Colorado Department of Public Health and Environment
Air Pollution Control Division

Colorado Department of Public Health and Environment

New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines

40 CFR Part 60 (NSPS), Subpart IIII- Final Publication July 11,2006

Fact Sheet

On July 11, 2006, the Environmental Protection Agency (EPA) published a rule to reduce emissions of air pollutants from stationary compression ignition (CI) internal combustion engines (stationary diesel engines). Theses new standards, known as New Source Performance Standards (NSPS), will limit emissions of nitrogen oxides (NOx), particulate matter (PM), carbon monoxide (CO), and Non-methane hydrocarbons (NMHC) from stationary diesel internal combustion engines. Sulfur oxides (SO_X) will also be controlled through the use of low sulfur fuel. The emissions standards are generally modeled after EPA's standards for nonroad and marine diesel engines.

This Fact Sheet is For Summary Purposes Only – See Final Rule for Specific Requirements at:

http://www.epa.gov/ttn/atw/nsps/cinsps/fr11jy06.pdf

The final rule applies to the following:

- **Owners/operators** of **stationary compression ignition internal combustion engines (CI ICE)** that commence construction, reconstruction, or modification (as defined at 40 CFR 60.4219) after **July 11, 2005**.

  Exceptions:

  - Stationary CI ICE *manufactured* prior to April 1, 2006, that are not fire pump engines are not subject to the final rule, unless the engines are modified or reconstructed after July 11,2005.

  - If Stationary ICE is *manufactured* as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

- **Manufacturers** of 2007 and later model year compression ignition (CI) ICE with a displacement of less than 30 liters per cylinder and certain model year fire pump engines.

  Exceptions:

  - Stationary ICE *manufactured* prior to April 1, 2006 that are not fire pump engines are treated as if they were constructed prior to July 11, 2005

  - Stationary ICE *manufactured* prior to July 1, 2006 that are fire pump engines are treated as if they were constructed prior to July 11, 2005

The final rule does not apply to:

- Stationary CI ICE being tested at a stationary CI ICE test cell/stand

- Owners and operators, as well as manufacturers, may be eligible to request an exemption for national security

- ICE's exempt per 40 CFR part 1068, subpart C, 89, subpart J, or 94, subpart J.

Definitions:

- *Compression Ignition (CI)-* Relating to a type of stationary internal combustion engine that is not a spark ignition engine. Mixes fuel inside cylinder in which fuel ignites as it is injected into the air inside the combustion chamber.

- *Date of construction-* Date the engine is ordered by the owner or operator.

- *Diesel particulate filter*- emissions control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected oxidizing (burning off) the particles.

- *Emergency stationary internal combustion engine*- any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance.

- *Fire pump engine*- an emergency stationary internal combustion engine certified to National Fire Protection Association (NFPA) requirements that is used to provide power to pump water for fire suppression or protection.

- *Non-road Engines vs. non Nonroad Engines:*

  Is a Nonroad Engine if:
  - …it is in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function(such as garden tractors, off-highway mobile cranes and bulldozers)
  - …it is in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers)
  - …by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indications of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

  Is *not* a Nonroad Engine if:
  - The engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the Act.
  - …if it is regulated by a federal New Source Performance Standard promulgated under section 111 of the Act.
  - …remains at a single location for more than 12 consecutive months or is a seasonal source that remains at a single location for at least two years or more and operates 3 months or more each year.

- *Spark Ignition-* Relating to a gasoline, natural gas, or liquefied petroleum gas 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 airflow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is

used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

- *Stationary Internal Combustion Engine (ICE)-* Any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. A stationary ICE *is not* a nonroad engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition. Stationary ICE includes reciprocating ICE, rotary ICE, and other ICE except combustion turbines.

What are my notification, reports, and record keeping requirements if I am an owner/operators of a CI ICE? (40 CFR 60.4214)

Initial Notification is required if non-emergency ICE falls in the following category:

•non-emergency stationary CI ICE that are greater than 3,000 HP ***or***;
•have a displacement of greater than or equal to10 liters per cylinder ***or;***
•are pre-2007 model year engines that are greater than 175 HP and not certified.

Initial Notification must be submitted to the Administrator and must include the following:

1. Name and address of the owner or operator
2. The address of the source
3. Engine info (make, model, engine family, serial number, model year maximum engine power, and engine displacement
4. Emission control equipment
5. Fuel used.

Emergency stationary CI ICE notification requirements:

1. No initial notification
2. Must maintain records of operation of engine in non-emergency service (e.g. maintenance) as recorded with the non-resettable hour meter

What are my fuel standards if I operate a CI ICE? (40 CFR 60.4207)

Fuel standards for owner/operators:

- Beginning Oct. 1, 2007- Low Sulfur Diesel (LSD) 500 ppm may only be used in subject engines. (40 CFR 80.510 (a))

- Beginning Oct. 1, 2010- CI ICE's with a displacement of <30 liters per cylinder, only Ultra Low Sulfur Diesel (ULSD) 15ppm may only be used. (40 CFR 80.510 (b))

What are my emission standards as an owner/operator?

See table below:

Emission Standards for Owners and Operators of Stationary CI ICE

Engine Type	*Model Year*	*Displacement (L/cylinder)*	*Standards*
Non-Emergency Engines	Pre-2007	< 10	**Table 1of Subpart IIII * (see below)**
		≥ 10, <30	NOx emissions shall not exceed: (i) 17.0 g/kW-hr when maximum test speed is less than 130 rpm (ii) $45.0 \times N^{-0.20}$ when maximum test speed is at least 130 but less than 2000 rpm, where N is the maximum test speed of the engine in rpm (iii) 9.8 g/kW-hr when maximum test speed is 2000 rpm or more
		≥ 30	Reduce NOx 90%, or limit NOx to 1.6 g/KWh (1.2 g/HP-hour)
			Reduce PM 60%, or limit PM to 0.15g/KWh (0.11 g/HP-hour)
	2007 and later	< 30	Engine must be manufactured according to standards for new engines in 40 CFR 60.4201
		≥ 30	Reduce NOx 90%, or limit NOx to 1.6 grams per KW-hour (g/KW-hr) (1.2 g/HP-hr).
			Reduce PM 60%, or limit PM in exhaust to 0.15g/KW-hr (0.11 g/HP-hr).
Emergency Engines	Pre-2007	< 10	**Table 1 of Subpart IIII * (see below)**
		≥ 10, <30	NOx emissions shall not exceed: (i) 17.0 g/kW-hr when maximum test speed is less than 130 rpm (ii) $45.0 \times N^{-0.20}$ when maximum test speed is at least 130 but less than 2000 rpm, where N is the maximum test speed of the engine in rpm (iii) 9.8 g/kW-hr when maximum test speed is 2000 rpm or more
	2007 and later	<30	Engine must comply with emission standard for new engines in 40 CFR 60.4202
	Fire Pump Engines	<30	Table 4 of Subpart IIII- see rule
	All engines	≥ 30	Reduce NOx 90%, or limit NOx to 1.6 g/KWh (1.2 g/HP-hour)
			Reduce PM 60%, or limit PM to 0.15g/KWh (.11 g/HP-hour)

As an owner/operator of a CI ICE, what do I have to document to show compliance?

Owners and operators must demonstrate compliance for *non-emergency* or fire pump engines by the following:

Displacement (L/cylinder)	***Model Year***	Compliance Demonstrated by the following:
< 30	Pre-2007	1. Engine must be certified according to 40 CFR 89 or 40 CFR 94, as applicable; **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 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 according to 40 CFR 60.4212
	2007 and later	Engine must be certified in accordance with 40 CFR 60.4201, 60.4202, of Table 2 of Subpart IIII, as applicable
≥ 30	All model years	1. Conduct initial performance test in accordance with 40 CFR 60.4213
		2. Submit petition to EPA Administrator to establish operating parameters for continuous monitoring
		3. Conduct annual performance test in accordance with 60.4213

What are my monitoring requirements if I operate a CI ICE?

Monitoring requirements for owner and operators (40 CFR 60.4209)

- Emergency engine – must Install non-resettable hour meter prior to startup
- For diesel particulate filter – must install a backpressure monitor

What are the emission standards for manufactures?

Stationary CI ICE manufactures must certify their 2007 model year and later non-emergency engines. To read about emission standards for manufactures see the rule, or contact the Small Business Assistance Program for details.

*Table 1 to Subpart IIII of Part 60-

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Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007–2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NO_X	HC	NO_X	CO	PM
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)
19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40

FOR MORE INFORMATION

Contact the Small Business Assistance Program (SBAP) at the Colorado Department of Public Health and Environment. The Small Business Assistance Program offers free and confidential assistance to small businesses with environmental questions.

Small Business Assistance Program: (303) 692-3175 or 3148

Small Business Ombudsman: (303) 692-2135

Website: **www.cdphe. state.co.us/ap/sbap/index.html**

SMALL BUSINESS ASSISTANCE PROGRAM