufacturing requirements.

(a) See the definition of remanufacture in § 1033.901 to determine if you are remanufacturing your locomotive or engine. (Note: Replacing power assemblies one at a time may qualify as remanufacturing, depending on the interval between replacement.)

(b) See the definition of “new” in § 1033.901 to determine if remanufacturing your locomotive makes it subject to the requirements of this part. If the locomotive is considered to be new, it is subject to the certification requirements of this part, unless it is exempt under subpart G of this part. The standards to which your locomotive is subject will depend on factors such as the following:

- (1) Its date of original manufacture.
- (2) The FEL to which it was previously certified.
- (3) Its power rating (whether it is above or below 2300 hp).
- (4) The calendar year in which it is being remanufactured.

(c) You may comply with the certification requirements of this part for your remanufactured locomotive by either obtaining your own certificate of conformity as specified in subpart C of this part or by having a certifying remanufacturer include your locomotive under its certificate of conformity. In either case, your remanufactured locomotive must be covered by a certificate before it is reintroduced into service.

(d) Contact a certifying remanufacturer to have your locomotive included under its certificate of conformity. You must comply with the certificate holder’s emission-related installation instructions.

(e) Failure to comply with this section is a violation of 40 CFR 1068.101(a)(1).

§ 1033.810 In-use testing program.

(a) *Applicability.* This section applies to all Class I freight railroads. It does not apply to other owner/operators.

(b) *Testing requirements.* Annually test a sample of locomotives in your

fleet. For purposes of this section, your fleet includes both the locomotives that you own and the locomotives that you are leasing. Use the test procedures in subpart F of this part, unless we approve different procedures.

(1) Except for the cases described in paragraph (b)(2) of this section, test at least 0.15 percent of the average number of locomotives in your fleet during the previous calendar year (*i.e.*, determine the number to be tested by multiplying the number of locomotives in the fleet by 0.0015 and rounding up to the next whole number).

(2) In certain cases, you may test fewer locomotives:

(i) If during the previous 5 years, no new locomotive emission standards have taken effect, the locomotive emission controls have not changed fundamentally (in any manner that could reasonably be expected to have the potential to significantly affect emissions durability), and testing has shown that the degree of compliance for tested locomotives is sufficiently high, then you are only required to test 0.10 percent of the locomotives in your fleet.

(ii) If during the previous 5 years, no new locomotive emission standards have taken effect, the locomotive emission controls have not changed fundamentally (in any manner that could reasonably be expected to have the potential to significantly affect emissions durability), testing has shown that the degree of compliance for tested locomotives is sufficiently high, and you have fewer than 500 locomotives in your fleet, then you are not required to test any locomotives.

(iii) We may allow you to test a smaller number of locomotives if we determine that the number of tests otherwise required by this section is not necessary.

(c) *Test locomotive selection.* To the extent possible, select locomotives from each manufacturer and remanufacturer, and from each tier level (*e.g.*, Tier 0, Tier 1 and Tier 2) in proportion to their numbers in the your fleet. Exclude locomotives tested during the previous year. You may not exclude locomotives because of visible smoke, a history of durability problems, or other evidence of malmaintenance.

(1) If possible, select locomotives that have been certified in compliance with requirements in this part (or 40 CFR part 92), and that have been operated for at least 100 percent of their useful lives. If the number of certified locomotives that have been operated for at least 100 percent of their useful lives is not large enough to fulfill the testing requirement, test locomotives still within their useful lives as follows:

(i) Test locomotives in your fleet that are nearest to the end of their useful lives. You may identify such locomotives as a fraction of values representing the fraction of the useful life already used up for the locomotives.

(ii) For example, you may determine that 20 percent of your fleet has been operated for at least 75 percent of their useful lives. In such a case, select locomotives for testing that have been operated for at least 75 percent of their useful lives.

(2) We may require that you test specific locomotives, including locomotives that do not meet the criteria specified in paragraph (c)(1) of this section. Otherwise, where there are multiple locomotives meeting the requirements of this paragraph (c), randomly select the locomotives to be tested from among those locomotives.

(d) *Reporting requirements.* Report all testing done in compliance with the provisions of this section to us within 30 calendar days after the end of each calendar year. At a minimum, include the following:

(1) Your full corporate name and address.

(2) For each locomotive tested, all the following:

(i) Corporate name of the manufacturer and last remanufacturer(s) of the locomotive (including both certificate holder and installer, where different), and the corporate name of the manufacturer or last remanufacturer(s) of the engine if different than that of the manufacturer/remanufacturer(s) of the locomotive.

(ii) Year (and month if known) of original manufacture of the locomotive and the engine, and the manufacturer’s model designation of the locomotive and manufacturer’s model designation of the engine, and the locomotive identification number.

(iii) Year (and month if known) that the engine last underwent remanufacture, the engine remanufacturer’s designation that reflects (or most closely reflects) the engine after the last remanufacture, and the engine family identification.

(iv) The number of MW-hrs and miles (where available) the locomotive has been operated since its last remanufacture.

(v) The emission test results for all measured pollutants.

(e) You do not have to submit a report for any year in which you performed no emission testing under this section.

(f) You may submit equivalent emission data collected for other purposes instead of some or all of the test data required by this section. If we allow it in advance, you may report

emission data collected using other testing or sampling procedures instead of some or all of the data specified by this section.

(g) Submit all reports to the Designated Compliance Officer.

(h) Failure to comply fully with this section is a violation of 40 CFR 1068.101(a)(2).

§ 1033.815 Maintenance, operation, and repair.

(a) Unless we allow otherwise, all owners of locomotives subject to the provisions of this part must ensure that all emission-related maintenance is performed on the locomotives, as specified in the maintenance instructions provided by the certifying manufacturer/remanufacturer in compliance with § 1033.125 (or maintenance that is equivalent to the maintenance specified by the certifying manufacturer/remanufacturer in terms of maintaining emissions performance).

(b) Use good engineering judgment when performing maintenance of locomotives subject to the provisions of this part. You must perform all maintenance and repair such that you have a reasonable technical basis for believing the locomotive will continue (after the maintenance or repair) to meet the applicable emission standards and FELs to which it was certified.

(c) The owner of the locomotive must keep records of all maintenance and repairs that could reasonably affect the emission performance of any locomotive subject to the provisions of this part. Keep these records for eight years.

(d) In addition, for locomotives equipped with emission controls requiring the use of specific fuels, lubricants, or other fluids, you must comply with the manufacturer/remanufacturer's specifications for such fluids when operating the locomotives. For locomotives equipped with SCR systems requiring the use of urea or other reductants, you must report to us within 30 days of any operation of such locomotives without the appropriate urea other reductants.

(e) Failure to fully comply with this section is a violation of 40 CFR 1068.101(b).

§ 1033.820 In-use locomotives.

(a) We may require you to supply in-use locomotives to us for testing. We will specify a reasonable time and place at which you must supply the locomotives and a reasonable period during which we will keep them for testing. We will make reasonable allowances for you to schedule the supply of locomotives to minimize disruption of your operations. The

number of locomotives that you must supply is limited as follows:

(1) We will not require a Class I railroad to supply more than five locomotives per railroad per calendar year.

(2) We will not require a non-Class I railroad (or other entity subject to the provisions of this subpart) to supply more than two locomotives per railroad per calendar year. We will request locomotives under this paragraph (a)(2) only for purposes that cannot be accomplished using locomotives supplied under paragraph (a)(1) of this section.

(b) You must make reasonable efforts to supply manufacturers and remanufacturers of locomotives with the test locomotives needed to fulfill the in-use testing requirements in subpart E of this part.

(c) Failure to fully comply with this section is a violation of 40 CFR 1068.101(a)(2).

§ 1033.825 Refueling requirements.

(a) If your locomotive operates using a volatile fuel, your refueling equipment must be designed and used to minimize the escape of fuel vapors. This means you may not use refueling equipment in a way that renders any refueling emission controls inoperative or reduces their effectiveness.

(b) If your locomotive operates using a gaseous fuel, the hoses used to refuel it may not be designed to be bled or vented to the atmosphere under normal operating conditions.

(c) Failing to fully comply with the requirements of this section is a violation of 40 CFR 1068.101(b).

Subpart J—Definitions and Other Reference Information

§ 1033.901 Definitions.

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Clean Air Act gives to them. The definitions follow:

Adjustable parameter means any device, system, or element of design that someone can adjust (including those which are difficult to access) and that, if adjusted, may affect emissions or locomotive performance during emission testing or normal in-use operation. This includes, but is not limited to, parameters related to injection timing and fueling rate. You may ask us to exclude a parameter if you show us that it will not be adjusted in a way that affects emissions during in-use operation.

Aftertreatment means relating to a catalytic converter, particulate filter, or

any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port), whose design function is to reduce emissions in the locomotive exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR) is not aftertreatment.

Alcohol fuel means a fuel consisting primarily (more than 50 percent by weight) of one or more alcohols: e.g., methyl alcohol, ethyl alcohol.

Alternator/generator efficiency means the ratio of the electrical power output from the alternator/generator to the mechanical power input to the alternator/generator at the operating point. Note that the alternator/generator efficiency may be different at different operating points.

Applicable emission standard or applicable standard means a standard to which a locomotive is subject; or, where a locomotive has been or is being certified to another standard or FEL, the FEL or other standard to which the locomotive has been or is being certified is the applicable standard. This definition does not apply to Subpart H of this part.

Auxiliary emission control device means any element of design that senses temperature, 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.

Auxiliary engine means a nonroad engine that provides hotel power or power during idle, but does not provide power to propel the locomotive.

Auxiliary power means the power provided by the main propulsion engine to operate accessories such as cooling fans.

Averaging means the exchange of emission credits among engine families within a given manufacturer's, or remanufacturer's product line.

Banking means the retention of emission credits by a credit holder for use in future calendar year averaging or trading as permitted by the regulations in this part.

Brake power means the sum of the alternator/generator input power and the mechanical accessory power, excluding any power required to fuel, lubricate, heat, or cool the engine or to operate aftertreatment devices.

Calibration means the set of specifications, including tolerances, specific to a particular design, version, or application of a component, or components, or assembly capable of functionally describing its operation over its working range.

Certification means the process of obtaining a certificate of conformity for an engine family that complies with the emission standards and requirements in this part, or relating to that process.

Certified emission level means the highest deteriorated emission level in an engine family for a given pollutant from a given test cycle.

Class I freight railroad means a Class I railroad that primarily transports freight rather than passengers.

Class I railroad means a railroad that has been classified as a Class I railroad by the Surface Transportation Board.

Class II railroad means a railroad that has been classified as a Class II railroad by the Surface Transportation Board.

Class III railroad means a railroad that has been classified as a Class III railroad by the Surface Transportation Board.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

Configuration means a unique combination of locomotive hardware and calibration within an engine family. Locomotives within a single configuration differ only with respect to normal production variability (or factors unrelated to engine performance or emissions).

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the locomotive crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

Design certify or *certify by design* means to certify a locomotive based on inherent design characteristics rather than your test data, such as allowed under § 1033.625. All other requirements of this part apply for such locomotives.

Designated Compliance Officer means the Manager, Heavy Duty and Nonroad Engine Group (6403–), 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 locomotive.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point, expressed in one of the following ways:

(1) For multiplicative deterioration factors, the ratio of emissions at the end

of useful life to emissions at the low-hour test point.

(2) For additive deterioration factors, the difference between emissions at the end of useful life and emissions at the low-hour test point.

Discrete-mode means relating to the discrete-mode type of steady-state test described in § 1033.510.

Emission control system means any device, system, or element of design that controls or reduces the regulated emissions from a locomotive.

Emission credits represent the amount of emission reduction or exceedance, by a locomotive engine family, below or above the emission standard, respectively. Emission reductions below the standard are considered as “positive credits,” while emission exceedances above the standard are considered as “negative credits.” In addition, “projected credits” refer to emission credits based on the projected applicable production/sales volume of the engine family. “Reserved credits” are emission credits generated within a calendar year waiting to be reported to EPA at the end of the calendar year. “Actual credits” refer to emission credits based on actual applicable production/sales volume as contained in the end-of-year reports submitted to EPA.

Emission-data locomotive means a locomotive or engine that is tested for certification. This includes locomotives tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine family has the meaning given in § 1033.230.

Engine used in a locomotive means an engine incorporated into a locomotive or intended for incorporation into a locomotive.

Engineering analysis means a summary of scientific and/or engineering principles and facts that support a conclusion made by a manufacturer/remanufacturer, with respect to compliance with the provisions of this part.

EPA Enforcement Officer means any officer or employee of the Environmental Protection Agency so designated in writing by the Administrator or his/her designee.

Exempted means relating to a locomotive that is not required to meet otherwise applicable standards. Exempted locomotives must conform to regulatory conditions specified for an exemption in this part 1033 or in 40 CFR part 1068. Exempted locomotives are deemed to be “subject to” the standards of this part, even though they

are not required to comply with the otherwise applicable requirements.

Locomotives exempted with respect to a certain tier of standards may be required to comply with an earlier tier of standards as a condition of the exemption; for example, locomotives exempted with respect to Tier 3 standards may be required to comply with Tier 2 standards.

Excluded means relating to a locomotive that either has been determined not to be a locomotive (as defined in this section) or otherwise excluded under section § 1033.5. Excluded locomotives are not subject to the standards of this part

Exhaust emissions means substances (i.e., gases and particles) emitted to the atmosphere from any opening downstream from the exhaust port or exhaust valve of a locomotive engine.

Exhaust-gas recirculation means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the locomotive to be mixed with incoming air before or during combustion. The use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion is not considered exhaust-gas recirculation for the purposes of this part.

Freshly manufactured locomotive means a new locomotive that contains fewer than 25 percent previously used parts (weighted by the dollar value of the parts) as described in § 1033.640.

Freshly manufactured engine means a new engine that has not been remanufactured. An engine becomes freshly manufactured when it is originally manufactured.

Family emission limit (FEL) means an emission level declared by the manufacturer/remanufacturer to serve in place of an otherwise applicable emission standard under the ABT program in subpart H of this part. The family emission limit must be expressed to the same number of decimal places as the emission standard it replaces. The family emission limit serves as the emission standard for the engine family with respect to all required testing.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to the combustion chamber(s), including the fuel tank, fuel tank cap, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents.

Fuel type means a general category of fuels such as diesel fuel or natural gas. There can be multiple grades within a

single fuel type, such as high-sulfur or low-sulfur diesel fuel.

Gaseous fuel means a fuel which is a gas at standard temperature and pressure. This includes both natural gas and liquefied petroleum gas.

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

Green engine factor means a factor that is applied to emission measurements from a locomotive or locomotive engine that has had little or no service accumulation. The green engine factor adjusts emission measurements to be equivalent to emission measurements from a locomotive or locomotive engine that has had approximately 300 hours of use.

High-altitude means relating to an altitude greater than 4000 feet (1220 meters) and less than 7000 feet (2135 meters), or equivalent observed barometric test conditions (approximately 79 to 88 kPa).

High-sulfur diesel fuel means one of the following:

(1) For in-use fuels, high-sulfur diesel fuel means a diesel fuel with a maximum sulfur concentration greater than 500 parts per million.

(2) For testing, high-sulfur diesel fuel has the meaning given in 40 CFR part 1065.

Hotel power means the power provided by an engine on a locomotive to operate equipment on passenger cars of a train; e.g., heating and air conditioning, lights, etc.

Hydrocarbon (HC) means the hydrocarbon group (THC, NMHC, or THCE) on which the emission standards are based for each fuel type as described in § 1033.101.

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular locomotive from other similar locomotives.

Idle speed means the speed, expressed as the number of revolutions of the crankshaft per unit of time (e.g., rpm), at which the engine is set to operate when not under load for purposes of propelling the locomotive. There are typically one or two idle speeds on a locomotive as follows:

(1) *Normal idle speed* means the idle speed for the idle throttle-notch position for locomotives that have one throttle-notch position, or the highest idle speed for locomotives that have two idle throttle-notch positions.

(2) *Low idle speed* means the lowest idle speed for locomotives that have two idle throttle-notch positions.

Inspect and qualify means to determine that a previously used component or system meets all applicable criteria listed for the component or system in a certificate of conformity for remanufacturing (such as to determine that the component or system is functionally equivalent to one that has not been used previously).

Installer means an individual or entity that assembles remanufactured locomotives or locomotive engines.

Liquefied petroleum gas means the commercial product marketed as propane or liquefied petroleum gas.

Locomotive means a self-propelled piece of on-track equipment designed for moving or propelling cars that are designed to carry freight, passengers or other equipment, but which itself is not designed or intended to carry freight, passengers (other than those operating the locomotive) or other equipment. The following other equipment are not locomotives (see 40 CFR parts 86, 89, and 1039 for this diesel-powered equipment):

(1) Equipment which is designed for operation both on highways and rails is not a locomotive.

(2) Specialized railroad equipment for maintenance, construction, post-accident recovery of equipment, and repairs; and other similar equipment, are not locomotives.

(3) Vehicles propelled by engines with total rated power of less than 750 kW (1006 hp) are not locomotives, unless the owner (which may be a manufacturer) chooses to have the equipment certified to meet the requirements of this part (under § 1033.615). Where equipment is certified as a locomotive pursuant to this paragraph (3), it is subject to the requirements of this part for the remainder of its service life. For locomotives propelled by two or more engines, the total rated power is the sum of the rated power of each engine.

Low-hour means relating to a locomotive with stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 300 hours of operation.

Low mileage locomotive means a locomotive during the interval between the time that normal assembly operations and adjustments are completed and the time that either 10,000 miles of locomotive operation or 300 additional operating hours have been accumulated (including emission testing if performed).

Low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, low-sulfur diesel fuel means a diesel fuel marketed as low-sulfur fuel with a sulfur concentration of 15 to 500 parts per million.

(2) For testing, low-sulfur diesel fuel has the meaning given in 40 CFR part 1065.

Malfunction means a condition in which the operation of a component in a locomotive or locomotive engine occurs in a manner other than that specified by the certifying manufacturer/remanufacturer (e.g., as specified in the application for certification); or the operation of the locomotive or locomotive engine in that condition.

Manufacture means the physical and engineering process of designing, constructing, and assembling a locomotive or locomotive engine.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act with respect to freshly manufactured locomotives or engines. In general, this term includes any person who manufactures a locomotive or engine for sale in the United States or otherwise introduces a new locomotive or engine into commerce in the United States. This includes importers who import locomotives or engines for resale.

Manufacturer/remanufacturer means the manufacturer of a freshly manufactured locomotive or the remanufacturer of a remanufactured locomotive, as applicable.

Model year means a calendar year in which a locomotive is manufactured or remanufactured.

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

(1) A locomotive or engine is new if its equitable or legal title has never been transferred to an ultimate purchaser. Where the equitable or legal title to a locomotive or engine is not transferred prior to its being placed into service, the locomotive or engine ceases to be new when it is placed into service. A locomotive or engine also becomes new if it is remanufactured (as defined in this section). A remanufactured locomotive or engine ceases to be new when placed back into service. With respect to imported locomotives or locomotive engines, the term "new locomotive" or "new locomotive engine" also means a locomotive or locomotive engine that is not covered by a certificate of conformity under this part at the time of importation, and that was manufactured or remanufactured

after the effective date of the emission standards in this part which is applicable to such locomotive or engine (or which would be applicable to such locomotive or engine had it been manufactured or remanufactured for importation into the United States). Note that replacing an engine in one locomotive with an unremanufactured used engine from a different locomotive does not make a locomotive new.

(2) The provisions of paragraph (1) of this definition do not apply for the following cases:

(i) Locomotives and engines that were originally manufactured before January 1, 1973 are not considered to become new when remanufactured unless they have been upgraded (as defined in this section). The provisions of paragraph (1) of this definition apply for locomotives that have been upgraded.

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

Nonconforming means relating to a locomotive that is not covered by a certificate of conformity prior to importation or being offered for importation (or for which such coverage has not been adequately demonstrated to EPA); or a locomotive which was originally covered by a certificate of conformity, but which is not in a certified configuration, or otherwise does not comply with the conditions of that certificate of conformity. (Note: Domestic locomotives and locomotive engines not covered by a certificate of conformity prior to their introduction into U.S. commerce are considered to be noncomplying locomotives and locomotive engines.)

Non-locomotive-specific engine means an engine that is sold for and used in non-locomotive applications much more than for locomotive applications.

Nonmethane hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the difference between the emitted mass of total hydrocarbons and the emitted mass of methane.

Nonroad means relating to a nonroad engines as defined in 40 CFR 1068.30.

Official emission result means the measured emission rate for an emission-data locomotive on a given duty cycle before the application of any deterioration factor, but after the application of regeneration adjustment

factors, green engine factors, and/or humidity correction factors.

Opacity means the fraction of a beam of light, expressed in percent, which fails to penetrate a plume of smoke, as measured by the procedure specified in § 1033.515.

Oxides of nitrogen has the meaning given in 40 CFR part 1065.

Original manufacture means the event of freshly manufacturing a locomotive or locomotive engine. The date of original manufacture is the date of final assembly, except as provided in § 1033.655. Where a locomotive is manufactured under § 1033.620(b), the date of original manufacture is the date on which the final assembly of locomotive was originally scheduled. See also § 1033.640

Original remanufacture means the first remanufacturing of a locomotive at which the locomotive is subject to the emission standards of this part.

Owner/operator means the owner and/or operator of a locomotive.

Owners manual means a written or electronic collection of instructions provided to ultimate purchasers to describe the basic operation of the locomotive.

Particulate trap means a filtering device that is designed to physically trap all particulate matter above a certain size.

Passenger locomotive means a locomotive designed and constructed for the primary purpose of propelling passenger trains, and providing power to the passenger cars of the train for such functions as heating, lighting and air conditioning.

Petroleum fuel means gasoline or diesel fuel or another liquid fuel primarily derived from crude oil.

Placed into service means put into initial use for its intended purpose after becoming new.

Power assembly means the components of an engine in which combustion of fuel occurs, and consists of the cylinder, piston and piston rings, valves and ports for admission of charge air and discharge of exhaust gases, fuel injection components and controls, cylinder head and associated components.

Primary fuel means the type of fuel (e.g., diesel fuel) that is consumed in the greatest quantity (mass basis) when the locomotive is operated in use.

Produce means to manufacture or remanufacture. Where a certificate holder does not actually assemble the locomotives or locomotive engines that it manufactures or remanufactures, produce means to allow other entities to assemble locomotives under the certificate holder's certificate.

Railroad means a commercial entity that operates locomotives to transport passengers or freight.

Ramped-modal means relating to the ramped-modal type of testing in subpart F of this part.

Rated power has the meaning given in § 1033.140.

Refurbish has the meaning given in § 1033.640.

Remanufacture means one of the following:

(1)(i) To replace, or inspect and qualify, each and every power assembly of a locomotive or locomotive engine, whether during a single maintenance event or cumulatively within a five year period.

(ii) To upgrade a locomotive or locomotive engine.

(iii) To convert a locomotive or locomotive engine to enable it to operate using a fuel other than it was originally manufactured to use.

(iv) To install a remanufactured engine or a freshly manufactured engine into a previously used locomotive.

(v) To repair a locomotive engine that does not contain power assemblies to a condition that is equivalent to or better than its original condition with respect to reliability and fuel consumption.

(2) Remanufacture also means the act of remanufacturing.

Remanufacture system or *remanufacturing system* means all components (or specifications for components) and instructions necessary to remanufacture a locomotive or locomotive engine in accordance with applicable requirements of this part or 40 CFR part 92.

Remanufactured locomotive means either a locomotive powered by a remanufactured locomotive engine, or a repowered locomotive.

Remanufactured locomotive engine means a locomotive engine that has been remanufactured.

Remanufacturer has the meaning given to "manufacturer" in section 216(1) of the Clean Air Act with respect to remanufactured locomotives. (See §§ 1033.1 and 1033.601 for applicability of this term.) This term includes:

(1) Any person that is engaged in the manufacture or assembly of remanufactured locomotives or locomotive engines, such as persons who:

(i) Design or produce the emission-related parts used in remanufacturing.

(ii) Install parts in an existing locomotive or locomotive engine to remanufacture it.

(iii) Own or operate the locomotive or locomotive engine and provide specifications as to how an engine is to be remanufactured (i.e., specifying who

will perform the work, when the work is to be performed, what parts are to be used, or how to calibrate the adjustable parameters of the engine).

(2) Any person who imports remanufactured locomotives or remanufactured locomotive engines.

Repower means replacement of the engine in a previously used locomotive with a freshly manufactured locomotive engine. See § 1033.640.

Repowered locomotive means a locomotive that has been repowered with a freshly manufactured engine.

Revoke has the meaning given in 40 CFR 1068.30. In general this means to terminate the certificate or an exemption for an engine family.

Round means to round numbers as specified in 40 CFR 1065.1001.

Service life means the total life of a locomotive. Service life begins when the locomotive is originally manufactured and continues until the locomotive is permanently removed from service.

Small railroad means a railroad meeting the criterion of paragraph (1) or (2) of this definition, but not the criterion of paragraph (3) of this definition. For the purpose of this part, the number of employees includes all employees of the railroad's parent company, if applicable.

(1) Line-haul railroads with 1,500 or fewer employees are small railroads.

(2) Local and terminal railroads with 500 or fewer employees are small railroads.

(3) Intercity passenger and commuter railroads are excluded from this definition of small railroad.

Small manufacturer means a manufacturer/remanufacturer with 1,000 or fewer employees. For purposes of this part, the number of employees includes all employees of the manufacturer/remanufacturer's parent company, if applicable.

Specified adjustable range means the range of allowable settings for an adjustable component specified by a certificate of conformity.

Specified by a certificate of conformity or *specified in a certificate of conformity* means stated or otherwise specified in a certificate of conformity or an approved application for certification.

Sulfur-sensitive technology means an emission-control technology that experiences a significant drop in emission control performance or emission-system durability when a locomotive is operated on low-sulfur fuel (*i.e.*, fuel with a sulfur concentration of 300 to 500 ppm) as compared to when it is operated on ultra low-sulfur fuel (*i.e.*, fuel with a sulfur concentration less than 15 ppm).

Exhaust-gas recirculation is not a sulfur-sensitive technology.

Suspend has the meaning given in 40 CFR 1068.30. In general this means to temporarily discontinue the certificate or an exemption for an engine family.

Switch locomotive means a locomotive that is powered by an engine with a maximum rated power (or a combination of engines having a total rated power) of 2300 hp or less.

Test locomotive means a locomotive or engine in a test sample.

Test sample means the collection of locomotives or engines selected from the population of an engine family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Tier 1 means relating to the Tier 1 emission standards, as shown in § 1033.101.

Tier 2 means relating to the Tier 2 emission standards, as shown in § 1033.101.

Tier 3 means relating to the Tier 3 emission standards, as shown in § 1033.101.

Tier 4 means relating to the Tier 4 emission standards, as shown in § 1033.101.

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001. This generally means the sum of the carbon mass contributions of non-oxygenated hydrocarbons, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled locomotives. The hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Ultimate purchaser means the first person who in good faith purchases a new locomotive for purposes other than resale.

Ultra low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, ultra low-sulfur diesel fuel means a diesel fuel with a maximum sulfur concentration of 15 parts per million.

(2) For testing, ultra low-sulfur diesel fuel has the meaning given in 40 CFR part 1065.

Upcoming model year means for an engine family the model year after the one currently in production.

Upgrade means to modify a locomotive that was originally

manufactured prior to January 1, 1973 (or a locomotive that was originally manufactured on or after January 1, 1973, and that is not subject to the emission standards of this part), such that it is intended to comply with the Tier 0 standards. Upgrading is a type of remanufacturing. See § 1033.615.

U.S.-directed production volume means the number of locomotives, subject to the requirements of this part, produced by a manufacturer/remanufacturer for which the manufacturer/remanufacturer 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 locomotive engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as work output or miles. It is the period during which a new locomotive is required to comply with all applicable emission standards. See § 1033.101(g).

Void has the meaning given in 40 CFR 1068.30. In general this means to invalidate a certificate or an exemption both retroactively and prospectively.

Volatile fuel means a volatile liquid fuel or any fuel that is a gas at atmospheric pressure. Gasoline, natural gas, and LPG are volatile fuels.

Volatile liquid fuel means any liquid fuel other than diesel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

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

§ 1033.905 Symbols, acronyms, and abbreviations.

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

AECD	auxiliary emission control device.
CFR	Code of Federal Regulations.
CO	carbon monoxide.
CO ₂	carbon dioxide.
EPA	Environmental Protection Agency.
FEL	Family Emission Limit.
g/bhp-hr	grams per brake horsepower-hour.
HC	hydrocarbon.
hp	horsepower.
LPG	liquefied petroleum gas.
LSD	low sulfur diesel.
MW	megawatt.
NIST	National Institute of Standards and Technology.
NMHC	nonmethane hydrocarbons.
NO _x	oxides of nitrogen.
PM	particulate matter.
rpm	revolutions per minute.
SAE	Society of Automotive Engineers.
SCR	selective catalytic reduction.

SEA	Selective Enforcement Audit.
THC	total hydrocarbon.
THCE	total hydrocarbon equivalent.
ULSD	ultra low sulfur diesel.
U.S.C.	United States Code.

§ 1033.915 Confidential information.

(a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.

(b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.

(c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.

(d) If you send us information without claiming it is confidential, we may make it available to the public without further notice to you, as described in 40 CFR 2.204.

§ 1033.920 How to request a hearing.

(a) You may request a hearing under certain circumstances, as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.

(b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.

(c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

13. A new part 1042 is added to subchapter U of chapter I to read as follows:

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

Sec.

Subpart A—Overview and Applicability

- 1042.1 Applicability.
- 1042.2 Who is responsible for compliance?
- 1042.5 Exclusions.
- 1042.10 Organization of this part.
- 1042.15 Do any other regulation parts apply to me?

Subpart B—Emission Standards and Related Requirements

- 1042.101 Exhaust emission standards.

- 1042.107 Evaporative emission standards.
- 1042.110 Recording urea use and other diagnostic functions.
- 1042.115 Other requirements.
- 1042.120 Emission-related warranty requirements.
- 1042.125 Maintenance instructions for Category 1 and Category 2 engines.
- 1042.130 Installation instructions for vessel manufacturers.
- 1042.135 Labeling.
- 1042.140 Maximum engine power, displacement, and power density.
- 1042.145 Interim provisions.

Subpart C—Certifying Engine Families

- 1042.201 General requirements for obtaining a certificate of conformity.
- 1042.205 Application requirements.
- 1042.210 Preliminary approval.
- 1042.220 Amending maintenance instructions.
- 1042.225 Amending applications for certification.
- 1042.230 Engine families.
- 1042.235 Emission testing required for a certificate of conformity.
- 1042.240 Demonstrating compliance with exhaust emission standards.
- 1042.245 Deterioration factors.
- 1042.250 Recordkeeping and reporting.
- 1042.255 EPA decisions.

Subpart D—Testing Production-line Engines

- 1042.301 General provisions.
- 1042.305 Preparing and testing production-line engines.
- 1042.310 Engine selection.
- 1042.315 Determining compliance.
- 1042.320 What happens if one of my production-line engines fails to meet emission standards?
- 1042.325 What happens if an engine family fails the production-line testing requirements?
- 1042.330 Selling engines from an engine family with a suspended certificate of conformity.
- 1042.335 Reinstating suspended certificates.
- 1042.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?
- 1042.345 Reporting.
- 1042.350 Recordkeeping.

Subpart E—In-use Testing

- 1042.401 General Provisions.

Subpart F—Test Procedures

- 1042.501 How do I run a valid emission test?
- 1042.505 Testing engines using discrete-mode or ramped-modal duty cycles.
- 1042.515 Test procedures related to not-to-exceed standards.
- 1042.520 What testing must I perform to establish deterioration factors?
- 1042.525 How do I adjust emission levels to account for infrequently regenerating aftertreatment devices?

Subpart G—Special Compliance Provisions

- 1042.601 General compliance provisions for marine engines and vessels.
- 1042.605 Dressing engines already certified to other standards for nonroad or heavy-duty highway engines for marine use.
- 1042.610 Certifying auxiliary marine engines to land-based standards.
- 1042.620 Engines used solely for competition.
- 1042.630 Personal-use exemption.
- 1042.640 Special provisions for branded engines.
- 1042.660 Requirements for vessel manufacturers, owners, and operators.

Subpart H—Averaging, Banking, and Trading for Certification

- 1042.701 General provisions.
- 1042.705 Generating and calculating emission credits.
- 1042.710 Averaging emission credits.
- 1042.715 Banking emission credits.
- 1042.720 Trading emission credits.
- 1042.725 Information required for the application for certification.
- 1042.730 ABT reports.
- 1042.735 Recordkeeping.
- 1042.745 Noncompliance.

Subpart I—Definitions and Other Reference Information

- 1042.801 Definitions.
- 1042.805 Symbols, acronyms, and abbreviations.
- 1042.810 Reference materials.
- 1042.815 Confidential information.
- 1042.820 Hearings.
- 1042.825 Reporting and recordkeeping requirements.

Appendix I to Part 1042—Summary of Previous Emission Standards**Appendix II to Part 1042—Steady-State Duty Cycles****Appendix III to Part 1042—Not-to-Exceed Zones**

Authority: 42 U.S.C. 7401—7671q.

Subpart A—Overview and Applicability**§ 1042.1 Applicability.**

Except as provided in § 1042.5, the regulations in this part 1042 apply for all new compression-ignition marine engines with per-cylinder displacement below 30.0 liters per cylinder and vessels containing such engines. See § 1042.801 for the definitions of engines and vessels considered to be new. This part 1042 applies as follows:

(a) This part 1042 applies starting with the model years noted in the following tables:

TABLE 1 OF § 1042.1.—PART 1042 APPLICABILITY BY MODEL YEAR

Engine category	Maximum engine power	Displacement (L/cyl)	Model year
Category 1 ^a	kW <75	All	2009
	75 ≤ kW < 3700	disp.<0.9	2012
		0.9 ≤ disp. <1.2	2013
		1.2 ≤ disp. <2.5	2014
		2.5 ≤ disp. <3.5	2013
Category 2		3.5 ≤ disp. <7.0	2012
	kW ≤ 3700	7.0 ≤ disp. <15.0	2013
	kW > 3700		2014
	All	15 ≤ disp. < 30	2014

^aThis part 1042 applies to commercial Category 1 engines with power density above 35 kW/L starting in the 2017 model year for engines above 600 kW and below 1400 kW, and in the 2016 model year for engines at or above 1400 kW and at or below 3700 kW.

(b) [Reserved]

(c) See 40 CFR part 94 for requirements that apply to engines with maximum engine power at or above 37 kW not yet subject to the requirements of this part 1042. See 40 CFR part 89 for requirements that apply to engines with maximum engine power below 37 kW not yet subject to the requirements of this part 1042.

(d) The provisions of §§ 1042.620 and 1042.801 apply for new engines used solely for competition beginning January 1, 2009.

§ 1042.2 Who is responsible for compliance?

The regulations in this part 1042 contain provisions that affect both engine manufacturers and others. However, the requirements of this part are generally addressed to the engine manufacturer. The term “you” generally means the engine manufacturer, as defined in § 1042.801, especially for issues related to certification (including production-line testing, reporting, etc.).

§ 1042.5 Exclusions.

This part does not apply to the following marine engines:

(a) *Foreign vessels.* The requirements and prohibitions of this part do not apply to engines installed on foreign vessels, as defined in § 1042.801.

(b) *Hobby engines.* Engines with per-cylinder displacement below 50 cubic centimeters are not subject to the provisions of this part 1042.

§ 1042.10 Organization of this part.

This part 1042 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of this part 1042 and gives an overview of regulatory requirements.

(b) Subpart B of this part describes the emission standards and other requirements that must be met to certify engines under this part. Note that § 1042.145 discusses certain interim

requirements and compliance provisions that apply only for a limited time.

(c) Subpart C of this part describes how to apply for a certificate of conformity.

(d) Subpart D of this part describes general provisions for testing production-line engines.

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

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

(g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to engine manufacturers, vessel manufacturers, owners, operators, rebuilders, and all others.

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

(i) Subpart I of this part contains definitions and other reference information.

§ 1042.15 Do any other regulation parts apply to me?

(a) The evaporative emission requirements of part 1060 of this chapter apply to vessels that include installed engines fueled with a volatile liquid fuel as specified in § 1042.107.

(Note: Conventional diesel fuel is not considered to be a volatile liquid fuel.)

(b) Part 1065 of this chapter describes procedures and equipment specifications for testing engines. Subpart F of this part 1042 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the emission standards in this part.

(c) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, imports, installs, owns, operates, or rebuilds any of the engines subject to this part 1042, or vessels

containing these engines. Part 1068 of this chapter describes general provisions, including these seven areas:

(1) Prohibited acts and penalties for engine manufacturers, vessel manufacturers, and others.

(2) Rebuilding and other aftermarket changes.

(3) Exclusions and exemptions for certain engines.

(4) Importing engines.

(5) Selective enforcement audits of your production.

(6) Defect reporting and recall.

(7) Procedures for hearings.

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

Subpart B—Emission Standards and Related Requirements

§ 1042.101 Exhaust emission standards.

(a) Exhaust emissions from your engines may not exceed emission standards, as follows:

(1) Measure emissions using the test procedures described in subpart F of this part.

(2) The CO emission standards in this paragraph (a)(2) apply starting with the applicable model year shown for Tier 3 standards in Table 1 of this section. These standards continue to apply for Tier 4 engines. The following CO emission standards apply:

(i) 8.0 g/kW-hr for engines below 8 kW.

(ii) 6.6 g/kW-hr for engines at or above 8 kW and below 19 kW.

(iii) 5.5 g/kW-hr for engines at or above 19 kW and below 37 kW.

(iv) 5.0 g/kW-hr for engines at or above 37 kW.

(3) Except as described in paragraph (a)(4) of this section, the Tier 3 standards for PM and NO_x+HC emissions are described in Tables 1 and 2 of this section, which follow.

TABLE 1 OF 1042.101.—TIER 3 STANDARDS FOR CATEGORY 1 ENGINES

Power density and application	Displacement (L/cyl)	Maximum engine power	Model year	PM (g/kW-hr)	NO _x +HC (g/kW-hr)	
all	disp. < 0.9	kW < 19	2009	0.40	7.5	
		19 ≤ kW < 75	2009	0.30	7.5	
			2014	0.30	4.7	
	0.9 ≤ disp. < 1.2	kW ≥ 75		2012	0.14	5.4
			all	2013	0.12	5.4
				2014	0.11	5.6
			2018	0.10	5.6	
Commercial engines with kW/L 35	2.5 ≤ disp. < 3.5	600 ≤ kW < 3700	2014	0.11	5.6	
		kW < 600	2013	0.11	5.6	
			2018	0.10	5.6	
	3.5 ≤ disp. ≤ 7.0	600 ≤ kW ≤ 3700	2013	0.11	5.6	
		kW < 600	2012	0.11	5.8	
			2018	0.10	5.8	
Commercial engines with kW/L > 35 and all recreational engines.	disp. < 0.9	600 ≤ kW ≤ 3700	2012	0.11	5.8	
		kW ≡ 75	2012	0.15	5.8	
			2013	0.14	5.8	
	0.9 ≤ disp. < 1.2	kW ≡ 75		2014	0.12	5.8
				2013	0.12	5.8
				2012	0.12	5.4

(4) For Tier 3 engines with displacement below 0.9 L/cyl and maximum engine power above 19 kW and at or below 75 kW, you may certify to a PM emission standard of 0.20 g/kW-hr and a NO_x+HC emission standard of 5.8 g/kW-hr for 2014 and later model years.

TABLE 2 OF 1042.101.—TIER 3 STANDARDS FOR CATEGORY 2 ENGINES ^a

Displacement (L/cyl)	Maximum engine power	Model year	PM (g/kW-hr)	NO _x +HC (g/kW-hr)
7.0 ≤ disp. < 15.0	kW ≤ 3700	2013	0.14	6.2
	15.0 ≤ disp. < 20.0	2014	0.34	7.0
20.0 ≤ disp. < 25.0	3300 < kW ≤ 3700	2014	0.27	8.7
	kW ≤ 3700	2014	0.27	9.8
25.0 < disp. < 30.0	kW ≤ 3700	2014	0.27	11.0

^aNo Tier 3 standards apply for engines above 3700 kW. See § 1042.1(c) for the standards that apply for these engines.

(5) Except as described in paragraph (a)(6) of this section, the Tier 4 standards for PM, NO_x, and HC emissions are described in the following table:

TABLE 3 OF 1042.101.—TIER 4 STANDARDS FOR CATEGORY 1 AND CATEGORY 2 ENGINES ^a

Application	Maximum engine power	Displacement (L/cyl)	Model year	PM (g/kW-hr)	NO _x (g/kW-hr)	HC (g/kW-hr)
Commercial only	600 ≤ kW < 1400	all	2017	0.04	1.8	0.19
Commercial only	1400 ≤ kW ≤ 2000	all	2016	0.04	1.8	0.19
Commercial and recreational.	2000 < kW ≤ 3700	all	2016	0.04	1.8	0.19
Commercial and recreational.	kW > 3700	disp. < 15.0	2014	0.12	1.8	0.19
		15.0 ≤ disp. ≤ 30.0	2014	0.25	1.8	0.19
		all	2016	0.06	1.8	0.19

^aNo Tier 4 standards apply for recreational engines at or below 2000 kW or for commercial engines below 600 kW. The Tier 3 standards continue to apply for these engines.

(6) The following optional provisions apply for complying with the Tier 4 standards specified in paragraph (a)(5) of this section:

(i) You may certify Tier 4 engines to a NO_x+HC emission standard of 1.8 g/

kW-hr instead of the NO_x and HC standards that would otherwise apply.

(ii) For engines below 1000 kW, you may delay complying with the Tier 4 standards in the 2017 model year for up to nine months, but you must comply no later than October 1, 2017.

(iii) For engines above 3700 kW, you may delay complying with the Tier 4 standards in the 2016 model year for up to twelve months, but you must comply no later than December 31, 2016.

(iv) For Category 2 engines with displacement below 15.0 L/cyl and with

maximum engine power at or below 3700 kW, you may alternatively comply with the Tier 4 PM and HC standards in the 2015 model year and delay complying with the Tier 4 NO_x standard until the 2017 model year. In the 2015 and 2016 model years, these engines must also comply with the Tier 3 NO_x+HC standard.

(b) *Averaging, banking, and trading.* You may generate or use emission credits under the averaging, banking, and trading (ABT) program as described in subpart H of this part for demonstrating compliance with NO_x, NO_x+HC, and PM emission standards for Category 1 and Category 2 engines. You may also use NO_x or NO_x+HC emission credits to comply with the alternate NO_x+HC standards in paragraph (a)(6)(i) of this section. Generating or using emission credits requires that you specify a family emission limit (FEL) for each pollutant you include in the ABT program for each engine family. These FELs serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in paragraph (a) of this section. The FELs determine the not-to-exceed standards for your engine family, as specified in paragraph (c) of this section. The following FEL caps apply:

(1) FELs for Tier 3 engines may not be higher than the Tier 2 standards specified in Appendix I of this part.

(2) FELs for Tier 4 engines may not be higher than the Tier 3 standards specified in paragraph (a)(3) of this section.

(c) *Not-to-exceed standards.* Exhaust emissions from your propulsion or auxiliary engines may not exceed the not-to-exceed (NTE) standards, as described in this paragraph (c).

(1) Use the following equation to determine the NTE standards:

(i) NTE standard for each pollutant = $STD \times M$

Where:

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

M = The NTE multiplier for that pollutant, as defined in Appendix III of this part 1042.

(ii) Round each NTE standard to the same number of decimal places as the emission standard.

(2) Determine the applicable NTE zone and subzones. The NTE zone and subzones for an engine family are defined in Appendix III of this part 1042, according to the applicable certification duty cycle(s). For an engine family certified to multiple duty cycles,

the broadest applicable NTE zone applies for that family at the time of certification. Whenever an engine family is certified to multiple duty cycles and a specific engine from that family is tested for NTE compliance in-use, determine the applicable NTE zone for that engine according to that engine's in-use application. An engine family's NTE zone may be modified as follows:

(i) You may ask us to approve a narrower NTE zone for an engine family at the time of certification, based on information such as how that engine family is expected to normally operate in use. For example, if an engine family is always coupled to a pump or jet drive, the engine might be able to operate only within a narrow range of engine speed and power.

(ii) You may ask us to approve a Limited Testing Region (LTR). An LTR is a region of engine operation, within the applicable NTE zone, where you have demonstrated that your engine family operates for no more than 5.0 percent of its normal in-use operation, on a time-weighted basis. You must specify an LTR using boundaries based on engine speed and power (or torque), where the LTR boundaries must coincide with some portion of the boundary defining the overall NTE zone. Any emission data collected within an LTR for a time duration that exceeds 5.0 percent of the duration of its respective NTE sampling period (as defined in paragraph (c)(3) of this section) will be excluded when determining compliance with the applicable NTE standards. Any emission data collected within an LTR for a time duration of 5.0 percent or less of the duration of the respective NTE sampling period will be included when determining compliance with the NTE standards.

(iii) You must notify us if you design your engines for normal in-use operation outside the applicable NTE zone. If we learn that normal in-use operation for your engines includes other speeds and loads, we may specify a broader NTE zone, as long as the modified zone is limited to normal in-use operation for speeds greater than 70 percent of maximum test speed and loads greater than 30 percent of maximum power at maximum test speed (or 30 percent of maximum test torque, as appropriate).

(iv) You may exclude emission data based on ambient or engine parameter limit values as follows:

(A) *NO_x catalytic aftertreatment minimum temperature.* For an engine equipped with a catalytic NO_x aftertreatment system, exclude NO_x

emission data that is collected when the exhaust temperature is less than 150 °C, as measured within 30 cm downstream of the last NO_x aftertreatment device that has the greatest exhaust flow. You may request that we approve a higher minimum exhaust temperature limit at the time of certification based on the normal in-use operation of the NO_x exhaust aftertreatment system for the engine family. We will generally not approve a minimum exhaust temperature for catalytic NO_x aftertreatment greater than 250 °C.

(B) *Hydrocarbon catalytic aftertreatment minimum temperature.* For an engine equipped with a catalytic hydrocarbon aftertreatment system, exclude hydrocarbon emission data that is collected when the exhaust temperature is less than 250 °C, as measured within 30 cm downstream of the last hydrocarbon aftertreatment device that has the greatest exhaust flow.

(C) *Other parameters.* You may request our approval for other minimum or maximum ambient or engine parameter limit values at the time of certification.

(3) The NTE standards apply to your engines whenever they operate within the NTE zone for an NTE sampling period of at least thirty seconds, during which only a single operator demand set point may be selected. Engine operation during a change in operator demand is excluded from any NTE sampling period. There is no maximum NTE sampling period.

(4) Collect emission data for determining compliance with the NTE standards using the procedures described in subpart F of this part.

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

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

(i) Alcohol-fueled engines must comply with Tier 3 HC standards based on THCE emissions and with Tier 4 standards based on NMHCE emissions.

(ii) Natural gas-fueled engines must comply with HC standards based on NMHC emissions.

(iii) Diesel-fueled and other engines must comply with Tier 3 HC standards based on THC emissions and with Tier 4 standards based on NMHC emissions.

(2) Tier 3 and later engines must comply with the exhaust emission standards when tested using test fuels

containing 15 ppm or less sulfur (ultra low-sulfur diesel fuel).

(3) Engines designed to operate using residual fuel must comply with the standards and requirements of this part when operated using residual fuel in addition to complying with the requirements of this part when operated using diesel fuel.

(e) *Useful life.* Your engines must meet the exhaust emission standards of this section over their full useful life.

(1) The minimum useful life values are as follows, except as specified by paragraph (e)(2) or (3) of this section:

(i) 10 years or 1,000 hours of operation for recreational Category 1 engines.

(ii) 10 years or 10,000 hours of operation for commercial Category 1 engines.

(iii) 10 years or 20,000 hours of operation for Category 2 engines.

(iv) [Reserved]

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild indicates a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

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

(i) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

(f) *Applicability for testing.* The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in § 1042.505, including certification, production-line, and in-use testing. The not-to-exceed standards apply for all testing performed according to the procedures of subpart F of this part.

§ 1042.107 Evaporative emission standards.

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

(b) If an engine uses a volatile liquid fuel, such as methanol, the engine's fuel system and the vessel in which the engine is installed must meet the evaporative emission requirements of 40 CFR part 1045 that apply with respect to spark-ignition engines. Manufacturers subject to evaporative emission standards must meet the requirements of 40 CFR 1045.105 as described in 40 CFR part 1060 and do all the following things in the application for certification:

(1) Describe how evaporative emissions are controlled.

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

§ 1042.110 Recording urea use and other diagnostic functions.

(a) Engines equipped with SCR systems must meet the following requirements:

(1) The diagnostic system must monitor urea quality and tank levels and alert operators to the need to refill the urea tank using a malfunction-indicator light (MIL) and an audible alarm. You do not need to separately monitor urea quality if you include an exhaust NO_x sensor that allows you determine inadequate urea quality along with other SCR malfunctions.

(2) The onboard computer log must record in nonvolatile computer memory all incidents of engine operation with inadequate urea injection or urea quality.

(b) You may equip your engine with other diagnostic features. If you do, they must be designed to allow us to read and interpret the codes. Note that §§ 1042.115 and 1042.205 require that you provide us any information needed to read, record, and interpret all the information broadcast by an engine's

onboard computers and electronic control units.

§ 1042.115 Other requirements.

Engines that are required to comply with the emission standards of this part must meet the following requirements:

(a) *Crankcase emissions.* Crankcase emissions may not be discharged directly into the ambient atmosphere from any engine throughout its useful life, except as follows:

(1) Engines may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust emissions (either physically or mathematically) during all emission testing. If you take advantage of this exception, you must do the following things:

(i) Manufacture the engines so that all crankcase emissions can be routed into the applicable sampling systems specified in 40 CFR part 1065.

(ii) Account for deterioration in crankcase emissions when determining exhaust deterioration factors.

(2) For purposes of this paragraph (a), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be discharged directly into the ambient atmosphere.

(b) *Torque broadcasting.* Electronically controlled engines must broadcast their speed and output shaft torque (in newton-meters). Engines may alternatively broadcast a surrogate value for determining torque. Engines must broadcast engine parameters such that they can be read with a remote device, or broadcast them directly to their controller area networks. This information is necessary for testing engines in the field (see § 1042.515).

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

(d) *Adjustable parameters.* An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. The following provisions apply for adjustable parameters:

(1) Category 1 engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. We may require that you set

adjustable parameters to any specification within the adjustable range during any testing, including certification testing, selective enforcement auditing, or in-use testing.

(2) Category 2 engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the approved adjustable range. You must specify in your application for certification the adjustable range of each adjustable parameter on a new engine to—

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

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

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

(f) *Defeat devices.* You may not equip your engines with a defeat device. A defeat device is an auxiliary emission control device that reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use. 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 duty-cycle test procedures described in subpart F of this part (the portion during which emissions are measured). See paragraph (f)(4) of this section for other conditions.

(2) You show your design is necessary to prevent engine (or vessel) damage or accidents.

(3) The reduced effectiveness applies only to starting the engine.

(4) The auxiliary emission control device reduces urea flow for a selective catalytic reduction (SCR) aftertreatment system and meets the requirements of this paragraph (f)(4). For any operation meeting one of the conditions of paragraph (f)(4)(i) of this section, your SCR system must function so that at least one of the conditions of paragraph (ii) of this paragraph (f)(4)(ii) of this

section is met at the applicable speed and loads.

(i) The provisions of this paragraph (f)(4) apply under either of the following conditions:

(A) The ambient test conditions are outside the range specified in § 1042.501.

(B) The operation is at a speed and/or load not included as a duty-cycle test point, including transient operation between test points.

(ii) Consistent with good engineering judgment, your AECD is not a defeat device where one of the following is true:

(A) You maintain the mass flow of urea into the catalyst at the highest level possible without emitting ammonia at levels higher than would occur at operation at test points under test conditions.

(B) The temperature of the exhaust is too low to allow urea to be converted to ammonia.

§ 1042.120 Emission-related warranty requirements.

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

(1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.

(2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.

(b) *Warranty period.* Your emission-related warranty must be valid for at least as long as the minimum warranty periods listed in this paragraph (b) in hours of operation and years, whichever comes first. You may offer an emission-related warranty more generous than we require. The emission-related warranty for the engine may not be shorter than any published warranty you offer without charge for the engine. Similarly, the emission-related warranty for any component may not be shorter than any published warranty you offer without charge for that component. If an engine has no hour meter, we base the warranty periods in this paragraph (b) only on the engine's age (in years). The warranty period begins when the engine is placed into service. The following minimum warranty periods apply:

(1) For Category 1 and Category 2 engines, your emission-related warranty must be valid for at least 50 percent of the engine's useful life in hours of operation or a number of years equal to at least 50 percent of the useful life in years, whichever comes first.

(2) [Reserved]

(c) *Components covered.* The emission-related warranty covers all components whose failure would increase an engine's emissions of any pollutant, including those listed in 40 CFR part 1068, Appendix I, and those 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) *Owner's manual.* Describe in the owner's manual the emission-related warranty provisions from this section that apply to the engine.

§ 1042.125 Maintenance instructions for Category 1 and Category 2 engines.

Give the ultimate purchaser of each new engine written instructions for properly maintaining and using the engine, including the emission-control system, as described in this section. The maintenance instructions also apply to service accumulation on your emission-data engines as described in § 1042.245 and in 40 CFR part 1065. This section applies only to Category 1 and Category 2 engines.

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

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

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

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

(iii) You provide the maintenance free of charge and clearly say so in 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 3,000 hours: fuel injectors, turbochargers, catalytic converters, electronic control units, particulate traps, trap oxidizers, components related to particulate traps and trap oxidizers, EGR systems (including related components, but excluding filters and coolers), and other add-on components. For particulate traps, trap oxidizers, and components related to either of these, maintenance is limited to cleaning and repair only.

(3) For Category 1 and Category 2 engines at or above 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

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

(ii) For the following components, including associated sensors and actuators, the minimum interval is 4,500 hours: fuel injectors, turbochargers, catalytic converters, electronic control units, particulate traps, trap oxidizers, components related to particulate traps and trap oxidizers, EGR systems (including related components, but excluding filters and coolers), and other add-on components. For particulate traps, trap oxidizers, and components related to either of these, maintenance is limited to cleaning and repair only.

(4) We may approve shorter maintenance intervals than those listed in paragraph (a)(3) of this section where technologically necessary for Category 2 engines.

(5) If your engine family has an alternate useful life under § 1042.101(e) that is shorter than the period specified in paragraph (a)(2) or (a)(3) of this section, you may not schedule critical emission-related maintenance more frequently than the alternate useful life, except as specified in paragraph (c) of this section.

(b) *Recommended additional maintenance.* You may recommend any additional amount of maintenance on

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

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

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

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

(f) *Source of parts and repairs.* State clearly on the first page of your written

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

(1) Provide a component or service without charge under the purchase agreement.

(2) Get us to waive this prohibition in the public's interest by convincing us the engine will work properly only with the identified component or service.

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

(1) Each affected component was not in general use on similar engines before the applicable dates shown in paragraph (6) of the definition of *new marine engine* in § 1042.801.

(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) *Owner's manual.* Explain the owner's responsibility for proper maintenance in the owner's manual.

§ 1042.130 Installation instructions for vessel manufacturers.

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

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

(1) Include the heading: "Emission-related installation instructions".

(2) State: "Failing to follow these instructions when installing a certified engine in a vessel violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act."

(3) Describe the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of § 1042.205(u).

(4) Describe any necessary steps for installing the diagnostic system described in § 1042.110.

(5) Describe any limits on the range of applications needed to ensure that the engine operates consistently with your application for certification. For example, if your engines are certified only for constant-speed operation, tell vessel manufacturers not to install the engines in variable-speed applications or modify the governor.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

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

(8) Describe any vessel labeling requirements specified in § 1042.135.

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

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

§ 1042.135 Labeling.

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

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

(1) Attached in one piece so it is not removable without being destroyed or defaced. 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 § 1042.640.

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

(4) State the engine's category, displacement (in liters or L/cyl), maximum engine power (in kW), and power density (in kW/L) as needed to determine the emission standards for the engine family. You may specify displacement, maximum engine power, and power density as ranges consistent with the ranges listed in § 1042.101. See § 1042.140 for descriptions of how to specify per-cylinder displacement, maximum engine power, and power density.

(5) [Reserved]

(6) State the date of manufacture [MONTH and YEAR]; however, you may omit this from the label if you stamp or engrave it on the engine.

(7) State the FELs to which the engines are certified if you certified the engine using 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 § 1042.810). You may omit this information from the label if there is not enough room for it and you put it in the owner's manual instead.

(9) Identify the application(s) for which the engine family is certified (such as constant-speed auxiliary, variable-speed propulsion engines used with fixed-pitch propellers, etc.). If the engine is certified as a recreational engine, state: "INSTALLING THIS RECREATIONAL ENGINE IN A NONRECREATIONAL VESSEL VIOLATES FEDERAL LAW SUBJECT TO CIVIL PENALTY (40 CFR PART 1068)."

(10) For engines requiring ULSD, state: "ULTRA LOW SULFUR DIESEL FUEL ONLY".

(11) 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 owner's manual instead.

(12) State the useful life for your engine family.

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

(14) For an engine that can be modified to operate on residual fuel, but has not been certified to meet the standards on such a fuel, include the statement: "THIS ENGINE IS CERTIFIED FOR OPERATION ONLY WITH DIESEL FUEL. MODIFYING THE ENGINE TO OPERATE ON RESIDUAL OR INTERMEDIATE FUEL MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTIES."

(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 international standards). You may also add other information to ensure that the engine will be properly maintained and used.

(e) For engines requiring ULSD, create a separate label with the statement: "ULTRA LOW SULFUR DIESEL FUEL ONLY". Permanently attach this label to the vessel near the fuel inlet or, if you do not manufacture the vessel, take one of the following steps to ensure that the vessel will be properly labeled:

(1) Provide the label to each vessel manufacturer and include in the emission-related installation instructions the requirement to place this label near the fuel inlet.

(2) Confirm that the vessel manufacturers install their own complying labels.

(f) You may ask us to approve modified labeling requirements in this part 1042 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the intent of the labeling requirements of this part.

(g) If you obscure the engine label while installing the engine in the vessel such that the label will be hard to read during normal maintenance, you must place a duplicate label on the vessel. If others install your engine in their vessels in a way that obscures the engine label, we require them to add a duplicate label on the vessel (see 40 CFR 1068.105); in that case, give them the number of duplicate labels they request and keep the following records for at least five years:

(1) Written documentation of the request from the vessel manufacturer.

(2) The number of duplicate labels you send for each family and the date you sent them.

§ 1042.140 Maximum engine power, displacement, and power density.

This section describes how to determine the maximum engine power, displacement, and power density of an engine for the purposes of this part. Note that maximum engine power may differ from the definition of maximum

test power as defined in subpart F for testing engines.

(a) An engine configuration's maximum engine power is the maximum brake power point on the nominal power curve for the engine configuration, as defined in this section. Round the power value to the nearest whole kilowatt.

(b) The nominal power curve of an engine configuration is the relationship between maximum available engine brake power and engine speed for an engine, using the mapping procedures of 40 CFR part 1065, based on the manufacturer's design and production specifications for the engine. This information may also be expressed by a torque curve that relates maximum available engine torque with engine speed.

(c) An engine configuration's per-cylinder displacement is the intended swept volume of each cylinder. The swept volume of the engine is the product of the internal cross-section area of the cylinders, the stroke length, and the number of cylinders. Calculate the engine's intended swept volume from the design specifications for the cylinders using enough significant figures to allow determination of the displacement to the nearest 0.02 liters. Determine the final value by truncating digits to establish the per-cylinder displacement to the nearest 0.1 liters. For example, for an engine with circular cylinders having an internal diameter of 13.0 cm and a 15.5 cm stroke length, the rounded displacement would be: $(13.0/2)^2 \times \pi \times (15.5) \div 1000 = 2.0$ liters.

(d) The nominal power curve and intended swept volume must be within the range of the actual power curves and swept volumes of production engines considering normal production variability. If after production begins, it is determined that either your nominal power curve or your intended swept volume does not represent production engines, we may require you to amend your application for certification under § 1042.225.

(e) Throughout this part, references to a specific power value for an engine are based on maximum engine power. For example, the group of engines with maximum engine power above 600 kW may be referred to as engines above 600 kW.

(f) Calculate an engine family's power density in kW/L by dividing the unrounded maximum engine power by the engine's unrounded per-cylinder displacement, then dividing by the number of cylinders. Round the calculated value to the nearest whole number.

§ 1042.145 Interim provisions.

(a) *General.* The provisions in this section apply instead of other provisions in this part for Category 1 and Category 2 engines. This section describes when these interim provisions expire.

(b) *Delayed standards.* Post-manufacturer marinizers that are small-volume engine manufacturers may delay compliance with the Tier 3 standards for engines below 600 kW as follows:

(1) You may delay compliance with the Tier 3 standards for one model year, as long as the engines meet all the requirements that apply to Tier 2 engines.

(2) You may delay compliance with the NTE standards for Tier 3 standards for three model years beyond the one year delay otherwise allowed, as long as the engines meet all other requirements that apply to Tier 3 engines for the appropriate model year.

Subpart C—Certifying Engine Families

§ 1042.201 General requirements for obtaining a certificate of conformity.

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid starting with the indicated effective date, but it is not valid for any production after December 31 of the model year for which it is issued.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see § 1042.255).

(c) We may ask you to include less information than we specify in this subpart, as long as you maintain all the information required by § 1042.250.

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

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

(f) See § 1042.255 for provisions describing how we will process your application.

(g) We may require you to deliver your test engines to a facility we designate for our testing (see § 1042.235(c)).

(h) For engines that become new as a result of substantial modifications or for engines installed on imported vessels that become subject to the requirements of this part, we may specify alternate certification provisions consistent with the intent of this part. See the definition of "new" in § 1042.801.

§ 1042.205 Application requirements.

This section specifies the information that must be in your application, unless we ask you to include less information under § 1042.201(c). We may require you to provide additional information to evaluate your application.

(a) Describe the engine family's specifications and other basic parameters of the engine's design and emission controls. List the fuel type on which your engines are designed to operate (for example, ultra low-sulfur diesel fuel). List each distinguishable engine configuration in the engine family. For each engine configuration, list the maximum engine power and the range of values for maximum engine power resulting from production tolerances, as described in § 1042.140.

(b) Explain how the emission-control system operates. Describe in detail all system components for controlling exhaust emissions, including all auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production or test engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECDs any devices that modulate or activate differently from each other. Include all the following:

(1) Give a general overview of the engine, the emission-control strategies, and all AECDs.

(2) Describe each AECD's general purpose and function.

(3) Identify the parameters that each AECD senses (including measuring, estimating, calculating, or empirically deriving the values). Include vessel-based parameters and state whether you simulate them during testing with the applicable procedures.

(4) Describe the purpose for sensing each parameter.

(5) Identify the location of each sensor the AECD uses.

(6) Identify the threshold values for the sensed parameters that activate the AECD.

(7) Describe the parameters that the AECD modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AECD's stated purpose. Use graphs and tables, as necessary.

(8) Describe each AECD's specific calibration details. This may be in the form of data tables, graphical representations, or some other description.

(9) Describe the hierarchy among the AECDs when multiple AECDs sense or modulate the same parameter. Describe