

**ALLEGHENY COUNTY HEALTH DEPARTMENT
AIR QUALITY PROGRAM**

June 3, 2014

SUBJECT: Duquesne University
600 Forbes Avenue
Pittsburgh, PA 15282
Allegheny County

Minor Modification to Operating Permit: No. 0193

TO: Sandra L. Etzel
Chief Engineer

FROM: Gregson Vaux
Air Quality Engineer

FACILITY DESCRIPTION:

Duquesne University is a private educational institution located in Pittsburgh, PA. The Physical Plant for the university consists of one (1) electricity and steam and chiller water co-generation facility, powered by one 5,200 kilowatt Solar Taurus 60 SoLoNOx natural-gas-fired combustion turbine with a 31,300 gallon per minute cooling tower. There are eight (8) natural gas-fired boilers used for heating. There are sixteen (16) natural gas-fired emergency generators and fifteen (15) diesel-fired emergency generators located in various buildings on the campus. There are fifteen (15) fuel oil storage tanks for the diesel fired generators. There are laboratories using chemicals containing VOC. There are paved roads and parking lots. There is maintenance painting.

The source is a minor source for particulate matter (PM), particulate matter of 10 microns or less in diameter (PM₁₀), sulfur oxides (SO_x), and hazardous air pollutants (HAPs), as defined in section 2101.20 of Article XXI. The source is a synthetic minor source for volatile organic compounds (VOCs), nitrogen oxides (NO_x), and carbon monoxide (CO), as defined in section 2101.20 of Article XXI.

MINOR MODIFICATION DESCRIPTION:

Duquesne University sent an installation permit application for modification of the cooling tower at their cogeneration plant on February 7, 2014 and it was received by The Air Quality Program on the same day. However, after review of the application and the attached technical specifications, it was determined that the reconfiguration from six cells to five cells is a minor modification with de minimis emissions of particulate matter (0.05 tpy PM and 0.05 tpy PM₁₀). Thus, The Department decided to issue a modified operating permit listing the cooling tower, which had not been included in earlier permits.

CALCULATIONS FOR THE COOLING TOWER

VI-C. Emission Point - CT-01

Calculations for cooling tower particulate emissions were based on AP-42 13.4.1. All PM is assumed to be PM₁₀ and TDS is reported to be 148 PPM. Actual calculations can be found in the attached spreadsheet with the file name “Duquesne University TSD Calculations”.

Maximum Potential Emissions P007

Pollutant	Hourly Emission Limit (lb/hr)	Annual Emission Limit (tpy)
Particulate Matter	0.01	0.05
PM ₁₀	0.01	0.05

RECOMMENDATION:

All applicable Federal, State, and County regulations have been addressed in the permit administrative amendment. The permit should be approved with the emission limitations, and terms and conditions in Operating Permit No. 0193 and the new permit should be designated Operating Permit No. 0193a