

**GOVERNMENT OF THE DISTRICT OF COLUMBIA**  
Department of Energy and Environment

**CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM**

TO: File

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

FROM: Thomas Olmstead  
Environmental Engineer

SUBJECT: **Permit Nos. 7014-R1 through 7017-R1 to Operate Two 5.230 MMBtu per Hour Boilers (Boiler #1 and Boiler #2), One 625 kWe Diesel-Fired Emergency Generator Set (Emergency Generator #1), and One 115 hp Diesel-Fired Emergency Water Pump (Emergency Water Pump #1) at the MedStar National Rehabilitation Hospital, 102 Irving Street NW**

DATE: November 22, 2021

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**BACKGROUND INFORMATION**

On September 28, 2020, the Air Quality Division (AQD) of the Department of Energy and Environment (DOEE) received operating permit renewal applications for the following equipment at MedStar National Rehabilitation Hospital, 102 Irving Street NW:

Emission Unit ID	Chapter 2 Permit No.	Installation/ Model Year	Serial Number/Model Number	Capacity	Primary Fuel	Secondary Fuel
Boiler #1	7014-R1	1985	L-78868	5.230 MMBtu/hr	Natural Gas	Diesel
Boiler #2	7015-R1	1985	L-78869	5.230 MMBtu/hr	Natural Gas	Diesel
Emergency Generator #1	7016-R1	1984	37106872	900 hp	Diesel	--
Emergency Water Pump #1	7017-R1	2002	4045TF150A	115 hp	Diesel	--

Application fee payments due were received December 7 and 8, 2020. MedStar National Rehabilitation Hospital has not requested that any of the materials submitted with this application be held confidential.

**TECHNICAL INFORMATION**

Based on the emission calculations provided by the facility, the facility has the potential to emit the following:

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<b>Pollutant</b>	<b>Maximum Annual Emissions (tons/yr)</b>
Total Particulate Matter (PM Total)	1.33
Sulfur Dioxide (SO <sub>2</sub> )	0.13
Nitrogen Oxides (NO <sub>x</sub> )	13.16
Volatile Organic Compounds (VOC)	0.48
Carbon Monoxide (CO)	5.46

### **REGULATORY REVIEW**

20 DCMR 200 – General Permit Requirements: The boilers and the engines are stationary and have the potential to emit air pollutants. Each of the boilers has a heat input rating 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 205 – Permit Requirements for New Source Performance Standards (NSPS): The requirements of this section adopt the federal NSPS codified in 40 CFR 60. See the discussion below regarding NSPS applicability.

#### 20 DCMR Chapter 3: Operating Permits and Acid Rain Programs

The facility has the potential to emit of 13.16 tons per year of oxides of nitrogen (NO<sub>x</sub>), which is less than the 25 ton per year major source threshold for NO<sub>x</sub>. Likewise, potential emissions of all other pollutants are below applicable major source thresholds. As such, AQD determined that 20 DCMR Chapter 3 is not applicable to this facility at this time.

#### 20 DCMR Chapter 5, Section 500: Source Monitoring and Testing Requirements

Appropriate monitoring and testing requirements have been included in Condition IV of the permits with associated record keeping and reporting requirements in Condition V of the permit to ensure that compliance with the conditions of the permit can be evaluated.

#### 20 DCMR Chapter 6, Section 600: Fuel Burning Particulate Emission

Total suspended particulate emission from each of the boilers shall not exceed 0.12 pounds per million Btu per 20 DCMR 600.1. This requirement is contained in Condition II(c) of Permit Nos. 7014-R1 and 7015-R1.

#### 20 DCMR Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606.1 are applicable to all four units. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of 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)

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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 Permit Nos. 7014-R1 and 7015-R1 and Condition II(a) of Permit Nos. 7016-R1 and 7017-R1. Specific testing requirements related to this regulation are also included in the permits.

Note that language has been included in the permit notifying the facility that there is an outstanding call for a State Implementation Plan (SIP) revision from EPA that may result in revisions to the applicable regulation. As such, if the regulation is changed, the new regulatory requirements will supersede those expressed in the permit specifically.

### **20 DCMR Chapter 8, Section 801: Sulfur Content of Fuel Oils**

Pursuant to 801.1, The purchase, sale, offer for sale, storage, transport, or use of fuel oil that contains more than one percent (1%) sulfur by weight in the District is prohibited. This limit is applicable to all units.

The purchase, sale, offer for sale, storage, transport, or use of No. 2 commercial fuel oil limitation of 20 DCMR 801.3 is applicable to the boilers. On and after July 1, 2018, the purchase, sale, offer for sale, storage, transport, or use of number two (No. 2) commercial fuel oil is prohibited if it contains more than fifteen parts per million (15 ppm) or fifteen ten-thousandths percent (0.0015%) by weight of sulfur, unless otherwise specified in § 801.5.

Therefore, a limit of 0.0015% sulfur by weight has been included in Condition III(b) of permits 7014-R1 and 7015-R1.

### **20 DCMR Chapter 8, Section 804: Nitrogen Oxides Emissions**

The boilers are fossil-fuel-fired steam-generating units with a heat input less than 100 MMBTU/hr. Therefore, this regulation is not applicable.

### **20 DCMR Chapter 8, Section 805: Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen (NOx RACT)**

NOx RACT is not applicable to this facility pursuant to 20 DCMR 805.1(a) because it is not a major source of NOx. See the discussion above related to 20 DCMR Chapter 3 applicability. As such, no requirements from 20 DCMR 805 were placed in the set of permits.

### **20 DCMR 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

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Condition II(d) of Permit Nos. 7014-R1 and 7015-R1 and Condition II(b) of Permit Nos. 7016-R1 and 7017-R1.

### 20 DCMR Chapter 14, Section 1410: Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers

20 DCMR 1401.1 adopts 40 CFR 63, Subpart JJJJJ by reference. Please see the more detailed discussion of the federal regulation below.

### 40 CFR 60, Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators

The requirements of 40 CFR 60, Subpart D are not applicable to the boilers because they each have heat input rates of less than 250 MMBtu/hr.

### 40 CFR 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

The requirements of 40 CFR 60, Subpart Db are not applicable to the boilers because they each have heat input rates of less than 100 MMBtu/hr.

### 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

The requirements of 40 CFR 60, Subpart Dc are not applicable to the boilers because they each have heat input rates of less than 10 MMBTU/hr heat input.

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

The Emergency Generator #1 and Emergency Water Pump #1 engines are not subject to 40 CFR 60, Subpart IIII because 40 CFR 60, Subpart IIII applies to stationary compression ignition internal combustion engines (CI-ICE) that: 1) commenced construction after July 11, 2005 and were manufactured after April 1, 2006, or 2) were modified or reconstructed after July 11, 2005. These engines were manufactured before April 1, 2006.

### 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Engines:

This subpart does not apply to this facility because this facility only includes compression ignition (diesel) engines.

### 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (NESHAP for RICE):

40 CFR 63, Subpart ZZZZ applies to stationary reciprocating internal combustion engines (RICE) at major or area sources of HAP emissions to regulate/monitor HAPs such as acetaldehyde, acrolein, benzene, toluene, xylene, cadmium, chromium, lead, etc., through surrogate compounds such as formaldehyde, CO and/or VOC.

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A facility that emits or has the potential to emit 10 TPY of any single HAP or 25 TPY of any combination of HAPs, is consider a major source. Any source that is not a major source is an area source. Because this facility does not have the potential to emit more than 10 TPY of a single HAP or an aggregate of more than 25 TPY of total HAPs, it is an area source. Therefore, the area source NESHAP requirements of Subpart ZZZZ are applicable to this facility.

Subpart ZZZZ is applicable to “Existing” CI engines if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

Pursuant to 40 CFR 63.6585(f), emergency stationary RICE listed in paragraphs (f)(1) through (3) of that section are not subject to this subpart. Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in 40 CFR 63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in 40 CFR 63.6640(f)(4)(ii) are listed as not subject pursuant to 40 CFR 63.6585(f)(3). However, due to the partial RICE vacatur in *Delaware v. EPA*, 40 CFR 63.6640(f)(2)(ii)-(iii) were vacated. This causes operation of emergency generator engines during low voltage and frequency situations to be considered non-emergency operation. Non-emergency operations (except for limited maintenance operations) are only permitted in the District if the equipment also complies with 40 CFR 63 Subpart ZZZZ (and, where applicable, 40 CFR 60, Subparts IIII or JJJJ). As such, because the facility intends to operate the equipment during low voltage or frequency situations, as needed, emergency generator permit 7016-R1 incorporates the requirements of 40 CFR 63, Subpart ZZZZ.

Operation during low voltage or frequency situations does not apply to the emergency water pump, so the exemption found in 40 CFR 63.6585(f)(3) can be applied to the water pump permit (permit 7017-R1), and thus this permit does not include the requirements of 40 CFR 63, Subpart ZZZZ.

### 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

The requirements of 40 CFR 63, Subpart DDDDD are not applicable to the boilers because MedStar National Rehabilitation Hospital is not a major source of HAPs.

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

MedStar National Rehabilitation Hospital is considered an area source of HAP emissions. This facility does not emit or have a potential to emit 10 tons per year or more of a single hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAPs.

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The requirements of 40 CFR 63, Subpart JJJJJ are not applicable to the boilers. Pursuant to 40 CFR 63.11195(e), boilers that meet the definition of a gas-fired boiler are not subject to this subpart and to any requirements in this subpart. The two boilers operate primarily on natural gas and will burn liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or for periodic testing, maintenance, or operator training on liquid fuel. Periodic testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year. This requirement is contained in Condition III(c) of the permits 7014-R1 and 7015-R1. Therefore, the boilers meet the definition of gas-fired boiler and are not subject to the requirements of 40 CFR 63, Subpart JJJJJ.

### **RECOMMENDATIONS**

The proposed operation and attached permits comply with all applicable federal and District air pollution control laws and regulations.

The permit action for the equipment will be published in the DC Register and on DOEE's website on December 3, 2021. Public comments for the permit action will be solicited from December 3, 2021 through January 4, 2022. AQD will resolve any comments received before taking final action on the applications. If no comments are received, I recommend that permit Nos. 7014-R1 through 7017-R1 be issued in accordance with 20 DCMR 200.2 promptly following the end of the public comment period.

TJO