CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

TO: File

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

FROM: John Nwoke
Environmental Engineer

SUBJECT: MedStar National Rehabilitation Hospital
Permits 7014 and 7015 to Construct/Operate Two Dual-Fueled (Natural Gas and No. Fuel 2 oil) Boilers;
Permit 7016 for a Diesel-Fired Emergency Generator Set; and
Permit 7017 for a Diesel-Fired Emergency Water Pump

DATE: September 10, 2015

Background

On April 1, 2015, the Air Quality Division (AQD) received permit applications from MedStar National Rehabilitation Hospital (NRH) for Chapter 2 permits to operate two (2) existing boilers, an emergency generator set, and an emergency water pump for emergency stormwater management. The boilers are dual-fueled (natural gas and No. 2 fuel oil) Cleaver Brooks model CB200 units, each with a heat input capacity of 5.230 MMBtu/hr. The back-up emergency generator set has a rated electrical output of 625 kWe and is powered by a 900 hp Cummins diesel engine. The emergency water pump is a 115 hp John Deere model 4045TF150A.

Publication of the permit action is planned for September 18, 2015 in the D.C. Register. Public comment for the permit action will be solicited through October 19, 2015.

Issues

The MedStar National Rehabilitation Hospital (NRH) submitted the applications after realizing that permits had not been filed for the boilers, an emergency generator, and an emergency storm water management pump. The applications are for units that have already been installed and operated. The facility was evaluated for major source applicability based on 500 hours of operation per year for the emergency engines and 8,760 hours per year for the boilers. The plant-wide emissions are below the major source threshold of 25 tons per year of NOx. Therefore the facility is not subject to the Title V Operating permit program.

Regulatory Review

Both federal and District of Columbia regulations apply to this project. Applicability or non-applicability of key regulations is discussed below.

20 DCMR 200 – General Permit Requirements: Both the boilers and the engines have the potential to emit air pollutants and are stationary. The boilers have heat input rates greater than 5

MMBtu/hr. Therefore all four units are subject to the requirement to obtain a Chapter 2 permit pursuant to this regulation.

20 DCMR 209 – Permit Requirements for Non-Major Stationary Sources (Minor New Source Review): No unit in the project has a potential to emit NOx or any pollutant listed in Section 209.1(b) that is more than 5 tons per year, except the emergency generator set. The emergency generator set was installed in 1984, well before the applicability date of 20 DCMR 209 (January 1, 2014). Therefore the project does not trigger a minor source review evaluation pursuant to this regulation.

20 DCMR Chapter 3 – Operating Permits and Acid Rain Programs: An evaluation of potential emissions from the facility was submitted as part of this package. No pollutant's potential to emit (PTE) exceeds applicable major source thresholds. Of particular note, facility-wide PTE of NO_x was estimated to be 13.29 tons per year, as compared to the 25 ton per year major source threshold in the District.

20 DCMR Chapter 5 – Source Monitoring and Testing: Pursuant to the authority of this regulation, appropriate monitoring and testing requirements were incorporated into the permit conditions to ensure that the permits are enforceable as a practical matter. One item of interest should, however, be noted. Due to the small size of the boilers and their classification as gas fired boilers according to 40 CFR 63, Subpart JJJJJJ, it was determined that it was not necessary to require regular stack testing of the units. Operation using natural gas and limited No. 2 fuel oil will be considered indications of compliance with emission limits in most circumstances. However, should there be a reason to suspect excess emissions, the permits for the boilers allow the Department to require compliance testing as deemed appropriate.

20 DCMR Chapter 6 – Particulates: Two sections of this chapter are notably applicable. The boilers are subject to a particulate matter emission standard pursuant to 20 DCMR 600.1. This requirement has been established in Condition II(c) of the permit. As noted above, compliance testing would only be required in rare circumstances due to the size and fuel type of the permits. Additionally, all of the equipment is subject to the visible emission standards of 20 DCMR 606.1.

20 DCMR 805 – Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen: The facility is not a major source of NO_x, therefore this regulation is not applicable and its requirements have not been included in the permit.

20 DCMR 903 – Odorous or Other Nuisance Air Pollutants: All of the equipment is subject to this odor standard. No regular monitoring is required in the permits as it is unlikely that these units would cause such violations.

40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: The boilers are not subject to Subpart Dc because of their size (less than 10 MMBtu/hr of heat input).

40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines: The engines are not subject to Subpart IIII due to their age. The emergency generator set was estimated to contain a 1984 model year engine while the stormwater pump was estimated to run on an engine with a model year in the 2000-2002 range.

40 CFR 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources: The two (2) boilers primarily operate on natural gas. No. 2 fuel oil is only used for periodic testing (not to exceed 48 hours per calendar year), startups, or during natural gas curtailment or supply emergencies. With NRH having elected to operate the boilers according to this scheme, the units are therefore exempt from 40 CFR 63, Subpart JJJJJJ, pursuant to 40 CFR 63.111195, and are considered gas fired boilers as defined by the rule. Appropriate conditions have been placed in the permit to ensure that the boilers are operated only within the bounds of this exemption.

40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE): Due to their ages, as discussed above, the units are not considered "new stationary RICE". The facility is considered to be an area source of hazardous air pollutant (HAP) emissions. The facility is an institutional facility. As such, the units qualify as "existing institutional emergency stationary RICE located at an area source of HAP emissions". The generator permit prohibits operation for more than 15 hours per calendar year in cases of deviations of voltage or frequency of 5 percent or more before standard voltage or frequency and also prohibits use in a demand response capacity. See Conditions III(b)(2) and III(f) of the permit for more detail on the prohibitions. These activities are irrelevant for the emergency water pump. As such, these engines are not subject to Subpart ZZZZ pursuant to 40 CFR 63.6585(f)(3).

Conclusions

Subject to receiving no adverse public comments with regard to a segment of this project or all of it, I recommend, based on all the aforementioned regulatory review that the permits be issued to MedStar National Rehabilitation Hospital following completion of the public review period. If comments are received during the public review period, they will be addressed before issuance of any commented upon permit or process.

SSO/JCN