September 11, 2018

Mr. David Osborne

Director, Energy and Engineering

American University

4400 Massachusetts Avenue, NW

Washington, D.C. 20016

**RE: Permit No. 7207 to Construct and Operate a Natural Gas-Fired Microturbine System at the American University Asbury Hall Central Plant, 4400 Massachusetts Avenue NW, Washington DC**

Dear Mr. Osborne:

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 American University (“the Permittee”) to construct and operate modular Capstone Signature microturbine system shown below, located in Washington, DC has been reviewed:

| **Equipment Location** | **Emission Unit ID** | **Model Number** | **Heat Input Rating (MMBTU/hr)** | **Permit Number** |
| --- | --- | --- | --- | --- |
| Asbury Hall Central Plant  4400 Massachusetts Ave NW  Washington DC | CHP-1 | C1000S | 11.5 | 7207 |

Based on the plans and specifications as detailed in the air permit application received on March 6, 2018, the application is hereby approved, and the construction and operation of the modular microturbine system is 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 construction and operation of the microturbine.

b. This permit will expire on September 10, 2023. If continued operation after this date is desired, the Permittee shall submit applications for renewal by June 10, 2023. [20 DCMR 200.4]

1. Construction or operation of equipment under the authority of this permit 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 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. If not already completed by the date of issuance of this permit, within twelve (12) months of issuance of this permit to construct and operate, the Permittee shall submit a complete application to modify the facility’s Title V operating permit to include the requirements of this permit [20 DCMR 301.1(a)(3)]. This application is due by September 10, 2019.

II. Emission Limitations:

a. The microturbine system shall not emit pollutants in excess of the following [20 DCMR 201]:

|  |  |
| --- | --- |
| **MicroTurbine Emission Limits (lb/hr)** | |
| **Pollutant** | **C1000S** |
| Carbon Monoxide (CO) | 1.10 |
| Oxides of Nitrogen (NOx) | 0.40 |
| Total Particulate Matter (PM Total)\* | 0.08 |
| Volatile Organic Compounds (VOC) | 0.10 |

\*PM Total includes both filterable and condensable fractions.

b. Visible emissions shall not be emitted into the outdoor atmosphere from the microturbine, except that discharges not exceeding forty percent (40 %) opacity (averaged) 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, if any, or malfunction of the microturbine. [20 DCMR 606.1]

*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.*

1. The Permittee shall not burn in the unit any fuel that contains total potential sulfur emissions in excess of 0.060 lb SO2/MMBtu heat input. [40 CFR 60.4330(a)(2)]
2. NOx emissions from the microturbine shall not exceed 25 ppmvd corrected to 15% O2 [20 DCMR 805.4(a)(3)(A)(i) and 40 CFR 60.4320] *Note that this is a streamlined requirement. The requirements of 20 DCMR 805.4(a)(3)(A)(i) are more stringent than the requirements of 40 CFR 60.4320. Compliance with this condition will ensure compliance with both requirements.*
3. 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]

III. Operational Limitations:

a. The sole allowable fuel for the microturbine is natural gas with a sulfur content of 20 grains of sulfur or less per 100 standard cubic feet. [20 DCMR 201 and 40 CFR 60.4330(a)(2)]



b. The Permittee shall install and maintain a totalizing natural gas fuel meter on the microturbine to track natural gas usage. [20 DCMR 201]

c. All electricity produced by the microturbine generator shall be used by the Permittee and shall not be sold.

d. At all times, including periods of startup, shutdown, and malfunction, the owner or operator shall, to the extent practicable, maintain and operate the unit in a manner consistent with good air pollution control practice for minimizing emissions at all times including startup, shutdown, and malfunction. 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. [40 CFR 60.4333(a) and 20 DCMR 201]

IV. Monitoring and Testing Requirements:

1. Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, and annually thereafter (no more than 14-months after the previous performance test), the Permittee shall conduct a Department- approved compliance source test for NOx in accordance with 40 CFR 60.8 and 40 CFR 60.4400, on the microturbine to demonstrate compliance with the NOx emissions limitations contained in Conditions II(a) and (d). The annual test shall be performed no sooner than 9 months and no later than 14 months after the previous source test. [20 DCMR 502, 20 DCMR 805.4(b)(2), 40 CFR 60.8, 40 CFR 60.4340, and 40 CFR 60.4400]
2. The sample port design and locations shall be approved by the Department prior to installation. [20 DCMR 502]
3. Within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the microturbine, and at least once every five years thereafter, the Permittee shall perform testing using methods approved in advance by the Department to determine compliance with the remaining emission limits contained in Condition II(a) of this permit. If the testing performed to meet the 180 day deadline is determined, by the Department, not to be representative of maximum operations due to delays in full startup, the Department may require additional testing at a time following completion of startup to ensure that representative testing is performed.
4. The Permittee shall obtain approval for the testing required by Conditions IV(a), (c), and (i) this permit and furnish the Department with a written report of the results of the performance tests and/or compliance tests 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

Air Quality Division

1200 First Street NE

5th Floor

Washington, DC 20002

2. The test protocol and date 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 copy of the test report shall be submitted to the address in Condition IV(d)(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; and

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

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.

1. For each affected unit that performs annual performance tests in accordance with 40 CFR 60.4340(a), as required in Condition IV(a), the Permittee must submit a written report of the results of each performance test to the U.S. EPA before the close of business on the 60th day following the completion of the performance test. [40 CFR 60.4375]. Such reports shall be submitted in duplicate to the following address [40 CFR 60.4]:

Director, Air Protection Division

Mail Code 3AP00

1650 Arch Street

Philadelphia PA 19103-2029

1. The Permittee shall monitor the total sulfur content of the natural gas being fired in the turbine, except as provided in Condition IV(f)(1). The sulfur content of the fuel must be determined using the total sulfur methods described in 40 CFR 60.4415. Alternatively, if the total sulfur content of the natural gas during the most recent performance test was less than half the limit specified in Condition III(a), ASTM D4084, D4810, D5504, or D6228, or Gas Processors Association Standard 2377, which measure the major sulfur compounds, may be used. [40 CFR 60.4360].

1. The Permittee may elect not to monitor the total sulfur content of the fuel combusted in the turbine if the fuel is demonstrated not to exceed potential sulfur emissions of 0.060 lb SO2/MMBtu heat input. The Permittee shall use one of the following sources of information to make the required demonstration [40 CFR 60.4365]:

A. The fuel quality characteristics in a current, valid purchase contract, tariff sheet, or transportation contract for the fuel, specifying that the maximum total sulfur content for the natural gas is 20 grains of sulfur or less per 100 standard cubic feet or that the fuel has potential sulfur emissions of less than 0.060 lb SO2/MMBtu heat input; or

B. Representative fuel sampling data which show that the sulfur content of the fuel does not exceed 0.060 lb SO2/MMBtu heat input. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D of 40 CFR 75 is required.

g. At least once per calendar quarter, during operation of the microturbine, the Permittee shall conduct visual observations of the emissions from the microturbine. If no operations of the microturbine are occurring 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 microturbine in question.

h. Regardless of whether or not emissions are observed pursuant to Condition IV(g) of this permit, the Permittee shall conduct a minimum of one visible emissions test of the microturbine each year. Such a test program shall consist of a minimum of 30 minutes of opacity observations of the microturbine and shall be performed by a person certified in accordance with EPA Reference Method 9 (40 CFR 60, Appendix A).

i. 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]

V. Record Keeping 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 (except where a longer period is specified below): [20 DCMR 302.1(c)(2)(B) and 20 DCMR 500.8]]

a. The Permittee shall maintain records of all visible emissions monitoring performed pursuant to Condition IV(g). These records shall include the identity of the person performing the monitoring as well as their initials or signature indicating his/her certification of the accuracy of the observations;

b. The Permittee shall maintain records of all Method 9 visible emissions testing performed pursuant to Conditions IV(g) and (h). 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);

1. The Permittee shall maintain records of the amount of natural gas burned each month in the microturbine. These data shall be maintained for a period of not less than five (5) years in a calendar year sum format [20 DCMR 500.8];
2. The Permittee shall maintain records of the results of all testing required pursuant to Conditions IV(a), (c), and (i);
3. The Permittee shall maintain records of the results of all natural gas sulfur content monitoring, testing, and/or supplier documentation required pursuant to Condition IV(f);
4. The Permittee shall maintain records of total emissions of each pollutant covered by Condition II(a) from the microturbine, kept in calendar year sum format;
5. The Permittee shall maintain records of the maintenance performed on the unit;
6. The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the equipment [40 CFR 60.7(b)];
7. The Permittee shall maintain records of the actions taken during periods of malfunction to minimize emissions, including corrective actions to restore malfunctioning process, air pollution control, and monitoring equipment to its normal or usual manner of operation;
8. The Permittee shall maintain copies of all documentation associated with any exceedances of Condition II(e) of this permit;

k. The Permittee shall maintain a copy of the microturbine’s manufacturer’s maintenance and operating recommendations at the facility for the duration of the existence of the microturbine at the facility; and

l. The Permittee shall, by March 1 of each year, calculate total emissions of the pollutants listed below from the microturbine system 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;

VI. Reporting Requirements:

a. The Permittee shall furnish EPA, written notification or, if acceptable to both EPA and the Permittee, electronic notification, as follows [40 CFR 60.7(a)]:

1. A notification of the date construction of the equipment is commenced, postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form; and

2. A notification of the actual date of initial startup of the equipment, postmarked within 15 days after such date.

b. A report of the calculations performed pursuant to Condition V(l) 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]

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