

GOVERNMENT OF THE DISTRICT OF COLUMBIA

District Department of the Environment



CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

TO: File

THROUGH: Stephen S. Ours, P.E. *SSO*
Chief, Permitting Branch

FROM: Abraham T. Hagos *ATH*
Environmental Engineer

**SUBJECT: Sibley Memorial Hospital – Johns Hopkins Medicine
Permits Nos. 6984 through 6990 to Construct and Operate Four 1,500 kW
Diesel Fired Emergency Generators and Three 14.7 MMBtu per Hour Dual
Fired Boilers**

DATE: May 11, 2015

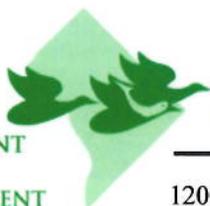
BACKGROUND INFORMATION

A set of permit applications to construct and operate three 14.7 MMBtu per hour natural gas and No. 2 fuel oil or diesel fuel fired boilers, four 1,500 kW emergency generators, and four 2.5 MMBtu per hour natural gas fired clean steam boilers at the Sibley Memorial Hospital facility, located at 5255 Loughboro Road NW, was received by the Air Quality Division (AQD) on March 9, 2015. The application indicates that the equipment was previously installed, without first obtaining the required permits.

Sibley Memorial Hospital – Johns Hopkins Medicine (the applicant) did not request that any of the materials submitted with this application be held confidential.

The applicant requested limitations on the operation of each of the three boilers and the emergency generators as follows:

1. Each of the boilers shall burn less than 85 MMscf of natural gas per year;
2. Each of the boilers shall operate for no more than 924 hours per year burning No.2 fuel oil or diesel fuel; and



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3. Each of the emergency generators shall operate no more than 260 hours per year.

Sibley Memorial Hospital does not need to obtain a Chapter 2 permit for the four (4) clean steam boilers because they are less than 5 MM Btu per hour. See 20 DCMR 200.12. However, their information was included in the permit application package for consideration in the applicability of 20 DCMR 204 (non-attainment New Source Review).

The permit actions for the boilers and generators will be published in the DC Register on May 22, 2015. Public comments for the permit action will be solicited through June 22, 2015. If no comments are received, the resultant permits are expected to be issued soon thereafter.

REGULATORY REVIEW

Chapter 2, Section 200: General Permit Requirements:

The Sibley Memorial Hospital is an air pollution source for criteria and other air pollutants. The applicant is requesting permits to construct and operate fuel burning units with heat input ratings greater than 5 MMBtu per hour as well as emergency generators. Both of these types of units constitute stationary sources subject to permitting under this section.

Chapter 2, Section 204: Permit Requirements for Major Sources Located in Non-Attainment Areas (New Source Review):

The total potential emissions of NO_x from the project (consisting of four 1,500 kW diesel fired emergency generators, the three 14.7 MMBtu per hour natural gas and No. 2 fuel oil or diesel fired boilers, and the four 2.5 MMBtu per hour natural gas fired boilers) would exceed 25 tons per year if no limits were placed on their operation. The total potential to emit NO_x from these units is determined to be 22.18 tons per year because the applicant requested limits on operating hours (for the generators) and fuel usage (for the larger boilers). The limits for the four emergency generators is 260 hours per year, while the limits for the three 14.7 MMBtu per hour boilers is 942 hours per year when burning No. fuel oil or diesel fuel and 85 MMscf of natural gas use per year. These limits ensure that 20 DCMR 204 is not triggered by the project.

Chapter 2, Section 209: Permit Requirements for non-major stationary sources (Minor New Source Review):

Because Sibley Memorial Hospital requested limits on operating hours and fuel usage for the three 14.7 MM Btu per hour boilers, each boiler is limited to emit 2.51 tons per year of NO_x, which is less than the 5 tons per year trigger threshold for this rule. Therefore, these three boilers are not subject to the 20 DCMR 209 requirements. Similarly, the operating hour limitations for the emergency generators keep their NO_x emissions below 3.40 tons per year, also ensuring that this rule is not triggered.

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Chapter 3, Section 301: Operating Permit Requirements

The Sibley Memorial Hospital facility is a major source subject to and will need an operating permit in accordance with 20 DCMR 300.1 for the new sources upon completion of construction of the units. The Sibley Memorial Hospital must comply with this requirement within 12 months of the date this regulation becomes applicable, per the regulation. Due to circumstances related to the installation of the equipment without permits and the ongoing renewal process for the facility's Chapter 3 (Title V) operating permit, the Chapter 2 permits have been written to require that the applications be submitted within six months after issuance. This requirement is contained in Condition I(g) of the permits for the boilers and generators.

Chapter 5, Section 500: Source Monitoring and Testing Requirements

Pursuant to this regulation, the draft permits have been written to include monitoring, testing, and record keeping requirements sufficient to ensure that the emission and operating limits in the permits are enforceable as a practical matter.

Among other requirements, the applicant must maintain written records of the amount of emissions of from the three boilers in accordance with 20 DCMR 500.2 and must submit the information to the District in accordance with 20 DCMR 500.2. These requirements have been established in Conditions V(g) and (h) of the boiler permits.

Additionally, emission testing and fuel oil testing has been required pursuant to 20 DCMR 502 in Conditions IV(a) and (e) of the boiler permits.

Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606.1 are applicable to all of the equipment. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of the these units; provided, that discharges not exceeding forty percent (40%) opacity (unaveraged) shall be permitted for two minutes in any sixty (60) minute period and for an aggregate of twelve (12) minutes in any twenty-four hour (24 hr.) period during start-up, or malfunction of equipment. This requirement is contained in Condition II(b) of the boiler permits as well as the generator permits. The boiler permits also include specific testing requirements established pursuant to this regulation.

20 DCMR Chapter 8, Section 805: Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen

The facility (Sibley Memorial Hospital) is a major stationary source of NO_x and the three boilers are part of that major stationary source. Each of the boilers have heat input ratings less than 20 MMBtu per hr, however because the facility as a whole is covered by this regulation these units are also covered. In order to meet the requirements of this regulation, the boilers must undergo annual combustion tuning.

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Chapter 9, Section 903: Odorous or Other Nuisance Air Pollutants

“An emission into the atmosphere of odorous or other air pollutants from any source in any quantity and of any characteristic, and duration which is, or is likely to be injurious to the public health or welfare, or which interferes with the reasonable enjoyment of life or property is prohibited [20 DCMR 903.1]” is applicable to all sources. This requirement is contained in Condition II(c) of the boiler permit document and Condition II(d) of the generator permit document.

40 CFR Part 60, Subpart Dc: Standard of Performance for Small Industrial, Commercial, Institutional Steam Generating Units

This regulation is applicable to the boilers, as the units have heat input ratings higher than 10 MMBtu/hr, are new units, and can burn fuel oil. However, the units are too small to have NOx or particulate matter standards established pursuant to this rule. The rule does, however, require that the No. 2 fuel or diesel fuel for the boilers must contain no more than 0.5% sulfur by weight [40 CFR 60.42c(d)]. This requirement is contained in Condition III(b) of the boiler permits.

40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The diesel engines associated with the generators are subject to this rule. Its requirements have been included in the generator permits.

40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

The diesel engines associated with the generators are subject to this rule. However, the only requirement for new engines covered by this rule is to comply with 40 CFR 60, Subpart IIII. Therefore, although this rule is applicable, it is not cited in the generator permits.

40 CFR 63, Subpart JJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

Fuel oil will only be used for periodic testing (not to exceed more than a combined total of 48 hours per calendar year), start-ups, or during natural gas curtailment or supply emergencies. This requirement is contained in Condition III(e) of the boiler permits. Therefore, these boilers are classified as “gas-fired boilers” under this rule and are not subject to its requirements.

RECOMMENDATIONS

The proposed project and attached permits comply with all applicable federal and District air pollution control laws and regulations, except that they were constructed without permits. Such permits are necessary to bring the equipment into compliance.

Public comments for the permit action will be solicited from May 22 through June 22, 2015. AQD will resolve any comments received before issuing the final permits, and if no comments

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are received, I recommend that permits #6984 through #6990 be issued in accordance with 20 DCMR 200.2.

JWS/JT

