December 19, 2023

Dr. Tashni-Ann Dubroy

Executive Vice President and COO

Howard University

2400 6th Street, NW Suite 440

Washington, DC 20059

**RE: Permit No. 7363 to Construct and Operate One (1) 8.27 MMBTU/Hour Natural Gas Fired Boiler (HUSC #5, CU-26) at Howard University**

Dear Dr. Dubroy:

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 application of Howard University (the Permittee) to construct and operate one (1) natural gas fired boiler, received on August 2, 2023, at the Howard University Service Center, located at 2244 10th Street NW, Washington DC 20059 has been reviewed. The emission unit is an 8.27 MMBTU/hr natural gas-fired Unilux boiler, Model ZF 800LS-FE3-LB with Equipment ID: HUSC #5 (CU-26).

Based on the plans and specifications as detailed in the air permit application, it is hereby approved, 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 construction and operation of the boiler.

b. This permit will expire on December 18, 2028. If continued operation after this date is desired, the Permittee shall submit an application for renewal by September 18, 2023. [20 DCMR 200.4]

c. Construction or operation of equipment under the authority of this permit shall be considered acceptance of its terms and conditions.

1. 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 permit shall be kept on the premises and produced upon request.
2. Failure to comply with the provisions of this permit may be grounds for suspension or revocation. [20 DCMR 202.2]
3. Within twelve (12) months from the date of issuance of this permit, the Permittee shall submit a complete application (or application update, if an application is already pending) to include the requirements of this permit in the facility’s Chapter 3 (Title V) operating permit. [20 DCMR 301.1(a)(2)]

II. Emission Limitations:

* 1. This 8.27 MMBTU per hour natural gas fired boiler shall not emit pollutants in excess of those specified in the following table [20 DCMR 201]: *Note that, unless other credible evidence of a violation, such as test results required under Condition IV(a), are identified, compliance with Condition III(a) of this permit will be considered compliance with this condition.*

|  |  |
| --- | --- |
| **Boiler Emission Limits** | |
| **Pollutant** | **Short-Term Limit (lb/hr)** |
| Carbon Monoxide (CO) | 0.31 |
| Oxides of Nitrogen (NOx) | 0.75 |
| Total Particulate Matter (PM Total) | 0.06 |
| Sulfur Dioxide (SO2) | 0.005 |

\*PM Total includes both filterable and condensable fractions.

* 1. b. Visible emissions shall not be emitted from the equipment covered by this permit except that discharges shall be permitted for two (2) minutes during any startup, cleaning, adjustment of combustion or operational controls, or regeneration of emissions control equipment; provided, that such discharges shall not exceed twenty percent (20%) opacity (unaveraged). [20 DCMR 606.1 and 606.2(a)(1)]

1. 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]

Violation of the requirements of this condition that occur as a result of unavoidable malfunction, despite the conscientious employment of control practices, shall be an affirmative defense for which the owner or operator shall bear the burden of proof. A malfunction shall not be considered unavoidable if the owner or operator could have taken, but did not take, appropriate steps to eliminate the malfunction within a reasonable time, as determined by the Department. [20 DCMR 903.13(b)]

1. Total suspended particulate matter (TSP) emissions from the boiler shall not exceed 0.11 pound 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 Condition III(a) of this permit will be considered compliance with this condition.*

e. NOx and CO emissions shall not exceed those achieved with the performance of annual combustion adjustments on the boiler. To show compliance with this condition, the Permittee shall, every two (2) years, not to exceed twenty-five (25) months from the date of last the last tune-up, and by November 1 of the year on which it is due, perform adjustments of the combustion processes of the boilers with the following characteristics [20 DCMR 805.1(a), 20 DCMR 805.5(b) and 20 DCMR 805.9]:

i. As applicable, inspect the burner, and clean or replace any components of the burner as necessary for proper operation;

ii. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustments should be consistent with the manufacturer's specifications, if available;

iii. Inspect the system controlling the air-to-fuel ratio and ensure that it is correctly calibrated and functioning properly;

iv. Optimize total emissions of NOx, and to the extent possible, CO. This optimization should be consistent with the manufacturer's specifications, if available, and shall be consistent with any NOx and CO requirements to which the unit is subject; and

v. Measure the concentrations in the effluent stream of CO and NOx is ppmvd and O2 in percent by volume dry basis, before and after the adjustments are made. Measurements may be taken using a portable analyzer;

III. Operational Limitations:

* 1. a. The primary and only fuel for the boiler shall be natural gas. No secondary fuel is permitted. [20 DCMR 201]
  2. The boiler shall be operated at all times in a manner consistent with the manufacturer’s specifications for the equipment. [20 DCMR 201]
  3. The Permittee shall maintain all of the equipment covered by this permit in accordance with one of the following: [20 DCMR 606.4(b)]
     1. The manufacturer’s emission-related, written, operation and maintenance instructions; or
     2. An alternate written maintenance plan, approved in writing by the Department. This alternate plan must provide, to the extent practicable, for the maintenance and operation of the boiler in a manner consistent with good air pollution control practice for minimizing emissions.
  4. This unit must not operate concurrently with boiler HUSC #4 (CU-18), which is also installed at the Howard University Service Center and is covered under Title V permit No. 006-R2. Only one of these two boilers is permitted to burn fuel at any time and the operating time of both boilers combined shall not exceed 8,760 hours in any 12-month-consecutive rolling period. This operational restriction shall be incorporated into the application as mandated by Condition I(g)

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 the Department requests testing of this equipment in accordance with Condition IV(a), the Permittee shall conduct performance testing on the boiler to determine compliance with Conditions II(a) (except SO2) and (d), and any other requirements that the Department shall specify, 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 air.quality@dc.gov 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.

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.

1. The final results of the testing shall be submitted to the Department within sixty (60) days of test completion. One (1) original copy and one electronic copy of the test report shall be submitted to the following addresses:

Chief, Compliance and Enforcement Branch

Department of Energy and Environment

Air Quality Division

1200 First Street NE, 5th Floor

Washington DC 20002

and

air.quality@dc.gov

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 the 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, during operation of the boiler, the Permittee shall conduct visual observations of the emissions from that boiler. If no operations are occurring for the boiler during a given quarter, 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.

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 the boiler each year. Such a test program shall consist of a minimum of 30 minutes of opacity observations of the boiler and shall be performed by a person certified in accordance with EPA Reference Method 9 (40 CFR 60, Appendix A).

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) and 20 DCMR 500.2 and 500.8]

a. The Permittee shall keep records of the results of all emissions testing required for the boiler pursuant to Conditions IV(a) and (b) of this permit. [20 DCMR 201 and 20 DCMR 500.8]

b. 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 not operating the boiler that quarter. 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. [20 DCMR 500.8]

c. 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(b). [20 DCMR 500.8]

d. The Permittee shall maintain records of the amount of fuel used each month in the boiler. This data shall be totalized for each calendar year.

1. A log containing the total hours of operation for each month and the cumulative 12-month rolling period shall be calculated and recorded within 15 days of the end of each calendar month for the previous month and the 12-month period ending at the end of that month and shall be maintained for both HUSC #5 (CU-26) and HUSC #4 (CU-18) to ensure the boilers are operated pursuant to Condition III(d).
2. Records of the date, time, and duration of any equipment manual startup, manual shutdown, cleaning, combustion control adjustment, emission control regeneration, and malfunction [20 DCMR 606.5(a)]
3. For any malfunction, investigate the cause of the malfunction and maintain records of the investigatory activities and conclusion of such investigation [20 DCMR 606.5(b)];

h. The Permittee shall keep records of the following information regarding the combustion adjustments required pursuant to Condition II(f): [20 DCMR 805.9(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 concentrations in the effluent stream, in ppmvd, measured at high fire or typical operating load, before and after the tune-up;

4. The CO concentrations in the effluent stream, in ppmvd, measured at high fire or typical operating load, before and after the tune-up;

5. The CO2 concentrations in the effluent stream, in percent by volume dry basis, measured at high fire or typical operating load, before and after the tune-up;

6. The O2 concentrations in the effluent stream, in percent by volume dry basis, measured at high fire or typical operating load, before and after the tune-up;

7. A description of any corrective actions taken as a part of the tune-up of the unit;

8. The type and amount of fuel used over the 12 months prior to the tune-up of the unit, but only if the unit was physically and legally capable of using more than one type of fuel during that period, except that units sharing a fuel meter may estimate the fuel use by each unit; and

9. 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 boiler during the previous calendar year:

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(g) 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, within ten (10) days of becoming aware of a deviation from any condition of this permit, submit a written report to the Department at the following address [20 DCMR 502]:

air.quality@dc.gov

If you have any questions, please call me at (202) 535-1747 or Wyatt Bohmann at (202) 309-6112.

Sincerely,

Stephen S. Ours, P.E.

Chief, Permitting Branch

SSO:WEB