Summary of Requirements
40 CFR part 60, subpart III
Standards of Performance for Stationary Compression Ignition
Internal Combustion Engines

For emergency engines with a displacement of greater than or equal to 30 liters/cyl, (except fire pump engines)
constructed after July 11, 2005 and manufactured after April 1, 2006

NOTE: To refer directly to the regulatory text, please go to Subpart III (scroll down to almost the end of the page).

Temporary Engines:
Per 60.4200(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

Emission Standards: 60.4205(d)(1) and (2)

60.4205(d): Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

(1) For engines installed prior to January 1, 2012, limit the emissions of NO\textsubscript{X} in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) 45 \cdot n^{-0.2} g/KW-hr (34 \cdot n^{-0.2} g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where \(n\) is maximum engine speed; and

(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO\textsubscript{X} in the stationary CI internal combustion engine exhaust to the following:

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(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) \(44 \cdot n^{-0.23}\) g/KW-hr \((33 \cdot n^{-0.23}\) g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where \(n\) is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

Per 60.4215(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§60.4202 and 60.4205. Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the emission standards in 60.4215(c).

Special requirements apply to engines used in Alaska. Please refer to 60.4216 for the specific requirements and provisions that apply to engines that are located in areas of Alaska not accessible by the FAHS.

**Fuel Requirements:** 60.4207(a), (d), (e)

60.4207(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

Per 60.4215(b) stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in 40 CFR 60.4207.

Special requirements apply to engines used in Alaska. Please refer to 60.4216 for the specific requirements and provisions that apply to engines that are located in areas of Alaska not accessible by the FAHS.

Per 60.4217 Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4204 or §60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.

**Importing/Installing Requirements:** 60.4208(a), (b), (h), (i)
60.4208(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(h) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

**Monitoring Requirements:** 60.4209(a); If your engine is equipped with a diesel particulate filter:

60.4209(b)

60.4209(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

**If your engine is equipped with a diesel particulate filter: 60.4209(b)**

60.4209(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

**Compliance Requirements:** 60.4206, 60.4211(a), (d), (f), (g)

60.4206 Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine.

60.4211(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

1. Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

2. Change only those emission-related settings that are permitted by the manufacturer; and

3. Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.
(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213 (see Testing Requirements below).

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;
(ii) A discussion of the relationship between these parameters and NO\textsubscript{X} and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO\textsubscript{X} and PM emissions;
(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;
(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and
(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. 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 calendar year.

Note: On May 1, 2015, the U.S. Court of Appeals for the District of Columbia Circuit issued a decision vacating paragraphs 40 CFR 60.4211(f)(2)(ii)-(iii) below. Guidance regarding the impact of the vacatur is available here: https://www3.epa.gov/ttn/atw/icengines/docs/RICEVacaturGuidance041516.pdf.
(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see § 60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power 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. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.
(2) If you are an owner or operator of a stationary CI 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 to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI 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 to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

**Testing Requirements: 60.4213**

60.4213 Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted according to the requirements in §60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c).

(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 last at least 1 hour.

(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.

(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:

\[
\frac{C_i - C_o}{C_i} \times 100 = R \quad (\text{Eq. 2})
\]

Where:

\( C_i \) = concentration of NO\(_X\) or PM at the control device inlet,
\( C_o \) = concentration of NO\(_X\) or PM at the control device outlet, and
\( R \) = percent reduction of NO\(_X\) or PM emissions.
(2) You must normalize the NO\textsubscript{X} or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O\textsubscript{2}) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO\textsubscript{2}) using the procedures described in paragraph (d)(3) of this section.

\[ C_{\text{adj}} = C_c \frac{5.9}{20.9 - \% \text{O}_2} \quad (\text{Eq. 3}) \]

Where:

- \( C_{\text{adj}} \): Calculated NO\textsubscript{X} or PM concentration adjusted to 15 percent O\textsubscript{2}.
- \( C_c \): Measured concentration of NO\textsubscript{X} or PM, uncorrected.
- 5.9 = 20.9 percent O\textsubscript{2}−15 percent O\textsubscript{2}, the defined O\textsubscript{2} correction value, percent.
- \( \% \text{O}_2 \): Measured O\textsubscript{2} concentration, dry basis, percent.

(3) If pollutant concentrations are to be corrected to 15 percent O\textsubscript{2} and CO\textsubscript{2} concentration is measured in lieu of O\textsubscript{2} concentration measurement, a CO\textsubscript{2} correction factor is needed. Calculate the CO\textsubscript{2} correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.

(i) Calculate the fuel-specific \( F_o \) value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

\[ F_o = \frac{0.209}{F_e} \quad (\text{Eq. 4}) \]

Where:

- \( F_o \): Fuel factor based on the ratio of O\textsubscript{2} volume to the ultimate CO\textsubscript{2} volume produced by the fuel at zero percent excess air.
- 0.209 = Fraction of air that is O\textsubscript{2}, percent/100.
- \( F_e \): Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm\textsuperscript{3}/J (dscf/10\textsuperscript{6} Btu).
- \( F_c \): Ratio of the volume of CO\textsubscript{2} produced to the gross calorific value of the fuel from Method 19, dsm\textsuperscript{3}/J (dscf/10\textsuperscript{6} Btu).

(ii) Calculate the CO\textsubscript{2} correction factor for correcting measurement data to 15 percent O\textsubscript{2}, as follows:

\[ X_{\text{CO}_2} = \frac{5.9}{F_o} \quad (\text{Eq. 5}) \]

Where:

- \( X_{\text{CO}_2} \): CO\textsubscript{2} correction factor, percent.
- 5.9 = 20.9 percent O\textsubscript{2}−15 percent O\textsubscript{2}, the defined O\textsubscript{2} correction value, percent.

(iii) Calculate the NO\textsubscript{X} and PM gas concentrations adjusted to 15 percent O\textsubscript{2} using CO\textsubscript{2} as follows:

\[ C_{\text{adj}} = C_c \frac{X_{\text{CO}_2}}{\% \text{CO}_2} \quad (\text{Eq. 6}) \]
Where:

$C_{adj} =$ Calculated NO\textsubscript{X} or PM concentration adjusted to 15 percent O\textsubscript{2}.

$C_d =$ Measured concentration of NO\textsubscript{X} or PM, uncorrected.

%CO\textsubscript{2} =$ Measured CO\textsubscript{2} concentration, dry basis, percent.

(e) To determine compliance with the NO\textsubscript{X} mass per unit output emission limitation, convert the concentration of NO\textsubscript{X} in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{\text{KW-hour}} \quad \text{(Eq. 7)}$$

Where:

ER = Emission rate in grams per KW-hour.

$C_d =$ Measured NO\textsubscript{X} concentration in ppm.

$1.912 \times 10^{-3} =$ Conversion constant for ppm NO\textsubscript{X} to grams per standard cubic meter at 25 degrees Celsius.

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

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{\text{KW-hour}} \quad \text{(Eq. 8)}$$

Where:

ER = Emission rate in grams per KW-hour.

$C_{adj} =$ Calculated PM concentration in grams per standard cubic meter.

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

T = Time of test run, in hours.

KW-hour = Energy output of the engine, in KW.

Notification, Reports, and Records Requirements: 60.4214(b); If equipped with DPF: 60.4214(c); If >100 HP and > 15 hrs/yr for emergency DR: 60.4214(d)

60.4214(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

If your engine is equipped with a diesel particulate filter:
60.4214(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

**If your engine is greater than 100 HP and used more than 15 hours a year for emergency DR:**

60.4214(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in § 60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in § 60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

**General Provisions (40 CFR part 60):** Table 8