

# ENVIRONMENTAL Fact Sheet



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## Understanding Your General State Permit: Internal Combustion Engines – Emergency Generators and Fire Pump Engines

In 1995, NHDES established a General State Permit (GSP) program to help reduce the administrative burden for owners and operators of certain devices and provided consistency for certain source categories. The very first GSP, issued in 1998, was for emergency generators. Since that first permit, NHDES has reestablished the GSP for emergency generators with the current GSP having been issued in 2020. NHDES recognizes the increased complexity of the GSP and the regulations that pertain to engines used as emergency generators and fire pumps. Therefore, the following guidance has been prepared to help owners or operators of engines covered by the GSP (permittee) better understand the key requirements of the GSP. For more detailed information on the regulatory background on the specific requirements, please see the [NHDES website](#).

### Who needs a permit for emergency engines and when do they need to get it?

There are many criteria that would trigger the need for an owner or operator of a facility to obtain an air permit from NHDES. For owners and operators of internal combustion engines in New Hampshire, the following table details the device threshold limits that trigger the requirement for obtaining an air permit.

#### Internal Combustion Engines That Require Air Permits in New Hampshire

| Device   | Design Gross Heat Input Rating                               | Fuel   |
|--|--|--|
| One or more Internal Combustion Devices (Engines) at a source where: | > 0.15 MMBtu/hr individually; and<br>≥ 1.5 MMBtu/hr combined | Liquid fuel oil (including but not limited to #2 fuel oil, diesel fuel oil, ultra low sulfur diesel, etc.) |
|  | > 1.5 MMBtu/hr individually; and<br>≥ 10 MMBtu/hr combined   | Gaseous or liquefied propane gas fuel  |

Since the threshold is a combined heat input rating, it may be the case that an owner or operator of two diesel fired engines (for example one 1.6 MMBtu/hr and the other 1.0 MMBtu/hr) would need to register for a GSP that covers both engines. To determine the engine's heat input rating, use the **maximum** fuel flow rate (for a diesel engine, that would be listed in gallons per hour) and multiply it by

the heating value of the fuel (for diesel, that would be 137,000 Btu per gallon). The owner or operator of the engine that is required to obtain a permit must register the engine prior to installation of the device.

### **How do I get a permit for my emergency engine?**

If you've determined your engine requires a permit and you choose to register under the GSP, the easiest way to register your device is to use NHDES' online air permitting program. The online system allows owners or operators of emergency engines to register for a GSP, add additional engines to their existing GSP, or make changes to the facility name or contacts associated with the device. The online system is part of [NHDES' OneStop Data and Information System](#).

### **I've been issued a GSP. What are the key aspects of the GSP that I need to know?**

The GSP contains the pertinent requirements from state and federal rules<sup>1</sup> for emergency engines. When drafting this permit, NHDES specifically limited the requirements in the GSP to those that apply to engines that are both certified to meet USEPA emission levels<sup>2</sup> and operating strictly within the USEPA definition of an emergency. The following are the key aspects of the GSP with which the owners and operators should become familiar:

#### **Definition of an Emergency Engine**

Both USEPA and NHDES define emergency operation of stationary engines based on the type and amount of operation of the device. As these definitions are slightly different, NHDES has prepared the following streamlined definition of an emergency engine that meets both regulations.

An emergency engine is a stationary internal combustion engine used for emergency purposes that is limited to 500 hours of total operation during any consecutive 12-month period. This includes:

- Operation during emergency situations. This includes any unforeseeable condition that is beyond the control of the owner or operator that:
  - Results in an interruption of electrical power from the electricity supplier to the premises;
  - Requires an interruption of electrical power from the electricity supplier to the premises in order to enable the owner or operator to repair damage from fire, flood, or any other catastrophic event, natural or man-made; or
  - Requires operation of an emergency engine to minimize damage from fire, flood, or any other catastrophic event, natural or man-made; and
- Operation for 100 hours per calendar year for any combination of maintenance checks and readiness testing.
- Emergency engines shall **not** operate for demand response or as a load-shaving or peaking power production unit<sup>3</sup>.

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<sup>1</sup> The federal rules are:

- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE) [40 CFR Part 63, Subpart ZZZZ] otherwise known as "RICE NESHAP."
- Standards of Performance for Stationary Compression Ignition Internal Combustion Engines [40 CFR Part 60, New Source Performance Standard (NSPS), Subpart IIII] otherwise known as the "Compression Ignition (CI) NSPS rule."
- Standards of Performance for Stationary Spark Ignition Internal Combustion Engines [40 CFR Part 60, NSPS, Subpart JJJJ] otherwise known as the "Spark Ignition (SI) NSPS rule."

<sup>2</sup> Not all engines were required to be certified by the manufacturer to meet USEPA emission levels. Please review the federal rules, and [USEPA's Engine Webpage](#), or contact your engine supplier for further information on this matter.

<sup>3</sup> This includes direct drive power for crusher or chipper engines.

## Source Category Description

The first two sections of the GSP are designed to help the permittee categorize their engine by Emission Unit ID number (EU number). Once the permittee knows which EU number applies to their engine, they can focus on the specific requirements in the remainder of the GSP that pertain to that EU number. The permittee should use this section to identify the EU number for each of their engines, as regulations may be different for each engine at a facility. In addition, the permittee should verify the date the engine was first ordered and when it was manufactured in order to make the correct EU identification. This becomes increasingly important for engines that are newer (2005 or later).

### Why do I need to know the construction and manufacture dates of my engine?

Owners or operators need to know the construction and manufacture dates of the engine to determine if the engine is considered existing or new under the RICE NESHAP regulations. Engines are considered **existing** if the original owner or operator of the engine entered into a contract for the on-site installation of the engine before June 12, 2006. Engines for which the original owner or operator of the engine entered into a contractual obligation for the on-site installation of the engine on or after June 12, 2006 are considered **new** engines. Note that relocating an existing engine to a new location (same facility or elsewhere) does not change the engine's status as an existing engine.

In addition, owners or operators of new engines need to know the construction and manufacture dates to verify applicability with the CI NSPS and SI NSPS. If you own or operate a CI engine, you are subject to the CI NSPS rule if the engine was constructed (ordered) after July 11, 2005 and manufactured after April 1, 2006, for emergency engines, and constructed (ordered) after July 11, 2005, and manufactured after July 1, 2006, for fire pump engines. If you own or operate a SI engine, you are subject to the SI NSPS rule if the engine was constructed (ordered) after June 12, 2006 and the engine was manufactured on or after January 1, 2009 for emergency engines with a maximum engine power greater than 19 kW (25 hp) or July 1, 2008 for emergency engines with a maximum engine power less than or equal to 19 kW (25 hp)<sup>4</sup>.

### State Operating and Emission Limitations

The requirements in this section come from the New Hampshire Rules Governing the Control of Air Pollution. Notable requirements are that the permittee shall:

- Limit the operation of the engine to 500 hours per year total for emergencies (i.e. power outage), maintenance, and testing.
- **Not** operate the engine for load-shaving, demand response, or peaking power production.

### Federal Operating and Emission Limitations

The requirements in this section are broken down into three parts depending on the type and age of the engine.

#### *New Compression Ignition Engines (CI NSPS rule)*

Notable requirements for these devices are that the permittee shall:

- Purchase a certified engine.
- Install, operate and maintain the engine according to the manufacturer's written instructions.

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<sup>4</sup> USEPA acknowledges that there are some discrepancies between the dates for "new" and "existing" engines in the three rules.

- Burn only ultra-low sulfur diesel which is limited to a sulfur content of less than 15 ppm or 0.0015 percent by weight.
- Limit the operation of the engine to 100 hours per year for maintenance and testing combined.

*New Spark Ignition Engines (SI NSPS rule)*

Notable requirements for these devices are that the permittee shall:

- Purchase a certified engine.
- Install, operate and maintain the engine according to the manufacturer's written instructions.
- If the device burns gasoline, the gasoline fuel is limited to a sulfur content of less than 80 ppm.
- Limit the operation of the engine to 100 hours per year for maintenance and testing combined.

*Existing Compression and Spark Ignition Engines (RICE NESHP)*

Notable requirements for these devices are that the permittee shall:

- Limit the operation of the engine to 100 hours per year for maintenance and testing combined.
- Change oil and filter annually or in accordance with an oil analysis program.
- Inspect all hoses and belts annually and replace as necessary.
- Inspect air cleaner or spark plugs annually.
- Operate and maintain the engine according to a maintenance plan written either by the manufacturer or the permittee.
- Minimize idling during startup, not to exceed 30 minutes.

**Monitoring, Recordkeeping and Reporting Requirements**

The permittee is required to equip all engines with a non-resettable hour meter and keep the following records:

- Keep records of the hours and purpose of the operation of the engine (i.e. loss of power, maintenance and testing), copy of maintenance plan and maintenance conducted on engine, fuel usage, and sulfur content of fuel.
- For emergency engines covered under the NSPS, the owner/operator shall maintain documentation from the engine manufacturer certifying that the engine complies with the applicable emission standards.