

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: Wyatt Bohmann
Environmental Engineer

**SUBJECT: Howard University Service Center
Permit No. 7363 to Construct and Operate One 8.27 MMBTU per Hour
Natural Gas-Fired Boiler (HUSC #5, CU-26)**

DATE: November 2, 2023

BACKGROUND INFORMATION

A permit application to construct and operate one 8.27 MMBtu per hour natural gas-fired boiler at the Howard University Service Center, located at 2244 10th Street NW, Washington DC, was received by the Air Quality Division (AQD) of the Department of Energy and Environment (DOEE) on August 2, 2023.

This proposed boiler, with equipment ID HUSC #5 and emissions unit designation CU-26, is intended to be used as a back-up unit for the previously installed, identical, boiler HUSC #4 (CU-18). Howard University does not intend and will not be permitted to fire both units simultaneously.

Howard University has not requested that any of the materials submitted with this application be held confidential.

REGULATORY REVIEW

20 DCMR Chapter 2, Section 200: General Permit Requirements

The boiler is 8.27 MMBTU/hr. rated heat input natural gas-fired boiler. Because the rated heat input is greater than 5 MMBTU/hr., a Chapter 2 permit is required before construction and operation pursuant to 20 DCMR 200.

20 DCMR 204 – Permit Requirements for Major Stationary Sources Located in Non-attainment Areas (Non-attainment New Source Review (NNSR))

This project consists of the construction of one 8.27 MMBTU/hr. natural gas fired boiler. The potential to emit of all regulated air pollutants are below the relevant NNSR (and PSD)

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thresholds. Specifically, this boiler has the potential to emit 3.30 tons per year of NO_x, well below the 25 tons per year “significant” threshold.

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. Specifically, Subpart Dc of 40 CFR Part 60 sets forth the standards of performance for small industrial-Commercial-Institutional steam generating units (ICI boilers) with maximum design heat input capacity less than 100 MMBtu/hr. and greater than or equal to 10 MMBtu/hr. This Subpart includes steam generating units for which construction, modification, or reconstruction commenced after June 9, 1989.

The natural gas-fired boiler that is the subject of this permitting action has a maximum heat input of 8.27 MMBtu/hr. and is therefore not subject to this subpart.

20 DCMR 209 – Permit Requirements for Non-Major Stationary Sources (Minor New Source Review)

Minor New Source Review, which became effective January 1, 2014, is applicable to any source subject to 20 DCMR 200, if such source uses a stationary unit or air pollution control device that, individually, would have the potential to emit equal to or greater than 5 tons per year (tpy) per unit of any criteria pollutant (excluding CO, ozone, and lead) or aggregate of hazardous air pollutants (HAPs). This boiler does not individually have a potential to emit of 5 tons per year of NO_x or any other pollutant listed in Section 209.1(b). Therefore, the boiler does not trigger a minor source review evaluation pursuant to this regulation.

20 DCMR Chapter 3: Operating Permits and Acid Rain Programs

A source that has the potential to emit more than 25 tons per year of Oxides of Nitrogen (NO_x) is considered a Major Source and is required to obtain a Title V permit. The Howard University facility is a major source, therefore is subject to Chapter 3 and will need an operating permit in accordance with 20 DCMR 300.1. The source will be required to submit a Title V application within 12 months of issuance of the permit pursuant to Condition I(g) of the permit. Additionally, Conditions V(i) and (j) have been included to ensure that emissions reporting for this unit is included in the annual Title V report.

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 0.11 pounds per million BTU. This requirement is contained in Condition II(d) of the permit.

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20 DCMR Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606 are applicable to all units, except those specified 606.6 of which the proposed boiler does not fall under. Since the boiler does not intend to have a Continuous Opacity Monitoring System (COMS) installed, it is not permitted to emit any visible emissions into the outdoor atmosphere as stated in 20 DCMR 606.1(a)(2) except as authorized in 20 DCMR 606.2. Under 20 DCMR 606.2, fuel-burning equipment that burns exclusively natural gas is permitted to exhibit visible emissions for two (2) minutes during any startup, cleaning, adjustment of combustion or operational controls, or regeneration of emission control equipment; provided, that discharged emissions during this period do not exceed twenty percent (20%) opacity (unaveraged). This limitation is outlined in Condition II(b) of the permit.

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

NO_x RACT is applicable to this facility pursuant to 20 DCMR 805.1(a) because it is a major source of NO_x. NO_x RACT is specifically applicable to this unit as they are a part of a major stationary source. As a result, the boiler is subject to 20 DCMR 805.5(b) which requires the unit to adhere to tuning requirements of 805.9. These tuning requirements have been implemented into Condition II(e) and record keeping for the required adjustments can be found in condition V(h).

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 Condition II(c) of the permit. Additionally, the affirmative defense provisions of 20 DCMR 903.13(b) have been included in that condition.

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

This regulation is not applicable because the unit is below the size applicability threshold of 10 MMBTU/hr heat input as stated in 40 CFR 60.40c(a). The requirements of this regulation are not included in the permit as a result.

RECOMMENDATIONS

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

The permit actions for the boiler will be published in the DC Register and on DOEE’s website on November 17, 2023. Public comments for the permit action will be solicited from November 17, 2023 through December 18, 2023. AQD will resolve any comments received before taking final

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action on the application. If no comments are received, I recommend that permit No. 7363 be issued in accordance with 20 DCMR 200.1 and 200.2 promptly following the end of the public comment period.

WEB