



## PERMITTING AIR EMISSIONS FROM NEW EMERGENCY ENGINES

The Department of Energy and Environmental Protection (DEEP) requires owners or operators of new emergency engines<sup>1</sup> to apply for and obtain a permit if the potential emissions of any individual air pollutant are equal to or greater than 15 tons per year.

Typically, engines of 100 horsepower and 85 kW or larger will trigger air permit applicability. However, you should verify your annual emissions using specific engine emissions information to determine whether or not you must apply for a permit. Emissions information for your engine is generally available from the manufacturer. If you cannot obtain this information from the manufacturer, you can use documented EPA emissions factors from AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources at <http://www.epa.gov/ttn/chief/ap42/ch03/index.html>.

Potential emissions are calculated using the following equation:

$$E = A \times EF \times 4.38$$

where:

- E = emissions of a single pollutant (tons per year);
- A = maximum heat input of engine (mmBtu/hour);
- EF = emission factor (pounds (lb)/mmBtu), and
- 4.38 = constant to convert lbs/hour to tons per year

### Permitting Options and Requirements

The owner/operator of a new emergency engine with potential emissions of any individual air pollutant of at least 15 tons per year must obtain an individual permit for the emergency engine. For certain engines, owners or operators may be able to satisfy the obligation to obtain an individual permit by operating pursuant to one of "permits-by-rule," which are operating requirements set out in regulation. These three options for satisfying permitting obligations are described below.

#### **Option 1. Apply for and obtain an individual permit in accordance with RCSA Section 22a-174-3a.**

An owner or operator of a new *emergency engine* must apply for and obtain a permit prior to installation. The owner and operator shall apply for a permit on forms prescribed by the commissioner. These forms are available on the [Applications Forms and Instructions](#) download page. An application fee of \$940.00 is required.

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<sup>1</sup> "Emergency engine" means a stationary reciprocating engine or a turbine engine which is used as a means of providing mechanical or electrical power only during periods of testing and scheduled maintenance or during either an emergency or in accordance with a contract intended to ensure an adequate supply of electricity for use within the state of Connecticut during the loss of electrical power derived from nuclear facilities. The term does not include an engine for which the owner or operator of such engine is party to any other agreement to sell electrical power from such engine to an electricity supplier, or otherwise receives any reduction in the cost of electrical power for agreeing to produce power during periods of reduced voltage or reduced power availability.

**Option 2. Comply with an exemption from permitting available to new engines that may be operated in accordance with RCSA Section 22a-174-3b.**

An owner or operator may operate an emergency engine under RCSA section 22a-174-3b(e) in lieu of obtaining an individual permit. The key requirements of RCSA section 22a-174-3b(e) are listed below. No fee or application is required to operate under RCSA section 22a-174-3b(e). Option 2 is not available to gasoline engines.

*Fuel Requirements:* Use fuel with a sulfur content that does not exceed that of federal motor vehicle diesel fuel, which is 0.0015% by weight (15 ppm).

*Hours of Operation:* Limit hours of operation to 300 hours in any twelve consecutive months.

*Record keeping:* Make and maintain records of the hours of operation for each month and each twelve (12) month rolling aggregate. Maintain records of fuel purchases.

**Option 3. Limit Potential Emissions by operating the new emergency engine in accordance with RCSA Section 22a-174-3c.**

An owner or operator may operate a new emergency engine under RCSA section 22a-174-3c in lieu of obtaining an individual permit. The key requirements of RCSA section 22a-174-3c are listed below. No fee or application is required to operate under RCSA section 22a-174-3c. Option 3 is not available to gasoline engines.

*Premise-wide fuel purchase:* The owner or operator of an emergency engine operating under RCSA section 22a-174-3c must restrict fuel purchases at the entire facility and maintain records, as follows:

- The owner or operator of an emergency engine or engines using gaseous fuel shall limit gaseous fuel purchase for the premises to equal to or less than three million three hundred sixty thousand (3,360,000) cubic feet in any calendar year.
- The owner or operator of an emergency engine or engines using distillate oil, or a blend of distillate oil and biodiesel fuel, shall limit distillate oil purchase for the premises, inclusive of blends of distillate oil and biodiesel fuel, to equal to or less than 21,000 gallons in any calendar year.
- The owner or operator of an emergency engine or engines using propane shall limit propane purchase for the premises to equal to or less than 100,000 gallons in any calendar year;

*Record keeping:* The owner or operator shall maintain purchase records to demonstrate compliance with the applicable fuel limitations.

**CT DEEP's Permit Wizard** is available to assist in understanding which of the listed options is appropriate for a particular emergency engine. The Permit Wizard is available at [http://www.ct.gov/dep/cwp/view.asp?a=2684&q=461080&DEPNAV\\_GID=1997#calcs](http://www.ct.gov/dep/cwp/view.asp?a=2684&q=461080&DEPNAV_GID=1997#calcs).

**Other Regulatory Requirements**

Regardless of the state air quality permitting obligations, owners and operators of emergency engines may be subject to additional state and federal air quality requirements. Federal requirements can be found at <http://www.epa.gov/region1/rice/#RuleComplianceRequirements>. Additional state requirements for the control of Nitrogen Oxides can be found at <http://www.ct.gov/dep/lib/dep/air/regulations/mainregs/sec22.pdf>.

**For Additional Information**

Copies of the air quality regulations are available at [http://www.ct.gov/dep/cwp/view.asp?a=2684&Q=322184&depNav\\_GID=1619](http://www.ct.gov/dep/cwp/view.asp?a=2684&Q=322184&depNav_GID=1619).

For air quality questions call the Engineer of the Day Hotline at 860-424-4152.

# Connecticut Department of Public Health Drinking Water Section

## Drinking Water State Revolving Fund Small System Emergency Power Generator Program

### Worksheet to determine if a Department of Energy and Environmental Protection Permit is required based on the Generator's Potential Emissions

Potential emissions are calculated using the following equation:

$$E = A \times EF \times 4.38$$

where:

- E = emissions of a single pollutant (tons per year);
- A = maximum heat input of engine (mmBtu/hour);
- EF = emission factor (pounds (lbs)/mmBtu), and
- 4.38 = constant to convert lbs/hr to tons per year

#### Potential Emissions Worksheet:

$$E = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} \times 4.38 = \underline{\hspace{2cm}}$$

**The following guideline may be used to determine if a Potential Emissions permit is required from the DEEP using the calculation above.**

1. Using the formula above, calculate E (potential emissions of any individual air pollutant).
2. If the E (potential emissions of any individual air pollutant) calculated is equal to or greater than 15 tons per year, you must next select your fuel source for your generator.
3. For Gasoline fueled generators: If the E (potential emissions of any individual air pollutant) calculated is equal to or greater than 15 tons per year of potential emissions you must apply for a permit under Option 1. ***Please note Option 2 and Option 3 are not available for Gasoline fueled generators.***
4. For Diesel, Liquefied Propane (LP), or Natural Gas fueled generators: If the E (potential emissions) calculated is equal to or greater than 15 tons per year of potential emissions you may use either Option 2 or Option 3, or choose to file for a permit.