



Air Program Fact Sheet

NSPS for Stationary Compression Ignition Engines at Area Sources

March 2019

Overview

There are three regulations that apply to Reciprocating Internal Combustion Engines (RICE), depending on the type of engine and the date of construction: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary RICE, New Source Performance Standards (NSPS) for Stationary Compression Ignition (CI) Engines, and NSPS for Stationary Spark Ignition (SI) Engines.

Some engines will be subject to both the NESHAP and one of the NSPS rules. Older engines will be subject only to the NESHAP. If an engine is a dual fuel engine, i.e. one that burns both natural gas and diesel, then, for the purposes of these rules, the engine is considered CI if 2% or more of the energy is obtained from burning diesel in the engine on an annual average. Refer to the NESHAP for Stationary RICE and NSPS for Stationary SI factsheets for more information on these rules.

This factsheet explains what you must do to comply with the NSPS for Stationary CI (diesel) RICE.

NSPS for Stationary Compression Ignition Engines (Subpart III) - At a Glance

- Applies to new, modified and reconstructed CI engines. For the NSPS for CI engines, your RICE is a new source if:
 - it was ordered after July 11, 2005 and manufactured after April 1, 2006 or
 - if it was modified/reconstructed after July 11, 2005.
- Focus is on criteria pollutants (VOC, NO_x, PM, CO, SO₂).

Applicability

The NSPS applies to new and reconstructed CI engines. New engines at area sources of hazardous air pollutants can comply with the NESHAP by meeting the NSPS requirements. An area source of HAPs is any facility that has the potential to emit less than 10 tons of any single hazardous air pollutant and less than 25 tons of total hazardous air pollutants.

What Requirements Apply?—Emission Limitations

Both emissions limits and fuel standards may apply to new engines under this rule. Table 1 describes the emission limitations that apply based on engine type, displacement, and/or model year. Fuel standards apply to all NSPS engines starting at certain dates, as listed below.

Fuel Standards

- Beginning October 1, 2007 – Low sulfur diesel fuel (500 ppm) may only be used in engines subject to the NSPS.
- Beginning October 1, 2010 – CI engines with a displacement of < 30 liters per cylinder, only ultra-low sulfur diesel (15 ppm) may be used.
- Beginning June 1, 2012, owners and operators of CI engines with a displacement of ≥ 30 liters per cylinder must purchase fuel that meets a maximum per-gallon sulfur content of 1000 ppm.

Table 1: NSPS for New Engines—All Sizes

Engine Type	Model Year	Displacement (liters/cylinder)	Standards
Non-emergency engines	Pre-2007	< 10	Meet emission standards equivalent to Tier 1 standards for nonroad CI engines.
		≥10, <30	40 CFR 94.8(a)(1) - meet emission standards equivalent to Tier 1 standards for marine compression ignition engines.
	2007 and later	< 30	Engine must be manufactured according to the emission standards for new non-emergency engines 2007 model year or later (40 CFR 60.4201).
	All engine years	>30	<p>For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:</p> <ul style="list-style-type: none"> (i) 17.0 grams per kilowatt-hour (g/kW-hr) [12.7 g/hp-hr (grams per horsepower-hour)] when maximum engine speed is less than 130 rpm; (ii) 45n – 0.2 g/kW-hr (34n – 0.2 g/hp-hr) when maximum speed is greater than or equal to 130 but less than 2000 rpm where n is maximum engine speed; and (iii) 9.8 g/kW-hr (7.3 g/hp-hr) when maximum speed is 2000 rpm or greater. <p>For engines installed on or after January 1, 2012 but before January 1, 2016, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:</p> <ul style="list-style-type: none"> (i) 14.4 g/kW-hr (10.7 g/hp-hr) when maximum engine speed is less than 130 rpm; (ii) 44n – 0.23 g/kW-hr (33n – 0.23g/hp-hr) when maximum engine speed is greater than or equal to 130 but less than 2000 rpm where n is maximum engine speed; and (iii) 7.7 g/kW-hr (5.7 g/hp-hr) when maximum engine speed is 2000 rpm or greater. <p>For engines installed on or after January 1, 2016, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:</p> <ul style="list-style-type: none"> (i) 3.4 g/kW-hr (2.5 g/hp-hr) when maximum speed is less than 130 rpm; (ii) 9.0n – 0.20 g/kW-hr (6.7n – 0.20 g/hp-hr) when maximum engine speed is greater than or equal to 130 but less than 2000 rpm, where n is maximum engine speed; and (iii) 2.0 g/kW-hr (1.5 g/hp-hr) when maximum speed is 2000 rpm or greater. <p>All engines in this category reduce PM 60% or limit PM in exhaust to 0.15 g/kW-hr (0.11 g/hp-hr).</p>
Emergency engines	Pre-2007	< 10	Meet emission standards equivalent to Tier 1 standards for nonroad CI engines.
		≥10, < 30	40 CFR 94.8(a)(1) - meet emission standards equivalent to Tier 1 standards for marine compression ignition engines.
	2007 or later	< 30	Emergency engines 2007 model year or later must be manufactured to comply with emission standards in 40 CFR 60.4202.
	Fire pump engines	<30	Separate requirements for fire pump engines. See 40 CFR 60.4202(d), 60.4205(c), and 60.4210(g).
	All engines	≥ 30	<p>All engines limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/kW-hr (0.30 g/hp-hr).</p> <p>For engines installed prior to January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:</p> <ul style="list-style-type: none"> (i) 17.0 g/kW-hr (12.7 g/hp-hr) when maximum engine speed is less than 130 rpm; (ii) 45n – 0.2 g/kW-hr (34n – 0.2 g/hp-hr) when maximum speed is greater than or equal to 130 but less than 2000 rpm, where n is maximum engine speed; and (iii) 9.8 g/kW-hr (7.3 g/hp-hr) when maximum speed is 2000 rpm or greater. <p>For engines installed on or after January 1, 2012, limit the emissions of NO_x in the stationary CI internal combustion engine exhaust to the following:</p> <ul style="list-style-type: none"> (i) 14.4 g/kW-hr (10.7 g/hp-hr) when maximum engine speed is less than 130 rpm; (ii) 44n – 0.23 g/kW-hr (33n – 0.23g/hp-hr) when maximum engine speed is greater than or equal to 130 but less than 2000 rpm where n is maximum engine speed; and (iii) 7.7 g/kW-hr (5.7 g/hp-hr) when maximum engine speed is 2000 rpm or greater.

Table 2: Compliance Demonstration Requirements

Displacement (liters/cylinder)	Model year	Requirement(s)
< 30	Pre-2007	1. Engine must be certified according to 40 CFR 89 or 40 CFR 94, as applicable (tier 1 and tier 2); or
		2. Maintain records of performance test(s) conducted on a similar engine; or
		3. Maintain records of manufacturer data indicating engine compliance with 40 CFR 60.4201 or 40 CFR 60.4202; or
		4. Maintain records of control device vendor data indicating compliance with Table 1 of Subpart IIII; or
		5. Conduct initial performance test.
	2007 and later	Engine must be certified in accordance with 40 CFR 60.4201 or 40 CFR 60.4202, or Table 2 of Subpart IIII, as applicable.
≥ 30	All model years	1. Conduct initial performance test.
		2. Submit petition to EPA Administrator to establish operating parameters for continuous monitoring.
		3. Conduct annual performance test.
All emergency engines	All model years	<ul style="list-style-type: none"> • Install non-resettable hour meter. • Must maintain records of operation of engine in emergency and non-emergency service (e.g. maintenance) as recorded with the non-resettable hour meter.

Other Recordkeeping and Reporting Requirements

There is no initial notification requirement for emergency engines.

An Initial Notification is required IF a non-emergency CI engine:

- Is a non-emergency stationary CI engine that is greater than 3,000 hp; or
- Has a displacement of greater than or equal to 10 liters/cylinder; or
- Is a pre-2007 model year engine that is greater than 175 hp and not certified.

Initial notifications must include:

- Name and address of the owner or operator;
- The address of the source;
- Engine information (make, model, engine family, serial number, model year, maximum engine power, and displacement);
- Emission control equipment; and
- Fuel used.

All notifications and performance test reports must be filed electronically to USEPA through the Electronic Reporting Tool: <https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert>.

For Additional Information on the CI NSPS

USEPA’s Stationary Engine web page: <https://www.epa.gov/stationary-engines>

Other USEPA resources—

- providing plain language summaries of RICE NESHAP & NSPS: <https://www.epa.gov/stationary-engines/compliance-requirements-stationary-engines>
- sample Initial Notification and Notification of Compliance Status forms, webinars, other guidance documents: <https://www.epa.gov/stationary-engines/guidance-and-tools-implementing-stationary-engine-requirements>

EPA Combustion Portal – provides calculators for CI RICE NESHAP, summary of NSPS, and other resources for combustion units: <http://www.combustionportal.org/>

Definitions

Certified engine - an engine manufacturer has received a certification on the emissions standards, e.g. an EPA Certificate of Conformity, for an engine manufactured in model year 2007 or later with a displacement of < 30 liters/cylinder.

Emergency engine (for NSPS purposes, different than that for NESHAP) - Operation limited to:

- Unlimited use for emergencies;
- 100 hours/year for maintenance/testing; and
- 50 hours/year of the 100 hours/year allocation can be used for non-emergency situations (if no financial arrangement with any entity, including but not limited to a utility).

Non-road engine - an engine that is not used in a motor vehicle but is portable - Under the definition of non-road engine in 40 CFR 1068.30, an engine is portable if it does not stay and is not intended to stay at a single location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. Portable (non-road) engines are not stationary engines for purposes of this rule. A facility may consult with its EPA regional office or request a site-specific applicability determination if it is uncertain whether an engine meets the criteria for a non-road or stationary engine. To view determinations already issued by EPA visit <http://cfpub.epa.gov/adi/>.

Stationary engine – an engine not used in a motor vehicle and not a non-road engine.

For Additional Questions Contact:

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Publication AM-512 2019