April 21, 2020

Tiffany S. Northern

Vice President, Operations

MedStar Washington Hospital Center

110 Irving Street NW

Washington DC 20010

**RE: Permit Nos. 7263 through 7268 to Modify and Operate Six Dual-Fuel Boilers (Natural Gas/No. 2 Fuel Oil) at MedStar Washington Hospital Center, 110 Irving Street, NW, Washington, DC**

Dear Ms. Northern:

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, modify, or operate a stationary source in the District of Columbia. The applications of the MedStar Washington Hospital Center (“the Permittee”) to modify and operate the six (6) listed Babcock & Wilcox dual fuel (natural gas /No. 2 fuel oil) hot water boilers located in Washington, DC have been reviewed:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Equipment Location** | **Boiler Name** | **Model** | **Natural Gas Rating (MMBTU/hr)** | **No. 2 Fuel Oil Rating (Gallon/hr)** | **Permit Number** |
| Lower Plant | Boiler #1 | Model FF15-36 | 52.0 | 52.0 | 7263 |
| Lower Plant | Boiler #2 | Model FF15-36 | 52.0 | 52.0 | 7264 |
| Lower Plant | Boiler #3 | Model FF15-36 | 52.0 | 52.0 | 7265 |
| Lower Plant | Boiler #4 | Model FF15-36 | 52.0 | 52.0 | 7266 |
| Upper Plant | Boiler #5 | Model DL-60 | 54.0 | 54.0 | 7267 |
| Upper Plant | Boiler #6 | Model DL-60 | 54.0 | 54.0 | 7268 |

The modification consists of installation of new burners and flue gas recirculation (FGR) in existing boilers.

Based on the plans and specifications as detailed in the air permit applications dated June 27, 2019, the applications are hereby approved, and the modification and operation of the Lower and Upper Plants Boilers #1, #2, #3, #4, #5, and #6 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 modification and operation of the boilers.

b. This set of permits will expire on April 20, 2025. If continued operation after this date is desired, the Permittee shall submit applications for renewal by January 20, 2025. [20 DCMR 200.4]

1. Construction, modification, or 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 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. If not already completed by the date of issuance of this set of permits, within twelve (12) 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 April 20, 2021.

II. Emission Limitations:

* 1. Each of the boilers shall not emit pollutants in excess of those specified in the following tables [20 DCMR 201]:

| **Emission Limits for Boilers #1 through #4** |
| --- |
| **Pollutant** | **Short-Term Limit** **(Natural Gas) (lb/hr)** | **Short-Term Limit** **(No. 2 Fuel Oil) (lb/hr)** |
| Carbon Monoxide (CO) | 1.92 | 1.87 |
| Oxides of Nitrogen (NOx) | 1.89 | 7.43 |
| Total Particulate Matter (PM Total)1 | 0.47 | 1.25 |
| Sulfur Dioxide (SO2) | 0.03 | 1.24 |

1PM Total includes both filterable and condensable fractions.

| **Emission Limits for Boilers #5 through #6** |
| --- |
| **Pollutant** | **Short-Term Limit** **(Natural Gas) (lb/hr)** | **Short-Term Limit** **(No. 2 Fuel Oil) (lb/hr)** |
| Carbon Monoxide (CO) | 2.00 | 1.94 |
| Oxides of Nitrogen (NOx) | 1.97 | 7.71 |
| Total Particulate Matter (PM Total)1 | 0.49 | 1.30 |
| Sulfur Dioxide (SO2) | 0.03 | 1.28 |

1PM Total includes both filterable and condensable fractions.

* 1. b. 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]

*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. In addition to the requirements of Condition II(b), the boilers shall not emit any gases into the atmosphere of gases that exhibit greater than 20 percent opacity (6-minute average), except for one-minute period per hour of not more than 27 percent opacity. This standard applies at all times except during periods of startup, shutdown, or malfunction. [20 DCMR 205 and 40 CFR 60.43c(c) and (d)]
2. Total suspended particulate matter (TSP) emissions from the each of the boilers shall not be greater than 0.07 pounds per million BTU. [20 DCMR 600.1].
3. NOx emissions from each boiler shall not exceed the following [20 DCMR 201 and 20 DCMR 805.5(b)]:

1. 30 ppm by volume, dry basis, corrected to 3% oxygen when firing natural gas; and

2. 112 ppm by volume, dry basis, corrected to 3% oxygen when firing No. 2 fuel oil.

*Note that this No. 2 fuel oil standard is a streamlined requirement. This standard is based on the permit application and established pursuant to 20 DCMR 201 and is more stringent than the 0.30 lb/MMBTU standard in 20 DCMR 805.5(b) and which is only applicable on a calendar day average basis when operating exclusively on No. 2 fuel oil.*

f. 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]

g. 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 805.8(a) and (b)]:

* + 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 the boilers shall be natural gas. No. 2 fuel oil shall only be used in accordance with Conditions III(b), (c), and (d). No other fuels are approved for use in these boilers. [20 DCMR 201]

 b. The alternative fuel for the boilers shall be No. 2 fuel oil. The Permittee shall not purchase No. 2 fuel oil containing more than 0.0015 percent sulfur (15 ppm) by weight for use in the boilers. [20 DCMR 801.3]

c. In addition to complying with Condition III(d), the boilers, in total, shall not use in excess of 250,000 gallons of No. 2 fuel oil in any 12-consecutive-month period. [20 DCMR 201] *Note that this limit is established to avoid applicability of 20 DCMR 204 and therefore must be maintained in future permits.*

d. The boilers shall only operate on No. 2 fuel oil for the following reasons: [20 DCMR 201, 40 CFR 63.11195(e) and 40 CFR 63.11237]

1. During periods of gas curtailment;

2. During periods of gas supply interruption; or

3. For periodic testing, maintenance, or operator training on liquid fuel not to exceed a combined total of 48 hours during any calendar year.

e. The boilers shall be maintained and operated at all times in a manner consistent with the manufacturer’s specifications for the equipment. [20 DCMR 201]

f. At all times, including periods of startup, shutdown, and malfunction, the Permittee 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. Within 180 days of initial startup of each boiler, following modification (installation of new burners and FGR), the Permittee shall conduct performance tests on each of the boilers using each of the allowable fuels (natural gas and No. 2 fuel oil), to determine compliance with Conditions II(a) (except SO2 which can be determined from fuel sulfur content), (b), (c), (d), and (e) and shall furnish the Department with a written report of the results of such performance 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

Department of Energy and Environment

Air Quality Division

1200 First Street NE, 5th Floor

Washington DC 20002

Additionally, and electronic copy of the test protocol shall be submitted at the same time to the following email address:

air.quality@dc.gov

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.

b. At least once per month when operating on natural gas and once per week when operating on No. 2 fuel oil, during operation of the equipment, the Permittee shall observe each stack for a period of at least three minutes. Such visible emissions observations need not be performed in accordance with Reference Method 9, but may instead be only observations for the presence or absence of visible emissions (similar to the procedures set forth in EPA Reference Method 22). If any unit is not used during a given month, this shall be so noted and such records shall be maintained in accordance with Condition V(c).

If visible emissions are observed by this monitoring, or at any other time, the Permittee shall either shut the process down and make the necessary repairs/adjustments to correct the cause of the visible emissions or shall make arrangements for prompt observation by an individual certified in accordance with EPA Reference Method 9 to determine compliance with Conditions II(b) and (c).

c. Regardless of whether or not emissions are observed pursuant to Condition IV(b) 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. Visible emissions testing required under Condition IV(a) meets the requirements of this condition on the year that it is conducted. If the only combustion of a given fuel since the last test was burned during periodic testing required by this permit, no visible emissions 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).

d. In order to show compliance with Condition III(b) and the SO2 requirements of Condition II(a), the Permittee shall sample and test the fuel oil burned in the boilers or being delivered at least once each calendar quarter or at the time of each fuel delivery, whichever is less frequent. For each sample, the Permittee must provide: [20 DCMR 502]

1. The fuel oil type and the ASTM method used to determine the type (see the definition of distillate oil in 40 CFR 60.41c for appropriate ASTM methods);

2. The weight percent sulfur of the fuel oil as determined using ASTM test method D-4294 or D-5453 or other method approved in advance by the Department;

3. The date and time the sample was taken;

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

 sample; and

5. The type of test or test method performed.

In lieu of sampling and testing fuel oil each quarter for each of these data, the Permittee may obtain any or all of these data from the fuel oil supplier at the time of delivery and submit fuel receipts and fuel supplier certifications for all fuel deliveries that provide all of the above quality of fuel data (or those for which sampling and testing was not performed at the time of delivery) as well as the name of the fuel oil supplier, the date of delivery, and the sulfur content of the oil.

Note that the sulfur content data obtained from the fuel supplier must be the results of specific tests of the fuel at hand or the most recent representative fuel analysis from the fuel terminal prior to the fuel supplier obtaining the fuel for delivery to the Permittee, if such terminal analyses are performed on at least a monthly basis. General fuel specifications are not acceptable for this datum.

Terminal specifications (with references to appropriate ASTM methods as defined above) may be used to document the fuel oil type if the fuel supplier provides written certification that this was the material purchased from the terminal and delivered to the facility. If this method of determining the fuel oil type is used, the Department may opt to require occasional supplemental sampling and testing of the fuel oil to confirm these certifications.

If any of these data cannot be obtained from the fuel supplier, it is the responsibility of the Permittee to sample the fuel and have it analyzed to obtain the required data.

e. The Permittee shall monitor the total No. 2 fuel oil usage of the boilers, in aggregate to ensure compliance with Condition III(c).

f. 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 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 500.8]]

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

b. The Permittee shall keep records of the results of all fuel sulfur testing and fuel supplier certifications obtained pursuant to Condition IV(d);

c. The Permittee shall maintain records of all visible emissions monitoring performed pursuant to Condition IV(b), including notes indicating when no observations were performed as a result of no operations of the boiler that month. 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 District;

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

1. The Permittee shall maintain records of all instances of boiler operation using No. 2 fuel oil, including the date(s) of such operation, reason for operation using that fuel, and the identity of boiler(s) in which it is burned [20 DCMR 500.2];
2. The Permittee shall keep records of fuel use for each boiler, showing the therms or standard cubic feet of natural gas combusted each month as well as gallons of No. 2 fuel oil combusted each month. These records shall be maintained in a 12-month rolling sum format. These records shall be submitted to the Department semi-annually as part of the reporting required by Title V permit 014-R1. [20 DCMR 500.2];
3. The Permittee shall keep records of the dates and duration of No. 2 fuel use for each boiler each calendar year during periodic testing to show compliance with Condition III(d)(3).
4. The Permittee shall keep records of the following information regarding the combustion adjustments required pursuant to Condition II(g): [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; and

h. The Permittee shall keep records of all maintenance performed on the boilers so as to document compliance with Conditions III(e) and (f). These records shall be initialed to attest to their accuracy.

i. The Permittee shall submit the results of all testing required by Conditions IV(a) and (f) as specified in Condition IV(a), except that the Department may specify and require different submittal procedures to be followed in cases of testing required pursuant to Condition IV(f).

j. The Permittee shall notify the Department, in writing, within 30 days of initial start-up of each of the boilers, following the modification (installing new burners and FGR), of the date of that initial start-up. The notification shall be submitted to the following addresses:

Chief, Compliance and Enforcement Branch

Air Quality Division

1200 First Street NE, 5th Floor

Washington, DC 20002

and

air.quality@dc.gov

k. The Permittee shall include the equipment covered by this permit document 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, wherein the Permittee shall certify compliance or non-compliance with the conditions of this permit document for the covered equipment.

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