

Emergency Standby Engines

Introduction

Emergency standby engines are used to provide electricity in the event of a power outage. These engines can be a source of air pollutants such as nitrogen oxides (NO_x), carbon monoxide (CO), and particulate, as well as minor amounts of other pollutants. The Massachusetts Department of Environmental Protection (DEP) governs the installation, use and operation of emergency standby engines. The regulations require maintenance of operating records to demonstrate compliance. These requirements became effective on May 31, 1995 and are known as Reasonably Available Control Technology (RACT) regulations.

This Factsheet describes the compliance management program for *existing* emergency standby engines at the University, including a summary of permitting and operating requirements. Steps identified in this Fact sheet must be implemented to maintain compliance with these regulations. This Fact sheet does not address modification (e.g. changes to fuel type) or installation of new emergency standby engines at the University. Contact EH&S for assistance with these or other environmental issues.

Definitions

British Thermal Unit (btu) is an engineering unit which expresses the amount of energy available for work. One gallon of fuel oil contains approximately 140,000 btu.

Emergency Standby Engine is a stationary internal combustion engine used only as a power source during power outages. It is also operated during normal maintenance or testing as recommended by the manufacturer. Emergency standby engines do not include engines used as load shaving units, peaking power production units, or standby engines used in an energy assistance program.

Emission Unit means any individual device or equipment from which any air contaminant is emitted to the ambient air space; for example boilers, diesel engines, furnaces, space heaters, degreasers, printing presses, etc.

Nitrogen oxides (NO_x) means all oxides on nitrogen, including nitrogen oxide and nitrogen dioxide. NO_x is a pollutant generated by fuel combustion.

Plan Approval For the purposes of this Factsheet, a Plan Approval is a written permit issued by the DEP in response to a Plan Application (permit application).

Reasonably Available Control Technology (RACT) means the lowest emission limit that a facility is capable of meeting by using control technology that is reasonably available, considering technological and economic feasibility.

Applicable Regulation

DEP Regulation 310 CMR 7.00, "Air Pollution Control"

Summary of Requirements

General:

Different operating and regulatory requirements apply to different size engines. The engine operator may use this Factsheet as a reference for identifying engine-specific permitting and operating requirements at the facility.

Boston College maintains an emission inventory for all emission units at the University, including both exempt and non-exempt emergency standby engines. All new emergency standby engines must be reported to the DEP on an annual basis and will require modification of the University's Operating Permit Application. **Notify EH&S prior to the purchase or installation of any emergency standby engines.**

As described in "Recordkeeping", operating records must be maintained for *all* emergency standby engines at the University, including exempt emergency standby engines.

Exempt Emergency Engines: smaller than 3,000,000 btu/hr heat input (approximately 300 kw) are exempt from permit and operating regulations. However, new installations must be reported to the DEP.

Permitting exemption for emergency standby engines between 3,000,000 and 10,000,000 btu/hr heat input (approximately 300 - 999 kw): To qualify for a permitting exemption, engines in this size range must be equipped with an exhaust silencer and must utilize an exhaust stack that discharges so as to not cause or contribute to a condition of air pollution. Exhaust stack height must generally be at least 10' tall. Engines in this size range are exempt from permitting requirements only if they meet the definition of an emergency standby engine as described in the "Definitions" section of this Factsheet. NO_x RACT (operating) regulations do apply to these engines as described below.

NOx RACT requirements for emergency standby engines greater than 3,000,000 btu/hr heat input (approximately 300 kw or greater): Emergency standby engines in this size range are exempt from NOx RACT requirements provided that they are not operated for more than 300 hours per year.

Emergency standby engines may not be operated as load shaving units, peaking power production units, or standby engines in an energy assistance program.

Permitting requirements for emergency standby engines greater than 10,000,000 btu/hr heat input (approximately 1,000 kw or greater): Pre-construction permitting is required.

Training

Review of this Factsheet is recommended for management and operations personnel who are responsible for operation and maintenance of emergency standby engines. Review is also recommended for project personnel who may be involved in construction or alteration projects involving the installation or modification of emergency standby engines. Contact EH&S for case-by-case review of permitting applicability and assistance with specific permitting requirements.

Reporting

Any emission unit which has been exempted from permitting requirements must be reported to the DEP in the next required Source Registration (the annual air emission report filed with the DEP by EH&S). Annual Source Registration reports for a given calendar year must be filed by January 31 of the following year.

Any emergency standby engine subject to pre-construction permitting must file a Plan Application with the DEP prior to installation (e.g. engines greater than 10,000,000 btu/hr heat input).

EH&S maintains the status of the University's Air Quality Operating Permit. The planned addition of any new emission unit at Boston College should be reported to EH&S as soon as possible for addition to the existing emission inventory and modification of the University's Operating Permit.

Recordkeeping

Regulations require that the University maintain documentation of the date of construction, and substantial reconstruction or alteration of all emission units. In addition, the University is required to substantiate emissions for air emission units which are exempted from regulation. These records must be maintained up-to-date and be readily available for DEP examination.

Regulations require documentation of any operation of all standby diesel engines (including test and maintenance operation). Documentation must be sufficiently detailed to demonstrate that the engines are not operated for more than 300 hours per year. Documentation must be maintained by the operator of the facility or engine. A logsheet, with the following information, must be used for compliance demonstration, based on either an elapsed time indicator installed on the engine, the operator's actual measurement of running time, or by other means. Operating records must be maintained for a period of five years.

Records:

- 1) Equipment type, make, model, maximum power input/output.
- 2) Monthly log of hours of operation, gallons of fuels used, fuel types and heating values, monthly calculations of total hours operated and gallons of fuel used in previous 12 months.
- 3) Purchase Orders, invoices or other documents to support information in the monthly log.

Written Program

Not Applicable. See Recordkeeping section.

University Resources

Office of Environmental Health and Safety, St. Clements Hall, 552-0308

September 15, 2000