

Air Compliance FAQs



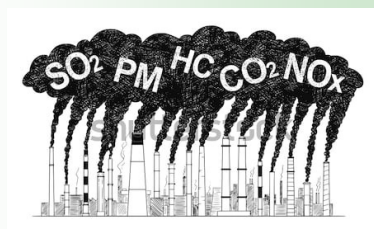
Central Utility Plant and Cogeneration Plant at UConn Storrs Campus

Air Compliance at UConn

The UConn Storrs campus includes over a thousand air emission sources, most of which are pieces of fuel-burning equipment. Federal and state regulations stemming from the Clean Air Act apply to UConn and its operations. Due to the large number and the size of the air emission sources at the Storrs campus, UConn's air compliance obligations are significant. This document answers some Frequently Asked Questions about air compliance. If you have questions not covered here, feel free to contact Jennifer Williams at 860-486-8148 or jennifer.m.williams@uconn.edu.

1. What is air pollution?

Air pollution occurs when gases, smoke or dust particles are emitted into the atmosphere in any way that is harmful to people, animals or our environment.



2. What are the sources of air pollution on campus?

The majority of air pollution on campus is generated as result of burning fossil fuels from stationary emission sources as well as transportation-related sources. Stationary emission sources include combustion gas turbines, boilers, hot water heaters, HVAC units, air handling units, chiller engines and emergency generators.

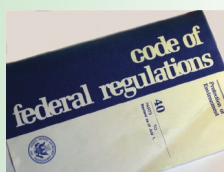
Transportation-related sources include staff and student commuter motor vehicle traffic, buses, UConn personnel motor vehicles and trucks and commercial delivery trucks. Construction activities also generate air pollution from on-site construction equipment as well as on-road construction vehicles. The fossil fuels used by these sources include natural gas, No. 2 fuel oil, ultra low sulfur diesel fuel, gasoline and propane.

Air pollutants emitted from these sources include Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Sulfur Oxides (SO_x), particulate matter (PM) as well as small amounts of Hazardous Air Pollutants (HAPs). Carbon Dioxide (CO₂), which gets the most attention as an atmospheric heat-trapping "greenhouse gas", is also generated in significant quantities through the burning of fossil fuels. Ground-level ozone is a concern but ozone is not emitted directly from these emission sources. Rather, it is created through chemical reactions of NO_x and VOC in the presence of sunlight, so emissions of NO_x and VOC have a direct impact on ground-level ozone concentrations.

3. What are the effects of air pollution?

Short-term effects of air pollution can include irritation of the eyes, nose and throat, coughing and difficulty breathing. Long-term effects may include chronic respiratory disease, heart disease and lung cancer. Sensitive groups such as the elderly and young children, as well as those with medical problems like asthma, are at greater risk of the effects of air pollution.

Air Compliance FAQs (cont.)



4. How is air quality regulated?



Air emission sources on campus are regulated by both the State of Connecticut Department of Energy and Environmental Protection (CTDEEP) and the United States Environmental Protection Agency (EPA). The regulations provide emission limitations, operational restrictions, monitoring, annual tune-up requirements, recordkeeping and reporting requirements for on campus emission sources.

5. What are the air quality regulations applicable to emission sources on campus?

The following State of Connecticut and Federal regulations may be applicable to on campus air emission sources:

Regulations of Connecticut State Agencies (RCSA):

22a-174-3a – Permitting

22a-174-3b – Permit-by-Rule (Alternative to obtaining individual permit under 3a)

22a-174-33 – Title V Permitting (Storrs campus only)

22a-174-33a - Limiting Premise-wide Emissions Below Title V Thresholds (Depot Campus only)

22a-174-22e – Control of NOx Emissions for Fuel-Burning Equipment at Major Stationary Sources of NOx (Storrs campus only)

22a-174-22f – Control of NOx Emissions at Non-Major Sources of NOx (Regional campuses)

22a-174-18 – Control of Particulate Matter and Visible Emissions

22a-174-20 – Control of Organic Compound Emissions

22a-174-19b – Fuel oil sulfur content limits

22a-174-29 – Hazardous Air Pollutants

22a-174-30a – Stage I Vapor Recovery (Motor Pool)

Code of Federal Regulations (CFR):

40 CFR Part 60 – New Source Performance Standards (NSPS) for various emission sources

40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants (NESHAPs) for various emission sources

YES, we know reading regulations is boring...

GOOD NEWS! You don't have to!
Any questions on air regulatory compliance issues, call or email Jennifer Williams in Environmental Health and Safety (EHS) at (860) 486-8148 or jennifer.m.williams@uconn.edu.



If you are planning to install a new air emission source on campus, please contact EHS so that an air quality review may be conducted to determine the applicability of these State of Connecticut and/or Federal regulations.

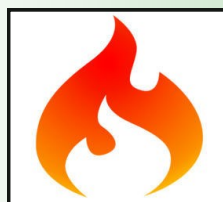
Air Compliance FAQs (cont.)

6. I have a proposed project that will install fuel burning sources, what information do I need to determine if they are subject to any air quality regulations?

If you are planning to install fuel burning sources on campus, an air quality review is necessary to determine whether the source is subject to State of Connecticut and/or Federal permitting or any other regulatory requirements. The following information needs to be provided to Environmental Health and Safety (EHS) for this air quality review:

Heating Equipment (boilers, furnaces, hot water heaters, etc.):

- ◆ Fuel type (natural gas, oil, propane)
- ◆ Unit heat input capacity (MMBtu/hour)
- ◆ Are the boilers hot water or steam?
- ◆ Manufacturer's specifications sheet and emission data including information on any emission controls.



Internal Combustion Engines (turbines, chiller engines, emergency generators, etc.):

- ◆ Size of the engine (horsepower or kilowatts)



- ◆ Fuel type (diesel, natural gas, propane)
- ◆ Engine hourly fuel consumption rate (gallons/hour or cubic feet/hour)
- ◆ Manufacturer's specifications sheet and emission data including information on any emission controls.

Air Handling or Conditioning Units (fuel-burning only):

- ◆ Fuel type (natural gas, propane)
- ◆ Unit hourly fuel consumption rate (gallons/hour or cubic feet/hour)
- ◆ Manufacturer's specifications sheet and emission data including information on any emission controls.



7. When does an air emission source need a permit to operate?

Connecticut's permitting regulations require that an air emission source be permitted if it has the potential to emit 15 tons per year (TPY) or more of any regulated air pollutant, 10 TPY individually or 25 TPY combined of any Federal Hazardous Air Pollutants (HAPs) or 100,000 TPY or more of greenhouse gas (GHG) emissions. Potential to emit is calculated assuming an emission source is operating continuously for 24 hours per day, 365 days per year even if the unit's actual operation would be much less.

In general, the following fuel burning sources may have potential emissions greater than 15 TPY and require a permit applicability determination:

- ◆ Natural gas-fired heating equipment sized greater than 30 MMBtu/hour;
- ◆ Oil-fired heating equipment sized greater than 10 MMBtu/hour; and,
- ◆ Any size internal combustion engine.

If it is determined that an emission source needs an air quality permit, Environmental Health and Safety will obtain the permit from CTDEEP and it must be in place prior to the start of construction of the unit. Typically, the permitting process can take up to 6 to 9 months to complete. For this reason, advance planning is critical for the University to maintain compliance.



Air Compliance FAQs (cont.)

8. Are there alternatives to obtaining an individual permit?

If an air emission source does need a permit, Connecticut regulations provide opportunities for optional exemptions from permitting for five source categories including external combustion equipment (i.e., boilers) and emergency engines. These regulations require operational restrictions, such as limiting the hours of operation for emergency generators or limiting fuel consumption for boilers, to be exempt from the need to obtain an individual permit to construct and operate the emission source. These are called "permit-by-rule" exemptions and operational records must be maintained by Environmental Health and Safety that demonstrate compliance with the permit-by-rule operational restrictions.

9. What is the Federal De Minimis Rule and how might it potentially affect my project?

Because UConn's Storrs campus is a major source of air emissions, under the Federal De Minimis Rule of the Clean Air Act, the University is required to prepare emissions aggregation calculations for each new emission source to evaluate whether or not the installation will be considered a major modification to the Storrs campus subject to permitting requirements. The De Minimis Rule emission calculations require the tracking of net emissions increases of nitrogen oxides (NOx) and volatile organic compounds (VOC) over a given 5-year calendar year period. As a result, all emission sources added and/or removed within that 5-year period must be included in the calculation. Emission sources will drop out of the calculations after the 5-year period. If the net emissions increase for emission sources added and/or removed within a 5-year period is greater than 25 tons, the new installation would be considered a major modification and would be subject to permitting requirements regardless of the size or potential emissions of the source. As long as the net emissions increase is greater than 25 tons, all emission sources, including sources with potential to emit less than 15 TPY, would be subject to permitting. This could potentially increase project costs as well as result in project delays while permits are being obtained.

10. What is a Title V permit?

Both Federal and State of Connecticut Title V regulations require a facility with total potential emissions greater than "major source" thresholds for any air pollutant to submit a Title V operating permit application and comply with all requirements of the regulation. The Title V permit summarizes all the permitting and regulatory requirements applicable to on campus air emission sources into one document. The Storrs campus is a major source and is required to have a Title V permit.

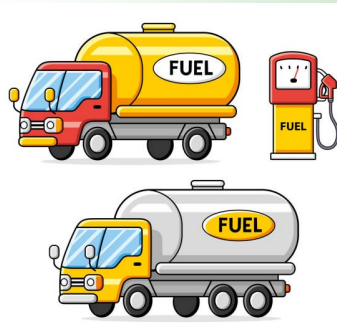
11. What are the sulfur content requirements for fuel oil to comply with the State of Connecticut SOx regulations?

Only distillate fuel oil that meets the following sulfur limits can be combusted in a stationary source in Connecticut:

500 ppm (0.05%) by weight through
June 30, 2018

15 ppm (0.0015%) by weight after June 30, 2018

The University currently has a state fuel contract that provides 15 ppm distillate fuel and, therefore, UConn complies with this requirement as long as fuel deliveries are the 15 ppm fuel.



Air Compliance FAQs (cont.)

12. What types of air emission sources on campus would be subject to the State of Connecticut NOx regulations? What are the requirements to comply with this regulation?

For emission sources located at the Storrs Campus, the NOx regulations apply to:

- *Combined cycle combustion turbines with a maximum rated capacity (MRC) of five MMBtu/hr or more;*
- *Industrial/commercial/institutional (ICI) boilers with MRC of five MMBtu/hr or more; and,*
- *Internal combustion reciprocating engines with MRC of three MMBtu/hr or more.*

Non-emergency emissions sources subject to the NOx regulations would need to comply with emissions limitations, which require either continuous emissions monitoring or periodic stack testing, annual tune-up requirements and recordkeeping and reporting requirements.

During the ozone season (May 1 through September 30), emergency engines cannot be operated for routine, scheduled testing or maintenance on any day CTDEEP has forecast unhealthy ozone levels.

For emission sources located at Regional Campuses, reciprocating engines would most likely be the only sources subject to the NOx regulations. Non-emergency engines would need to comply with tune-ups and recordkeeping and reporting requirements. Emergency engines cannot be operated for routine, scheduled testing or maintenance on any day CTDEEP has forecast unhealthy ozone levels.

13. What types of air emission sources on campus would be subject to Federal regulations? What are the requirements to comply with these regulations?

Federal regulations may apply to the following air emission sources located on campus:

- *Combustion gas turbines;*
- *Oil-fired boilers greater than 1.6 MMBtu/hr heat input as well as any sized oil-fired steam boiler;*
- *Internal combustion engines; and,*
- *Gasoline dispensing (motor pool).*

Applicable regulatory requirements may include emissions limitations, operational restrictions, monitoring, annual tune-ups, and recordkeeping and reporting requirements.

If you plan to install a new air emission source on campus, please contact EHS so that an air quality review may be conducted to determine the applicability of these Federal regulations.



**U.S. ENVIRONMENTAL
PROTECTION AGENCY**

Air Compliance FAQs (cont.)

14. Besides fuel burning sources, what other activities on campus might be subject to air quality permitting or any other regulatory requirements?

Besides fuel burning equipment, the following activities that may be present on campus would require an air quality review:

- *Manufacturing or Processing Operations;*
- *Volatile Liquid Storage;*
- *Surface Coating Operations;*
- *Printing Operations;*
- *Metal Cleaning Degreasers (Parts washers); and,*
- *Site Remediation Equipment.*

If you are planning to conduct any of these activities on campus, please contact EHS so that an air quality review can be conducted to determine the applicability of any State and/or Federal regulations.

15. What are the consequences of regulatory non-compliance?

Civil penalties of up to \$25,000 may be assessed for each day of each violation under Section 22a-175 of the Connecticut General Statutes. The CTDEEP may seek such penalties and may issue an order, seek an injunction or take other legal action under Chapters 439 and 446c of the Connecticut General Statutes. Additional penalties could be levied if CTDEEP determines that non-compliance provided an economic benefit to the facility.