

Summary of Requirements¹

[40 CFR part 60, subpart JJJJ](#)

Standards of Performance for Emergency Spark Ignition Internal Combustion Engines

For rich burn liquefied petroleum gas (LPG) engines greater than 25 horsepower that commenced construction after 6/12/2006 and were manufactured on or after 1/1/2009

Emission Standards:

60.4231(c) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that are rich burn engines that use LPG and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

60.4233(c) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in [§60.4230\(a\)\(4\)](#) that are rich burn engines that use LPG must comply with the emission standards in [§60.4231\(c\)](#) for their stationary SI ICE.

Fuel Requirements: No requirements

Importing/Installing Requirements: 60.4236(c) and (d)

These requirements do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location.

60.4236(c): For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in [§60.4233](#) after January 1, 2011

¹ Disclaimer: The content provided in this software tool is intended solely as assistance for potential reporters to aid in assessing requirements for compliance under the Standards of Performance for Stationary Spark Ignition Internal Combustion Engines, 40 CFR Part 60 Subpart JJJJ. Any variation between the rule and the information provided in this tool is unintentional, and, in the case of such variations, the requirements of the rule govern. Use of this tool does not constitute an assessment by EPA of the applicability of the rule to any particular facility. In any particular case, EPA will make its assessment by applying the law and regulations to the specific facts of the case.

60.4236(d): In addition to the requirements specified in [§§60.4231](#) and [§60.4233](#) it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG spark ignition internal combustion engine, and stationary gasoline spark ignition internal combustion engine that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section.

Monitoring, Operation and Maintenance Requirements:

If your engine is less than 130 HP and built on or after 7/1/2008, or 130≤HP<500 and built on or after 1/1/2011, or greater than or equal to 500 HP and built on or after 7/1/2010, and does not meet the standards applicable to non-emergency engines: 60.4237

60.4237(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion **engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines**, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion **engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines**, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion **engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines**, you must install a non-resettable hour meter upon startup of your emergency engine.

Compliance Requirements for Engines Being Operated and Maintained in a Certified Manner:

If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you are operating in a certified manner.

General Compliance Requirements: 60.4234, 60.4243 (a)(1), 60.4243(d),

60.4234: Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in [§60.4233](#) over the entire life of the engine.

60.4243(a)(1): If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.

If using Air-to-Fuel Ratio Controller: 60.4243(g):

60.4243(g): It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and

operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

60.4243(d) Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited.

Performance Testing: No requirements

Compliance Requirements for Engines Being Operated and Maintained in a Non-Certified Manner:

If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to manufacturer's emission-related written instructions, your engine will be considered a non-certified engine.

General Compliance Requirements: All Engines- 60.4234, 60.4243(d); <100 HP- 60.4243(a)(2)(i); 100≤HP≤500- 60.4243(a)(2)(ii); >500 HP- 60.4243(a)(2)(iii)

All Engines-

60.4234: Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in [§60.4233](#) over the entire life of the engine.

60.4243(d): Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to

an electric grid or otherwise supply power as part of a financial arrangement with another entity. For owners and operators of emergency engines, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as permitted in this section, is prohibited.

If using Air-to-Fuel Ratio Controller: 60.4243(g):

60.4243(g): It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

For engines under 100 HP-

60.4243(a)(2)(i): If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

For engines 100≤HP≤500-

60.4243(a)(2)(ii): If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup to demonstrate compliance.

For engines over 500 HP-

60.4243(a)(2)(iii): If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

Performance Testing: <100 HP- No requirements; 100≤HP≤500- 60.4243(a)(2)(ii), 60.4244; >500 HP- 60.4243(a)(2)(iii), 60.4244

If your engine is under 100 HP: No requirements

If your engine is 100≤HP≤500-

60.4243(a)(2)(ii): If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing

emissions. In addition, you must conduct an initial performance test within 1 year of engine startup to demonstrate compliance.

If your engine is greater than 500 HP-

60.4243(a)(2)(iii) :If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

For all engines greater than or equal to 100 HP-

60.4244 Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in [§60.8](#) and under the specific conditions that are specified by [Table 2](#) to this subpart.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in [§60.8](#) (c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.

(c) You must conduct three separate test runs for each performance test required in this section, as specified in [§60.8](#) (f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

(d) To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 1})$$

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d= Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10⁻³ = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 2})$$

Where:

ER = Emission rate of CO in g/HP-hr.

Cd= Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad (\text{Eq. 3})$$

Where:

ER = Emission rate of VOC in g/HP-hr.

Cd= VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either [Method 18 of 40 CFR part 60, appendix A](#), or [Method 320 of 40 CFR part 63, appendix A](#), then it has the option of

correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C_{M_i}}{C_{A_i}} \quad (\text{Eq. 4})$$

Where:

RF_i= Response factor of compound i when measured with EPA Method 25A.

C_{Mi}= Measured concentration of compound i in ppmv as carbon.

C_{Ai}= True concentration of compound i in ppmv as carbon.

$$C_{i_{corr}} = RF_i \times C_{i_{meas}} \quad (\text{Eq. 5})$$

Where:

C_{i_{corr}}= Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{i_{meas}}= Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{P_{eq}} = 0.6098 \times C_{i_{corr}} \quad (\text{Eq. 6})$$

Where:

C_{P_{eq}}= Concentration of compound i in mg of propane equivalent per DSCM.

Notifications, Reports, and Records Requirements: 60.4245(a), (b)

60.4245(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

- (1) All notifications submitted to comply with this subpart and all documentation supporting any notification.
- (2) Maintenance conducted on the engine.
- (3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR [parts 90, 1048, 1054, and 1060](#), as applicable.
- (4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to [§60.4243\(a\)\(2\)](#), documentation that the engine meets the emission standards.

60.4245(b) For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

General Provisions (40 CFR part 60): 60.4246, Table 3

60.4246: [Table 3](#) to this subpart shows which parts of the General Provisions in §60.1 through §60.19 apply to you.