Yale *Environmental Health & Safety*

135 College Street, Suite 100
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Requirements for Air Emissions Sources



This Yale Policy gives the requirements for operation, modification, procurement and installation, as well as removal, of any stationary source of air pollution on any of Yale's campuses, properties, or outlying areas, including sources installed at leased or rental property owned by others. The definition of air pollutant from Connecticut Air Pollution Regulations is as follows:

> "Air pollutant" means dust, fumes, mist, smoke, other particulate matter, vapor, gas, aerosol, odorous substances, or any combination thereof, but does not include carbon dioxide except in accordance with regulations adopted pursuant to sections 22a-174d or 22a-174j of the Connecticut General Statutes, uncombined water vapor or water droplets, or molecular oxygen expressed as O_2 or nitrogen.

Air pollution can be caused by combustion of liquid or solid fuel, from a chemical reaction, spraying of solid, liquid, or gaseous material, evaporation of solvents, blasting and other construction activities, and from vents or leak from tanks and storage containers.

Air Emissions Equipment

Some common types of Equipment that can produce air pollution include:

- Natural Gas or Oil-Fired Boilers, furnaces, space and water heaters
- Emergency generators
- Spray booths
- Solvent Cleaning Units (Parts Washers)
- Ethylene Oxide Sterilizers
- Chemical/Fuel Storage tanks



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Environmental Health & Safety maintains an inventory of all air emission sources by campus location. EHS must be notified prior to when a source of air pollution is procured, installed, modified, or removed. Note acquisition of an existing building is usually an acquisition of an air emission source, usually at a minimum a furnace or boiler.

Potential Emissions

To determine regulatory and air permitting requirements for an air emissions unit, the unit's potential emissions must be calculated. This is done using emissions rate information from the manufacturer's, standard emission rates based upon the type of source, or from process calculations, and determining total emissions based upon operation 24 hours a day, 365 days a year, even if the unit is used only for a few hours a week or less.

Permits Required

State and federal air permitting requirements are based upon the potential emissions from an air emissions unit. Air Emissions Permits are required, unless exempted, if emission unit's potential emissions are > 15 Tons per year. Permits are also required for modification to existing unit that increases potential emissions > 15 tons per year, and for large increases to total campus emissions. Air Permits are required for construction and operation (permits must be obtained **prior** to construction of the unit). Exceptions for certain types and sizes of equipment can be found on the CT DEP Air Permitting Webpage: http://www.ct.gov/dep/cwp/view.asp?a=2684&q=322174&depNav_GID=1619

Maximum Allowable Stack Concentration

For emission units requiring permits, the concentration of certain chemicals in air discharges is regulated by CTDEP. This Maximum Allowable Stack Concentration is determined by a discharge's distance from the property line, stack height, volume discharge rate, and the particular hazard limiting value of the chemical, and is designed to protect the public from over-exposure to air pollutants. EHS will perform the calculations to determine if this requirement can be met for each emission unit

Permit Exemptions

The CTDEP has permitting exemptions for several types of equipment, such as boilers under a certain size, emergency generators and spray booths, if operated within certain parameters. These exemptions are listed in the following sections of CT's Air Pollution Control regulations:

- 22a-174-3b Exemptions From Permitting For Construction And Operation Of External Combustion Units, Automotive Refinishing Operations, Emergency Engines, Nonmetallic Mineral Processing Equipment And Surface Coating Operations.

- 22a-174-3c Limitations On Potential To Emit For External Combustion Units, Emergency Engines, Automotive Refinishing Operations, Nonmetallic Mineral Processing Equipment And Surface Coating Operations.

Contact EHS for review of applicability of these exemptions to your planned air emission unit.

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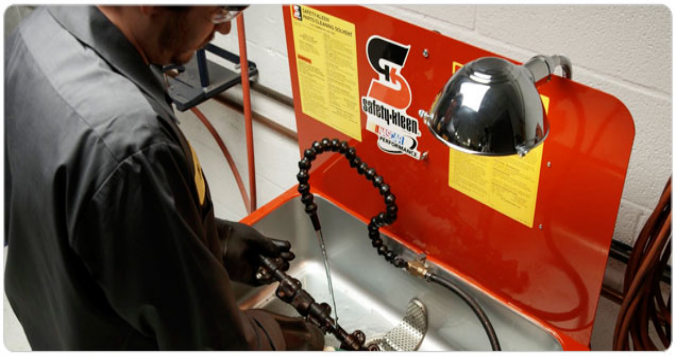
New Source Performance Standards

Certain equipment, such as large boilers, are subject to Federal Requirements for emission levels, notification, monitoring, recordkeeping, and reporting. These requirements, called New Source Performance Standards, may apply even if permit is not required from CTDEP. Contact EHS for NSPS applicability determination prior to acquisition or installation of any emission unit, particularly large units.

Actual Emissions

Actual Emissions are the actual pollutant amounts discharged by the unit during the year. Actual emissions are calculated by using emission factors and hours of operation or amount of fuel/material used, mass balance, or direct emission monitoring. Some actual emissions must be reported to state or federal authorities (Emissions Statement). There are new requirements to report greenhouse gas emissions starting in 2011.

Parts Washers



There are regulatory requirements for solvent cleaning units, commonly called Parts Washers. Evaporative emissions from Parts washers are required to be minimized. Therefore Parts Washers using solvents are subject to certain requirements under CTDEP Air Pollution laws. These include the following:

- Using cover that can be operated with one hand
- Allowing parts to drain while in the unit for the proper amount of time
- Closing when not in use and when parts are in units for greater than two minutes;
- Using a solid fluid spray stream;
- Minimizing drafts across the top of the unit;
- Keeping monthly records of solvent additions (usually done by vendor); and,
- Posting a sign outlining applicable operating requirements.
- These units require registration with EHS, who will determine if the unit meets the applicable requirements. Contact EHS before procuring these units. Operating requirements signs are available from EHS as well

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Refrigerant Recovery



Due to concern over chlorofluorocarbons causing damage to the ozone layer, the release of Freon and other refrigerants is prohibited by EPA. Refrigerants can be found in window and other air conditioners, cold room units, and lab and standard refrigerators and freezers. Before disposal of these units, the refrigerants must be drained from the unit and captured for recycling. This must be done by licensed technicians using EPA-registered equipment, who are required to keep a log of their activities. After draining, equipment must be labeled "Refrigerant Emptied," prior to disposal as scrap.

Title V Permits

Title V of the Clean Air Act Amendments require facility-wide "Title V" permits if potential emissions exceed certain "Major Source" quantities, depending on status of air pollution within region (attainment status). This permit covers the entire contiguous property of the facility, which includes all emission units and their applicable requirements, as well as some additional requirements such as for prompt reporting of deviations. The Title V permits require self-monitoring and, twice per year, certification of compliance status. Smaller facilities can limit potential emissions using a state General Permit, and be exempt from Title V Permit requirements.

Training

Training in air emissions requirements is available on the EHS website under Environmental Affairs, Training. All project and operational, as well as property acquisition and management personnel, are encouraged to take this training.

This Guidance document was developed and is maintained by Yale Environmental Health and Safety. Questions and comments can be sent to james.romanski@yale.edu or Whyndam.abrams@yale.edu.