July 9, 2019

Ms. Alicia Knight, Senior Associate Vice President for Operations

The George Washington University

2025 F Street NW, Suite 200

Washington, DC 20052

**RE: Permit Nos. 6790-R1 and 6791-R1 to Operate Two Dual Fuel-Fired Boilers at The George Washington University, Lisner Hall, 2023 G Street NW, Washington DC**

Dear Ms. Knight:

Pursuant to sections 200.1 and 200.2 of Title 20 of the District of Columbia Municipal Regulations (20 DCMR), a permit from the Department of Energy and Environment (“the Department”) shall be obtained before any person can construct and operate a stationary source in the District of Columbia. The applications of The George Washington University (“the Permittee”) to operate the two listed 7.0 MMBTU/hr dual fuel-fired boilers (natural gas and No. 2 fuel oil) located at George Washington University’s Lisner Hall in Washington, DC, have been reviewed:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Equipment Location**  | **Address** | **Equipment Size (MMBTU/hr heat input)** | **Model/Serial Number** | **Emission Unit No.** | **Permit No.** |
| Lisner Hall | 2023 G Street NW Washington DC | 7.0 | FLX-200-700-15ST/08860-1-1 | EUN-321 | 6790-R1 |
| Lisner Hall | 2023 G Street, NW Washington DC | 7.0 | FLX-200-700-15ST/08860-1-2 | EUN-322 | 6791-R1 |

Based on the plans and specifications as detailed in the air permit applications received on October 30, 2019 and dated October 25, 2018, the applications are hereby approved, and the operation of the boilers are permitted, subject to the following conditions:

I. General Requirements:

* 1. This approval is issued pursuant to the air pollution control requirements of the applicable sections of 20 DCMR for the operation of the heating boilers.

b. This set of permits will expire on July 8, 2024. If continued operation after this date is desired, the Permittee shall submit applications for renewal by April 8, 2024. [20 DCMR 200.4]

1. Operation of equipment under the authority of this set of permits shall be considered acceptance of its terms and conditions.
2. The Permittee shall allow authorized officials of the District, upon presentation of identification, to:

1. Enter upon the Permittee’s premises where a source or emission unit is located, an emissions related activity is conducted, or where records required by this permit are kept;

2. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;

3. Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor, at reasonable times, any substance or parameter for the purpose of assuring compliance with this permit or any applicable requirement.

1. This set of permits which, supersedes Permit Nos. 6790 and 6791, shall be kept on the premises and produced upon request.
2. Failure to comply with the provisions of these permits may be grounds for suspension or revocation. [20 DCMR 202.2]
3. Emergency situations shall be handled in accordance with the provisions of 20 DCMR 302.7(a) through (c).
4. If not already completed by the date of this set of permits, within three (3) months of issuance of this set of permits to operate, the Permittee shall submit a complete application to modify the facility’s Title V operating permit to include the requirements of this set of permits [20 DCMR 301.1(a)(3)]. This application is due by October 9, 2019.

II. Emission Limitations:

* 1. Each of the two (2) identical 7.0 million BTU per hour Cleaver Brooks dual-fueled boilers (identified as EUN 321 and EUN 322) shall not emit pollutants in excess of those specified in the following table [20 DCMR 201]:

| **Pollutant** | **Short-Term Limit** **(Natural Gas) (lb/hr)** | **Short-Term Limit** **(No. 2 Fuel oil) (lb/hr)** |
| --- | --- | --- |
| Carbon Monoxide (CO) | 0.576 | 0.239 |
| Oxides of Nitrogen (NOx) | 0.686 | 0.956 |
| Total Particulate Matter (PM Total)1 | 0.052 | 0.158 |
| Sulfur Dioxide (SO2) | 0.004 | 0.010 |
| Volatile Organic Compounds (VOC) | 0.038 | 0.017 |

1PM Total includes both filterable and condensable fractions.

*Note that, unless other credible evidence of a violation, such as test results required under Condition IV(a), are identified, compliance with Conditions III(a) and (b) of this permit will be considered compliance with this condition.*

b. Total suspended particulate matter (TSP) emissions from the each of the boilers shall not be greater than 0.11 pounds per million BTU. [20 DCMR 600.1]. *Note that, unless other credible evidence of a violation, such as test results required under Condition IV(a), are identified, compliance with Conditions III(a) and (b) of this permit will be considered compliance with this condition.*

* 1. c. Visible emissions shall not be emitted into the outdoor atmosphere from the boilers, except that discharges not exceeding forty percent (40%) opacity (unaveraged) shall be permitted for two (2) 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, cleaning, adjustment of combustion controls, or malfunction of the equipment [20 DCMR 606.1]

Violation of this standard, as a result of unavoidable malfunction, despite the conscientious employment of control practices, shall constitute an affirmative defense on which the Permittee shall bear the burden of proof. Periods of malfunction shall cease to be unavoidable malfunctions if reasonable steps are not taken to eliminate the malfunction within a reasonable time. [20 DCMR 606.5]

*Note that 20 DCMR 606 is subject to an EPA-issued call for a State Implementation Plan (SIP) revision (known as a “SIP call”) requiring the District to revise 20 DCMR 606. See “State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA’s SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction”, 80 Fed. Reg. 33840 (June 12, 2015). It is likely that this federal action will result in changes to the requirements of 20 DCMR 606. Any such changes, once finalized in the DCMR, will supersede the language of Condition II(b) as stated above.*

d. Where the presence of uncombined water is the only reason for failure of an emission to meet the requirements of Condition II(c), the latter shall not be applicable. [20 DCMR 606.7]

e. 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]

f. NOx and CO emissions shall not exceed those achieved with the performance of annual combustion adjustments on each boiler. To show compliance with this condition, the Permittee shall, each calendar year, perform adjustments of the combustion processes of the boilers with the following characteristics [20 DCMR 805.1(a)(4) and 20 DCMR 805.8(a) and (b)]: *Note that this condition does not establish a specific numeric standard with which the Permittee must continuously apply, but rather establishes a work practice that must be properly performed each year and tuned operational baseline where the unit must be operated.*

* + 1. Inspection, adjustment, cleaning or replacement of fuel burning equipment, including the burners and moving parts necessary for proper operation as specified by the manufacturer;
		2. Inspection of the flame pattern or characteristics and adjustments necessary to minimize total emissions of NOx and, to the extent practicable, minimize emissions of CO;
		3. Inspection of the air-to-fuel ratio control system and adjustments necessary to ensure proper calibration and operation as specified by the manufacturer; and
		4. Adjustments shall be made such that the maximum emission rate for any contaminant does not exceed the maximum allowable emission rate as set forth in Condition II of this permit.

III. Operational Limitations:

* 1. a. The primary fuel for use in the boilers shall be natural gas. [20 DCMR 201]

 b. The alternative fuel for the boilers, used only in accordance with Condition III(e), shall be No. 2 fuel oil. After July 1, 2018 the Permittee shall purchase only No. 2 fuel oil containing no greater than 15 ppm (0.0015%) sulfur by weight for use in the unit. [20 DCMR 201 and 20 DCMR 801.3]

c. This approval is valid for the specific activity cited in the application submitted to this office. Any deviation from the specific activity is a violation of this permit document.

1. The boilers shall be operated at all times in a manner consistent with the applicable manufacturer’s specifications for the equipment. [20 DCMR 201]
2. The boilers shall operate on No. 2 fuel oil only for the following reasons: [20 DCMR 201, 40 CFR 63.11195(e) and 40 CFR 63.11237]
	* 1. During period of gas supply emergencies;
		2. During period of gas curtailment; or
		3. For periodic testing on liquid fuel not to exceed a combined total of 48 hours during any calendar year.

f. At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate each boiler in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating procedures are being used will be based on information available to the Department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. [20 DCMR 201]

IV. Monitoring and Testing Requirements:

a. The Permittee shall conduct and allow the Department access to conduct tests of air pollution emissions from any source as requested. [20 DCMR 502.1]

b. If performance testing of any of these boilers is required in accordance with Condition IV(a), the Permittee shall conduct performance testing on the boilers to determine compliance with Condition II(a) (except SO2), (b) and/or (c) (or as otherwise directed by the Department) and shall furnish the Department with a written report of the results of such performance test in accordance with the following requirements [20 DCMR 502]:

1. One (1) original test protocol shall be submitted to the following address a minimum of thirty (30) days in advance of the proposed test date. The test shall be conducted in accordance with Federal and District requirements.

Chief, Compliance and Enforcement Branch

Department of Energy and Environment

Air Quality Division

1200 First Street NE, 5th Floor

Washington DC 20002

2. The test protocol and test date(s) shall be approved by the Department prior to initiating any testing. The Department must have the opportunity to observe the test for the results to be considered for acceptance.

3. The final results of the testing shall be submitted to the Department within sixty (60) days of the test completion. One (1) original test report shall be submitted to the address in Condition IV(a)(1) above.

4. The final report of the results shall include the emissions test report (including raw data from the test) as well as a summary of the test results and a statement of compliance or non-compliance with permit conditions to be considered valid. The summary of results and statement of compliance or non-compliance shall contain the following information:

A. A statement that the Permittee has reviewed the report from the emissions testing firm and agrees with the findings.

B. Permit number(s) and condition(s) which are the basis for the compliance evaluation.

C. Summary of results with respect to the permit condition.

D. Statement of compliance or non-compliance with each permit condition.

5. The results must demonstrate to the Department’s satisfaction that the emission unit is operating in compliance with the applicable regulations and conditions of this permit; if the final report of the test results shows non-compliance the Permittee shall propose corrective action(s). Failure to demonstrate compliance through the test may result in enforcement action.

c. At least once per quarter when operating on natural gas and once per week when operating on No. 2 fuel oil, during operation of each boiler, the Permittee shall conduct visual observations of the emissions from each boiler. If no operations are occurring for a given boiler during a given week, this shall be so noted. If emissions are visible, the Permittee shall make arrangements for prompt visible emissions testing by a person certified in accordance with EPA Reference Method 9 (40 CFR 60, Appendix A). Such a test shall consist of a minimum of 30 minutes of opacity observations for the boiler in question and shall be performed while firing the same fuel as was in use when the visible emissions were observed.

d. Regardless of whether or not emissions are observed pursuant to Condition IV(c) of this permit, the Permittee shall conduct a minimum of one visible emissions test of each boiler each year for each fuel burned since the last visible emissions test required under this permit condition. If the only combustion of a given fuel burned since the last test occurred during periodic testing required by this permit, no visible emission test for that fuel will be required under this condition. Such a test program shall consist of a minimum of 30 minutes of opacity observations of each boiler firing each fuel and shall be performed by a person certified in accordance with EPA Reference Method 9 (40 CFR 60, Appendix A) [20 DCMR 502.1].

V. Record Keeping and Reporting Requirements:

The Permittee shall maintain the following records for a period of not less than five (5) years from the date of each test, monitoring, sample measurement, report, application, or other activity: [20 DCMR 302.1(c)(2)(B), 20 DCMR 500.2 and 500.8, and 40 CFR 63.10(b)]

a. The Permittee shall keep records of the results of all emissions testing required for each boiler pursuant to Conditions IV(a) and (b) of this permit;

b. For each delivery of No. 2 fuel oil or diesel fuel, the Permittee shall maintain one of the following:

1. A fuel delivery receipt containing the date, fuel type, and amount of the delivery and certification from the fuel supplier that the fuel delivered was tested in accordance with an appropriate ASTM method (specified in the certification) and met the requirements of Condition III (a); or

2. A fuel delivery receipt and documentation of sampling and analysis containing the following information:

 A. The fuel oil type;

 B. The concentration or weight percent of sulfur in the fuel;

 C. The date and time the sample was taken;

 D. The name, address, and telephone number of the laboratory that analyzed the

 Sample; and

E. The test method used to determine the sulfur content.

c. The Permittee shall maintain records of the dates and durations of each use of No. 2 fuel oil in each boiler each month. For each instance of No. 2 fuel oil use, a reason for such operation shall be listed in the records to document compliance with Condition III(e). [20 DCMR 500.2]

 d. The Permittee shall maintain records of the amount of each fuel type used each month in the boilers. These data shall be maintained in a rolling 12-month sum format. [20 DCMR 500.2]

e. The Permittee shall maintain records of all visible emissions monitoring performed pursuant to Condition IV(c), including notes indicating when no observations were performed as a result of no operations of a given boiler on a given fuel that quarter or week, as applicable. These records shall be maintained in an organized fashion, shall include the identity of the person performing the monitoring, and shall be readily available for inspection by the Department;

f. The Permittee shall maintain records of all Method 9 visible emissions testing performed pursuant to Conditions IV(c) and (d). These records shall also include the identity of the person performing the visible emissions testing and documentation of his/her Method 9 certification. These records shall include documentation indicating whether the results show compliance with Condition II(c);

g. Maintain onsite in a logbook (with each item initialed by the person verifying its accuracy) or a verifiable electronic system whose information can be certified as to its accuracy, records of all routine and non-routine maintenance performed on the boilers. The records shall include a description of the maintenance activity, any problem being corrected or other reason for the maintenance activity, and a statement indicating whether or not the problem was corrected; and

h. The Permittee shall keep records of the following information regarding the combustion adjustments required pursuant to Condition II(f): [20 DCMR 805.8(c)]

1. The date on which the combustion process was last adjusted;

2. The name, title, and affiliation of the person who made the adjustments;

3. The NOx emission rate, in ppmvd, after the adjustments were made;

4. The CO emission rate, in ppmvd, after the adjustments were made;

5. The CO2 concentration, in percent (%) by volume dry basis, after the adjustments were made;

6. The O2 concentration, in percent (%) by volume dry basis, after the adjustments were made; and

7. Any other information that the Department may require;

i. Based on fuel usage data and emission factors developed from emission testing or other emission factors approved by the Department, the Permittee shall, by March 1 of each year, calculate total emissions of the pollutants listed below from the boilers during the previous calendar year for each fuel used:

1. Oxides of nitrogen (NOx);

2. Sulfur dioxide (SO2);

3. Carbon monoxide (CO);

4. Volatile organic compounds (VOCs);

5. Lead (Pb) and lead compounds, as defined in 40 CFR 50.12;

6. Ammonia (NH3);

7. Particulate matter in each of the following categories:

A. Total particulate matter (total filterable plus condensable),

B. Total particulate matter less than 10 microns in aerodynamic diameter (PM10, also known as PM10-PRI), equivalent to PM10-FIL plus PM-CON,

C. Condensable particulate matter (PM-CON),

D. Filterable particulate matter less than 10 microns in aerodynamic diameter (PM10-FIL),

E. Total particulate matter less than 2.5 microns in aerodynamic diameter (PM2.5, also known as PM2.5-PRI), equivalent to PM2.5-FIL plus PM-CON, and

F. Filterable particulate matter less than 2.5 microns in aerodynamic diameter (PM2.5-FIL); and

8. All hazardous air pollutants (HAPs) as defined in §112(b) of the Clean Air Act, as revised; and

j. A report of the calculations performed pursuant to Condition V(i) shall be submitted to the Department with the Annual Title V compliance certification report due each year for the previous calendar year. [20 DCMR 500.1]

k. The Permittee shall include the equipment covered by this permit in all reports required by the Title V permit for the facility, including, but not limited to, semi-annual and annual compliance certifications and reports.

If you have any questions, please call me at (202) 535-1747 or John C. Nwoke at (202) 724-7778.

Sincerely,

Stephen S. Ours, P.E.

Chief, Permitting Branch

SSO/JCN