

The EPA Administrator signed a proposed rule on April 17, 2007 that included changes to 40 CFR part 1051 as shown in this document. The proposed rule will be published in the *Federal Register*. While EPA has taken steps to ensure the accuracy of this redline version, it is not the official version of the rule for purposes of public comment. Please refer to the official version in the corresponding *Federal Register* publication. You can access the *Federal Register* at: <http://www.gpoaccess.gov/fr/index.html>.

PART 1051—CONTROL OF EMISSIONS FROM RECREATIONAL ENGINES AND VEHICLES

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

Subpart A—Overview and Applicability

§1051.1 Does this part apply for my vehicles or engines?

(a) The regulations in this part 1051 apply for all the following new recreational vehicles or new engines used in the following recreational vehicles, except as provided in §1051.5:

- (1) Snowmobiles.
- (2) Off-highway motorcycles.
- (3) All-terrain vehicles (ATVs).
- (4) Offroad utility vehicles with engines with displacement less than or equal to 1000 cc, maximum engine power less than or equal to 30 kW, and maximum vehicle speed of higher than 25 miles per hour ~~or higher~~. Offroad utility vehicles that are subject to this part are subject to the same requirements as ATVs. This means that any requirement that applies to ATVs also applies to these offroad utility vehicles, without regard to whether the regulatory language mentions offroad utility vehicles.

(b) In certain cases, the regulations in this part 1051 apply to new engines under 50 cc used in motorcycles that are motor vehicles. See 40 CFR 86.447-2006 or 86.448-2006 for provisions related to this allowance.

(c) This part 1051 applies for new recreational vehicles starting in the 2006 model year, except as described in subpart B of this part. You need not follow this part for vehicles you produce before the 2006 model year, unless you certify voluntarily. See §§1051.103 through 1051.110, §1051.145, and the definition of "model year" in §1051.801 for more information about the timing of the requirements.

(d) The requirements of this part begin to apply when a vehicle is new. See the definition of "new" in §1051.801 for more information. In some cases, vehicles or engines that have been previously used may be considered "new" for the purposes of this part.

(e) The evaporative emission requirements of this part apply to highway motorcycles, as specified in 40 CFR part 86, subpart E.

§1051.2 Who is responsible for compliance?

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The regulations in this part 1051 contain provisions that affect both vehicle manufacturers and others. -However, the requirements of this part are generally addressed to the vehicle manufacturer. -The term "you" generally means the vehicle manufacturer, as defined in §1051.801. ~~This part 1051 is divided into the following subparts:~~ especially for issues related to certification (including production-line testing, reporting, etc.).

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§1051.5 Which engines are excluded from this part's requirements?

(a)(1) You may exclude vehicles with compression-ignition engines. See 40 CFR parts 89 ~~or~~ 1039 for regulations that cover these engines.

(2) Vehicles with a combined total vehicle dry weight under 20.0 kilograms are excluded from this part. Spark-ignition engines in these vehicles must instead meet emission standards specified in 40 CFR parts 90 and 1054. See 40 CFR 90.103(a) and the definition of handheld in 40 CFR 1054.801.

(b) We may require you to label an engine or vehicle (or both) if this section excludes it and other requirements in this chapter do not apply.

§1051.10 How is this part organized?

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This part 1051 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of part 1051 and gives an overview of regulatory requirements.

(b) Subpart B of this part describes the emission standards and other requirements that must be met to certify engines under this part. Note that §1051.145 discusses certain interim requirements and compliance provisions that apply

only for a limited time.

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

(d) Subpart D of this part describes general provisions for testing production-line engines.

(e) [Reserved]

(f) Subpart F of this part describes how to test your engines (including references to other parts of the Code of Federal Regulations).

(g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to engine manufacturers, equipment manufacturers, owners, operators, rebuilders, and all others.

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

(i) Subpart I of this part contains definitions and other reference information.

§1051.15 Do any other regulation parts apply to me?

(a) Parts 86 and 1065 of this chapter describe procedures and equipment specifications for testing vehicles and engines. Subpart F of this part 1051 describes how to apply the provisions of parts 86 and 1065 of this chapter to determine whether vehicles meet the emission standards in this part.

(b) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, imports, installs, owns, operates, or rebuilds any of the vehicles subject to this part 1051, or vehicles containing these engines. Part 1068 of this chapter describes general provisions, including these seven areas:

(1) Prohibited acts and penalties for manufacturers and others.

(2) Rebuilding and other aftermarket changes.

(3) Exclusions and exemptions for certain vehicles and engines.

(4) Importing vehicles and engines.

(5) Selective enforcement audits of your production.

(6) Defect reporting and recall.

(7) Procedures for hearings.

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

§1051.20 May I certify a recreational engine instead of the vehicle?

(a) You may certify engines sold separately from vehicles in either of two cases:

(1) If you manufacture recreational engines but not recreational vehicles, you may ask to certify the engine alone. In your request, explain why you cannot certify the entire vehicle.

(2) If you manufacture complete recreational vehicles containing engines you also sell separately, you may ask to certify all these engines in a single engine family or in separate engine families.

(b) If you certify an engine under this section, you must use the test procedures in subpart F of this part. If the test procedures require vehicle testing, use good engineering judgment to install the engine in an appropriate vehicle for measuring emissions.

(c) If we allow you to certify recreational engines, the vehicles must meet the applicable emission standards (including evaporative emission standards) with the engines installed in the appropriate vehicles. You must prepare installation instructions as described in §1051.130 and use good engineering judgment so that the engines will meet emission standards after proper installation in the vehicle.

(d) Identify and label engines you produce under this section consistent with the requirements of §1051.135. On the emission control information label, identify the manufacturing date of the engine rather than the vehicle.

(e) You may not use the provisions of this section to circumvent or reduce the stringency of this part's standards or other requirements.

(f) If you certify under paragraph (a)(1) of this section, you may ask us to allow you to perform production-line testing on the engine. If you certify under paragraph (a)(2) of this section, use good engineering judgment to ensure that these engines are produced in the same manner as the engines you produce for your vehicles, so that your production-line testing results under subpart D of this part would apply to them.

§1051.25 What requirements apply when installing certified engines in recreational vehicles?

(a) If you manufacture recreational vehicles with engines certified under §1051.20, you must certify your vehicle with respect to the evaporative emission standards in §1051.110, but you need not also certify the vehicle with respect to exhaust emissions under this part. The vehicle must nevertheless meet all emission standards with the

engine installed.

(b) You must follow the engine manufacturer's emission-related installation instructions, as described in §1051.135 and 40 CFR 1068.105. For example, you must use a fuel system that meets the permeation requirements of this part, consistent with the engine manufacturer's instructions.

(c) If you ~~install~~ obscure the engine label while installing the engine in a way the vehicle such that ~~makes the engine's emission control information~~ label ~~hard to~~ cannot be read during normal ~~engine~~ maintenance, you must place a duplicate label on the vehicle; as described in 40 CFR 1068.105.

Subpart B—Emission Standards and Related Requirements

§1051.101 What emission standards and other requirements must my vehicles meet?

- (a) You must show that your vehicles meet the following:
- (1) The applicable exhaust emission standards in §1051.103, §1051.105, §1051.107, or §1051.145.
 - (i) For snowmobiles, see §1051.103.
 - (ii) For off-highway motorcycles, see §1051.105.
 - (iii) For all-terrain vehicles and offroad utility vehicles subject to this part, see §1051.107 and §1051.145.
 - (2) The evaporative emission standards in §1051.110.
 - (3) All the requirements in §1051.115.
- (b) The certification regulations in subpart C of this part describe how you make this showing.
- (c) These standards and requirements apply to all testing, including certification, production-line, and in-use testing.
- (d) Other sections in this subpart describe other requirements for manufacturers such as labeling or warranty requirements.
- (e) It is important that you read §1051.145 to determine if there are other interim requirements or interim compliance options that apply for a limited time.
- (f) As described in §1051.1(a)(4), offroad utility vehicles that are subject to this part are subject to the same requirements as ATVs.

§1051.103 What are the exhaust emission standards for snowmobiles?

- (a) Apply the exhaust emission standards in this section by model year. Measure emissions with the snowmobile test procedures in subpart F of this part.

(1) Follow Table 1 of this section for exhaust emission standards. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC+NO_x and CO emissions, as described in subpart H of this part. This requires that you specify a family emission limit for each pollutant you include in the ABT program for each engine family. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meets the applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit. The phase-in values specify the percentage of your U.S.-directed production that must comply with the emission standards for those model years. Calculate this compliance percentage based on a simple count of your U.S.-directed production units within each certified engine family compared with a simple count of your total U.S.-directed production units. Table 1 also shows the maximum value you may specify for a family emission limit, as follows:

Table 1 of §1051.103—
Exhaust Emission Standards for Snowmobiles (g/kW-hr)

Phase	Model Year	Phase-in	Emission standards			Maximum allowable Family Emission Limits		
			HC	HC+NO _x	CO	HC	HC+NO _x	CO
Phase 1	2006	50%	100	--	275	--	--	--
Phase 1	2007 - 2009	100%	100	--	275	--	--	--
Phase 2	2010 and 2011	100%	75	--	275	--	--	--
Phase 3	2012 and later	100%	75	See §1051.103(a)(2)		150	165	400

- (2) For Phase 3, the HC+NO_x and CO standards are defined by a functional relationship. Choose your corporate average HC+NO_x and CO standards for each model year according to the following criteria:
- (i) Prior to production, select the HC+NO_x standard and CO standard (specified as g/kW-hr) so that the combined percent reduction from baseline emission levels is greater than or equal to 100 percent; that is,

that the standards comply with the following equation:

$$\left(1 - \frac{(HC + NOx)_{STD} - 15}{150}\right) \times 100 + \left(1 - \frac{CO_{STD}}{400}\right) \times 100 \geq 100$$

- (ii) Your corporate average HC+NOx standard may not be higher than 90 g/kW-hr.
 - (iii) Your corporate average CO standard may not be higher than 275 g/kW-hr.
 - (iv) You may use the averaging and banking provisions of subpart H of this part to show compliance with these HC+NOx and CO standards in this paragraph (a)(2). You may modify your selection of the HC+NOx and CO standards at the end of the model year under paragraph (a)(2)(i) of this section. You must comply with these final corporate average emission standards.
- (b) The exhaust emission standards in this section apply for snowmobiles using the fuel type on which they are designed to operate. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for snowmobiles powered by the following fuels:
- (1) Gasoline- and LPG-fueled snowmobiles: THC emissions.
 - (2) Natural gas-fueled snowmobiles: NMHC emissions.
 - (3) Alcohol-fueled snowmobiles: THCE emissions.
- (c) Your snowmobiles must meet emission standards over their full useful life. The minimum useful life is 8,000 kilometers, 400 hours of engine operation, or five calendar years, whichever comes first. You must specify a longer useful life in terms of kilometers and hours for the engine family if the average service life of your vehicles is longer than the minimum value, as follows:
- (1) Except as allowed by paragraph (c)(2) of this section, your useful life (in kilometers and hours) may not be less than either of the following:
 - (i) Your projected operating life from advertisements or other marketing materials for any vehicles in the engine family.
 - (ii) Your basic mechanical warranty for any engines in the engine family.
 - (2) Your useful life may be based on the average service life of vehicles in the engine family if you show that the average service life is less than the useful life required by paragraph (c)(1) of this section, but more than the minimum useful life (8,000 kilometers or 400 hours of engine operation). In determining the actual average service life of vehicles in an engine family, we will consider all available information and analyses. Survey data is allowed but not required to make this showing.

§1051.105 What are the exhaust emission standards for off-highway motorcycles?

- (a) Apply the exhaust emission standards in this section by model year. Measure emissions with the off-highway motorcycle test procedures in subpart F of this part.
- (1) Follow Table 1 of this section for exhaust emission standards. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC+NOx and CO emissions, as described in subpart H of this part. This requires that you specify a family emission limit for each pollutant you include in the ABT program for each engine family. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meets the applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit. The phase-in values specify the percentage of your U.S.-directed production that must comply with the emission standards for those model years. Calculate this compliance percentage based on a simple count of your U.S.-directed production units within each certified engine family compared with a simple count of your total U.S.-directed production units. Table 1 follows:

Table 1 of §1051.105—
Exhaust Emission Standards
for Off-Highway Motorcycles (g/km)

Phase	Model Year	Phase-in	Emission standards		Maximum allowable Family Emission Limits	
			HC+NOx	CO	HC+NOx	CO
Phase 1	2006	50%	2.0	25	20.0	50
	2007 and later	100%	2.0	25	20.0	50

(2) For model years 2007 and later you may choose to certify all of your off-highway motorcycles to an HC+NOx standard of 4.0 g/km and a CO standard of 35 g/km, instead of the standards listed in paragraph (a)(1) of this section. To certify to the standards in this paragraph (a)(2), you must comply with the following provisions:

- (i) You may not request an exemption for any off-highway motorcycles under §1051.620
- (ii) At least ten percent of your off-highway motorcycles for the model year must have four of the following features:
 - (A) The absence of a headlight or other lights.
 - (B) The absence of a spark arrestor.
 - (C) The absence of manufacturer warranty.
 - (D) Suspension travel greater than 10 inches.
 - (E) Engine displacement greater than 50 cc.
 - (F) The absence of a functional seat.
- (iii) You may use the averaging and banking provisions of subpart H of this part to show compliance with this HC+NOx standard, but not this CO standard. If you use the averaging or banking provisions to show compliance, your FEL for HC+NOx may not exceed 8.0 g/km for any engine family. You may not use the trading provisions of subpart H of this part.

(3) You may certify off-highway motorcycles with engines that have total displacement of 70 cc or less to the exhaust emission standards in §1051.615 instead of certifying them to the exhaust emission standards of this section. Count all such vehicles in the phase-in (percent) requirements of this section.

(b) The exhaust emission standards in this section apply for off-highway motorcycles using the fuel type on which they are designed to operate. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for off-highway motorcycles powered by the following fuels:

- (1) Gasoline- and LPG-fueled off-highway motorcycles: THC emissions.
- (2) Natural gas-fueled off-highway motorcycles: NMHC emissions.
- (3) Alcohol-fueled off-highway motorcycles: THCE emissions.

(c) Your off-highway motorcycles must meet emission standards over their full useful life. For off-highway motorcycles with engines that have total displacement greater than 70 cc, the minimum useful life is 10,000 kilometers or five years, whichever comes first. For off-highway motorcycles with engines that have total displacement of 70 cc or less, the minimum useful life is 5,000 kilometers or five years, whichever comes first. You must specify a longer useful life for the engine family in terms of kilometers if the average service life of your vehicles is longer than the minimum value, as follows:

- (1) Except as allowed by paragraph (c)(2) of this section, your useful life (in kilometers) may not be less than either of the following:
 - (i) Your projected operating life from advertisements or other marketing materials for any vehicles in the engine family.
 - (ii) Your basic mechanical warranty for any engines in the engine family.
- (2) Your useful life may be based on the average service life of vehicles in the engine family if you show that the average service life is less than the useful life required by paragraph (c)(1) of this section, but more than the minimum useful life (10,000 kilometers). In determining the actual average service life of vehicles in an engine family, we will consider all available information and analyses. Survey data is allowed but not required to make

this showing.

§1051.107 What are the exhaust emission standards for all-terrain vehicles (ATVs) and offroad utility vehicles?

This section specifies the exhaust emission standards that apply to ATVs. As is described in §1051.1(a)(4), offroad utility vehicles that are subject to this part are subject to these same standards.

(a) Apply the exhaust emission standards in this section by model year. Measure emissions with the ATV test procedures in subpart F of this part.

(1) Follow Table 1 of this section for exhaust emission standards. You may generate or use emission credits under the averaging, banking, and trading (ABT) program for HC+NOx emissions, as described in subpart H of this part. This requires that you specify a family emission limit for each pollutant you include in the ABT program for each engine family. These family emission limits serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in this section. An engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meets the applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit. Table 1 also shows the maximum value you may specify for a family emission limit. The phase-in values in the table specify the percentage of your total U.S.-directed production that must comply with the emission standards for those model years. Calculate this compliance percentage based on a simple count of your U.S.-directed production units within each certified engine family compared with a simple count of your total U.S.-directed production units. This applies to your total production of ATVs and offroad utility vehicles that are subject to the standards of this part; including both ATVs and offroad utility vehicles subject to the standards of this section and ATVs and offroad utility vehicles certified to the standards of other sections in this part 1051 (such as §1051.615, but not including vehicles certified under other parts in this chapter (such as 40 CFR part 90). Table 1 follows:

Table 1 of §1051.107—
Exhaust Emission Standards for ATVs (g/km)

Phase	Model Year	Phase-in	Emission standards		Maximum allowable Family Emission Limits	
			HC+NOx	CO	HC+NOx	CO
Phase 1	2006	50%	1.5	35	20.0	—
	2007 and later	100%	1.5	35	20.0	—

(2) You may certify ATVs with engines that have total displacement of less than 100 cc to the exhaust emission standards in §1051.615 instead of certifying them to the exhaust emission standards of this section. Count all such vehicles in the phase-in (percent) requirements of this section.

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

- (1) Gasoline- and LPG-fueled ATVs: THC emissions.
- (2) Natural gas-fueled ATVs: NMHC emissions.
- (3) Alcohol-fueled ATVs: THCE emissions.

(c) Your ATVs must meet emission standards over their full useful life. For ATVs with engines that have total displacement of 100 cc or greater, the minimum useful life is 10,000 kilometers, 1000 hours of engine operation, or five years, whichever comes first. For ATVs with engines that have total displacement of less than 100 cc, the minimum useful life is 5,000 kilometers, 500 hours of engine operation, or five years, whichever comes first. You must specify a longer useful life for the engine family in terms of kilometers and hours if the average service life of your vehicles is longer than the minimum value, as follows:

- (1) Except as allowed by paragraph (c)(2) of this section, your useful life (in kilometers) may not be less than either of the following:
 - (i) Your projected operating life from advertisements or other marketing materials for any vehicles in the

engine family.

(ii) Your basic mechanical warranty for any engines in the engine family.

(2) Your useful life may be based on the average service life of vehicles in the engine family if you show that the average service life is less than the useful life required by paragraph (c)(1) of this section, but more than the minimum useful life (10,000 kilometers or 1,000 hours of engine operation). In determining the actual average service life of vehicles in an engine family, we will consider all available information and analyses. Survey data is allowed but not required to make this showing.

§1051.110 What evaporative emission standards must my vehicles meet?

Your new vehicles must meet the emission standards of this section over their full useful life. Note that §1051.245 allows you to use design-based certification instead of generating new emission data.

(a) Beginning with the 2008 model year, permeation emissions from your vehicle's fuel tank(s) may not exceed 1.5 grams per square-meter per day when measured with the test procedures for tank permeation in subpart F of this part. You may generate or use emission credits under the averaging, banking, and trading (ABT) program, as described in subpart H of this part.

(b) Beginning with the 2008 model year, permeation emissions from your vehicle's fuel lines may not exceed 15 grams per square-meter per day when measured with the test procedures for fuel-line permeation in subpart F of this part. Use the inside diameter of the hose to determine the surface area of the hose.

§1051.115 What other requirements ~~must my vehicles meet?~~ Your vehicles apply?

Vehicles that are required to meet the emission standards of this part must meet the following requirements:

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

(b) [Reserved]

(c) Adjustable parameters. Vehicles that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. Note that parameters that control the air-fuel ratio may be treated separately under paragraph (d) of this section. An operating parameter is not considered adjustable if you permanently seal it or if it is not normally accessible using ordinary tools. We may require that you set adjustable parameters to any specification within the adjustable range during any testing, including certification testing, production-line testing, or in-use testing.

(d) Other adjustments. This provision applies if an experienced mechanic can change your engine's air-fuel ratio in less than one hour with a few parts whose total cost is under \$50 (in 2001 dollars). Examples include carburetor jets and needles. In the case of carburetor jets and needles, your vehicle must meet all the requirements of this part for any air-fuel ratio within the adjustable range described in paragraph (d)(1) of this section.

(1) In your application for certification, specify the adjustable range of air-fuel ratios you expect to occur in use. You may specify it in terms of engine parts (such as the carburetor jet size and needle configuration as a function of atmospheric conditions).

(2) This adjustable range (specified in paragraph (d)(1) of this section) must include all air-fuel ratios between the lean limit and the rich limit, unless you can show that some air-fuel ratios will not occur in use.

(i) The lean limit is the air-fuel ratio that produces the highest engine power output (averaged over the test cycle).

(ii) The rich limit is the richest of the following air-fuel ratios:

(A) The air-fuel ratio that would result from operating the vehicle as you produce it at the specified test conditions. This paragraph (d)(2)(ii)(A) does not apply if you produce the vehicle with an unjetted carburetor so that the vehicle must be jetted by the dealer or operator.

(B) The air-fuel ratio of the engine when you do durability testing.

(C) The richest air-fuel ratio that you recommend to your customers for the applicable ambient conditions.

(3) If the air-fuel ratio of your vehicle is adjusted primarily by changing the carburetor jet size and/or needle configuration, you may submit your recommended jetting chart instead of the range of air-fuel ratios required by paragraph (d)(1) of this section if the following criteria are met:

(i) Good engineering judgment indicates that vehicle operators would not have an incentive to operate the vehicle with richer air-fuel ratios than recommended.

- (ii) The chart is based on use of a fuel that is equivalent to the specified test fuel(s). As an alternative you may submit a chart based on a representative in-use fuel if you also provide instructions for converting the chart to be applicable to the test fuel(s).
 - (iii) The chart is specified in units that are adequate to make it practical for an operator to keep the vehicle properly jetted during typical use. For example, charts that specify jet sizes based on increments of temperature smaller than 20°F (11.1°C) or increments of altitude less than 2000 feet would not meet this criteria. Temperature ranges must overlap by at least 5°F (2.8°C).
 - (iv) You follow the jetting chart for durability testing.
 - (v) You do not produce your vehicles with jetting richer than the jetting chart recommendation for the intended vehicle use.
 - (vi) The adjustable range of carburetor screws, such as air screw, fuel screw, and idle-speed screw must be defined by stops, limits, or specification on the jetting chart consistent with the requirements for specifying jet sizes and needle configuration in this section.
- (4) We may require you to adjust the engine to any specification within the adjustable range during certification testing, production-line testing, selective enforcement auditing, or in-use testing. If we allow you to submit your recommended jetting chart instead of the range of air-fuel ratios required by paragraph (d)(1) of this section, adjust the engine to the richest specification within the jetting chart for the test conditions, unless we specify a leaner setting. We may not specify a setting leaner than that described in paragraph (d)(2)(i) of this section.
- (e) Prohibited controls. You may not design your engines with emission-control devices, systems, or elements of design that cause or contribute to an unreasonable risk to public health, welfare, or safety while operating. For example, this would apply if the engine emits a noxious or toxic substance it would otherwise not emit that contributes to such an unreasonable risk.
- (f) Defeat devices. You may not equip your vehicles with a defeat device. A defeat device is an auxiliary emission-control device that reduces the effectiveness of emission controls under conditions that the vehicle may reasonably be expected to encounter during normal operation and use. This does not apply to auxiliary emission-control devices you identify in your certification application if any of the following is true:
- (1) The conditions of concern were substantially included in the applicable test procedures described in subpart F of this part.
 - (2) You show your design is necessary to prevent vehicle damage or accidents.
 - (3) The reduced effectiveness applies only to starting the engine.
- (g) Noise standards. There are no noise standards specified in this part 1051. See 40 CFR Chapter I, Subchapter G, to determine if your vehicle must meet noise emission standards under another part of our regulations.

§1051.120 What emission-related warranty requirements apply to me?

- (a) General requirements. You must warrant to the ultimate purchaser and each subsequent purchaser that the new engine, including all parts of its emission-control system, meets two conditions:
- (1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.
 - (2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.
- (b) Warranty period. Your emission-related warranty must be valid for at least 50 percent of the vehicle's minimum useful life in kilometers or hours of engine operation (where applicable), or at least 30 months, whichever comes first. You may offer an emission-related warranty more generous than we require. The emission-related warranty for the engine may not be shorter than any published warranty you offer without charge for the engine. Similarly, the emission-related warranty for any component may not be shorter than any published warranty you offer without charge for that component. If a vehicle has no odometer, base warranty periods in this paragraph (b) only on the vehicle's age (in years). The warranty period begins when the engine is placed into service.
- (c) Components covered. The emission-related warranty covers all components whose failure would increase an engine's emissions of any pollutant. ~~This includes components~~, including those listed in 40 CFR part 1068, Appendix I, and components 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. You may ask us to allow you to exclude

from your emission-related warranty certified vehicles that have been used significantly for competition, especially certified motorcycles that meet at least four of the criteria in §1051.620(b)(1).

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

§1051.125 What maintenance instructions must I give to buyers?

Give the ultimate purchaser of each new vehicle written instructions for properly maintaining and using the vehicle, including the emission-control system. The maintenance instructions also apply to service accumulation on your emission-data vehicles, as described in §1051.240, §1051.245, and 40 CFR part 1065.

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

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

(i) You present data showing that, if a lack of maintenance increases emissions, it also unacceptably degrades the vehicle's performance.

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

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

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

(2) You may not schedule critical emission-related maintenance within the minimum useful life period for aftertreatment devices, pulse-air valves, fuel injectors, oxygen sensors, electronic control units, superchargers, or turbochargers.

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

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

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

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

operation.

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

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

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

- (1) Each affected component was not in general use on similar vehicles before the 2006 model year.
- (2) The primary function of each affected component is to reduce emissions.
- (3) The cost of the scheduled maintenance is more than 2 percent of the price of the vehicle.
- (4) Failure to perform the maintenance would not cause clear problems that would significantly degrade the vehicle's performance.

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

§1051.130 What installation instructions must I give to vehicle manufacturers?

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

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

- (1) Include the heading: "Emission-related installation instructions".
- (2) State: "Failing to follow these instructions when installing a certified engine in a piece of nonroad equipment violates federal law (40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act."
- (3) Describe the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of §1051.205(r).
- (4) Describe the steps needed to comply with the evaporative emission standards in §1051.110.
- (5) Describe any limits on the range of applications needed to ensure that the engine operates consistently with your application for certification. For example, if your engines are certified only to the snowmobile standards, tell vehicle manufacturers not to install the engines in other vehicles.
- (6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.
- (7) State: "If you install the engine in a way that makes the engine's emission control information label hard to read during normal engine maintenance, you must place a duplicate label on the vehicle, as described in 40 CFR 1068.105."

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

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

§1051.135 How must I label and identify the vehicles I produce?

Each of your vehicles must have three labels: a vehicle identification number as described in paragraph (a) of this section, an emission control information label as described in paragraphs (b) through (e) of this section, and a consumer information label as described in §1051.137

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

(b) At the time of manufacture, affix a permanent and legible emission control information label identifying each

vehicle. The label must be—

- (1) Attached so it is not removable without being destroyed or defaced.
- (2) Secured to a part of the vehicle (or engine) needed for normal operation and not normally requiring replacement.
- (3) Durable and readable for the vehicle's entire life.
- (4) Written in English.

(c) The label must—

- (1) Include the heading "EMISSION CONTROL INFORMATION".
- (2) Include your full corporate name and trademark. You may identify another company and use its trademark instead of yours if you comply with the provisions of §1051.645.
- (3) Include EPA's standardized designation for engine families, as described in §1051.230.
- (4) State the engine's displacement (in liters). You may omit this from the emission control information label if the vehicle is permanently labeled with a unique model name that corresponds to a specific displacement. Also, you may omit displacement from the label if all the engines in the engine family have the same per-cylinder displacement and total displacement.
- (5) State: "THIS VEHICLE IS CERTIFIED TO OPERATE ON [specify operating fuel or fuels].".
- (6) State the date of manufacture [MONTH and YEAR]. ~~Y~~; however, you may omit this from the label if you keep a record of the engine-manufacture dates and provide it to us upon request, or if you stamp the date stamp or engrave it on the engine or vehicle.
- (7) State the exhaust emission standards or FELs to which the vehicles are certified (in g/km or g/kW-hr). Also, starting in the 2009 model year, state the FEL that applies for the fuel tank if it is different than the otherwise applicable standard.
- (8) Identify the emission-control system. Use terms and abbreviations consistent with SAE J1930 (incorporated by reference in §1051.810). You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.
- (9) List specifications and adjustments for engine tuneups; show the proper position for the transmission during tuneup and state which accessories should be operating.
- (10) Identify the fuel type and any requirements for fuel and lubricants. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.
- (11) State the useful life for your engine family if it is different than the minimum value.
- (12) State: "THIS VEHICLE MEETS U.S. EPA REGULATIONS FOR [MODEL YEAR] [SNOWMOBILES or OFF-ROAD MOTORCYCLES or ATVs or OFFROAD UTILITY VEHICLES].".

(d) You may add information to the emission control information label to identify other emission standards that the vehicle meets or does not meet (such as California standards). You may also add other information to ensure that the engine will be properly maintained and used.

(e) You may ask us to approve modified labeling requirements in this part 1051 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the requirements of this part.

~~(f) If you obscure the engine label while installing the engine in the equipment such that the label will be hard to read during normal maintenance, you must place a duplicate label on the equipment. If others install your engine in their equipment in a way that obscures the engine label, we require them to add a duplicate label on the equipment (see 40 CFR 1068.105); in that case, give them the number of duplicate labels they request and keep the following records for at least five years:~~

~~—(1) Written documentation of the request from the equipment manufacturer.~~

~~—(2) The number of duplicate labels you send and the date you sent them.~~ [Reserved]

(g) Label every vehicle certified under this part with a removable hang-tag showing its emission characteristics relative to other models, as described in §1051.137.

§1051.137 What are the consumer labeling requirements?

Label every vehicle certified under this part with a removable hang-tag showing its emission characteristics relative to other models. The label should be attached securely to the vehicle before it is offered for sale in such a manner that it would not be accidentally removed prior to sale. Use the applicable equations of this section to determine the normalized emission rate (NER) from the FEL for your vehicle. If the vehicle is certified without ~~using the averaging provisions of subpart H~~ a family emission limit that is different than the otherwise applicable standard, use

the final deteriorated emission level. Round the resulting normalized emission rate for your vehicle to one decimal place. If the calculated NER value is less than zero, consider NER to be zero for that vehicle. We may specify a standardized format for labels. At a minimum, the tag should include: the manufacturer's name, vehicle model name, engine description (500 cc two-stroke with DFI), the NER, and a brief explanation of the scale (for example, note that 0 is the cleanest and 10 is the least clean).

(a) For snowmobiles, use the following equation:

$$\text{NER} = 16.61 \times \log(2.667 \times \text{HC} + \text{CO}) - 38.22$$

Where:

HC and CO are the cycle-weighted FELs (or emission rates) for hydrocarbons and carbon monoxide in g/kW-hr.

(b) For off-highway motorcycles, use the following equations:

(1) For off-highway motorcycles certified to the standards in § 1051.105, use one of the equations specified below.

(i) If the vehicle has HC + NO_x emissions less than or equal to 2.0 g/km, use the following equation:

$$\text{NER} = 2.500 \times (\text{HC} + \text{NO}_x)$$

Where:

HC+NO_x is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(ii) If the vehicle has HC + NO_x emissions greater than 2.0 g/km, use the following equation:

$$\text{NER} = 5.000 \times \log(\text{HC} + \text{NO}_x) + 3.495$$

Where:

HC+NO_x is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(2) For off-highway motorcycles certified to the standards in § 1051.615(b), use the following equation:

$$\text{NER} = 8.782 \times \log(\text{HC} + \text{NO}_x) - 5.598$$

Where:

HC+NO_x is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/kW-hr.

(c) For ATVs, use the following equations:

(1) For ATVs certified to the standards in § 1051.107, use one of the equations specified below.

(i) If the vehicle has HC + NO_x emissions less than or equal to 1.5 g/km, use the following equation:

$$\text{NER} = 3.333 \times (\text{HC} + \text{NO}_x)$$

Where:

HC+NO_x is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(ii) If the vehicle has HC + NO_x emissions greater than 1.5 g/km, use the following equation:

$$\text{NER} = 4.444 \times \log(\text{HC} + \text{NO}_x) + 4.217$$

Where:

HC+NO_x is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/km.

(2) For ATVs certified to the standards in § 1051.615(a), use the following equation:

$$\text{NER} = 8.782 \times \log(\text{HC} + \text{NO}_x) - 7.277$$

Where:

HC+NO_x is the FEL (or the sum of the cycle-weighted emission rates) for hydrocarbons and oxides of nitrogen in g/kW-hr.

§1051.140 What is my vehicle's maximum engine power and displacement?

This section describes how to quantify your vehicle's maximum engine power and displacement for the purposes of this part.

(a) An engine configuration's maximum engine power is the maximum brake power point on the nominal power curve for the engine configuration, as defined in this section. Round the power value to the nearest 0.5 kilowatts. The nominal power curve of an engine configuration is the relationship between maximum available engine brake power and engine speed for an engine, using the mapping procedures of 40 CFR part 1065, based on the

manufacturer's design and production specifications for the engine. This information may also be expressed by a torque curve that relates maximum available engine torque with engine speed.

(b) An engine configuration's displacement is the intended swept volume of the engine rounded to the nearest 0.5 cubic centimeter. The swept volume of the engine is the product of the internal cross-section area of the cylinders, the stroke length, and the number of cylinders. For example, for a one-cylinder engine with a circular cylinder having an internal diameter of 6.00 cm and a 6.25 cm stroke length, the rounded displacement would be:

$(1) \times (6.00/2)^2 \times (\pi) \times (6.25) = 176.5$ cc. Calculate the engine's intended swept volume from the design specifications for the cylinders using enough significant figures allow determination of the displacement to the nearest 0.1 cc.

(c) The nominal power curve and intended swept volume must be within the range of the actual power curves and swept volumes of production engines considering normal production variability. If after production begins it is determined that either your nominal power curve or your intended swept volume does not represent production engines, we may require you to amend your application for certification under §1051.225.

§1051.145 What provisions apply only for a limited time?

Apply the following provisions instead of others in this part for the periods and circumstances specified in this section.

(a) Provisions for small-volume manufacturers. Special provisions apply to you if you are a small-volume manufacturer subject to the requirements of this part. Contact us before 2006 if you intend to use these provisions.

(1) You may delay complying with otherwise applicable emission standards (and other requirements) for two model years.

(2) If you are a small-volume manufacturer of snowmobiles, only 50 percent of the models you produce (instead of all of the models you produce) must meet emission standards in the first two years they apply to you as a small-volume manufacturer, as described in paragraph (a)(1) of this section. For example, this alternate phase-in allowance would allow small-volume snowmobile manufacturers to comply with the Phase 1 exhaust standards by certifying 50 percent of their snowmobiles in 2008, 50 percent of their snowmobiles in 2009, and 100 percent in 2010.

(3) Your vehicles for model years before 2011 may be exempt from the exhaust standards of this part if you meet the following criteria:

(i) Produce your vehicles by installing engines covered by a valid certificate of conformity under 40 CFR part 90 that shows the engines meet standards for Class II engines for each engine's model year.

(ii) Do not change the engine in a way that we could reasonably expect to increase its exhaust emissions.

(iii) The engine meets all applicable requirements from 40 CFR part 90. This applies to engine manufacturers, vehicle manufacturers who use these engines, and all other persons as if these engines were not used in recreational vehicles.

(iv) Show that fewer than 50 percent of the engine family's total sales in the United States are used in recreational vehicles regulated under this part. This includes engines used in any application, without regard to which company manufactures the vehicle or equipment.

(v) If your engines do not meet the criteria listed in paragraph (a) of this section, they will be subject to the provisions of this part. Introducing these engines into commerce without a valid exemption or certificate of conformity violates the prohibitions in 40 CFR 1068.101.

(vi) Engines exempted under this paragraph (a)(3) are subject to all the requirements affecting engines under 40 CFR part 90. The requirements and restrictions of 40 CFR part 90 apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as other engines subject to 40 CFR part 90.

(4) All vehicles produced under this paragraph (a) must be labeled according to our specifications. The label must include the following:

(i) The heading "EMISSION CONTROL INFORMATION".

(ii) Your full corporate name and trademark.

(iii) A description of the provisions under which this section applies to your vehicle .

(iv) Other information that we specify to you in writing.

(b) Optional emission standards for ATVs. To meet ATV standards for model years before 2009, you may apply the exhaust emission standards by model year in paragraph (b)(1) of this section while measuring emissions using the engine-based test procedures in 40 CFR part 1065 instead of the chassis-based test procedures in 40 CFR part 86.

(1) Follow Table 1 of this section for exhaust emission standards, while meeting all the other requirements of §1051.107. You may use emission credits to show compliance with these standards (see subpart H of this part). You may not exchange emission credits with engine families meeting the standards in §1051.107(a). You may also not exchange credits between engine families certified to the standards for engines above 225 cc and engine families certified to the standards for engines below 225 cc. The phase-in percentages in the table specify the percentage of your total U.S.-directed production that must comply with the emission standards for those model years (i.e., the percentage requirement does not apply separately for engine families above and below 225 cc). Table 1 follows:

Table 1 of §1051.145—
Optional Exhaust Emission Standards for ATVs (g/kW-hr)

Engine Displacement	Model Year	Phase-in	Emission standards		Maximum allowable Family Emission Limits
			HC+NOx	CO	HC+NOx
<225 cc	2006	50%	16.1	400	32.2
	2007 and 2008	100%	16.1	400	32.2
≥225 cc	2006	50%	13.4	400	26.8
	2007 and 2008	100%	13.4	400	26.8

(2) Measure emissions by testing the engine on a dynamometer with the steady-state duty cycle described in Table 2 of this section.

- (i) During idle mode, hold the speed within your specifications, keep the throttle fully closed, and keep engine torque under 5 percent of the peak torque value at maximum test speed.
- (ii) For the full-load operating mode, operate the engine at its maximum fueling rate.
- (iii) See part 1065 of this chapter for detailed specifications of tolerances and calculations.
- (iv) Table 2 follows:

Table 2 of §1051.145—
6-Mode Duty Cycle for Recreational Engines

Mode Number	Engine Speed (percent of maximum test speed)	Torque (percent of maximum test torque at test speed)	Minimum Time in mode (minutes)	Weighting Factors
1	85	100	5.0	0.09
2	85	75	5.0	0.20
3	85	50	5.0	0.29
4	85	25	5.0	0.30
5	85	10	5.0	0.07
6	Idle	0	5.0	0.05

(3) For ATVs certified to the standards in this paragraph (b), use the following equations to determine the normalized emission rate required by §1051.137:

- (i) For engines at or above 225 cc, use the following equation:

$$\text{NER} = 9.898 \times \log(\text{HC} + \text{NOx}) - 4.898$$

Where:

HC +NO_x is the sum of the cycle-weighted emission rates for hydrocarbons and oxides of nitrogen in g/kW-hr.

(ii) For engines below 225 cc, use the following equation:

$$\text{NER} = 9.898 \times \log [(\text{HC}+\text{NO}_x) \times 0.83] - 4.898$$

Where:

HC +NO_x is the sum of the cycle-weighted emission rates for hydrocarbons and oxides of nitrogen in g/kW-hr.

(c) [Reserved]

(d) Phase-in flexibility. For model years before 2014, if you make a good faith effort to comply, but fail to meet the sales requirements of this part during a phase-in period for new standards, or fail to meet the average emission standards, we may approve an alternative remedy to offset the emission reduction deficit using future emission credits under this part. To apply for this, you must:

- (1) Submit a plan during the certification process for the first model year of the phase-in showing how you project to meet the sales requirement of the phase-in.
- (2) Notify us less than 30 days after you determine that you are likely to fail to comply with the sales requirement of the phase-in.
- (3) Propose a remedy that will achieve equivalent or greater emission reductions compared to the specified phase-in requirements, and that will offset the deficit within one model year.

(e) Raw sampling procedures. Using good engineering judgment, you may use the alternate raw-sampling procedures instead of the procedures described in 40 CFR part 1065 for emission testing certain vehicles, as follows:

- (1) Snowmobile. You may use the raw sampling procedures described in 40 CFR part 90 or 91 for snowmobiles before the 2010 model year.
- (2) ATV. You may use the raw sampling procedures described in 40 CFR part 90 or 91 for ATVs certified to the standards in §1051.615 before the 2011 model year. You may use these raw sampling procedures for ATVs certified to the standards in §1051.107 or §1051.145(b) before the 2009 model year.

(f) Early credits. Snowmobile manufacturers may generate early emission credits in one of the following ways, by certifying some or all of their snowmobiles prior to 2006. Credit generating snowmobiles must meet all other applicable requirements of this part. No early credits may be generated by off-highway motorcycles or ATVs.

- (1) You may certify one or more snowmobile engine families to FELs (HC and CO) below the numerical level of the Phase 2 standards prior to the date when compliance with the Phase 1 standard is otherwise required. Credits are calculated relative to the Phase 2 standards. Credits generated under this paragraph (f)(1) may be used at any time before 2012.
- (2) You may certify a snowmobile engine family to FELs (HC and CO) below the numerical level of the Phase 1 standards prior to the date when compliance with the Phase 1 standard is otherwise required. Credits are calculated relative to the Phase 1 standards. Credits generated under this paragraph (f)(2) may only be used for compliance with the Phase 1 standards. You may generate credits under this paragraph (f)(2) without regard to whether the FELs are above or below the numerical level of the Phase 2 standards.

(g) Pull-ahead option for permeation emissions. Manufacturers choosing to comply with an early tank permeation standard of 3.0 g/m²/day prior to model year 2008 may be allowed to delay compliance with the 1.5 g/m²/day standard by earning credits, as follows:

- (1) Calculate earned credits using the following equation:

$$\text{Credit} = (\text{Baseline emissions} - \text{Pull-ahead level}) \times \left[\sum_i (\text{Production})_i \times (\text{UL})_i \right]$$

Where:

Baseline emissions = the baseline emission rate, as determined in paragraph (g)(2) of this section.

Pull-ahead level = the permeation level to which you certify the tank, which must be at or below 3.0 g/m²/day.

(Production)_i = the annual production volume of vehicles in the engine family for model year “i” times the average internal surface area of the vehicles’ fuel tanks.

(UL)_i = The useful life of the engine family in model year “i”.

- (2) Determine the baseline emission level for calculating credits using any of the following values:

- (i) 7.6 g/m²/day.

- (ii) The emission rate measured from your lowest-emitting, uncontrolled fuel tank from the current or previous model year using the procedures in §1051.515. For example, this would generally involve the fuel tank with the greatest wall thickness for a given material.
 - (iii) The emission rate measured from an uncontrolled fuel tank that is the same as or most similar to the model you have used during the current or previous model year. However, you may use this approach only if you use it to establish a baseline emission level for each unique tank model you produce using the procedures in §1051.515.
- (3) Pull-ahead tanks under this option must be certified and must meet all applicable requirements other than those limited to compliance with the exhaust standards.
- (4) You may use credits generated under this paragraph (g) as specified in subpart H of this part.
- (h) Deficit credits for permeation standards. For 2008 through 2010 model years, you may have a negative balance of emission credits relative to the permeation emission standards at the end of each model year, subject to the following provisions:
- (1) You must eliminate any credit deficit we allow under this paragraph (h) by the end of the 2011 model year. If you are unable to eliminate your credit deficit by the end of the 2011 model year, we may void the certificates for all families certified to FELs above the allowable average, for all affected model years.
 - (2) State in your application for certification a statement whether you will have a negative balance of permeation emission credits for that model year. If you project that you will have a negative balance, estimate the credit deficit for each affected model year and present a detailed plan to show where and when you will get credits to offset the deficit by the end of the 2011 model year.
 - (3) In your end-of-year report under §1051.730, state whether your credit deficit is larger or smaller than you projected in your application for certification. If the deficit is larger than projected, include in your end-of-year report an update to your detailed plan to show how you will eliminate the credit deficit by the end of the 2011 model year.

Subpart C—Certifying Engine Families

§1051.201 What are the general requirements for obtaining a certificate of conformity?

- (a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid from starting with the indicated effective date until, but it is not valid for any production after December 31 of the model year for which it is issued. No certificate will be issued after December 31 of the model year.
- (b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see §1051.255).
- (c) We may ask you to include less information than we specify in this subpart, as long as you maintain all the information required by §1051.250.
- (d) You must use good engineering judgment for all decisions related to your application (see 40 CFR 1068.5).
- (e) An authorized representative of your company must approve and sign the application.
- (f) See §1051.255 for provisions describing how we will process your application.
- (g) We may require you to deliver your test vehicles or engines to a facility we designate for our testing (see §1051.235(c)).

§1051.205 What must I include in my application?

This section specifies the information that must be in your application, unless we ask you to include less information under §1051.201(c). We may require you to provide additional information to evaluate your application.

- (a) Describe the engine family's specifications and other basic parameters of the vehicle's design and emission controls. List the fuel type on which your engines are designed to operate (for example, gasoline, liquefied petroleum gas, methanol, or natural gas). List vehicle configurations and model names that are included in the engine family.
- (b) Explain how the ~~emission-control~~emission control systems operates. Describe the evaporative emission controls. Also describe in detail all system components for controlling exhaust emissions, including all ~~auxiliary-~~auxiliary emission control devices (AECDs) and all fuel-system components you will install on any production or test vehicle or engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECDs any devices that modulate or activate differently from each other. Include 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 vehicle-based parameters and state whether you simulate them during testing with the applicable procedures.~~
 - ~~(4) Describe the purpose for sensing each parameter.~~
 - ~~(5) Identify the location of each sensor the AECD uses.~~
 - ~~(6) Identify the threshold values for the sensed parameters that activate the AECD.~~
 - ~~(7) Describe the parameters that the AECD modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AECD's stated purpose. Use graphs and tables, as necessary.~~
 - ~~(8) Describe each AECD's specific calibration details. This may be in the form of data tables, graphical representations, or some other description.~~
 - ~~(9) Describe the hierarchy among the AECDs when multiple AECDs sense or modulate the same parameter. Describe whether the strategies interact in a comparative or additive manner and identify which AECD takes precedence in responding, if applicable.~~
 - ~~(10) Explain the extent to which the AECD is included in the applicable test procedures specified in subpart F of this part.~~
 - ~~(11) Do the following additional things for AECDs designed to protect engines or vehicles:~~
 - ~~(i) Identify the engine and/or vehicle design limits that make protection necessary and describe any damage that would occur without the AECD.~~

- ~~(ii) Describe how each sensed parameter relates to the protected components' design limits or those operating conditions that cause the need for protection.~~
- ~~(iii) Describe the relationship between the design limits/parameters being protected and the parameters sensed or calculated as surrogates for those design limits/parameters, if applicable.~~
- ~~(iv) Describe how the modulation by the AECD prevents engines and/or equipment from exceeding design limits.~~
- ~~(v) Explain why it is necessary to estimate any parameters instead of measuring them directly and describe how the AECD calculates the estimated value, if applicable.~~
- ~~(vi) Describe how you calibrate the AECD modulation to activate only during conditions related to the stated need to protect components and only as needed to sufficiently protect those components in a way that minimizes the emission impact.~~

sufficient detail to allow us to evaluate whether the AECDs are consistent with the defeat device prohibition of §1051.115.

(c) [Reserved]

(d) Describe the vehicles or engines you selected for testing and the reasons for selecting them.

(e) Describe the test equipment and procedures that you used, including any special or alternate test procedures you used (see §1051.501).

(f) Describe how you operated the emission-data vehicle before testing, including the duty cycle and the extent of engine operation used to stabilize emission levels. Explain why you selected the method of service accumulation. Describe any scheduled maintenance you did.

(g) List the specifications of the test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065.

(h) Identify the engine family's useful life.

(i) Include the maintenance instructions you will give to the ultimate purchaser of each new vehicle (see §1051.125).

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vehicle (see §1051.130).

(k) Describe the labels you create to meet the requirements of §1051.135.

(l) Identify the exhaust emission standards or FELs to which you are certifying engines in the engine family.

(m) Identify the engine family's deterioration factors and describe how you developed them (see §1051.243 and §1051.245). Present any emission test data you used for this.

(n) State that you operated your emission-data vehicles as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.

(o) Present emission data to show that you meet emission standards, as follows:

(1) Present exhaust emission data for hydrocarbons (such as NMHC or THCE, as applicable), NO_x, and CO on an emission-data vehicle to show your vehicles meet the applicable exhaust emission standards we specify as specified in subpart B of this part. Show emission figures before and after applying deterioration factors for each pollutant and for each vehicle or engine. If we specify more than one grade of any fuel type (for example, a summer grade and winter grade of gasoline), you need to submit test data only for one grade; unless the regulations of this part specify otherwise for your engine.

(2) Present evaporative test data for hydrocarbons to show your vehicles meet the evaporative emission standards we specify in subpart B of this part. Show emission figures before and after applying deterioration factors for each vehicle or engine, where applicable. If you did not perform the testing, identify the source of the test data.

(3) Note that §1051.235 and §1051.245 allow you to submit an application in certain cases without new emission data.

(p) Report all test results, including those from invalid tests or from any other tests, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO₂, report those emission levels. We may ask you to send other information to confirm that your tests were valid under the requirements of this part and 40 CFR part 1065.

(q) Describe all adjustable operating parameters (see §1051.115(e)), including production tolerances. Include the following in your description of each parameter:

- (1) The nominal or recommended setting.
- (2) The intended physically adjustable range.

(3) The limits or stops used to establish adjustable ranges.

(4) Information showing why the limits, stops, or other means of inhibiting adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your intended physically adjustable ranges.

(r) Confirm that your emission-related installation instructions specify how to ensure that sampling of exhaust emissions will be possible after engines are installed in equipment and placed in service. If this cannot be done by simply adding a 20-centimeter extension to the exhaust pipe, show how to sample exhaust emissions in a way that prevents diluting the exhaust sample with ambient air.

(s) Unconditionally certify that all the vehicles and/or engines in the engine family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(t) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models.

(u) Include the information required by other subparts of this part. For example, include the information required by §1051.725 if you participate in the ABT program.

(v) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(w) Name an agent for service ~~of process~~ 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.

§1051.210 May I get preliminary approval before I complete my application?

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

§1051.220 How do I amend the maintenance instructions in my application?

You may amend your emission-related maintenance instructions after you submit your application for certification, as long as the amended instructions remain consistent with the provisions of §1051.125. You must send the Designated Compliance Officer a request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. We will disapprove your request if we determine that the amended instructions are inconsistent with maintenance you performed on emission-data vehicles. If operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim.

(a) If you are decreasing the specified maintenance, you may distribute the new maintenance instructions to your customers 30 days after we receive your request, unless we disapprove your request. We may approve a shorter time or waive this requirement.

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

(c) You need not request approval if you are making only minor corrections (such as correcting typographical mistakes), clarifying your maintenance instructions, or changing instructions for maintenance unrelated to emission control.

§1051.225 How do I amend my application for certification to include new or modified vehicles or to change an FEL?

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

- (a) You must amend your application before you take any of the following actions:
- (1) Add a vehicle ~~(that is, an additional vehicle~~ configuration) to an engine family. In this case, the vehicle configuration added must be consistent with other ~~vehicles~~vehicle configurations in the engine family with respect to the criteria listed in §1051.230.
 - (2) Change a vehicle configuration already included in an engine family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the engine's lifetime.
 - (3) Modify an FEL for an engine family, as described in paragraph (f) of this section.
- (b) To amend your application for certification, send the Designated Compliance Officer the following information:
- (1) Describe in detail the addition or change in the vehicle model or configuration you intend to make.
 - (2) Include engineering evaluations or data showing that the amended engine family complies with all applicable requirements. You may do this by showing that the original emission-data vehicle is still appropriate ~~with respect to~~for showing ~~compliance of that~~ the amended family complies with all applicable requirements.
 - (3) If the original emission-data vehicle for the engine family is not appropriate to show compliance for the new or modified vehicle configuration, include new test data showing that the new or modified vehicle configuration meets the requirements of this part.
- (c) We may ask for more test data or engineering evaluations. You must give us these within 30 days after we request them.
- (d) For engine families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your new or modified vehicle configuration. You may ask for a hearing if we deny your request (see §1051.820).
- (e) For engine families already covered by a certificate of conformity, you may start producing the new or modified vehicle configuration anytime after you send us your amended application, before we make a decision under paragraph (d) of this section. However, if we determine that the affected vehicles do not meet applicable requirements, we will notify you to cease production of the vehicles and may require you to recall the vehicles at no expense to the owner. Choosing to produce vehicles under this paragraph (e) is deemed to be consent to recall all vehicles that we determine do not meet applicable emission standards or other requirements and to remedy the nonconformity at no expense to the owner. If you do not provide information required under paragraph (c) of this section within 30 days, you must stop producing the new or modified ~~vehicles~~vehicle configuration.
- (f) You may ask us to approve a change to your FEL in the following cases:
- ~~(1) You may ask to raise your FEL for your engine family~~certain cases after the start of production. ~~You must use the higher FEL for the entire family to calculate your average emission level under subpart H of this part. In your request, you must demonstrate that you will still be able to comply with the applicable average emission standards as specified in subparts B and H of this part.~~
 - ~~(2) You may ask to lower the FEL for your engine family~~The changed FEL may not apply to vehicles you have already introduced into commerce, except as described in this paragraph (f). If we approve a changed FEL after the start of production ~~only when you have test data from production vehicles indicating that your vehicles comply with the lower FEL. You may create a separate subfamily with the lower FEL. Otherwise, you must use the higher FEL for the family to calculate your average emission level under subpart H of this part.~~
 - ~~(3) If you change the FEL during production,~~ you must include the new FEL on the emission control information label for all vehicles produced after the change. You may ask us to approve a change to your FEL in the following cases:
 - (1) You may ask to raise your FEL for your engine family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. If you amend your application by submitting new test data to include a newly added or modified vehicle, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding production volumes to calculate your

average emission level for the model year, as described in subpart H of this part. If you amend your application without submitting new test data, you must use the higher FEL for the entire family to calculate your average emission level under subpart H of this part.

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

§1051.230 How do I select engine families?

(a) ~~For purposes of certification, divide your product line into families of vehicles that are expected to have similar emission characteristics throughout the useful life as described in this section.~~ Except as specified in paragraph (f) of this section, you must have separate engine families for meeting exhaust and evaporative emissions. Your engine family is limited to a single model year.

(b) For exhaust emissions, group vehicles in the same engine family if they are the same in all the following aspects:

- (1) The combustion cycle.
- (2) The cooling system (liquid-cooled vs. air-cooled).
- (3) Configuration of the fuel system (for example, port fuel injection vs. carburetion).
- (4) Method of air aspiration.
- (5) The number, location, volume, and composition of catalytic converters.
- (6) Type of fuel.
- (7) The number, arrangement, and approximate bore diameter of cylinders.
- (8) Numerical level of the emission standards that apply to the vehicle.

(c) For evaporative emissions, group vehicles in the same engine family if fuel tanks are similar and fuel lines are similar considering all the following aspects:

- (1) Type of material (including additives such as pigments, plasticizers, and UV inhibitors).
- (2) Emission-control strategy.
- (3) Production methods. This does not apply to differences in production methods that would not affect emission characteristics.

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

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

- (1) ~~In unusual circumstances, you may group such vehicles in the same engine family if you show that their emission characteristics during the useful life will be similar.~~
- (2) If you are a small-volume manufacturer, you may group engines from any vehicles subject to the same emission standards into a single engine family. This does not change any of the requirements of this part for showing that an engine family meets emission standards.

(f) You may divide your product line into engine families based on a combined consideration of exhaust and evaporative emission-control systems, consistent with the requirements of this section. This would allow you to use a single engine-family designation for each engine family instead of having separate engine-family designations for exhaust and evaporative emission-control systems for each model.

(g) Select test engines from the engine family as described in 40 CFR 1065.401. Select test components related to evaporative emission-control systems that are most likely to exceed the applicable emission standards. For example, select a fuel tank with the smallest average wall thickness (or barrier thickness, as appropriate) of those tanks you include in the same family.

§1051.235 What emission testing must I perform for my application for a certificate of conformity?

This section describes the emission testing you must perform to show compliance with the emission standards in subpart B of this part.

(a) Test your emission-data vehicles using the procedures and equipment specified in subpart F of this part. Where specifically required or allowed, test the engine instead of the vehicle. For evaporative emissions, test the fuel system components separate from the vehicle.

- (b) Select from each engine family an emission-data vehicle, and a fuel system for each fuel type with a configuration that is most likely to exceed the emission standards, using good engineering judgment. Consider the emission levels of all exhaust constituents over the full useful life of the vehicle.
- (c) We may measure emissions from any of your test vehicles or engines (or any other vehicles or engines from the engine family), as follows:
- (1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the test vehicle or engine to a test facility we designate. The test vehicle or engine you provide must include appropriate manifolds, aftertreatment devices, electronic control units, and other emission-related components not normally attached directly to the engine block. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need.
 - (2) If we measure emissions on one of your test vehicles or engines, the results of that testing become the official emission results. Unless we later invalidate these data, we may decide not to consider your data in determining if your engine family meets applicable requirements.
 - (3) Before we test one of your vehicles or engines, we may set its adjustable parameters to any point within the physically adjustable ranges (see §1051.115(c)).
 - (4) Before we test one of your vehicles or engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter.
- (d) You may use previously generated emission data in the following cases:
- (1) You may ask to use emission data from a previous model year instead of doing new tests, but only if all the following are true:
 - (i) The engine family from the previous model year differs from the current engine family only with respect to model year or other characteristics unrelated to emissions. You may also ask to add a configuration subject to §1051.225.
 - (ii) The emission-data vehicle from the previous model year remains the appropriate emission-data vehicle under paragraph (b) of this section.
 - (iii) The data show that the emission-data vehicle would meet all the requirements that apply to the engine family covered by the application for certification.
 - (2) You may submit emission data for equivalent engine families performed to show compliance with other standards (such as California standards) instead of doing new tests, but only if the data show that the test vehicle or engine would meet all of this part's requirements.
 - (3) You may submit evaporative emission data measured by a fuel system supplier. We may require you to verify that the testing was conducted in accordance with the applicable regulations.
- (e) We may require you to test a second vehicle or engine of the same or different configuration in addition to the vehicle or engine tested under paragraph (b) of this section.
- (f) If you use an alternate test procedure under 40 CFR 1065.10 and later testing shows that such testing does not produce results that are equivalent to the procedures specified in subpart F of this part, we may reject data you generated using the alternate procedure.
- (g) If you are a small-volume manufacturer, you may certify by design on the basis of preexisting exhaust emission data for similar technologies and other relevant information, and in accordance with good engineering judgment. In those cases, you are not required to test your vehicles. This is called "design-certification" or "certifying by design." To certify by design, you must show that the technology used on your engines is sufficiently similar to the previously tested technology that a person reasonably familiar with emission-control technology would believe that your engines will comply with the emission standards.
- (h) For fuel tanks that are certified based on permeability treatments for plastic fuel tanks, you do not need to test each engine family. However, you must use good engineering judgment to determine permeation rates for the tanks. This requires that more than one fuel tank be tested for each set of treatment conditions. You may not use test data from a given tank for any other tanks that have thinner walls. You may, however, use test data from a given tank for other tanks that have thicker walls. This applies to both low-hour (i.e., baseline testing) and durability testing. Note that §1051.245 allows you to use design-based certification instead of generating new emission data.

§1051.240 How do I demonstrate that my engine family complies with exhaust emission standards?

- (a) For purposes of certification, your engine family is considered in compliance with the applicable numerical exhaust emission standards in subpart B of this part if all emission-data vehicles representing that family have test results showing deteriorated emission levels at or below these standards. (Note: if you participate in the ABT program in subpart H of this part, your FELs are considered to be the applicable emission standards with which you must comply.)
- (b) Your engine family is deemed not to comply if any emission-data vehicle representing that family has test results showing a deteriorated emission level above an applicable FEL or emission standard from subpart B of this part for any pollutant.
- (c) To compare emission levels from the emission-data vehicle with the applicable emission standards, apply deterioration factors to the measured emission levels. Section 1051.243 specifies how to test your vehicle to develop deterioration factors that represent the deterioration expected in emissions over your vehicle's full useful life. Your deterioration factors must take into account any available data from in-use testing with similar engines. Small-volume manufacturers may use assigned deterioration factors that we establish. Apply deterioration factors as follows:
- (1) For vehicles that use aftertreatment technology, such as catalytic converters, use a multiplicative deterioration factor for exhaust emissions. A multiplicative deterioration factor for a pollutant is the ratio of exhaust emissions at the end of the useful life and exhaust emissions at the low-hour test point. In these cases, adjust the official emission results for each tested vehicle or engine at the selected test point by multiplying the measured emissions by the deterioration factor. If the factor is less than one, use one. Multiplicative deterioration factors must be specified to three significant figures.
 - (2) For vehicles that do not use aftertreatment technology, use an additive deterioration factor for exhaust emissions. An additive deterioration factor for a pollutant is the difference between exhaust emissions at the end of the useful life and exhaust emissions at the low-hour test point. In these cases, adjust the official emission results for each tested vehicle or engine at the selected test point by adding the factor to the measured emissions. If the factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable standard.
- (d) Collect emission data using measurements to one more decimal place than the applicable standard. Apply the deterioration factor to the official emission result, as described in paragraph (c) of this section, then round the adjusted figure to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each emission-data vehicle. In the case of HC+NO_x standards, add the emission results and apply the deterioration factor to the sum of the pollutants before rounding. However, if your deterioration factors are based on emission measurements that do not cover the vehicle's full useful life, apply the deterioration factor to each pollutant and then add the results before rounding.

§1051.243 How do I determine deterioration factors from exhaust durability testing?

Establish deterioration factors to determine whether your engines will meet exhaust emission standards for each pollutant throughout the useful life, as described in subpart B of this part and §1051.240. This section describes how to determine deterioration factors, either with pre-existing test data or with new emission measurements.

- (a) You may ask us to approve deterioration factors for an engine family based on emission measurements from similar vehicles or engines if you have already given us these data for certifying other vehicles in the same or earlier model years. Use good engineering judgment to decide whether the two vehicles or engines are similar. We will approve your request if you show us that the emission measurements from other vehicles or engines reasonably represent in-use deterioration for the engine family for which you have not yet determined deterioration factors.
- (b) If you are unable to determine deterioration factors for an engine family under paragraph (a) of this section, select vehicles, engines, subsystems, or components for testing. Determine deterioration factors based on service accumulation and related testing to represent the deterioration expected from in-use vehicles over the full useful life, as follows:
- (1) You must measure emissions from the emission-data vehicle at a low-hour test point and the end of the useful life. You may also test at evenly spaced intermediate points.
 - (2) Operate the vehicle or engine over a representative duty cycle for a period at least as long as the useful life (in hours or kilometers). You may operate the vehicle or engine continuously.

(3) You may perform maintenance on emission-data vehicles as described in §1051.125 and 40 CFR part 1065, subpart E.

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

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

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

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

(1) If you 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 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.

§1051.245 How do I demonstrate that my engine family complies with evaporative emission standards?

(a) For purposes of certification, your engine family is considered in compliance with the evaporative emission standards in subpart B of this part if you do either of the following:

(1) You have test results showing permeation emission levels from the fuel tanks and fuel lines in the family are at or below the standards in §1051.110 throughout the useful life.

(2) You comply with the design specifications in paragraph (e) of this section.

(b) Your engine family is deemed not to comply if any fuel tank or fuel line representing that family has test results showing a deteriorated emission level above the standard.

(c) To compare emission levels with the emission standards, apply deterioration factors to the measured emission levels. For permeation emissions, use the following procedures to establish an additive deterioration factor, as described in §1051.240(c)(2):

(1) Section 1051.515 specifies how to test your fuel tanks to develop deterioration factors. Small-volume manufacturers may use assigned deterioration factors that we establish. Apply the deterioration factors as follows:

(i) Calculate the deterioration factor from emission tests performed before and after the durability tests as described in §1051.515(c) and (d), using good engineering judgment. The durability tests described in §1051.515(d) represent the minimum requirements for determining a deterioration factor. You may not use a deterioration factor that is less than the difference between evaporative emissions before and after the durability tests as described in §1051.515(c) and (d).

(ii) Do not apply the deterioration factor to test results for tanks that have already undergone these durability tests.

(2) Determine the deterioration factor for fuel lines using good engineering judgment.

(d) Collect emission data using measurements to one more decimal place than the applicable standard. Apply the deterioration factor to the official emission result, as described in paragraph (c) of this section, then round the adjusted figure to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each emission-data vehicle.

(e) You may demonstrate for certification that your engine family complies with the evaporative emission standards by demonstrating that you use the following control technologies:

(1) For certification to the standards specified in §1051.110(a) with the control technologies shown in the following table:

Table 1 of §1051.245—
Design-certification Technologies for Controlling Tank Permeation

If the tank permeability control technology is...	Then you may design-certify with a tank emission level of . . .
(i) A metal fuel tank with no non-metal gaskets or with gaskets made from a low-permeability material. [†]	1.5 g/m ² /day
(ii) A metal fuel tank with non-metal gaskets with an exposed surface area of 1000 mm ² or less.	1.5 g/m ² /day

~~† Permeability of 10 g/m²/day or less according to ASTM D 814-95 (incorporated by reference in §1051.810).~~

(2) For certification to the standards specified in §1051.110(b) with the control technologies shown in the following table:

Table 2 of §1051.245—
Design-certification Technologies for Controlling Fuel-line Permeation

If the fuel-line permeability control technology is...	Then you may design-certify with a fuel line permeation emission level of . . .
(i) Hose meeting Category 1 permeation specifications in SAE J2260 (incorporated by reference in §1051.810).	15 g/m ² /day
(ii) Hose meeting the R11-A or R12 permeation specifications in SAE J30 (incorporated by reference in §1051.810).	15 g/m ² /day

(3) We may establish additional design certification options where we find that new test data demonstrate that the use of other technology designs will ensure compliance with the applicable emission standards.

§1051.250 What records must I keep and make available to EPA?

(a) If you produce vehicles under any provisions of this part that are related to production volumes, send the Designated Compliance Officer a report within 30 days after the end of the model year describing the total number of vehicles you produced in each engine family. For example, if you use special provisions intended for small-volume manufacturers, report your production volumes to show that you do not exceed the applicable limits.

(ab) Organize and maintain the following records:

- (1) A copy of all applications and any summary information you send us.
- (2) Any of the information we specify in §1051.205 that you were not required to include in your application.
- (3) A detailed history of each emission-data vehicle. For each vehicle, describe all of the following:
 - (i) The emission-data vehicle's construction, including its origin and buildup, steps you took to ensure that it represents production vehicles, any components you built specially for it, and all the components you include in your application for certification.
 - (ii) How you accumulated vehicle or engine operating hours, including the dates and the number of hours accumulated.
 - (iii) All maintenance, including modifications, parts changes, and other service, and the dates and reasons for the maintenance.
 - (iv) All your emission tests, including documentation on routine and standard tests, as specified in 40 CFR part 1065, and the date and purpose of each test.
 - (v) All tests to diagnose engine or emission-control performance, giving the date and time of each and the reasons for the test.
 - (vi) Any other significant events.

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

(5) Keep a list of engine identification numbers for all the engines you produce under each certificate of conformity.

(b)(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.

(c)(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.

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

§1051.255 What decisions may EPA make regarding my certificate of conformity?

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

(b) We may deny your application for certification if we determine that your engine family fails to comply with emission standards or other requirements of this part or the Act. Our decision may be based on a review of all information available to us. If we deny your application, we will explain why in writing.

(c) In addition, we may deny your application or suspend or revoke your certificate if you do any of the following:

(1) Refuse to comply with any testing or reporting requirements.

(2) Submit false or incomplete information (paragraph (e) of this section applies if this is fraudulent).

(3) Render inaccurate any test data.

(4) Deny us from completing authorized activities despite our presenting a warrant or court order (see 40 CFR 1068.20). This includes a failure to provide reasonable assistance.

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

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

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

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

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

(f) If we deny your application or suspend, revoke, or void your certificate, you may ask for a hearing (see §1051.820).

Subpart D—Testing Production-line Vehicles and Engines

§1051.301 When must I test my production-line vehicles or engines?

- (a) If you produce vehicles that are subject to the requirements of this part, you must test them as described in this subpart. ~~If your vehicle is certified to g/kW-hr standards, then test the engine; otherwise, test the vehicle. The provisions of this subpart do not apply to small-volume, except as follows:~~
- (1) Small-volume manufacturers may omit testing under this subpart.
 - (2) We may exempt engine families with a projected U.S.-directed production volume below 150 units from routine testing under this subpart. Request this exemption in the application for certification and include your basis for projecting a production volume below 150 units. You must promptly notify us if your actual production exceeds 150 units during the model year. If you exceed the production limit or if there is evidence of a nonconformity, we may require you to test production-line engines under this subpart, or under 40 CFR part 1068, subpart E, even if we have approved an exemption under this paragraph (a)(2).
- (b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line vehicles or engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§1051.325 and 1051.340).
- (c) Other ~~requirements apply to vehicles and engines that you produce.~~ Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families without regard to whether they have passed these production-line testing requirements. The requirements of this subpart do not affect our ability to do selective enforcement audits, as described in part 1068 of this chapter. Individual vehicles and engines in families that pass these production-line testing requirements must also conform to all applicable regulations of this part and part 1068 of this chapter.
- (d) You may ask to use an alternate program for testing production-line vehicles or engines. In your request, you must show us that the alternate program gives equal assurance that your products meet the requirements of this part. If we approve your alternate program, we may waive some or all of this subpart's requirements.
- (e) If you certify an engine family with carryover emission data, as described in §1051.235(c), and these equivalent engine families consistently pass the production-line testing requirements over the preceding two-year period, you may ask for a reduced testing rate for further production-line testing for that family. The minimum testing rate is one vehicle or engine per engine family. If we reduce your testing rate, we may limit our approval to any number of model years. In determining whether to approve your request, we may consider the number of vehicles or engines that have failed the emission tests.
- (f) We may ask you to make a reasonable number of production-line vehicles or engines available for a reasonable time so we can test or inspect them for compliance with the requirements of this part.
- (g) The requirements of this subpart do not apply to engine families certified under the provisions of §1051.630.
- (h) Vehicles certified to the following standards are exempt from the production-line testing requirements of this subpart if no engine families in the averaging set participate in the averaging, banking, and trading program described in subpart H of this part have family emission limits that are different than the otherwise applicable standard:
- (1) Phase 1 or Phase 2 standards in §1051.103.
 - (2) Phase 1 standards in §§1051.105.
 - (3) Phase 1 standards in §1051.107.
 - (4) The standards in §1051.615.
 - (5) The standards in §1051.145(b).

§1051.305 How must I prepare and test my production-line vehicles or engines?

This section describes how to prepare and test production-line vehicles or engines. Test the engine if your vehicle is certified to g/kW-hr standards; otherwise test the vehicle. You must assemble the test vehicle or engine in a way that represents the assembly procedures for other vehicles or engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production vehicles or engines in the engine family.

- (a) Test procedures. Test your production-line vehicles or engines using the applicable testing procedures in subpart F of this part to show you meet the emission standards in subpart B of this part.

- (b) Modifying a test vehicle or engine. Once a vehicle or engine is selected for testing (see §1051.310), you may adjust, repair, prepare, or modify it or check its emissions only if one of the following is true:
- (1) You document the need for doing so in your procedures for assembling and inspecting all your production vehicles or engines and make the action routine for all the vehicles or engines in the engine family.
 - (2) This subpart otherwise specifically allows your action.
 - (3) We approve your action in advance.
- (c) Malfunction. If a vehicle or engine malfunction prevents further emission testing, ask us to approve your decision to either repair it or delete it from the test sequence.
- (d) Setting adjustable parameters. Before any test, we may ~~adjust or~~ require you to adjust any adjustable parameter to any setting within its physically adjustable range.
- (1) We may ~~adjust or~~ require you to adjust idle speed outside the physically adjustable range as needed, but only until the vehicle or engine has stabilized emission levels (see paragraph (e) of this section). We may ask you for information needed to establish an alternate minimum idle speed.
 - (2) We may ~~make or~~ specify adjustments within the physically adjustable range by considering their effect on emission levels, as well as how likely it is someone will make such an adjustment with in-use vehicles.
 - (3) We may ~~adjust the~~ specify an air-fuel ratio within the adjustable range specified in §1051.115(d).
- (e) Stabilizing emission levels. Before you test production-line vehicles or engines, you may operate the vehicle or engine to stabilize the emission levels. Using good engineering judgment, operate your vehicles or engines in a way that represents the way they will be used. You may operate each vehicle or engine for no more than the greater of two periods:
- (1) 50 hours or 500 kilometers.
 - (2) The number of hours or kilometers you operated the emission-data vehicle used for certifying the engine family (see 40 CFR part 1065, subpart E, or the applicable regulations governing how you should prepare your test vehicle or engine).
- (f) Damage during shipment. If shipping a vehicle or engine to a remote facility for production-line testing makes necessary an adjustment or repair, you must wait until after the initial emission test to do this work. We may waive this requirement if the test would be impossible or unsafe, or if it would permanently damage the vehicle or engine. Report to us, in your written report under §1051.345, all adjustments or repairs you make on test vehicles or engines before each test.
- (g) Retesting after invalid tests. You may retest a vehicle or engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If you retest a vehicle or engine, you may ask us to substitute results of the new tests for the original ones. You must ask us within ten days of testing. We will generally answer within ten days after we receive your information.

§1051.310 How must I select vehicles or engines for production-line testing?

- (a) ~~Use t~~Test results from two vehicles or engines for from each engine family ~~to calculate the required sample size for the test period. Update this calculation with each test:~~
- ~~(1) as described in this section based on test periods, as follows:~~
- (1) For engine families with projected ~~annual sales~~U.S.-directed production volume of at least ~~16001,600~~, the test periods are consecutive quarters (3 months). ~~However, if your annual production period is less than 12 months long, you may take the following alternative approach to define your quarterly test periods by dividing:~~
 - ~~(i) If your annual production period into approximately equal segments of 70 to 125 calendar days.~~
 - ~~(2) is 120 days or less, the whole model year constitutes a single test period.~~
 - ~~(ii) If your annual production period is 121 to 210 days, divide the annual production period evenly into two test periods.~~
 - ~~(iii) If your annual production period is 211 to 300 days, divide the annual production period evenly into three test periods.~~
 - ~~(iv) If your annual production period is 301 days or longer, divide the annual production period evenly into four test periods.~~
 - (2) For engine families with projected ~~annual sales~~U.S.-directed production volume below ~~16001,600~~, ~~the test period is~~ the whole model year constitutes a single test period.

(b) Early in each test period, randomly select and test an engine from the end of the assembly line for each engine family.

(1) -In the first test period for newly certified engines, randomly select and test one more engine. Then, calculate the required sample size for the test period model year as described in paragraph (c) of this section.

(2) -In later test periods or of the same model year, combine the new test result with all previous testing in the model year. Then, calculate the required sample size for the model year as described in paragraph (c) of this section.

(3) In the first test period for engine families relying on previously submitted test data, combine the new test result with the last test result from the previous test period model year. Then, calculate the required sample size for the new test period model year as described in paragraph (c) of this section. Use the last test result from the previous model year only for this first calculation. For all subsequent calculations, use only results from the current model year.

(c) -Calculate the required sample size for each engine family. Separately calculate this figure for HC, NOx (or HC+NOx), and CO ~~(and other regulated pollutants)~~. The required sample size is the greater of these calculated values. Use the following equation:

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

Where:

N = Required sample size for the model year.

t₉₅ = 95% confidence coefficient, which depends on the number of tests completed, n, as specified in the table in paragraph (c)(1) of this section. It defines 95% confidence intervals for a one-tail distribution.

x = Mean of emission test results of the sample.

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

σ = Test sample standard deviation (see paragraph (c)(2) of this section).

~~n = The number of tests completed in an engine family.~~

(1) Determine the 95% confidence coefficient, t₉₅, from the following table:

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

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

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

Where:

X_i = Emission test result for an individual vehicle or engine.

n = The number of tests completed in an engine family.

(d) Use final deteriorated test results to calculate the variables in the equations in paragraph (c) of this section (see §1051.315(a)).

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

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

(g) ~~Continue testing any engine family for which the sample mean, x , is greater than the emission standard. This applies if the sample mean for either HC, NO_x (or HC+NO_x), or CO (or other regulated pollutants) is greater than the emission standard.~~ Continue testing until one of the following things happens:

(1) ~~After completing the minimum number of tests required in paragraph (b) of this section,~~ the number of tests completed in an engine family, n , is greater than the required sample size, N , and the sample mean, x , is less than or equal to the emission standard. For example, if $N = 35.1$ after the ~~third~~fifth test, the sample-size calculation does not allow you to stop testing.

(2) The engine family does not comply according to §1051.315.

(3) You test 30 vehicles or engines from the engine family.

(4) You test one percent of your projected annual U.S.-directed production volume for the engine family, rounded to the nearest whole number. Do not count a vehicle or engine under this paragraph (g)(4) if it fails to meet an applicable emission standard.

(5) You choose to declare that the engine family ~~fails~~does not comply with the requirements of this subpart.

(h) If the sample-size calculation allows you to stop testing for ~~a~~one pollutant ~~but not another~~, you must continue measuring emission levels of ~~that~~all pollutants for any additional tests required under this section. However, you need not continue making the calculations specified in this section for ~~that~~the pollutant for which testing is not required. This paragraph (h) does not affect the requirements in number of tests required under this section or the remedial steps required under §1051.320.

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

§1051.315 How do I know when my engine family fails the production-line testing requirements?

This section describes the pass-fail criteria for the production-line testing requirements. We apply these criteria on an engine family basis. See §1051.320 for the requirements that apply to individual vehicles or engines that fail a production-line test.

(a) Calculate your test results: ~~Round them to the number of decimal places in the emission standard expressed to one more decimal place:~~

~~(1) as follows:~~

(1) Initial and final test results. Calculate and round the test results for each ~~vehicle or~~ engine. If you do several tests on ~~a vehicle or an~~ engine, calculate the initial test results, then add them together and divide by the number of tests and round for the final test results on that ~~vehicle or~~ engine.

(2) Final deteriorated test results. Apply the deterioration factor for the engine family to the final test results (see §1051.240(c)).

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

(b) Construct the following CumSum Equation for each engine family for HC, NOx (or HC+NOx), and CO emissions (and other regulated pollutants):

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

Where:

- C_i = The current CumSum statistic.
- C_{i-1} = The previous CumSum statistic. For the first test, the CumSum statistic is -0 (i.e., $C_1 = 0$).
- X_i = The current emission test result for an individual vehicle or engine.
- STD = Emission standard (or family emission limit, if applicable).

- (c) Use final deteriorated test results to calculate the variables in the equation in paragraph (b) of this section (see §1051.315(a)).
- (d) After each new test, recalculate the CumSum statistic.
- (e) If you test more than the required number of vehicles or engines, include the results from these additional tests in the CumSum Equation.
- (f) After each test, compare the current CumSum statistic, C_i , to the recalculated Action Limit, H, defined as $H = 5.0 \times \sigma$.
- (g) If the CumSum statistic exceeds the Action Limit in two consecutive tests, the engine family fails the production-line testing requirements of this subpart. Tell us within ten working days if this happens. You may request to amend the application for certification to raise the FEL of the engine family at this point if you meet the requirements of as described in §1051.225(f).
- (h) If you amend the application for certification for an engine family under §1051.225, do not change any previous calculations of sample size or CumSum statistics for the model year.

§1051.320 What happens if one of my production-line vehicles or engines fails to meet emission standards?

- (a) If you have a production-line vehicle or engine with final deteriorated test results exceeding one or more emission standards (see §1051.315(a)), the certificate of conformity is automatically suspended for that failing vehicle or engine. You must take the following actions before your certificate of conformity can cover that vehicle or engine:
 - (1) Correct the problem and retest the vehicle or engine to show it complies with all emission standards.
 - (2) Include in your written report a description of the test results and the remedy for each vehicle or engine (see §1051.345).
- (b) You may request to amend the application for certification to raise the FEL of the entire engine family at this point (see §1051.225).

§1051.325 What happens if an engine family fails the ~~production-line~~ production-line testing requirements?

- (a) We may suspend your certificate of conformity for an engine family if it fails under §1051.315. The suspension may apply to all facilities producing vehicles or engines from an engine family, even if you find noncompliant vehicles or engines only at one facility.
- (b) We will tell you in writing if we suspend your certificate in whole or in part. We will not suspend a certificate until at least 15 days after the engine family fails. The suspension is effective when you receive our notice.
- (c) Up to 15 days after we suspend the certificate for an engine family, you may ask for a hearing (see §1051.820). If we agree before a hearing occurs that we used erroneous information in deciding to suspend the certificate, we will reinstate the certificate.
- (d) Section 1051.335 specifies steps you must take to remedy the cause of the engine family's production-line failure. All the vehicles you have produced since the end of the last test period are presumed noncompliant and

should be addressed in your proposed remedy. We may require you to apply the remedy to engines produced earlier if we determine that the cause of the failure is likely to have affected the earlier engines.

(e) You may request to amend the application for certification to raise the FEL of the engine family before or after we suspend your certificate if you meet the requirements of §1051.225(f). We will approve your request if it is clear that you used good engineering judgment in establishing the original FEL.

§1051.330 May I sell vehicles from an engine family with a suspended certificate of conformity?

You may sell vehicles that you produce after we suspend the engine family's certificate of conformity under §1051.315 only if one of the following occurs:

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

§1051.335 How do I ask EPA to reinstate my suspended certificate?

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

§1051.340 When may EPA revoke my certificate under this subpart and how may I sell these vehicles again?

- (a) We may revoke your certificate for an engine family in the following cases:
 - (1) You do not meet the reporting requirements.
 - (2) Your engine family fails to comply with the requirements of this subpart and your proposed remedy to address a suspended certificate under §1051.325 is inadequate to solve the problem or requires you to change the vehicle's design or emission-control system.
- (b) To sell vehicles from an engine family with a revoked certificate of conformity, you must modify the engine family and then show it complies with the requirements of this part.
 - (1) If we determine your proposed design change may not control emissions for the vehicle's full useful life, we will tell you within five working days after receiving your report. In this case we will decide whether production-line testing will be enough for us to evaluate the change or whether you need to do more testing.
 - (2) Unless we require more testing, you may show compliance by testing production-line vehicles or engines as described in this subpart.
 - (3) We will issue a new or updated certificate of conformity when you have met these requirements.

§1051.345 What production-line testing records must I send to EPA?

Do all the following things unless we ask you to send us less information:

- (a) Within 30 calendar days of the end of each test period, send us a report with the following information:
 - (1) Describe any facility used to test production-line vehicles or engines and state its location.
 - (2) State the total U.S.-directed production volume and number of tests for each engine family.
 - (3) Describe how you randomly selected vehicles or engines.
 - (4) Describe your each test vehicles or engines, including the engine family's identification and the vehicle's model year, build date, model number, identification number, and number of hours of operation before testing for each test vehicle or engine.
 - (5) Identify how you accumulated hours of operation on the vehicles or engines and describe the procedure and schedule you used.
 - (6) Provide the test number; the date, time and duration of testing; test procedure; initial test results before and after rounding; final test results; and final deteriorated test results for all tests. Provide the emission results for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.
 - (7) Describe completely and justify any nonroutine adjustment, modification, repair, preparation, maintenance, or test for the test vehicle or engine if you did not report it separately under this subpart. Include the results of any emission measurements, regardless of the procedure or type of vehicle.

- (8) Provide the CumSum analysis required in §1051.315 and the sample-size calculation required in §1051.310 for each engine family.
- (9) Report on each failed vehicle or engine as described in §1051.320.
- (10) State the date the test period ended for each engine family.
- (b) We may ask you to add information to your written report, so we can determine whether your new vehicles conform with the requirements of this subpart.
- (c) An authorized representative of your company must sign the following statement:
We submit this report under Sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1051. We have not changed production processes or quality-control procedures for the test engine family(s) (or vehicles) in a way that might affect the emission control from production vehicles (or engines) controls. All the information in this report is true and accurate, to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)
- (d) Send electronic reports of production-line testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
- (e) We will send copies of your reports to anyone from the public who asks for them. See §1051.815 for information on how we treat information you consider confidential.

§1051.350 What records must I keep?

- (a) Organize and maintain your records as described in this section. We may review your records at any time.
- (b) Keep paper records of your production-line testing for one full eight years after you complete all the testing required for an engine family in a model year. You may use any additional storage formats or media if you like.
- (c) Keep a copy of the written reports described in §1051.345.
- (d) Keep the following additional records:
 - (1) A description of all test equipment for each test cell that you can use to test production-line vehicles or engines.
 - (2) The names of supervisors involved in each test.
 - (3) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test vehicle or engine and the names of all supervisors who oversee this work.
 - (4) If you shipped the vehicle or engine for testing, the date you shipped it, the associated storage or port facility, and the date the vehicle or engine arrived at the testing facility.
 - (5) Any records related to your production-line tests that are not in the written report.
 - (6) A brief description of any significant events during testing not otherwise described in the written report or in this section.
 - (7) Any information specified in §1051.345 that you do not include in your written reports.
- (e) If we ask, you must give us projected or actual production figures for an engine family. We may ask you to divide your production figures by rated brake maximum engine power, displacement, fuel type, or assembly plant (if you produce vehicles or engines at more than one plant).-
- (f) Keep a list of vehicle or engine identification numbers for all the vehicles or engines you produce under each certificate of conformity. Give us this list within 30 days if we ask for it.
- (g) We may ask you to keep or send other information necessary to implement this subpart.

Subpart E—Testing In-use Engines [Reserved]

Subpart F—Test Procedures

§1051.501 What procedures must I use to test my vehicles or engines?

This section describes test procedures that you use to determine whether vehicles meet the emission standards of this part. See §1051.235 to determine when testing is required for certification. See subpart D of this part for the production-line testing requirements.

- (a) Snowmobiles. For snowmobiles, use the equipment and procedures for spark-ignition engines in 40 CFR part 1065 to determine whether your snowmobiles meet the duty-cycle emission standards in §1051.103. Measure the emissions of all the pollutants we regulate in §1051.103. Use the duty cycle specified in §1051.505.
- (b) Motorcycles and ATVs. For motorcycles and ATVs, use the equipment, procedures, and duty cycle in 40 CFR part 86, subpart F, to determine whether your vehicles meet the exhaust emission standards in §1051.105 or §1051.107. Measure the emissions of all the pollutants we regulate in §1051.105 or §1051.107. If we allow you to certify ATVs based on engine testing, use the equipment, procedures, and duty cycle described or referenced in the section that allows engine testing. For motorcycles with engine displacement at or below 169 cc and all ATVs, use the driving schedule in paragraph (c) of Appendix I to 40 CFR part 86. For all other motorcycles, use the driving schedule in paragraph (b) of Appendix I to part 86. With respect to vehicle-speed governors, test motorcycles and ATVs in their ungoverned configuration, unless we approve in advance testing in a governed configuration. We will only approve testing in a governed configuration if you can show that the governor is permanently installed on all production vehicles and is unlikely to be removed in use. With respect to engine-speed governors, test motorcycles and ATVs in their governed configuration. Run the test engine, with all emission-control systems operating, long enough to stabilize emission levels; you may consider emission levels stable without measurement if you accumulate 12 hours of operation.
- (c) Permeation testing.
 - (1) Use the equipment and procedures specified in §1051.515 to measure fuel tank permeation emissions.
 - (2) Prior to permeation testing of fuel hose, the hose must be preconditioned by filling the hose with the fuel specified in paragraph (d)(3) of this section, sealing the openings, and soaking the hose for 4 weeks at $23\pm 5^{\circ}$ C. To measure fuel-line permeation emissions, use the equipment and procedures specified in SAE J30 (incorporated by reference in §1051.810). The measurements must be performed at $23\pm 2^{\circ}$ C using the fuel specified in paragraph (d)(3) of this section.
- (d) Fuels. Use the fuels meeting the following specifications:
 - (1) Exhaust. Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the exhaust testing we require in this part. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use.
 - (2) Fuel Tank Permeation.
 - (i) For the preconditioning soak described in §1051.515(a)(1) and fuel slosh durability test described in §1051.515(d)(3), use the fuel specified in Table 1 of 40 CFR 1065.710 blended with 10 percent ethanol by volume. As an alternative, you may use Fuel CE10, which is Fuel C as specified in ASTM D 471-98 (incorporated by reference in §1051.810) blended with 10 percent ethanol by volume.
 - (ii) For the permeation measurement test in §1051.515(b), use the fuel specified in Table 1 of 40 CFR 1065.710. As an alternative, you may use the fuel specified in paragraph (d)(2)(i) of this section.
 - (3) Fuel Hose Permeation. Use the fuel specified in Table 1 of 40 CFR 1065.710 blended with 10 percent ethanol by volume for permeation testing of fuel lines. As an alternative, you may use Fuel CE10, which is Fuel C as specified in ASTM D 471-98 (incorporated by reference in §1051.810) blended with 10 percent ethanol by volume.
- (e) Special procedures for engine testing.
 - (1) You may use special or alternate procedures, as described in §1065.10 of this chapter.
 - (2) We may reject data you generate using alternate procedures if later testing with the procedures in part 1065 of this chapter shows contradictory emission data.
 - (3) You may test engines using a test speed based on the point of maximum power if that represents in-use operation better than testing based on maximum test speed.
- (f) Special procedures for vehicle testing.
 - (1) You may use special or alternate procedures, as described in paragraph (f)(3) of this section.

(2) We may reject data you generate using alternate procedures if later testing with the otherwise specified procedures shows contradictory emission data.

(3)(i) The test procedures specified for vehicle testing are intended to produce emission measurements equivalent to those that would result from measuring emissions during in-use operation using the same vehicle configuration. If good engineering judgment indicates that use of the procedures in this part for a vehicle would result in measurements that are not representative of in-use operation of that vehicle, you must notify us. If we determine that using these procedures would result in measurements that are significantly unrepresentative and that changes to the procedures will result in more representative measurements that do not decrease the stringency of emission standards or other requirements, we will specify changes to the procedures. In your notification to us, you should recommend specific changes you think are necessary.

(ii) You may ask to use emission data collected using other test procedures, such as those of the California Air Resources Board or the International Organization for Standardization. We will allow this only if you show us that these data are equivalent to data collected using our test procedures.

(iii) You may ask to use alternate procedures that produce measurements equivalent to those obtained using the specified procedures. In this case, send us a written request showing that your alternate procedures are equivalent to the test procedures of this part. If you prove to us that the procedures are equivalent, we will allow you to use them. You may not use alternate procedures until we approve them.

(iv) You may ask to use special test procedures if your vehicle cannot be tested using the specified test procedures (for example, it is incapable of operating on the specified transient cycle). In this case, send us a written request showing that you cannot satisfactorily test your engines using the test procedures of this part. We will allow you to use special test procedures if we determine that they would produce emission measurements that are representative of those that would result from measuring emissions during in-use operation. You may not use special procedures until we approve them.

§1051.505 What special provisions apply for testing snowmobiles?

Use the following special provisions for testing snowmobiles:

(a) You may perform steady-state testing with either discrete-mode or ramped-modal cycles. You must use the type of testing you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will do testing the same way. We may also perform other testing as allowed by the Clean Air Act. Measure steady-state emissions as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute. Calculate cycle statistics for the sequence of each modes and compare with the specified values in 40 CFR 1065.514 to confirm that the test is valid.

(2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing as specified in 40 CFR part 1065, subpart G.-

(3) Measure emissions by testing the engine on a dynamometer with one or more of the following sets of duty cycles to determine whether it meets the steady-state emission standards in §1051.103:

(i) The following duty cycle applies for discrete-mode testing:

Table 1 of §1051.505—
5-mode Duty Cycle for Snowmobiles

Mode Number	Speed (percent) ¹	Torque (percent) ²	Minimum Time in mode (minutes)	Weighting Factors
1	100	100	3.0	0.12
2	85	51	3.0	0.27
3	75	33	3.0	0.25
4	65	19	3.0	0.31
5	Idle	0	3.0	0.05

¹ Percent speed is percent of maximum test speed.

² Percent torque is percent of maximum test torque at maximum test speed.

(ii) The following duty cycle applies for ramped-modal testing:

Table 2 of §1051.505—
Ramped-modal Cycle for Testing Snowmobiles

RMC Mode	Time in Mode	Speed (percent) ¹	Torque (percent) ^{2,3}
1a Steady-state	27	Warm Idle	0
1b Transition	20	Linear Transition	Linear Transition
2a Steady-state	121	100	100
2b Transition	20	Linear Transition	Linear Transition
3a Steady-state	347	65	19
3b Transition	20	Linear Transition	Linear Transition
4a Steady-state	305	85	51
4b Transition	20	Linear Transition	Linear Transition
5a Steady-state	272	75	33
5b Transition	20	Linear Transition	Linear Transition
6 Steady-state	28	Warm Idle	0

¹ Percent speed is percent of maximum test speed.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

³ Percent torque is percent of maximum test torque at maximum test speed.

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

- (1) Hold the speed within your specifications.
- (2) Keep the throttle at the idle-stop position.
- (3) Keep engine torque under 5 percent of maximum test torque.

(c) For the full-load operating mode, operate the engine at wide-open throttle.

(d) Ambient temperatures during testing must be between 20° C and 30° C (68° F and 86° F), or other representative test temperatures, as specified in paragraph (f) of this section.

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

(f) You may test snowmobiles at ambient temperatures below 20°C or using intake air temperatures below 20°C if you show that such testing complies with 40 CFR 1065.10(c)(1). You must get our approval before you begin the

emission testing. For example, the following approach would be appropriate to show that such testing complies with 40 CFR 1065.10(c)(1):

- (1) Using good engineering judgment, instrument a representative snowmobile built with a representative engine from the family being tested with an appropriate temperature measuring device located in the intake air plenum where fuel spitback is not likely to occur.
- (2) Choose a time and location with the following weather conditions: windspeed less than 10 knots, no falling precipitation, air temperature between -20 °C and 0 °C (-4 °F and 32 °F).
- (3) Operate the snowmobile until its engine reaches a steady operating temperature.
- (4) Operate the snowmobile on a level surface free of other vehicle traffic. Operate the snowmobile at each specified engine speed corresponding to each mode in the emissions test specific to the engine being tested. When readings are stable, record the temperature in the intake air plenum and the ambient temperature. Calculate the temperature difference between the air in the plenum and the ambient air for each mode.
- (5) Calculate the nominal intake air test temperature for each test mode as -10 °C (14 °F) plus the temperature difference for the corresponding mode determined in paragraph (f)(4) of this section.
- (6) Before the emissions test, select the appropriate carburetor jetting for -10 °C (14 °F) conditions according to the jet chart. For each mode, maintain the inlet air temperature within 5 °C (9 °F) of the corresponding modal temperature calculated in paragraph (f)(5) of this section.
- (7) Adjust other operating parameters to be consistent with operation at -10°C (14°F). For example, this may require that you modify the engine cooling system used in the laboratory to make its performance representative of cold-temperature operation.

§1051.510 What special provisions apply for testing ATV engines? [Reserved]

§1051.515 How do I test my fuel tank for permeation emissions?

Measure permeation emissions by weighing a sealed fuel tank before and after a temperature-controlled soak.

(a) Preconditioning fuel soak. To precondition your fuel tank, follow these five steps:

- (1) Fill the tank with the fuel specified in §1051.501(d)(2)(i), seal it, and allow it to soak at $28 \pm 5^\circ\text{C}$ for 20 weeks. Alternatively, the tank may be soaked for a shorter period of time at a higher temperature if you can show that the hydrocarbon permeation rate has stabilized.
- (2) Determine the fuel tank's internal surface area in square-meters accurate to at least three significant figures. You may use less accurate estimates of the surface area if you make sure not to overestimate the surface area.
- (3) Fill the fuel tank with the test fuel specified in §1051.501(d)(2)(ii) to its nominal capacity. If you fill the tank inside the temperature-controlled room or enclosure, do not spill any fuel.
- (4) Allow the tank and its contents to equilibrate to $28 \pm 2^\circ\text{C}$.
- (5) Seal the fuel tank using fuel caps and other fittings (excluding petcocks) that can be used to seal openings in a production fuel tank. In cases where openings are not normally sealed on the fuel tank (such as hose-connection fittings and vents in fuel caps), these openings may be sealed using nonpermeable fittings such as metal or fluoropolymer plugs.

(b) Permeation test run. To run the test, take the following steps for a tank that was preconditioned as specified in paragraph (a) of this section:

- (1) Weigh the sealed fuel tank and record the weight to the nearest 0.1 grams. You may use less precise weights as long as the difference in mass from the start of the test to the end of the test has at least three significant figures. Take this measurement within 8 hours of filling the tank with test fuel as specified in paragraph (a)(3) of this section.
- (2) Carefully place the tank within a ventilated, temperature-controlled room or enclosure. Do not spill or add any fuel.
- (3) Close the room or enclosure and record the time.
- (4) Ensure that the measured temperature in the room or enclosure is $28 \pm 2^\circ\text{C}$.
- (5) Leave the tank in the room or enclosure for 14 days.
- (6) Hold the temperature of the room or enclosure to $28 \pm 2^\circ\text{C}$; measure and record the temperature at least daily.

(7) At the end of the soak period, weigh the sealed fuel tank and record the weight to the nearest 0.1 grams. You may use less precise weights as long as the difference in mass from the start of the test to the end of the test has at least three significant figures. Unless the same fuel is used in the preconditioning fuel soak and the permeation test run, record weight measurements on five separate days per week of testing. The test is void if a linear plot of tank weight vs. test days for the full soak period for permeation testing specified in paragraph (b)(5) of this section yields r^2 below 0.8. See 40 CFR 1065.602 for the equation to calculate r^2 .

(8) Subtract the weight of the tank at the end of the test from the weight of the tank at the beginning of the test; divide the difference by the internal surface area of the fuel tank. Divide this g/m^2 value by the number of test days (using at least three significant figures) to calculate the $\text{g/m}^2/\text{day}$ emission rate. Example: If a tank with an internal surface area of 0.72 m^2 weighed 31882.3 grams at the beginning of the test and weighed 31813.8 grams after soaking for 14.03 days, then the $\text{g/m}^2/\text{day}$ emission rate would be—

$$(31882.3 \text{ g} - 31813.8 \text{ g}) / 0.72 \text{ m}^2 / 14.03 \text{ days} = 6.78 \text{ g/m}^2/\text{day}.$$

(9) Round your result to the same number of decimal places as the emission standard.

(10) In cases where consideration of permeation rates, using good engineering judgment, leads you to conclude that soaking for 14 days is not long enough to measure weight change to at least three significant figures, you may soak for 14 days longer. In this case, repeat the steps in paragraphs (b)(8) and (9) of this section to determine the weight change for the full 28 days.

(c) Determination of final test result. To determine the final test result, apply a deterioration factor to the measured emission level. The deterioration factor is the difference between permeation emissions measured before and after the durability testing described in paragraph (d) of this section. Adjust the baseline test results for each tested fuel tank by adding the deterioration factor to the measured emissions. The deterioration factor determination must be based on good engineering judgement. Therefore, during the durability testing, the test tank may not exceed the fuel tank permeation standard described in §1051.110 (this is known as “line-crossing”). If the deterioration factor is less than zero, use zero.

(d) Durability testing. You normally need to perform a separate durability demonstration for each substantially different combination of treatment approaches and tank materials. Perform these demonstrations before an emission test by taking the following steps, unless you can use good engineering judgment to apply the results of previous durability testing with a different fuel system. You may ask to exclude any of the following durability tests if you can clearly demonstrate that it does not affect the emissions from your fuel tank.

(1) Pressure cycling. Perform a pressure test by sealing the tank and cycling it between +2.0 psig and -0.5 psig and back to +2.0 psig for 10,000 cycles at a rate 60 seconds per cycle.

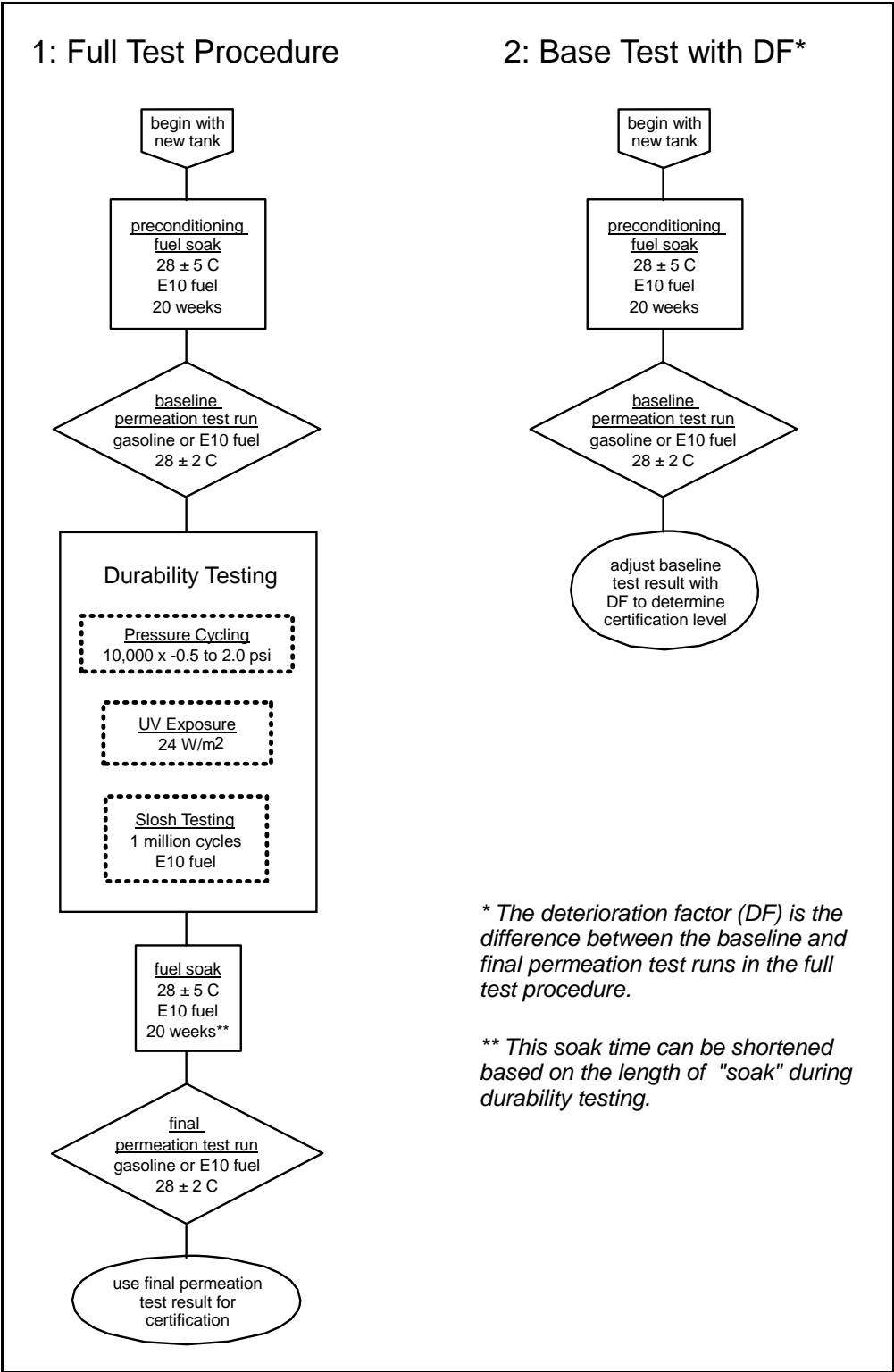
(2) UV exposure. Perform a sunlight-exposure test by exposing the tank to an ultraviolet light of at least 24 W/m^2 ($0.40 \text{ W-hr/m}^2/\text{min}$) on the tank surface for at least 450 hours. Alternatively, the fuel tank may be exposed to direct natural sunlight for an equivalent period of time, as long as you ensure that the tank is exposed to at least 450 daylight hours.

(3) Slosh testing. Perform a slosh test by filling the tank to 40 percent of its capacity with the fuel specified in §1051.501(d)(2)(i) and rocking it at a rate of 15 cycles per minute until you reach one million total cycles. Use an angle deviation of $+15^\circ$ to -15° from level. This test must be performed at a temperature of $28^\circ\text{C} \pm 5^\circ\text{C}$.

(4) Final test result. Following the durability testing, the fuel tank must be soaked (as described in paragraph (a) of this section) to ensure that the permeation rate is stable. The period of slosh testing and the period of ultraviolet testing (if performed with fuel in the tank consistent with paragraph (a)(1) of this section) may be considered to be part of this soak, provided that the soak begins immediately after the slosh testing. To determine the final permeation rate, drain and refill the tank with fresh fuel, and repeat the permeation test run (as described in paragraph (b) of this section) immediately after this soak period. The same test fuel must be used for this permeation test run as for the permeation test run performed prior to the durability testing.

(e) Flow chart. The following figure presents a flow chart for the permeation testing described in this section, showing the full test procedure with durability testing, as well as the simplified test procedure with an applied deterioration factor:

Figure 1051.515-1: Flow Chart of Permeation Test Procedure with and without DF Determination



§1051.520 How do I perform exhaust durability testing?

Sections 1051.240 and 1051.243 describe the method for testing that must be performed to establish deterioration factors for an engine family.

Subpart G—Compliance Provisions

§1051.601 What compliance provisions apply to vehicles and engines subject to this part?

Engine and vehicle manufacturers, as well as owners, operators, and rebuilders of these vehicles, and all other persons, must observe the requirements and prohibitions in part 1068 of this chapter and the requirements of the Act. The compliance provisions in this subpart apply only to the vehicles and engines we regulate in this part.

§1051.605 What provisions apply to engines already certified under the motor-vehicle program or the Large Spark-ignition program?

(a) General provisions. If you are an engine manufacturer, this section allows you to introduce into commerce new recreational vehicles, and engines for recreational vehicles, if the engines are already certified to the requirements that apply to spark-ignition engines under 40 CFR parts 85 and 86 or 40 CFR part 1048 for the appropriate model year. If you comply with all the provisions of this section, we consider the certificate issued under 40 CFR part 86 or 1048 for each engine to also be a valid certificate of conformity under this part 1051 for its model year, without a separate application for certification under the requirements of this part 1051. See §1051.610 for similar provisions that apply to vehicles that are already certified to the vehicle-based standards for motor vehicles.

(b) Vehicle-manufacturer provisions. If you are not an engine manufacturer, you may install an engine certified for the appropriate model year under 40 CFR part 86 or 1048 in a recreational vehicle as long as you meet all the requirements and conditions specified in paragraph (d) of this section. If you modify the non-recreational engine in any of the ways described in paragraph (d)(2) of this section for installation in a recreational vehicle, we will consider you a manufacturer of recreational vehicles. Such engine modifications prevent you from using the provisions of this section.

(c) Liability. Engines for which you meet the requirements of this section are exempt from all the requirements and prohibitions of this part, except for those specified in this section. Engines exempted under this section must meet all the applicable requirements from 40 CFR parts 85 and 86 or 40 CFR part 1048. This paragraph (c) applies to engine manufacturers, vehicle manufacturers who use such an engine, and all other persons as if the engine were used in its originally intended application. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new engines and vehicles; however, we consider the certificate issued under 40 CFR part 86 or 1048 for each engine to also be a valid certificate of conformity under this part 1051 for its model year. If we make a determination that these engines do not conform to the regulations during their useful life, we may require you to recall them under this part 1051 or under 40 CFR part 85 or 1068.505.

(d) Specific requirements. If you are an engine or vehicle manufacturer and meet all the following criteria and requirements regarding your new engine or vehicle, the vehicle using the engine is eligible for an exemption under this section:

- (1) Your engine must be covered by a valid certificate of conformity issued under 40 CFR part 86 or 1048.
- (2) You must not make any changes to the certified engine that could reasonably be expected to increase its exhaust emissions for any pollutant, or its evaporative emissions. For example, if you make any of the following changes to one of these engines, you do not qualify for this exemption:
 - (i) Change any fuel system or evaporative system parameters from the certified configuration (this does not apply to refueling controls).
 - (ii) Change, remove, or fail to properly install any other component, element of design, or calibration specified in the engine manufacturer's application for certification. This includes aftertreatment devices and all related components.
 - (iii) Modify or design the engine cooling system so that temperatures or heat rejection rates are outside the original engine manufacturer's specified ranges.
- (3) You must show that fewer than 50 percent of the engine family's total sales in the United States are used in recreational vehicles. This includes engines used in any application, without regard to which company manufactures the vehicle or equipment. Show this as follows:
 - (i) If you are the original manufacturer of the engine, base this showing on your sales information.
 - (ii) In all other cases, you must get the original manufacturer of the engine to confirm this based on its sales information.

- (4) You must ensure that the engine has the emission control information label we require under 40 CFR part 86 or 1048.
- (5) You must add a permanent supplemental label to the engine in a position where it will remain clearly visible after installation in the vehicle. In the supplemental label, do the following:
- (i) Include the heading: "RECREATIONAL VEHICLE EMISSION CONTROL INFORMATION".
 - (ii) Include your full corporate name and trademark. You may instead include the full corporate name and trademark of another company you choose to designate.
 - (iii) State: "THIS ENGINE WAS ADAPTED FOR A RECREATIONAL USE WITHOUT AFFECTING ITS EMISSION CONTROLS."
 - (iv) State the date you finished installation (month and year), if applicable.
- (6) The original and supplemental labels must be readily visible after the engine is installed in the vehicle or, if the vehicle obscures the engine's emission control information label, the make sure the vehicle manufacturer attaches duplicate labels, as described in 40 CFR 1068.105.
- (7) Send the Designated Compliance Officer a signed letter by the end of each calendar year (or less often if we tell you) with all the following information:
- (i) Identify your full corporate name, address, and telephone number.
 - (ii) List the engine or vehicle models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.
 - (iii) State: "We produce each listed [engine or vehicle] model for recreational application without making any changes that could increase its certified emission levels, as described in 40 CFR 1051.605."
- (e) Failure to comply. If your engines do not meet the criteria listed in paragraph (d) of this section, they will be subject to the standards, requirements, and prohibitions of this part 1051 and the certificate issued under 40 CFR part 86 or 1048 will not be deemed to also be a certificate issued under this part 1051. Introducing these engines into commerce without a valid exemption or certificate of conformity under this part violates the prohibitions in 40 CFR 1068.101(a)(1).
- (f) Data submission. We may require you to send us emission test data on any applicable nonroad duty cycles.
- (g) Participation in averaging, banking and trading. Engines or vehicles adapted for recreational use under this section may not generate or use emission credits under this part 1051. These engines or vehicles may generate credits under the ABT provisions in 40 CFR part 86. These engines or vehicles must use emission credits under 40 CFR part 86 if they are certified to an FEL that exceeds an applicable standard.

§1051.610 What provisions apply to vehicles already certified under the motor-vehicle program?

- (a) General provisions. If you are a motor-vehicle manufacturer, this section allows you to introduce new recreational vehicles into commerce if the vehicle is already certified to the requirements that apply under 40 CFR parts 85 and 86. If you comply with all of the provisions of this section, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the engine under this part 1051 for its model year, without a separate application for certification under the requirements of this part 1051. This section applies especially for highway motorcycles that are modified for recreational nonroad use. See §1051.605 for similar provisions that apply to motor-vehicle engines or Large SI engines produced for recreational vehicles.
- (b) Nonroad vehicle-manufacturer provisions. If you are not a motor-vehicle manufacturer, you may produce recreational vehicles from motor vehicles under this section as long as you meet all the requirements and conditions specified in paragraph (d) of this section. If you modify the motor vehicle or its engine in any of the ways described in paragraph (d)(2) of this section, we will consider you a manufacturer of a new recreational vehicle. Such modifications prevent you from using the provisions of this section.
- (c) Liability. Engines and vehicles for which you meet the requirements of this section are exempt from all the requirements and prohibitions of this part, except for those specified in this section. Engines exempted under this section must meet all the applicable requirements from 40 CFR parts 85 and 86. This applies to engine manufacturers, vehicle manufacturers, and all other persons as if the recreational vehicles were motor vehicles. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new recreational vehicles; however, we consider the certificate issued under 40 CFR part 86 for each motor vehicle to also be a valid certificate of conformity for the recreational vehicle under this part 1051 for its model year. If we make a determination that these engines or vehicles do not conform to the regulations during their useful life, we may require you to recall them under 40 CFR part 86 or 40 CFR 1068.505.

(d) Specific requirements. If you are a motor-vehicle manufacturer and meet all the following criteria and requirements regarding your new recreational vehicle and its engine, the vehicle is eligible for an exemption under this section:

- (1) Your vehicle must be covered by a valid certificate of conformity as a motor vehicle issued under 40 CFR part 86.
 - (2) You must not make any changes to the certified vehicle that we could reasonably expect to increase its exhaust emissions for any pollutant, or its evaporative emissions if it is subject to evaporative-emission standards. For example, if you make any of the following changes, you do not qualify for this exemption:
 - (i) Change any fuel system parameters from the certified configuration.
 - (ii) Change, remove, or fail to properly install any other component, element of design, or calibration specified in the vehicle manufacturer's application for certification. This includes aftertreatment devices and all related components.
 - (iii) Modify or design the engine cooling system so that temperatures or heat rejection rates are outside the original vehicle manufacturer's specified ranges.
 - (iv) Add more than 500 pounds to the curb weight of the originally certified motor vehicle.
 - (3) You must show that fewer than 50 percent of the engine family's total sales in the United States are used in recreational vehicles. This includes any type of vehicle, without regard to which company completes the manufacturing of the recreational vehicle. Show this as follows:
 - (i) If you are the original manufacturer of the vehicle, base this showing on your sales information.
 - (ii) In all other cases, you must get the original manufacturer of the vehicle to confirm this based on their sales information.
 - (4) The vehicle must have the vehicle emission control information we require under 40 CFR part 86.
 - (5) You must add a permanent supplemental label to the vehicle in a position where it will remain clearly visible. In the supplemental label, do the following:
 - (i) Include the heading: "RECREATIONAL VEHICLE ENGINE EMISSION CONTROL INFORMATION".
 - (ii) Include your full corporate name and trademark. You may instead include the full corporate name and trademark of another company you choose to designate.
 - (iii) State: "THIS VEHICLE WAS ADAPTED FOR RECREATIONAL USE WITHOUT AFFECTING ITS EMISSION CONTROLS."
 - (iv) State the date you finished modifying the vehicle (month and year), if applicable.
 - (6) The original and supplemental labels must be readily visible in the fully assembled vehicle.
 - (7) Send the Designated Compliance Officer a signed letter by the end of each calendar year (or less often if we tell you) with all the following information:
 - (i) Identify your full corporate name, address, and telephone number.
 - (ii) List the vehicle models you expect to produce under this exemption in the coming year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.
 - (iii) State: "We produced each listed engine or vehicle model for recreational application without making any changes that could increase its certified emission levels, as described in 40 CFR 1051.610."
- (e) Failure to comply. If your engines or vehicles do not meet the criteria listed in paragraph (d) of this section, the engines will be subject to the standards, requirements, and prohibitions of this part 1051, and the certificate issued under 40 CFR part 86 will not be deemed to also be a certificate issued under this part 1051. Introducing these engines into commerce without a valid exemption or certificate of conformity under this part violates the prohibitions in 40 CFR 1068.101(a)(1).
- (f) Data submission. We may require you to send us emission test data on any applicable nonroad duty cycles.
- (g) Participation in averaging, banking and trading. Vehicles adapted for recreational use under this section may not generate or use emission credits under this part 1051. These engines/vehicles may generate credits under the ABT provisions in 40 CFR part 86. These engines/vehicles must use emission credits under 40 CFR part 86 if they are certified to an FEL that exceeds an applicable emission standard that applies.

§1051.615 What are the special provisions for certifying small recreational engines?

- (a) You may certify ATVs with engines that have total displacement of less than 100 cc to the following exhaust emission standards instead of certifying them to the exhaust emission standards of subpart B of this part:
 - (1) 25.0 g/kW-hr HC+NOx, with an FEL cap of 40.0 g/kW-hr HC+NOx.
 - (2) 500 g/kW-hr CO.
- (b) You may certify off-highway motorcycles with engines that have total displacement of 70 cc or less to the following exhaust emission standards instead of certifying them to the exhaust emission standards of subpart B of this part:
 - (1) 16.1 g/kW-hr HC+NOx, with an FEL cap of 32.2 g/kW-hr HC+NOx.
 - (2) 519 g/kW-hr CO.
- (c) You may use the averaging, banking, and trading provisions of subpart H of this part to show compliance with this HC+NOx standards (an engine family meets emission standards even if its family emission limit is higher than the standard, as long as you show that the whole averaging set of applicable engine families meet the applicable emission standards using emission credits, and the vehicles within the family meet the family emission limit). You may not use averaging to meet the CO standards of this section.
- (d) Measure steady-state emissions by testing the engine on an engine dynamometer using the equipment and procedures of 40 CFR part 1065 with either discrete-mode or ramped-modal cycles. You must use the type of testing you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will do testing the same way. We may also perform other testing as allowed by the Clean Air Act. Measure steady-state emissions as follows:
 - (1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine for at least 5 minutes, then sample emissions for at least 1 minute. Calculate cycle statistics for the sequence of modes and compare with the specified values in 40 CFR 1065.514 to confirm that the test is valid.
 - (2) For ramped-modal testing, start sampling at the beginning of the first mode and continue sampling until the end of the last mode. Calculate emissions and cycle statistics the same as for transient testing.
 - (3) Measure emissions by testing the engine on a dynamometer with one or more of the following sets of duty cycles to determine whether it meets applicable emission standards:
 - (i) The following duty cycle applies for discrete-mode testing:

Table 1 of §1051.615—
6-Mode Duty Cycle for Recreational Engines

Mode Number	Engine Speed (percent) ¹	Torque (percent) ²	Minimum Time in Mode (minutes)	Weighting Factors
1	85	100	5.0	0.09
2	85	75	5.0	0.20
3	85	50	5.0	0.29
4	85	25	5.0	0.30
5	85	10	5.0	0.07
6	Idle	0	5.0	0.05

¹ Percent speed is percent of maximum test speed.

² Percent torque is percent of maximum test torque at maximum test speed.

- (ii) The following duty cycle applies for ramped-modal testing:

Table 2 of §1051.615—
Ramped-modal Cycle for Testing Recreational Engines

RMC Mode	Time	Speed (percent) ^{1,2}	Torque (percent) ^{2,3}
1a Steady-state	41	Warm Idle	0
1b Transition	20	Linear Transition	Linear Transition
2a Steady-state	135	85	100
2b Transition	20	85	Linear Transition
3a Steady-state	112	85	10
3b Transition	20	85	Linear Transition
4a Steady-state	337	85	75
4b Transition	20	85	Linear Transition
5a Steady-state	518	85	25
5b Transition	20	85	Linear Transition
6a Steady-state	494	85	50
6b Transition	20	Linear Transition	Linear Transition
7 Steady-state	43	Warm Idle	0

¹ Percent speed is percent of maximum test speed.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

³ Percent torque is percent of maximum test torque at the commanded test speed.

- (4) During idle mode, hold the speed within your specifications, keep the throttle fully closed, and keep engine torque under 5 percent of the peak torque value at maximum test speed.
- (5) For the full-load operating mode, operate the engine at wide-open throttle
- (6) See 40 CFR part 1065 for detailed specifications of tolerances and calculations.
- (e) All other requirements and prohibitions of this part apply to these engines and vehicles.

§1051.620 When may a manufacturer obtain an exemption for competition recreational vehicles?

- (a) We may grant you an exemption from the standards and requirements of this part for a new recreational vehicle on the grounds that it is to be used solely for competition. The provisions of this part other than those in this section do not apply to recreational vehicles that we exempt for use solely for competition.
- (b) We will exempt vehicles that we determine will be used solely for competition. The basis of our determinations are described in paragraphs (b)(1), (b)(2), and (c) of this section. Exemptions granted under this section are good for only one model year and you must request renewal for each subsequent model year. We will not approve your renewal request if we determine the vehicles will not be used solely for competition.
 - (1) Off-highway motorcycles. Motorcycles that are marketed and labeled as only for competitive use and that meet at least four of the criteria listed in paragraphs (b)(1)(i) through (vi) of this section are considered to be used solely for competition, except in cases where other information is available that indicates that they are not used solely for competition. The following features are indicative of motorcycles used solely for competition:
 - (i) The absence of a headlight or other lights.
 - (ii) The absence of a spark arrestor.
 - (iii) The absence of manufacturer warranty.
 - (iv) Suspension travel greater than 10 inches.
 - (v) Engine displacement greater than 50 cc.
 - (vi) The absence of a functional seat. (For example, a seat with less than 30 square inches of seating surface would generally not be considered a functional seat).
 - (2) Snowmobiles and ATVs. Snowmobiles and ATVs meeting all of the following criteria are considered to be used solely for competition, except in cases where other information is available that indicates that they are not used solely for competition:
 - (i) The vehicle or engine may not be displayed for sale in any public dealership.

- (ii) Sale of the vehicle must be limited to professional racers or other qualified racers.
- (iii) The vehicle must have performance characteristics that are substantially superior to noncompetitive models.
- (c) Vehicles not meeting the applicable criteria listed in paragraph (b) of this section will be exempted only in cases where the manufacturer has clear and convincing evidence that the vehicles will be used solely for competition.
- (d) You must permanently label vehicles exempted under this section to clearly indicate that they are to be used only for competition. Failure to properly label a vehicle will void the exemption for that vehicle.
- (e) If we request it, you must provide us any information we need to determine whether the vehicles are used solely for competition.

§1051.625 What special provisions apply to unique snowmobile designs for small-volume manufacturers?

- (a) If you are a small-volume manufacturer, we may permit you to produce up to 600 snowmobiles per year that are certified to less stringent emission standards than those in §1051.103, as long as you meet all the conditions and requirements in this section.
- (b) To apply for alternate standards under this section, send the Designated Officer a written request. In your request, do two things:
 - (1) Show that the snowmobile has unique design, calibration, or operating characteristics that make it atypical and infeasible or highly impractical to meet the emission standards in §1051.103, considering technology, cost, and other factors.
 - (2) Identify the level of compliance you can achieve, including a description of available emission-control technologies and any constraints that may prevent more effective use of these technologies.
- (c) You must give us other relevant information if we ask for it.
- (d) An authorized representative of your company must sign the request and include the statement: “All the information in this request is true and accurate, to the best of my knowledge.”
- (e) Send your request for this extension at least nine months before the relevant deadline. If different deadlines apply to companies that are not small-volume manufacturers, do not send your request before the regulations in question apply to the other manufacturers.
- (f) If we approve your request, we will set alternate standards for your qualifying snowmobiles. These standards will not be above 400 g/kW-hr for CO or 150 g/kW-hr for HC.
- (g) You may produce these snowmobiles to meet the alternate standards we establish under this section as long as you continue to produce them at the same or lower emission levels.
- (h) You may not include snowmobiles you produce under this section in any averaging, banking, or trading calculations under Subpart H of this part.
- (i) You must meet all the requirements of this part, except as noted in this section.

§1051.630 What special provisions apply to unique snowmobile designs for all manufacturers?

- (a) We may permit you to produce up to 600 snowmobiles per year that are certified to the FELs listed in this section without new test data, as long as you meet all the conditions and requirements in this section.
- (b) You may certify these snowmobiles with FELs of 560 g/kW-hr for CO and 270 g/kW-hr for HC (using the normal certification procedures).
- (c) The emission levels described in this section are intended to represent worst-case emission levels. You may not certify snowmobiles under this section if good engineering judgment indicates that they have emission rates higher than these levels.
- (d) Include snowmobiles you produce under this section in your averaging calculations under Subpart H of this part.
- (e) You must meet all the requirements of this part, unless the regulations of this part specify otherwise.

§1051.635 What provisions apply to new manufacturers that are small businesses?

- (a) If you are a small business (as defined by the Small Business Administration [at 13 CFR 121.201](#)) that manufactures recreational vehicles, but does not otherwise qualify for the small-volume manufacturer provisions of this part, you may ask us to designate you to be a small-volume manufacturer. You may do this whether you began manufacturing recreational vehicles before, during, or after 2002.

(b) We may set other reasonable conditions that are consistent with the intent of this section and the Act. For example, we may place sales limits on companies that we designate to be small-volume manufacturers under this section.

§1051.640 What special provisions apply for custom off-highway motorcycles that are similar to highway motorcycles?

You may ask to exempt custom-designed off-highway motorcycles that are substantially similar to highway motorcycles under the display exemption provisions of 40 CFR 86.407-78(c). Motorcycles exempt under this provision are subject to the restrictions of 40 CFR 86.407-78(c) and are considered to be motor vehicles for the purposes of this part 1051.

§1051.645 What special provisions apply to branded engines?

The following provisions apply if you identify the name and trademark of another company instead of your own on your emission control information label, as provided by §1051.135(c)(2):

(a) You must have a contractual agreement with the other company that obligates that company to take the following steps:

(1) Meet the emission warranty requirements that apply under §1051.120. This may involve a separate agreement involving reimbursement of warranty-related expenses.

(2) Report all warranty-related information to the certificate holder.

(b) In your application for certification, identify the company whose trademark you will use and describe the arrangements you have made to meet your requirements under this section.

(c) You remain responsible for meeting all the requirements of this chapter, including warranty and defect-reporting provisions.

§1051.650 What special provisions apply for converting a vehicle to use an alternate fuel?

(a) Converting a certified new vehicle to run on a different fuel violates 40 CFR 1068.101(a)(1) if the modified vehicle is not covered by a certificate of conformity.

(b) Converting a certified vehicle that is not new to run on a different fuel violates 40 CFR 1068.101(b)(1) if the modified vehicle is not covered by a certificate of conformity. We may specify alternate certification provisions consistent with the requirements of this part.

Subpart H—Averaging, Banking, and Trading for Certification

§1051.701 General provisions.

(a) You may average, bank, and trade emission credits for purposes of certification as described in this subpart to show compliance with the standards of this part. To do this you must certify your engines to Family Emission Limits (FELs) and show that your average emission levels for all your engine families together are below the applicable emission standards in subpart B of this part, or that you have sufficient credits to offset a credit deficit for the model year (as calculated in §1051.720).

(b) The following averaging set restrictions apply:

(1) You may not average together engine families that are certified to different standards. You may, however, use banked credits that were generated relative to different standards, except as prohibited by paragraphs (b)(2) and (3) and paragraph (e) of this section, or by other provisions in this part. For example, you may not average together within a model year off-highway motorcycles that are certified to the standards in §1051.105(a)(1) and §1051.105(a)(2); but you may use banked credits generated by off-highway motorcycles that are certified to the standards in §1051.105(a)(1) to show compliance with the standards in §1051.105(a)(2) in a later model year, and vice versa.

(2) There are separate averaging, banking, and trading programs for snowmobiles, ATVs, and off-highway motorcycles. You may not average or exchange banked or traded credits from engine families of one type of vehicle with those from engine families of another type of vehicle.

(3) You may not average or exchange banked or traded credits with other engine families if you use fundamentally different measurement procedures for the different engine families (for example, ATVs certified to chassis-based vs. engine-based standards). This paragraph (b)(3) does not restrict you from averaging together engine families that use test procedures that we determine provide equivalent emission results.

(4) You may not average or exchange banked or traded exhaust credits with evaporative credits, or vice versa.

(c) The definitions of Subpart I of this part apply to this subpart. The following definitions also apply:

(1) Actual emission credits means emission credits you have generated that we have verified by reviewing your final report.

(2) Average standard means a standard that allows you comply by averaging all your vehicles under this part. See subpart B of this part to determine which standards are average standards.

(3) Averaging set means a set of engines in which emission credits may be exchanged only with other engines in the same averaging set.

(4) Broker means any entity that facilitates a trade of emission credits between a buyer and seller.

(5) Buyer means the entity that receives emission credits as a result of a trade.

(6) Reserved emission credits means emission credits you have generated that we have not yet verified by reviewing your final report.

(7) Seller means the entity that provides emission credits during a trade.

(8) Trade means to exchange emission credits, either as a buyer or seller.

(d) In your application for certification, base your showing of compliance on projected production volumes for vehicles whose point of first retail sale is in the United States. As described in §1051.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual production volumes for vehicles whose point of first retail sale is in the United States. Do not include any of the following vehicles to calculate emission credits:

(1) Vehicles exempted under subpart G of this part or under 40 CFR part 1068.

(2) Exported vehicles.

(3) Vehicles not subject to the requirements of this part, such as those excluded under §1051.5.

(4) Vehicles for which the location of first retail sale is in a state that has applicable state emission regulations for that model year. However, this restriction does not apply if we determine that the state standards and requirements are equivalent to those of this part and that these vehicles sold in such a state will not generate credits under the state program. For example, you may not include vehicles certified for California if it has more stringent emission standards for these vehicles or those vehicles generate or use emission credits under the California program.

(5) Any other vehicles, where we indicate elsewhere in this part 1051 that they are not to be included in the calculations of this subpart.

(e) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard, except as specified in §1051.225(f)(1). This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing.

(f) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

(g) You may increase or decrease an FEL during the model year by amending your application for certification under §1051.225.

(h) Families that use emission credits for one pollutant may not generate positive emission credits for another pollutant.

§1051.705 How do I average emission levels?

(a) As specified in subpart B of this part, certify each vehicle to an FEL, subject to the FEL caps in subpart B of this part.

(b) Calculate a preliminary average emission level according to §1051.720 for each averaging set using projected U.S.-directed production volumes from your application for certification, excluding vehicles described in §1051.701(d)(4).

(c) After the end of your model year, calculate a final average emission level according to §1051.720 for each type of recreational vehicle or engine you manufacture or import. Use actual U.S.-directed production volumes, excluding vehicles described in §1051.701(d)(4).

(d) If your preliminary average emission level is below the allowable average standard, see §1051.710 for information about generating and banking emission credits. These credits will be considered reserved until we verify them in reviewing the end-of-year report.

(e) If your average emission level is above the allowable average standard, you must obtain enough emission credits to offset the deficit by the due date for the final report required in §1051.730. The emission credits used to address the deficit may come from emission credits you have banked or from emission credits you obtain through trading.

§1051.710 How do I generate and bank emission credits?

(a) Banking is the retention of emission credits by the manufacturer generating the emission credits for use in averaging or trading in future model years. You may use banked emission credits only within the averaging set in which they were generated.

(b) If your average emission level is below the average standard, you may calculate credits according to §1051.720. Credits you generate do not expire.

(c) You may generate credits if you are a certifying manufacturer.

(d) 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.

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

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

§1051.715 How do I trade emission credits?

(a) Trading is the exchange of emission credits between manufacturers. You may use traded emission credits for averaging, banking, or further trading transactions. Traded emission credits may be used only within the averaging set in which they were generated.

(b) You may trade banked credits to any certifying manufacturer.

(c) 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.

(d) If a negative emission credit balance results from a transaction, both the buyer and seller are liable, except in cases we deem to involve fraud. See §1051.255(e) for cases involving fraud. We may void the certificates of all

engine families participating in a trade that results in a manufacturer having a negative balance of emission credits. See §1051.745.

§1051.720 How do I calculate my average emission level or emission credits?

(a) Calculate your average emission level for each type of recreational vehicle or engine for each model year according to the following equation and round it to the nearest tenth of a g/km or g/kW-hr. Use consistent units throughout the calculation.

(1) For exhaust emissions:

(i) Calculate the average emission level as:

$$\text{Emission level} = \left[\sum_i (\text{FEL})_i \times (\text{UL})_i \times (\text{Production})_i \right] / \left[\sum_i (\text{Production})_i \times (\text{UL})_i \right]$$

Where:

FEL_i = The FEL to which the engine family is certified.

UL_i = The useful life of the engine family.

Production_i = The number of vehicles in the engine family.

(ii) Use U.S.-directed production projections for initial certification, and actual U.S.-directed production volumes to determine compliance at the end of the model year.

(2) For vehicles that have standards expressed as g/kW-hr and a useful life in kilometers, convert the useful life to kW-hr based on the maximum power output observed over the emission test and an assumed vehicle speed of 30 km/hr as follows: UL (kW-hr) = UL (km) × Maximum Test Engine Power (kW) ÷ 30 km/hr. (Note: It is not necessary to include a load factor, since credit exchange is not allowed between vehicles certified to g/kW-hr standards and vehicles certified to g/km standards.)

(3) For evaporative emission standards expressed as g/m²/day, use the useful life value in years multiplied by 365.24 and calculate the average emission level as:

$$\text{Emission level} = \left[\sum_i (\text{FEL})_i \times (\text{UL})_i \times (\text{Production})_i \right] / \left[\sum_i (\text{Production})_i \times (\text{UL})_i \right]$$

Where:

FEL_i = The FEL to which the engine family is certified, as described in paragraph (a)(4) of this section.

Production_i = The number of vehicles in the engine family times the average internal surface area of the vehicles' fuel tanks.

(4) Determine the FEL for calculating credits under paragraph (a)(3) of this section using any of the following values:

(i) The FEL to which the tank is certified, as long as the FEL is at or below 3.0 g/m²/day.

(ii) 10.4 g/m²/day. However, if you use this value to establish the FEL for any of your tanks, you must use this value to establish the FEL for every tank not covered by paragraph (a)(4)(i) of this section.

(iii) The measured permeation rate of the tank or the measured permeation rate of a thinner-walled tank of the same material. However, if you use this approach to establish the FEL for any of your tanks, you must establish an FEL based on emission measurements for every tank not covered by paragraph (a)(4)(i) of this section.

(b) If your average emission level is below the average standard, calculate credits available for banking according to the following equation and round them to the nearest tenth of a gram:

$$\text{Credit} = \left[(\text{Average standard} - \text{Emission level}) \right] \times \left[\sum_i (\text{Production})_i \times (\text{UL})_i \right]$$

(c) If your average emission level is above the average standard, calculate your preliminary credit deficit according to the following equation, rounding to the nearest tenth of a gram:

$$\text{Deficit} = \left[(\text{Emission level} - \text{Average standard}) \right] \times \left[\sum_i (\text{Production})_i \times (\text{UL})_i \right]$$

§1051.725 What must I include in my applications for certification?

(a) You must declare in your applications for certification your intent to use the provisions of this subpart. You must also declare the FELs you select for each engine family. Your FELs must comply with the specifications of subpart B of this part, including the FEL caps. FELs must be expressed to the same number of decimal places as the applicable standards.

- (b) Include the following in your application for certification:
- (1) A statement that, to the best of your belief, you will not have a negative balance of emission credits for any averaging set when all emission credits are calculated at the end of the year. This means that if you believe that your average emission level will be above the standard (i.e., that you will have a deficit for the model year), you must have banked credits (or project to have received traded credits) to offset the deficit.
 - (2) Detailed calculations of projected emission credits (positive or negative) based on projected production volumes. If you will generate positive emission credits, state specifically where the emission credits will be applied (for example, whether they will be traded or reserved for banking). If you have projected negative emission credits, 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 banking, trading, or a combination of these. If you intend to rely on trading, identify from which manufacturer the emission credits will come.

§1051.730 What ABT reports must I send to EPA?

- (a) If any of your engine families are certified using the ABT provisions of this subpart, you must send an end-of-year report within 90 days after the end of the model year and a final report within 270 days after the end of the model year. We may waive the requirement to send the end-of year report, as long as you send the final report on time.
- (b) Your end-of-year and final reports must include the following information for each engine family:
- (1) Engine-family designation.
 - (2) The emission standards that would otherwise apply to the engine family.
 - (3) The FEL for each pollutant. If you 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 vehicle you produced. For example, you might keep a list of vehicle identification numbers that correspond with certain FEL values.
 - (4) The projected and actual production volumes for the model year with a point of retail sale in the United States, as described in §1051.701(d). If you changed an FEL during the model year, identify the actual production volume associated with each FEL.
 - (5) For vehicles that have standards expressed as g/kW-hr, maximum engine power for each vehicle configuration, and the sales-weighted~~production-weighted~~ average engine power for the engine family.
 - (6) Useful life.
 - (7) Calculated positive or negative emission credits. Identify any emission credits that you traded, as described in paragraph (d)(1) of this section.
- (c) Your end-of-year and final reports must include the following additional information:
- (1) Show that your net balance of emission credits in each averaging set in the applicable model year is not negative.
 - (2) State whether you will reserve any emission credits for banking.
 - (3) State that the report's contents are accurate.
- (d) If you trade emission credits, you must send us a report within 90 days after the transaction, as follows:
- (1) As the seller, you must include the following information in your report:
 - (i) The corporate names of the buyer and any brokers.
 - (ii) A copy of any contracts related to the trade.
 - (iii) The engine families that generated emission credits for the trade, including the number of emission credits from each family.
 - (2) As the buyer, you must include the following information in your report:
 - (i) The corporate names of the seller and any brokers.
 - (ii) A copy of any contracts related to the trade.
 - (iii) How you intend to use the emission credits, including the number of emission credits you intend to apply to each engine family (if known).
- (e) Send your reports electronically to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.
- (f) Correct errors in your end-of-year report or final report as follows:

- (1) You may correct any errors in your end-of-year report when you prepare the final report, as long as you send us the final report by the time it is due.
- (2) If you or we determine within 270 days after the end of the model year that errors mistakenly decrease your balance of emission credits, you may correct the errors and recalculate the balance of emission credits. You may not make these corrections for errors that are determined more than 270 days after the end of the model year. If you report a negative balance of emission credits, we may disallow corrections under this paragraph (f)(2).
- (3) If you or we determine anytime that errors mistakenly increase your balance of emission credits, you must correct the errors and recalculate the balance of emission credits.

§1051.735 What records must I keep?

- (a) You must organize and maintain your records as described in this section. We may review your records at any time.
- (b) Keep the records required by this section for at least eight years after the due date for the end-of-year report. You may use any appropriate storage formats or media, including paper, microfilm, or computer diskettes. not use emission credits on any engines if you do not keep all the records required under this section. You must therefore keep these records to continue to bank valid credits. Store these records in any format and on any media, as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.
- (c) Keep a copy of the reports we require in §1051.725 and §1051.730.
- (d) Keep the following additional records for each engine you produce under the ABT program:
 - (1) Engine family designation.
 - (2) Engine identification number.
 - (3) FEL and useful life.
 - (4) For vehicles that have standards expressed as g/kW-hr, maximum engine power.
 - (5) Build date and assembly plant.
 - (6) Purchaser and destination.
- (e) We may require you to keep additional records or to send us relevant information not required by this section.

§1051.740 Are there special averaging provisions for snowmobiles?

For snowmobiles, you may only use credits for the same phase or set of standards against which they were generated, except as allowed by this section.

- (a) Restrictions.
 - (1) You may not use any Phase 1 or Phase 2 credits for Phase 3 compliance.
 - (2) You may not use Phase 1 HC credits for Phase 2 HC compliance. However, because the Phase 1 and Phase 2 CO standards are the same, you may use Phase 1 CO credits for compliance with the Phase 2 CO standards.
- (b) Special credits for next phase of standards. You may choose to generate credits early for banking for purposes of compliance with later phases of standards as follows:
 - (1) If your corporate average emission level at the end of the model year exceeds the applicable (current) phase of standards (without the use of traded or previously banked credits), you may choose to redesignate some of your snowmobile production to a calculation to generate credits for a future phase of standards. To generate credits the snowmobiles designated must have an FEL below the emission level of that set of standards. This can be done on a pollutant specific basis.
 - (2) Do not include the snowmobiles that you redesignate in the final compliance calculation of your average emission level for the otherwise applicable (current) phase of standards. Your average emission level for the remaining (non-redesignated) snowmobiles must comply with the otherwise applicable (current) phase of standards.
 - (3) Include the snowmobiles that you redesignate in a separate calculation of your average emission level for redesignated engines. Calculate credits using this average emission level relative to the specific pollutant in the future phase of standards. These credits may be used for compliance with the future standards.
 - (4) For generating early Phase 3 credits, you may generate credits for HC+NO_x or CO separately as described:
 - (i) To determine if you qualify to generate credits in accordance with paragraphs (b)(1) through (3) of this section, you must meet the credit trigger level. For HC+NO_x this value is 62 g/kW-hr (which would be the

HC+NO_x standard that would result from inputting the highest allowable CO standard (275 g/kW-hr) into the Phase 3 equation). For CO the value is 200 g/kW-hr (which would be the CO standard that would result from inputting the highest allowable HC+NO_x standard (90 g/kW-hr) into the Phase 3 equation).

(ii) HC+NO_x and CO credits for Phase 3 are calculated relative to the 62 g/kW-hr and 200 g/kW-hr values, respectively.

(5) Credits can also be calculated for Phase 3 using both sets of standards. Without regard to the trigger level values, if your net emission reduction for the redesignated averaging set exceeds the requirements of Phase 3 in §1051.103 (using both HC+NO_x and CO in the Phase 3 equation in §1051.103), then your credits are the difference between the Phase 3 reduction requirement of that section and your calculated value.

§1051.745 What can happen if I do not comply with the provisions of this subpart?

(a) For each engine family participating in the ABT program, the certificate of conformity is conditional upon full compliance with the provisions of this subpart during and after the model year. You are responsible to establish to our satisfaction that you fully comply with applicable requirements. We may void the certificate of conformity for an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FEL above an applicable standard based on a projection that you will have enough emission credits to avoid a negative credit balance for each averaging set for the applicable model year. However, except as allowed in §1051.145(h), we may void the certificate of conformity if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in an engine family.

(c) We may void the certificate of conformity for an engine family if you fail to keep records, send reports, or give us information we request.

(d) You may ask for a hearing if we void your certificate under this section (see §1051.820).

Subpart I—Definitions and Other Reference Information

§1051.801 What definitions apply to this part?

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Act gives to them. The definitions follow:

Act means the Clean Air Act, as amended, 42 U.S.C. 7401 - 7671q.

Adjustable parameter means any device, system, or element of design that someone can adjust (including those which are difficult to access) and that, if adjusted, may affect emissions or engine performance during emission testing or normal in-use operation. This includes, but is not limited to, parameters related to injection timing and fueling rate. You may ask us to exclude a parameter that is difficult to access if it cannot be adjusted to affect emissions without significantly degrading engine performance, or if you otherwise show us that it will not be adjusted in a way that affects emissions during in-use operation.

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation (EGR) and turbochargers are not aftertreatment.

All-terrain vehicle means a land-based or amphibious nonroad vehicle that meets the criteria listed in paragraph (1) of this definition; or, alternatively the criteria of paragraph (2) of this definition but not the criteria of paragraph (3) of this definition:

(1) Vehicles designed to travel on four low pressure tires, having a seat designed to be straddled by the operator and handlebars for steering controls, and intended for use by a single operator and no other passengers are all-terrain vehicles.

(2) Other all-terrain vehicles have three or more wheels and one or more seats, are designed for operation over rough terrain, are intended primarily for transportation, and have a maximum vehicle speed of 25 miles per hour or higher. Golf carts generally do not meet these criteria since they are generally not designed for operation over rough terrain.

(3) Vehicles that meet the definition of "offroad utility vehicle" in this section are not all-terrain vehicles. However, §1051.1(a) specifies that some offroad utility vehicles are required to meet the same requirements as all-terrain vehicles.

Amphibious vehicle means a vehicle with wheels or tracks that is designed primarily for operation on land and secondarily for operation in water.

Auxiliary emission-control device means any element of design that senses temperature, motive speed, engine RPM, transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission-control system.

Brake power means the usable power output of the engine, not including power required to fuel, lubricate, or heat the engine, circulate coolant to the engine, or to operate aftertreatment devices.

Calibration means the set of specifications and tolerances specific to a particular design, version, or application of a component or assembly capable of functionally describing its operation over its working range.

Certification means relating to the process of obtaining a certificate of conformity for an engine family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in an engine family for a given pollutant from either transient or steady-state testing.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine.

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the engine crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

Critical emission-related component means any of the following components:

(1) Electronic control units, aftertreatment devices, fuel-metering components, EGR-system components, crankcase-ventilation valves, all components related to charge-air compression and cooling, and all sensors and actuators associated with any of these components.

(2) Any other component whose primary purpose is to reduce emissions.

Designated Compliance Officer means one of the following things:

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

(2) For all other vehicles, Designated Compliance Officer means the Manager, Light-Duty Engine Group, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105.

Designated Enforcement Officer means the Director, Air Enforcement Division (2242A), U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Deteriorated emission level means the emission level that results from applying the appropriate deterioration factor to the official emission result of the emission-data vehicle.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point, expressed in one of the following ways:

(1) For multiplicative deterioration factors, the ratio of emissions at the end of useful life to emissions at the low-hour test point.

(2) For additive deterioration factors, the difference between emissions at the end of useful life and emissions at the low-hour test point.

Emission-control system means any device, system, or element of design that controls or reduces the emissions of regulated emissions pollutants from an engine.

Emission-data vehicle means a vehicle or engine that is tested for certification. This includes vehicles or engines tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine configuration means a unique combination of engine hardware and calibration within an engine family. Engines within a single engine configuration differ only with respect to normal production variability.

Engine family has the meaning given in §1051.230.

Evaporative means relating to fuel emissions that result from permeation of fuel through the fuel system materials and from ventilation of the fuel system.

Excluded means relating to an engine that either:

(1) Has been determined not to be a nonroad engine, as specified in 40 CFR 1068.30; or

(2) Is a nonroad engine that is excluded from this part 1051 under the provisions of §1051.5.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the engine to be mixed with incoming air before or during combustion. The use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion is not considered exhaust-gas recirculation for the purposes of this part.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under the ABT program in subpart H of this part. The family emission limit must be expressed to the same number of decimal places as the emission standard it replaces. The family emission limit serves as the emission standard for the engine family with respect to all required testing.

Fuel line means all hoses or tubing designed to contain liquid fuel or fuel vapor. This includes all hoses or tubing for the filler neck, for connections between dual fuel tanks, and for connecting a carbon canister to the fuel tank. This does not include hoses or tubing for routing crankcase vapors to the engine's intake or any other hoses or tubing that are open to the atmosphere.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to the combustion chamber(s), including the fuel tank, fuel tank cap, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents. In the case where the fuel tank cap or other components (excluding fuel lines) are directly mounted on the fuel tank, they are considered to be a part of the fuel tank.

Fuel type means a general category of fuels such as gasoline or natural gas. There can be multiple grades within a single fuel type, such as winter-grade and all-season gasoline.

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

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type. For alcohol-fueled engines, HC means total hydrocarbon equivalent (THCE). For all other engines, HC means nonmethane hydrocarbon (NMHC).

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular vehicle or engine from other similar engines.

Low-hour means relating to an engine with stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 24 hours or 240 kilometers of operation.

Low-permeability material has the meaning given in 40 CFR 1060.801.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a vehicle or engine for sale in the United States or otherwise introduces a new vehicle or engine into commerce in the United States. This includes importers that import vehicles or engines for resale.

Maximum engine power has the meaning given in 40 CFR 90.3 for 2010 and earlier model years and in §1051.140 for 2011 and later model years.

Maximum test power means the maximum brake power of an engine at test conditions.

Maximum test speed has the meaning given in 40 CFR 1065.1001.

Maximum test torque has the meaning given in 40 CFR 1065.1001.

Model year means one of the following things:

(1) For freshly manufactured vehicles (see definition of “new,” paragraph (1)), model year means one of the following:

(i) Calendar year.

(ii) Your annual new model production period if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For seasonal production periods not including January 1, model year means the calendar year in which the production occurs, unless you choose to certify the applicable emission family with the following model year. For example, if your production period is June 1, 2010 through November 30, 2010, your model year would be 2010 unless you choose to certify the emission family for model year 2011.

(2) For an engine originally manufactured as a motor-vehicle engine or a stationary engine that is later intended to be used in a vehicle subject to the standards and requirements of this part 1051, model year means the calendar year in which the engine was originally produced (see definition of “new,” paragraph (2)).

(3) For a nonroad engine that has been previously placed into service in an application covered by 40 CFR part 90, 91, 1048, or 1048.1054, where that engine is installed in a piece of equipment that is covered by this part 1051, model year means the calendar year in which the engine was originally produced (see definition of “new,” paragraph (3)).

(4) For engines that are not freshly manufactured but are installed in new recreational vehicles, model year means the calendar year in which the engine is installed in the recreational vehicle (see definition of “new,” paragraph (4)).

(5) For imported engines:

(i) For imported engines described in paragraph (5)(i) of the definition of “new,” model year has the meaning given in paragraphs (1) through (4) of this definition.

(ii) For imported engines described in paragraph (5)(ii) of the definition of “new,” model year means the calendar year in which the vehicle is modified.

(iii) For imported engines described in paragraph (5)(iii) of the definition of “new,” model year means the calendar year in which the importation occurs.

Motor vehicle has the meaning given in 40 CFR 85.1703(a).

New means relating to any of the following things:

(1) A freshly manufactured vehicle for which the ultimate purchaser has never received the equitable or legal title. This kind of vehicle might commonly be thought of as “brand new.”

In the case of this paragraph (1), the vehicle ~~becomes~~is new ~~when it is fully assembled for the first time.~~ The engine is no longer new when from the time it is produced until the ultimate purchaser receives the title or the product is placed into service, whichever comes first.

(2) An engine originally manufactured as a motor-vehicle engine or a stationary engine that is later intended to be used in a vehicle subject to the standards and requirements of this part 1051. In this case, the engine is no longer a

motor-vehicle or stationary engine and becomes new. The engine is no longer new when it is placed into service as a recreational vehicle covered by this part 1051.

(3) A nonroad engine that has been previously placed into service in an application covered by 40 CFR part 90, 91, ~~1048~~, or ~~1048~~1054, where that engine is installed in a piece of equipment that is covered by this part 1051. The engine is no longer new when it is placed into service in a recreational vehicle covered by this part 1051. For example, this would apply to a marine propulsion engine that is no longer used in a marine vessel.

(4) An engine not covered by paragraphs (1) through (3) of this definition that is intended to be installed in a new vehicle covered by this part 1051. The engine is no longer new when the ultimate purchaser receives a title for the vehicle or it is placed into service, whichever comes first. This generally includes installation of used engines in new recreational vehicles.

(5) An imported vehicle or engine, subject to the following provisions:

(i) An imported recreational vehicle or recreational-vehicle engine covered by a certificate of conformity issued under this part that meets the criteria of one or more of paragraphs (1) through (4) of this definition, where the original manufacturer holds the certificate, is new as defined by those applicable paragraphs.

(ii) An imported recreational vehicle or recreational-vehicle engine covered by a certificate of conformity issued under this part, where someone other than the original manufacturer holds the certificate (such as when the engine is modified after its initial assembly), becomes new when it is imported. It is no longer new when the ultimate purchaser receives a title for the vehicle or engine or it is placed into service, whichever comes first.

(iii) An imported recreational vehicle or recreational-vehicle engine that is not covered by a certificate of conformity issued under this part at the time of importation is new, but only if it was produced on or after the 2007 model year. This addresses uncertified engines and equipment initially placed into service that someone seeks to import into the United States. Importation of this kind of new nonroad engine (or equipment containing such an engine) is generally prohibited by 40 CFR part 1068.

Noncompliant means relating to a vehicle that was originally covered by a certificate of conformity, but is not in the certified configuration or otherwise does not comply with the conditions of the certificate.

Nonconforming means relating to vehicle not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonmethane hydrocarbon ~~means~~has the ~~difference between the emitted mass of total hydrocarbons and the emitted mass of methane~~meaning given in 40 CFR 1065.1001.

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

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

Off-highway motorcycle means a two-wheeled vehicle with a nonroad engine and a seat (excluding marine vessels and aircraft). (Note: highway motorcycles are regulated under 40 CFR part 86.)

Official emission result means the measured emission rate for an emission-data vehicle on a given duty cycle before the application of any deterioration factor, ~~but after the applicability of regeneration adjustment factors.~~

Offroad utility vehicle means a nonroad vehicle that has four or more wheels, seating for two or more persons, is designed for operation over rough terrain, and has either a rear payload of 350 pounds or more or seating for six or more passengers. Vehicles intended primarily for recreational purposes that are not capable of transporting six passengers (such as dune buggies) are not offroad utility vehicles. (Note: §1051.1(a) specifies that some offroad utility vehicles are required to meet the requirements that apply for all-terrain vehicles.)

Owners manual means a document or collection of documents prepared by the engine manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Phase 1 means relating to Phase 1 standards of §§1051.103, 1051.105, or 1051.107, or other Phase 1 standards specified in subpart B of this part.

Phase 2 means relating to Phase 2 standards of §1051.103, or other Phase 2 standards specified in subpart B of this part.

Phase 3 means relating to Phase 3 standards of §1051.103, or other Phase 3 standards specified in subpart B of this part.

Placed into service means put into initial use for its intended purpose.

Point of first retail sale means the location at which the initial retail sale occurs. This generally means an equipment dealership, but may also include an engine seller or distributor in cases where loose engines are sold to the general public for uses such as replacement engines.

Recreational means, for purposes of this part, relating to snowmobiles, all-terrain vehicles, off-highway motorcycles, and other vehicles that we regulate under this part. Note that 40 CFR parts 90 applies and 1054 apply to engines used in other recreational vehicles.

Revoke has the meaning given in 40 CFR 1068.30.

Round has the meaning given in 40 CFR 1065.1001, unless otherwise specified.

Scheduled maintenance means adjusting, repairing, removing, disassembling, cleaning, or replacing components or systems periodically to keep a part or system from failing, malfunctioning, or wearing prematurely. It also may mean actions you expect are necessary to correct an overt indication of failure or malfunction for which periodic maintenance is not appropriate.

Small-volume manufacturer means one of the following:

- (1) For motorcycles and ATVs, a manufacturer that sold motorcycles or ATVs before 2003 and had annual U.S.-directed production of no more than 5,000 off-road motorcycles and ATVs (combined number) in 2002 and all earlier calendar years. For manufacturers owned by a parent company, the limit applies to the production of the parent company and all of its subsidiaries.
- (2) For snowmobiles, a manufacturer that sold snowmobiles before 2003 and had annual U.S.-directed production of no more than 300 snowmobiles in 2002 and all earlier model years. For manufacturers owned by a parent company, the limit applies to the production of the parent company and all of its subsidiaries.
- (3) A manufacturer that we designate to be a small-volume manufacturer under §1051.635.

Snowmobile means a vehicle designed to operate outdoors only over snow-covered ground, with a maximum width of 1.5 meters or less.

Spark-ignition means relating to a gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark-ignition engines usually use a throttle to regulate intake air flow to control power during normal operation.

Suspend has the meaning given in 40 CFR 1068.30.

Test sample means the collection of engines selected from the population of an engine family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Test vehicle or engine means an engine in a test sample.

Total hydrocarbon means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with a hydrogen-to-carbon mass ratio of 1.85:1.

Total hydrocarbon equivalent ~~means~~has the ~~sum of the carbon mass contributions of non-oxygenated hydrocarbons, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled engines. The hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1~~meaning given in 40 CFR 1065.1001.

Ultimate purchaser means, with respect to any new nonroad equipment or new nonroad engine, the first person who in good faith purchases such new nonroad equipment or new nonroad engine for purposes other than resale.

Ultraviolet light means electromagnetic radiation with a wavelength between 300 and 400 nanometers.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for an engine family the model year after the one currently in production.

U.S.-directed production volume means the number of vehicle units, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States. This includes vehicles for which the location of first retail sale is in a state that has applicable state emission regulations for that model year, unless we specify otherwise.

Useful life means the period during which a vehicle is required to comply with all applicable emission standards, specified as a given number of calendar years and kilometers (whichever comes first). In some cases, useful life is also limited by a given number of hours of engine operation. If an engine has no odometer (or hour meter), the specified number of kilometers (or hours) does not limit the period during which an in-use vehicle is required to comply with emission standards, unless the degree of service accumulation can be verified separately. The useful life for an engine family must be at least as long as both of the following:

- (1) The expected average service life before the vehicle is remanufactured or retired from service.

(2) The minimum useful life value.

Void has the meaning given in 40 CFR 1068.30.

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

Wide-open throttle means maximum throttle opening. Unless this is specified at a given speed, it refers to maximum throttle opening at maximum speed. For electronically controlled or other engines with multiple possible fueling rates, wide-open throttle also means the maximum fueling rate at maximum throttle opening under test conditions.

§1051.805 What symbols, acronyms, and abbreviations does this part use?

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

.	degrees.
ASTM	American Society for Testing and Materials.
ATV	all-terrain vehicle.
cc	cubic centimeters.
cm	centimeter.
C	Celsius.
CO	carbon monoxide.
CO ₂	carbon dioxide.
CFR	Code of Federal Regulations.
EPA	Environmental Protection Agency.
F	Fahrenheit.
g	grams.
g/gal/day	grams per gallon per test day.
g/m ² /day	grams per meter-square per test day.
HC	hydrocarbon.
Hg	mercury.
hr	hours.
km	kilometer.
kW	kilowatt.
LPG	liquefied petroleum gas.
m	meters.
mm	millimeters.
mW	milliwatts.
NARA	National Archives and Records Administration.
NMHC	nonmethane hydrocarbons.
NO _x	oxides of nitrogen (NO and NO ₂).
psig	pounds per square inches of gauge pressure.
rpm	revolutions per minute.
SAE	Society of Automotive Engineers.
SI	spark-ignition.
THC	total hydrocarbon.
THCE	total hydrocarbon equivalent.
U.S.C.	United States Code.

§1051.810 What materials does this part reference?

Documents listed in this section have been incorporated by reference into this part. The Director of the Federal Register approved the incorporation by reference as prescribed in 5 U.S.C. 552(a) and 1 CFR part 51. Anyone may inspect copies at the U.S. EPA, Air and Radiation Docket and Information Center, 1301 Constitution Ave., NW., Room B102, EPA West Building, Washington, DC 20460 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(a) ASTM material. Table 1 of this section lists material from the American Society for Testing and Materials that we have incorporated by reference. The first column lists the number and name of the material. The second column lists the sections of this part where we reference it. Anyone may purchase copies of these materials from the American Society for Testing and Materials, 100 Barr Harbor Dr., P.O. Box C700, West Conshohocken, PA 19428 or www.astm.com. Table 1 follows:

Table 1 of §1051.810—
ASTM Materials

Document number and name	Part 1051 reference
ASTM D471-98, Standard Test Method for Rubber Property—Effect of Liquids.	1051.501

[ASTM D814-95 \(reapproved 2000\), Standard Test Method for Rubber Property—Vapor Transmission of Volatile Liquids.1051.245](#)

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

Table 2 of §1051.810—
SAE Materials

Document number and name	Part 1051 reference
SAE J30, Fuel and Oil Hoses, June 1998.	1051.245, 1051.501
SAE J1930, Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms, May 1998.	1051.135
SAE J2260, Nonmetallic Fuel System Tubing with One or More Layers, November 1996.	1051.245

(c) [Reserved]

§1051.815 What provisions apply to confidential information?

- (a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.
- (b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.
- (c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.
- (d) If you send us information without claiming it is confidential, we may make it available to the public without further notice to you, as described in 40 CFR 2.204.

§1051.820 How do I request a hearing?

- (a) You may request a hearing under certain circumstances, as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.
- (b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.
- (c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

§1051.825 What reporting and recordkeeping requirements apply under this part?

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

(a) We specify the following requirements related to certification in this part 1051:

- (1) In §§1051.20 and 1051.25 we describe special provisions for manufacturers to certify recreational engines instead of vehicles.
- (2) [Reserved]
- (3) In §1051.145 we include various reporting and recordkeeping requirements related to interim provisions.
- (4) In subpart C of this part we identify a wide range of information required to certify vehicles.
- (5) In §§1051.345 and 1051.350 we specify certain records related to production-line testing.
- (6) [Reserved]
- (7) In §1051.501 we specify information needs for establishing various changes to published vehicle-based test procedures.
- (8) In subpart G of this part we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various special compliance provisions.
- (9) In §§1051.725, 1051.730, and 1051.735 we specify certain records related to averaging, banking, and trading.

(b) [Reserved]

(c) We specify the following requirements related to testing in 40 CFR part 1065:

- (1) In 40 CFR 1065.2 we give an overview of principles for reporting information.
- (2) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published engine-based test procedures.
- (3) In 40 CFR 1065.25 we establish basic guidelines for storing test information.
- (4) In 40 CFR 1065.695 we identify data that may be appropriate for collecting during testing of in-use engines or vehicles using portable analyzers.

(d) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:

- (1) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.
- (2) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information
- (3) In 40 CFR 1068.27 we require manufacturers to make engines or vehicles available for our testing or inspection if we make such a request.
- (4) In 40 CFR 1068.105 we require manufacturers to keep certain records related to duplicate labels from engine manufacturers.
- (5) In 40 CFR 1068.120 we specify recordkeeping related to rebuilding engines.
- (6) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.
- (7) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing engines or vehicles.
- (8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.
- (9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.
- (10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming vehicles.