

Air Quality Permitting

The EPA's Clean Air Act Amendments of 1990, has classified Massachusetts as a "serious" non-attainment area for air quality. Fuel combustion and the emission of volatile organic compounds are two of the most significant causes of air pollution in Massachusetts. This has compelled the state to impose significant new regulatory requirements on the use and operation of combustion equipment, including boilers and emergency diesel generators.

Plan Approvals (permits) are required by the Massachusetts Department of Environmental Protection (DEP) for many activities which could result in discharges to the atmosphere. Activities requiring a permit generally involve the construction, reconstruction or alteration of a facility, or a change in its use or operation. In general, two types of permits can be required: a Pre-construction permit, or an Operating Permit.

Under the Clean Air Act, Boston College has submitted a permit application for an Operating Permit for the Main Campus. The Newton Campus is subject to Restricted Emission Status. Pre-construction permits have been filed for the Higgins Emergency Generator in 1999 and the St. Mary's Boiler Plant in 2000.

Alteration of existing Operating Permits is required if there are changes to the emission sources at the facility. For example, the addition of a new combustion source, an emergency standby engine, may be subject to a Pre-construction Permit; however, the addition of this engine, even if exempted from Pre-construction permitting can invoke a need to modify the facility's existing Operating Permit. The impact of these small or exempt projects must be tracked to determine the cumulative or aggregate effect of these emission units, and to evaluate the impact of these activities on the facility's existing Operating Permit. These projects must also be reported to the DEP in an annual report.

This Factsheet provides only a brief overview of major categories of activities at the University which are subject to air quality permitting. It does not address usage or operational requirements for air emission sources at the University.

Applicable Regulation

DEP, 310 CMR 7.00, "Air Pollution Control"

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.

Criteria Air Contaminant means ozone (O₂), particulate matter, sulfur dioxide (SO₂), nitrogen dioxide (NO_x), volatile organic compounds, carbon monoxide (CO), or lead.

Emergency Standby Engine is a stationary internal combustion engine used only as a power source during power outages and/or 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.

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

Volatile Organic Compound (VOC) is any compound of carbon which participates in atmospheric photochemical reactions. This definition includes all organic compounds of carbon, with several exceptions e.g. acetone, carbon dioxide, carbon monoxide, methane, certain refrigerants, etc. NOTE: Contact EH&S for a list of exceptions to this definition.

Summary of Requirements

Emergency Standby Engines Subject to Permitting: This category of equipment includes emergency diesel generators that are used in the event of a power outage. These engines may be driven by diesel fuel, natural gas, or gasoline. The addition or modification of these engines requires modification to the University's Operating Permit Application. This equipment is categorized in three ways:

- 1) Small Engines: (less than 3,000,000 btu/hr heat input, or approximately 300 kw or less): Pre-construction permits are not required; however, modification to the University's Operating Permit Application is required for any future installation of these engines.
- 2) Mid-size engines: (between 3,000,000 and 10,000,000 btu/hr, or approximately 300 - 999 kw): Pre-construction permits are required unless the engine is to be operated strictly in accordance with DEP regulations governing emergency standby engines. All engines in this size range at the University are currently exempted from pre-construction permitting because they are operated as emergency standby engines; however, certain design criteria apply to engines which are exempted. These criteria include requirements for exhaust silencers and smokestacks. Modification of the University's Operating Permit Application is required for the future installation of these engines.
- 3) Large engines: (heat input 10,000,000 btu/hr or approximately 1,000 kw): Pre-construction permitting is required. Modification of the University's Operating Permit is also required.

New Stationary Combustion Equipment Subject to Permitting

This category generally includes boilers, space heaters, furnaces and similar devices. The most common activities at Boston College subject to permitting include the construction, reconstruction or alteration of the following devices:

- Large Emission Units with an energy input greater than 10,000,000 btu/hr heat input burning natural gas, distillate oil, propane or residual fuel oil with a sulfur content of 0.5% or less;
- Heavy Oil-Fired Emission Units with an energy input greater than 5,000,000 btu/hr heat input burning residual fuel oil with a sulfur content of greater than 0.5%;

Volatile Organic Compound Emission Source Subject to Permitting

The addition of new VOC emission sources requires modification to the University's Operating Permit. A list of VOC emission sources exempted from permitting and reporting requirements is listed in the 310 CMR 30.00. Significant VOC emission sources at the University subject to permitting can include the following:

- All activities which would result in an increase in potential emissions of greater than one ton per year of VOCs, calculated over any consecutive 12 month time period, unless otherwise exempted.
- Solvent Degreasers (e.g. Safety Kleen parts cleaners) which use more than 100 gallons of solvent per month.
- Non-Heatset Offset Lithographic Printing is subject to permitting if the total facility has a VOC usage rate exceeding 670 gallons per month, including printing inks, makeup solvents, fountain solution additives, alcohol and cleanup solution.
- Paint Spray Booths are subject to permitting if the total facility VOC usage rate exceeds 670 gallons per month, including coatings, thinners, reducers and cleanup solutions.

Miscellaneous Emission Units Subject to Permitting

All activities which would result in an increase in potential emissions of greater than one ton per year of any criteria or non-criteria air contaminant, calculated over any consecutive 12 month time period, unless otherwise exempted.

Training

Review of this Factsheet is recommended for management and project personnel who are responsible for the development and implementation of projects which could be expected to result in the generation of air emissions. For case-by-case review of permitting applicability and specific requirements, contact EH&S.

Reporting

Any emission unit which is subject to pre-construction permitting must file a Plan Application with the DEP prior to installation. Plan Application requirements and formats vary, depending on the nature and complexity of the particular project.

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

EH&S is required to submit emission reports to the DEP on an annual basis and also maintains the University's Operating Permits. In accordance with DEP requirements, the planned addition of a new emission unit at the University should be reported to EH&S as soon as possible for addition to the existing emission inventory.

Recordkeeping

Regulations require that Boston College maintain documentation of the date of construction, substantial reconstruction or alteration of emission sources. In addition, we are required to substantiate emission levels or thresholds for air emission sources which are exempted from regulation. These records must be up-to-date and readily available for DEP examination upon demand. EH&S also maintains an inventory of emission sources at the University.

Written Program

Not Applicable. See Required Recordkeeping section.

University Resources

For assistance, contact the Office of Environmental Health and Safety, St. Clements, 2-0308

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