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subpart. We may also ask you to send less information.

(c) An authorized representative of your company must sign the following statement:

We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1054. We have not changed production processes or quality-control procedures for test engines in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

(d) Send electronic reports of production-line testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.

(e) We will send copies of your reports to anyone from the public who asks for them. Section 1054.815 describes how we treat information you consider confidential.

§ 1054.350 What records must I keep?

(a) Organize and maintain your records as described in this section. We may review your records at any time.

(b) Keep paper or electronic records of your production-line testing for eight years after you complete all the testing required for an engine family in a model year.

(c) Keep a copy of the written reports described in § 1054.345.

(d) Keep the following additional records:

(1) A description of all test equipment for each test cell that you can use to test production-line engines.

(2) The names of supervisors involved in each test.

(3) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test engine and the names of all supervisors who oversee this work.

(4) If you shipped the engine for testing, the date you shipped it, the associated storage or port facility, and the date the engine arrived at the testing facility.

(5) Any records related to your production-line tests that are not in the written report.

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(6) A brief description of any significant events during testing not otherwise described in the written report or in this section.

(7) Any information specified in § 1054.345 that you do not include in your written reports.

(e) If we ask, you must give us a more detailed description of projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce engines at more than one plant).

(f) Keep records of the engine identification number for each engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.

(g) We may ask you to keep or send other information necessary to implement this subpart.

Subpart E—In-use Testing

§ 1054.401 General provisions.

We may perform in-use testing of any engines or equipment subject to the standards of this part. We will consult with you as needed for information or special equipment related to testing your engines.

Subpart F—Test Procedures

§ 1054.501 How do I run a valid emission test?

(a) *Applicability.* This subpart is addressed to you as a manufacturer but it applies equally to anyone who does testing for you, and to us when we perform testing to determine if your engines or equipment meet emission standards.

(b) *General requirements.* Use the equipment and procedures for spark-ignition engines in 40 CFR part 1065 to determine whether engines meet the exhaust emission standards, as follows:

(1) Measure the emissions of all exhaust constituents subject to emissions standards as specified in § 1054.505 and 40 CFR part 1065. Measure CO₂, N₂O, and CH₄ as described in § 1054.235. See § 1054.650 for special provisions that

apply for variable-speed engines (including engines shipped without governors).

(2) Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the testing we require in this part. Except as specified in paragraph (d) of this section, use gasoline meeting the specifications described in 40 CFR 1065.710 for general testing. For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use. You may alternatively use gasoline blended with ethanol as follows:

(i) For handheld engines, you may use the ethanol-blended fuel for certifying engines under this part without our advance approval. If you use the blended fuel for certifying a given engine family, you may also use it for production-line testing or any other testing you perform for that engine family under this part. If you use the blended fuel for certifying a given engine family, we may use the blended fuel or the specified gasoline test fuel with that engine family.

(ii) For nonhandheld engines, you may use the blended fuel for certifying engines under this part without our advance approval. If you use the blended fuel for certifying a given engine family, you must also use it for production-line testing or any other testing you perform for that engine family under this part. If the certification of all your Class I (or Class II) engine families in a given model year is based on test data collected using the blended fuel, we will also use the blended fuel for testing your Class I (or Class II) engines. If the certification of some but not all of your Class I (or Class II) engine families in a given model year is based on test data collected using the blended fuel, we may use the blended fuel or the specified gasoline test fuel for testing any of your Class I (or Class II) engines.

(iii) The blended fuel must consist of a mix of gasoline meeting the specifications described in 40 CFR 1065.710 for general testing and fuel-grade ethanol meeting the specifications described in 40 CFR 1060.501(c) such that the blended fuel has 10.0±1.0 percent ethanol by volume. You may also use

ethanol with a higher or lower purity if you show us that it will not affect your ability to demonstrate compliance with the applicable emission standards. You do not need to measure the ethanol concentration of such blended fuels and may instead calculate the blended composition by assuming that the ethanol is pure and mixes perfectly with the base fuel.

(iv) You may ask to use the provisions of this paragraph (b)(2) for a blended test fuel containing less than 10 percent ethanol if your engine is subject to emission standards from other organizations that specify testing with that fuel. If we approve testing with such a fuel, we may test your engines with that test fuel, with gasoline, or with a 10-percent ethanol blend.

(3) Ambient conditions for duty-cycle testing must be within ranges specified in 40 CFR 1065.520, subject to the provisions of §1054.115(c).

(i) *Corrections.* Emissions may not be corrected for the effects of test temperature or pressure. You may correct emissions for humidity as specified in 40 CFR 1065.670.

(ii) *Intake air temperature.* Measure engine intake air temperature as described in 40 CFR 1065.125, and control it if necessary, consistent with good engineering judgment. For example, since the purpose of this requirement is to ensure that the measured air temperature is consistent with the intake air temperature that would occur during in-use operation at the same ambient temperature, do not cool the intake air and do not measure air temperature at a point where engine heat affects the temperature measurement.

(4) The provisions of 40 CFR 1065.405 describes how to prepare an engine for testing. However, you may consider emission levels stable without measurement after 12 hours of engine operation, except for the following special provisions that apply for engine families with a useful life of 300 hours or less:

(i) We will not approve a stabilization period longer than 12 hours even if you show that emissions are not yet stabilized.

(ii) Identify the number of hours you use to stabilize engines for low-hour

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emission measurements. You may consider emissions stable at any point less than 12 hours. For example, you may choose a point at which emission levels reach a low value before the effects of deterioration are established.

(5) Prepare your engines for testing by installing a governor that you normally use on production engines, consistent with §§ 1054.235(b) and 1054.505.

(6) During testing, supply the engine with fuel in a manner consistent with how it will be supplied with fuel in use. If you sell engines with complete fuel systems and your production engines will be equipped with a vapor line that routes running loss vapors into the engine's intake system, measure exhaust emissions using a complete fuel system representing a production configuration that sends fuel vapors to the test engine's intake system in a way that represents the expected in-use operation. You may alternatively demonstrate by engineering analysis that your engines will continue to meet emission standards for any amount of running loss vapor that can reasonably be expected during in-use operation.

(7) Determine the carbon mass fraction of fuel, w_c , using a calculation based on measured fuel properties as described in 40 CFR 1065.655(d)(1). You may not use the default values specified in 40 CFR 1065.655(d)(2).

(c) *Special and alternate procedures.* You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10. The following additional provisions apply:

(1) If you are unable to run the test cycle specified in this part for your engine, use an alternate test cycle that will result in a cycle-weighted emission measurement equivalent to the expected average in-use emissions. This cycle must be approved under 40 CFR 1065.10.

(2) Describe in your application for certification any specially designed fixtures or other hardware if they are needed for proper testing of your engines. (Note: You do not need to specify the size or performance characteristics of engine dynamometers.) You must send us these fixtures or other hardware if we ask for them. We may waive the requirement of § 1054.205(aa) to identify a test facility in the United

States for such engine families as long as the projected U.S.-directed production volume of all your engine families using the provisions of this paragraph (c)(2) is less than 5 percent of your total production volume from all engine families certified under this part 1054.

(d) *Wintertime engines.* You may test wintertime engines at the ambient temperatures specified in 40 CFR 1065.520, even though this does not represent in-use operation for these engines (40 CFR 1065.10(c)(1)). In this case, you may use good engineering judgment to modify the test engine as needed to achieve intake temperatures that are analogous to in-use conditions. You may also test wintertime engines at reduced ambient temperatures as specified in 40 CFR 1051.505. Use the gasoline specified for low-temperature testing only if you test your engines at ambient temperatures below 20 °C.

[73 FR 59259, Oct. 8, 2008, as amended at 74 FR 56511, Oct. 30, 2009]

§ 1054.505 How do I test engines?

(a) This section describes how to test engines under steady-state conditions. For handheld engines you must perform tests with discrete-mode sampling. For nonhandheld engines we allow you to perform tests with either discrete-mode or ramped-modal testing methods. You must use the same modal testing method for certification and all other testing you perform for an engine family. If we test your engines to confirm that they meet emission standards, we will use the modal testing method you select for your own testing. If you submit certification test data collected with both discrete-mode and ramped-modal testing (either in your original application or in an amendment to your application), either method may be used for subsequent testing. We may also perform other testing as allowed by the Clean Air Act. Conduct duty-cycle testing as follows:

(1) For discrete-mode testing, sample emissions separately for each mode, then calculate an average emission level for the whole cycle using the weighting factors specified for each mode. In each mode, operate the engine