

**GOVERNMENT OF THE DISTRICT OF COLUMBIA**

**District Department of the Environment**



**CHAPTER 2 OPERATION PERMIT MEMORANDUM**

TO: File

THROUGH: Stephen S. Ours, P.E. *SSO*  
Chief, Permitting Branch

FROM: Abraham T. Hagos *ATH*  
Environmental Engineer

SUBJECT: **US Navy, Joint Base Anacostia-Bolling Public Work Department  
Permit to Construct and Operate Three Boilers at Building 18**

DATE: September 17, 2014

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**BACKGROUND INFORMATION**

A permit application to construct and operate two (2) new replacement 25 MM Btu per hour natural gas and No. 2 fuel oil fired boilers and to construct an economizer control device to an existing one (1) 25 MM Btu per hour natural gas and No. 2 fuel oil fired boiler at the US Navy, Joint Base Anacostia-Bolling, (JBAB) facility, located at 370 Brookly Avenue SW, was received by the Air Quality Division (AQD) on September 4, 2013 and additional supplemental information dated October 10, 2013, was received by AQD.

On December 5, 2013, Stephen S. Ours and Abraham T. Hagos from AQD went to the JBAB facility to verify the overall air pollution equipment in the facility in-order to prepare to draft the Title V operating permit of the facility. During the visit to building 18, AQD found that the boilers were installed and operating. The personnel at the plant confirmed to us that construction of the two replacement boilers along with the economizer installation on the third boiler were completed at the end of the summer. It was also identified that the burners had been replaced in the third boiler as well. Also while we were at the facility, we observed that the design capacity of the three boilers was greater than what was in the application. Specifically, they were rated at 28.8 MMBtu per hour when firing No. 2 fuel oil and 30.25 MMBtu per hour when firing natural gas.



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After numerous discussions between AQD and JBAB personnel, on June 9, 2014 a revised and corrected set of permit applications was submitted to construct and operate two new replacement boilers with high fired rates of 30.25 MMBtu per hour when firing natural gas and 28.8 MMBtu per hour when firing No. 2 fuel oil and to modify the third identical existing boiler through the installation of an economizer and new burners.

On the application JBAB indicated that only two boilers can operate at any given time. Generally, one boiler would run every day for 24 hours for the entire year (8,760 hours) and the second boiler would operate simultaneously for 213 days (5,112 hours) of the year for the total of 13,872 hours. The third boiler would provide backup for the other two boilers. The three boilers would not be operating simultaneously at any given time. The potential to emit calculation for the three boilers would be based on a 13,872 total annual operating hours limit to be established in the permit document for the three boilers.

Note that standby or warm-up of the boilers will be considered operation. Additionally, if the total operating hours exceeds the 13,872 hours limit, this may be considered a violation of 20 DCMR 204, non-attainment New Source Review (NSR) as this operating hours limit was established to avoid applicability of this regulation.

The permit action will be published in the DC Register on September 19, 2014. Public comments for the permit action will be solicited through October 20, 2014.

The Joint Base Anacostia-Bolling 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:**

Joint Base Anacostia-Bolling is an air pollution source for criteria and other air pollutants. The applicant is requesting a permit to construct fuel burning equipment units greater than 5 MMBTU/hr heat input. Thus a chapter 2 permit is required.

It should be noted that these units were installed (in the case of Boilers 1 and 2) and modified (in the case of Boiler 3) without first obtaining a permit from the Department as required by 20 DCMR 200.1. An enforcement action was taken in response to these violations. In order to return the equipment to compliance, these permits are being proposed as combined permits to construct and operate.

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### **20 DCMR Chapter 2, Section 204: Permit Requirements for Sources Affecting Non-Attainment Areas:**

The three boilers are being limited to 13,872 hours per 12-month rolling period of operations. Based on this operating hour limit, the total potential to emit for NO<sub>x</sub> from the three boilers is 23.971 tons per year. This is below the "significant" threshold for 20 DCMR 204, thus the non-attainment New Source Review (NSR) requirements of this section are not being triggered.

The applicant argued in their application that, at most, only two of the boilers would be operated at any one time (an inherent constraint on operations) due to the load needs of the facility. The existence of a third unit is for back-up purposes only. Note, however, that different units will be rotated as the primary units and the back-up unit to even out usage of the units for maintenance purposes.

The applicant requested the further limitation of 13,872 hours per 12-month rolling period to avoid triggering the NSR requirements discussed above. This is based on one unit operating continuously for 8,760 hours per year (24 hours per day, 365 days per year) and a second unit operating only 213 days per year (5,112 hours).

### **20 DCMR Chapter 2, Section 205: New Source Performance Standards:**

This section adopts the New Source Performance Standards (NSPSs) of 40 CFR 60 as they were in effect as of September 30, 1997. 40 CFR 60, Subpart Dc is applicable, as discussed below.

### **20 DCMR Chapter 2, Section 209: Permit Requirements for Non-Major Stationary Sources (Minor New Source Review):**

This regulation went into effect as of January 1, 2014. Because the original application was received before this date, and the equipment was installed before this date, this regulation has been determined to not be applicable to these units.

### **20 DCMR Chapter 3, Section 301: Operating Permit Requirements:**

The Joint Base Anacostia-Bolling facility is a major source subject to this regulation and will need an operating permit in accordance with 20 DCMR 300.1 for the new sources upon completion of construction. Joint Base Anacostia-Bolling already has a pending permit application before AQD for the full facility. Condition I(g) of the proposed permit gives the applicant 60 days to update that application from the date of issuance of these permits. The application update will need to incorporate the requirements of these permits.

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### **20 DCMR Chapter 5: Source Monitoring and Testing:**

The Joint base Anacostia-Bolling will be required to maintain written records of the amount of emissions from all the boilers in accordance with 20 DCMR 500.2 and will be submit the information to the District in accordance with 20 DCMR 500.9. These requirements have been established in Condition V(a) of the permits as well as related monitoring, record keeping, and reporting conditions.

Additionally, emission testing and fuel sampling is being required pursuant to 20 DCMR 502. See Conditions IV(f) and (g) of the draft permit.

### **20 DCMR Chapter 6, Section 606: Visible Emissions**

The visible emissions limitations of 20 DCMR 606.1 are applicable to these fuel burning units. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of the these units; provided, that discharges not exceeding forty percent (40%) opacity (unaveraged) shall be permitted for two 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, or malfunction of equipment. This requirement is contained in Condition II(c) of the permit. Testing to show compliance is required in Conditions IV(d), (e), and (g).

### **20 DCMR Chapter 8, Section 801: Sulfur Content of Fuel Oils**

This regulation limits the sulfur content of the fuel oil used to no more than 1% by weight. This requirement is less stringent than the equivalent standard in 40 CFR 60, Subpart Dc (discussed below) and, similar to that standard, was streamlined into a still more stringent standard established pursuant to authority under 20 DCMR 201 and information in the permit applications.

### **20 DCMR Chapter 8, Section 805: Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen**

Because the facility (Joint Base Anacostia-Bolling) is a major stationary source and these boilers are part of that major stationary source, and that these boilers have heat input ratings greater than 20 MMBtu/hr, 20 DCMR 805 is applicable to these units pursuant to 20 DCMR 805.1(a)(1) and (4). Pursuant to 20 DCMR 805.5(a), the applicant must annually adjust the combustion process in accordance with the requirements of 20 DCMR 805.8. These requirements were included in Conditions II(f) and V(g) of the proposed permit.

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### **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(e) of the permits.

### **40 CFR Part 60, Subpart Dc: Standard of Performance for Small Industrial, Commercial, Institutional Steam Generating Units**

Due to the size and installation date of this equipment, this regulation is applicable. For this size unit, with the option to burn No. 2 fuel oil, there are two main requirements under this rule. First, 40 CFR 60.42c(d) requires that the unit either meet an emission for sulfur dioxide of 0.50 lb/MMBtu heat input or use only fuel with a sulfur content by weight of no greater than 0.5%. In the application, however, the applicant indicated that they would be using fuel oil with a sulfur weight percentage of 0.05%. As such, this value was established as a limit in Condition III(b) of the proposed permit document pursuant to authority under 20 DCMR 201. Because this limit is more stringent than the NSPS limit, it was noted that this was a streamlined limit and that compliance with the 0.05% sulfur requirement will show compliance with the requirement of 40 CFR 60.42c(d).

The second requirement of this regulation applicable to the JBAB boilers is a visible emissions (opacity) standard found in 40 CFR 60.43c(c). This requirement is reflected in Condition II(d) of the proposed permit document. AQD determined that this is applicable because the unit can combust oil and the maximum heat input capacity of the unit (based on the natural gas burners) exceeds 30 MMBtu/hr. This opacity standard is usually less stringent than the District's opacity standards found in 20 DCMR 606, but in some instances, it is more stringent. Therefore, it was included as a separate requirement in the permit rather than streamlining it with the District's 20 DCMR 606 standard.

### **NESHAP Subpart JJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Source MACT**

The three boilers covered by this permitting action do use fuel oil, so this regulation was evaluated for applicability. However, the applicant indicated in their application and Ms. Diane Maimone of JBAB confirmed in a phone call with Abraham Hagos on September 17, 2014 that fuel oil would only be used during natural gas interruptions (including gas curtailment by the gas utility consistent with an interruptible gas supply contract) and testing. As such, these boilers can be classified as “gas-fired boilers” under this rule and are therefore exempt pursuant to 40 CFR 63.11195(e). To ensure that these usage

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procedures do not change, Condition III(a) of the proposed permit incorporates those limitations on No. 2 fuel oil usage needed to ensure that the units can remain classified as gas-fired boilers.

**RECOMMENDATIONS**

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

Public comments for the permit action will be solicited from September 19 through October 20, 2014. AQD will resolve any comments received before issuing the final permit, and if no comments are received, I recommend that permit Nos. 6745, 6746, and 6747 be issued in accordance with 20 DCMR 200.1 and 200.2.

SSO/ATH