

GOVERNMENT OF THE DISTRICT OF COLUMBIA  
Department of Energy and Environment

**CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM**

TO: File

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

FROM: John Nwoke *JN*  
Environmental Engineer

SUBJECT: **Washington Aqueduct, U.S. Army Corps of Engineers, Baltimore District  
Dalecarlia Water Treatment Plant, 5900 MacArthur Boulevard NW  
Permit Nos. 6334-R2 through 6336-R2 to Operate Three Identical Existing  
5.24 MMBTU per Hour, Dual Fuel-Fired Boilers**

DATE: May 21, 2019

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**BACKGROUND INFORMATION**

On August 21, 2018, the Air Quality Division (AQD) of the Department of Energy and Environment (DOEE) received operating permit renewal applications for three (3) identical existing dual fuel-fired (natural gas as primary and No. 2 fuel oil as back-up fuel) boilers. The boilers are each rated at 5.24 MMBtu/hour of heat input (125 boiler horsepower) and are located in the Administration Building of Dalecarlia Water Treatment Plant, 5900 MacArthur Boulevard NW, Washington DC.

The boilers were previously permitted under Permit Nos. 6334-R1, 6335-R1, and 6336-R1, issued on September 11, 2013. These permits expired on September 10, 2018. The renewal of the permits is now being considered under Permit Nos. 6334-R2, 6335-R2 and 6336-R2.

U.S. Army Corps of Engineers, Washington Aqueduct, 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

The three boilers are rated at 5.24 MMBtu/hr heat input (natural gas-fired/ No. fuel oil-fired). Although the rated heat input is marginally greater than 5 MMBTU/hr, Chapter 2 permits are still required before operation pursuant to 20 DCMR 200.

20 DCMR Chapter 3: Operating Permits and Acid Rain Programs

AQD did not rely on the emission calculations included in the permit renewal applications for purposes of evaluating whether the facility is a major stationary source, and therefore subject to

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20 DCMR Chapter 3. These emission calculations were based on natural gas use only, combined with what appeared to be limits on operating hours or fuel use. AQD performed calculations that assumed 8,760 hours per year of operation, at maximum capacity, using the higher emitting fuel (natural gas or No. 2 fuel oil) for each pollutant. AQD also added in potential emissions from a 186 hp diesel-fired emergency engine that is undergoing permit renewal review under separate cover. AQD determined that the facility has the potential to emit approximately 14.5 tons per year of oxides of nitrogen (NO<sub>x</sub>), compared to a 25 ton per year major source threshold for NO<sub>x</sub>. All other calculated potential emissions were an even smaller percentage of major source threshold. As such, AQD determined that 20 DCMR Chapter 3 is not applicable to this facility at this time.

### **20 DCMR Chapter 5, Section 500: Source Monitoring and Testing Requirements**

Appropriate monitoring and testing requirements have been included in Condition IV of the permits with associated record keeping and reporting requirements in Condition V of the permit to ensure that compliance with the conditions of the permit can be evaluated.

### **20 DCMR Chapter 6, Section 600: Fuel Burning Particulate Emission**

Total suspended particulate emission from each of the boilers shall not exceed 0.12 pounds per million Btu per 20 DCMR 600.1. This requirement is contained in Condition II(c) of the permit.

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

The visible emissions limitations of 20 DCMR 606.1 are applicable to these three 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(b) of the permits. Specific testing requirements related to this regulation are also included in the boiler permits in Conditions IV(c) and (d).

Note that language has been included in the permit notifying the facility that there is an outstanding call for a State Implementation Plan (SIP) revision from EPA that may result in revisions to the applicable regulation. As such, if the regulation is changed, the new regulatory requirements will supersede those expressed in the permit specifically.

### **20 DCMR Chapter 8, Section 805: Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen (NO<sub>x</sub> RACT)**

NO<sub>x</sub> RACT is not applicable to this facility pursuant to 20 DCMR 805.1(a) because it is not a major source of NO<sub>x</sub>. See the discussion above related to 20 DCMR Chapter 3 applicability. As such, no requirements from 20 DCMR 805 were placed in the set of permits.

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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(d) of the permit.

### 40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

This regulation is not applicable because the units are below the size applicability threshold of 10 MMBTU/hr heat input and were installed after June 9, 1989. See 40 CFR 60.40c(a).

### 40 CFR 63, Subpart JJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers at Area Sources

NESHAP subpart JJJJJ for area source ICI Boilers is applicable because the boilers are existing oil-fired boilers located at an area source of hazardous air pollutants per 40 CFR 63.11193. The boilers were constructed on August 16, 2001, a date earlier than the applicability date of June 4, 2010. According to 40 CFR 63.11194, they make up an existing affected source subject to 40 CFR 63, Subpart JJJJJ. The boilers use fuel oil as back up fuel, but have not characterized themselves (and requested related fuel use limits) as a “gas-fired boiler” as defined in 40 CFR 63.11237, and therefore subject to 40 CFR 63, Subpart JJJJJ in the category of oil-fired boilers (see 40 CFR 63.11200).

None of the requirements in Table 1 of Subpart JJJJJ (referenced in 40 CFR 63.11201(a)) apply to these boilers.

According to Table 2, paragraph 4 of Subpart JJJJJ (referenced in 40 CFR 63.11201(b)), these units are subject to biennial tune-ups as specified in 40 CFR 63.11223. This requirement has been included in Conditions III(e) and (f) of the permit. However, because the units are each rated below 10 MMBTU/hr heat input (they are rated at 5.24 MMBTU/hr, each), per paragraph 16 of Table 2, there is no requirement to perform a one-time energy assessment. As such, this requirement is not included in the permit.

## **RECOMMENDATIONS**

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

The permit action for the boilers will be published in the DC Register and on DOEE’s website on May 31, 2019. Public comments for the permit action will be solicited from May 31, 2019 through July 1, 2019. AQD will resolve any comments received before taking final action on the applications. If no comments are received, I recommend that permit Nos. 6334-R2, 6335-R2 and

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6336-R2 be issued in accordance with 20 DCMR 200.2 promptly following the end of the public comment period.

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