

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

TO: File

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FROM: John Nwoke *JN*
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**SUBJECT: District of Columbia Water and Sewer Authority (DC Water)
Blue Plains Wastewater Treatment Plant
Permit (#5734-R1) to Operate One 8.31 MMBtu/hr Natural Gas-Fired Boiler
at Grit Chamber Building 2.**

DATE: September 28, 2015

Background

On June 3, 2015, the Air Quality Division (AQD) received a permit application from District of Columbia Water and Sewer Authority (DC Water) for a Chapter 2 permit to operate one (1) existing auxiliary boiler. The natural gas boiler is used for heating at Grit Chamber Building 2. The unit, is a Burnham 4FW99350GGP model boiler, was permitted under Chapter 2 Permit-to-Construct No. 5734 on August 29, 2005. That permit has since expired, but the unit did not receive an operating permit. Instead it was included in the May 2008 Title V operating permit application as existing equipment, following a Settlement Agreement with the Department in 2007. The Title V permit application has not been processed for several reasons including delays in receiving an updated application from DC Water and significant construction occurring at the facility. The processing of this application is necessary to ensure that the boiler will continue to be in operation in compliance with 20 DCMR 200.2. The boiler is rated at 8.31 MMBtu/hr.

Publication of the permit action is planned for October 9, 2015 in the D.C. Register. Public comment for the permit action will be solicited through November 9, 2015.

Issues

DC Water submitted the application after realizing that a permit to operate had not been issued for the boiler. In 2008 the boiler was included in a permit application for a Title V operating permit. However, issuance of the Title V operating permit was delayed due to the various projects taking place at the facility, thus requiring an update to the equipment inventory at DC Water. DC Water is yet to update the 2008 Title V application filing. However it is necessary that the boiler covered by this permit be issued an operating permit.

Regulatory Review

Both District of Columbia regulation and Federal regulation apply to this project. Applicability or non-applicability of key regulations is discussed below.

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DISTRICT REGULATIONS

20 DCMR 200 – General Permit Requirements: The boiler is stationary and has the potential to emit air pollutants. The boiler has a heat input rating greater than 5 MMBtu/hr. Therefore it is subject to the requirement to obtain a Chapter 2 permit pursuant to this regulation.

20 DCMR 204 – Permit Requirements for Major Stationary Sources Located in Non-attainment Areas (Non-attainment New Source Review (NNSR)): The permitted project is located in an area that has been designated moderate and marginal non-attainment for the 1997 and 2008 8-hour ozone standards, respectively, and is currently a maintenance area for PM_{2.5} standard. The District of Columbia is also located within the Northeast corridor of the Ozone Transport Region (OTR). Nitrogen oxides (NO_x) and volatile organic compounds (VOCs) emissions are potentially subject to NNSR due to their role as precursors to the photochemical formation of ozone. Although the U.S. Environmental Protection Agency (U.S.EPA) revoked the 1-hr ozone standard, and despite the current designation of moderate non-attainment of the 8-hour ozone standard, the District has retained the 25-tpy NNSR applicability thresholds for NO_x and VOCs that were applicable for severe nonattainment classification under the 1-hour ozone standard – a measure taken against backsliding.

The requirements of 20 DCMR 204 is that projects with emissions increases and net emissions increases that exceed NNSR thresholds do the following: (1) analyze alternatives, (2) incorporate emission controls meeting the lowest achievable emission rate (LAER), (3) obtain emission offsets, and (4) certify compliance of all sources located within the District that are owned or operated by the applicant. The Grit Chamber project does not have emissions increase that exceeds NNSR thresholds. Thus, no net emission increase calculations were necessary to determine NNSR applicability. Hence 20 DCMR 204 is not applicable.

20 DCMR 205 – Permit Requirements for New Source Performance Standards (NSPS): The requirements of this section adopt the federal NSPS codified in 40 CFR 60. Specifically Subpart Dc of 40 CFR Part 60 sets forth the standards of performance for small Industrial-Commercial-Institutional steam generating units (ICI boilers) with maximum design heat input capacity less than 100 MMBtu/hr and greater than or equal to 10 MMBtu/hr. This Subpart includes steam generating units for which construction, modification, or reconstruction commenced after June 9, 1989.

The natural gas-fired heating boiler in the Grit Chamber Building 2 has a maximum heat input of 8.31 MMBtu/hr and is therefore not subject to this subpart.

20 DCMR 209 – Permit Requirements for Non-Major Stationary Sources (Minor New Source Review): Section 209 which became effective January 1, 2014, is applicable to any source subject to 20 DCMR 200. If such source uses a stationary unit or air pollution control device that is involved in a project that results in an increase of the potential to emit equal to or greater than 5 tons per year (tpy) of any criteria pollutant or aggregate of HAPs, the unit will be subject to the requirements of this section. The Grit Chamber boiler for the grit removal phase of the project does not have a potential to emit NO_x or any pollutant listed in Section 209.1(b) that is

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more than 5 tpy. Moreover this boiler was constructed in 2005, well before the applicability date of 20 DCMR 209 (January 1, 2014). Therefore the project does not trigger a minor source review evaluation pursuant to this regulation.

20 DCMR Chapter 3 – Operating Permits and Acid Rain Programs: An evaluation of potential emissions from the facility was submitted previously via the 2008 Title V operating permit application update. Because no previous operating permit was issued for the boiler, it became necessary to process an operating permit application for the boiler pending the issuance of a Title V operating permit to DC Water. As a unit, none of the boiler's pollutant's potential to emit (PTE) exceeds applicable major source thresholds. Of particular note, facility-wide PTE of NO_x is expected to exceed the 25 ton per year major source threshold in the District. As a result, Condition I (g) of the permit requires a Title V application update to include the requirements of this permit.

20 DCMR Chapter 5 – Source Monitoring, Testing, Record keeping and Reporting: Pursuant to the authority of this regulation, appropriate monitoring, testing, record keeping and reporting requirements were incorporated into the permit conditions to ensure that the permits are enforceable as a practical matter.

20 DCMR Chapter 6 – Particulates: Two sections of this chapter are notably applicable. The boiler is subject to a particulate matter emission standard pursuant to 20 DCMR 600.1. This requirement has been established in Condition II(c) of the permit. Unless stack testing is requested in accordance with Condition IV (a) and (b), it will be assumed that operation using natural gas will ensure compliance with this requirement. Additionally, the boiler also is subject to the visible emission standards of 20 DCMR 606.1, which has been included in Condition II (b).

20 DCMR 805 – Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen: The facility is a major source of NO_x based on potential to emit. Although the unit itself is not a major source, because the facility, as a whole, is, this regulation is applicable. For smaller boilers subject to the rule due to 20 DCMR 805.1(a) (4), AQD considers annual combustion adjustments to meet the requirements of the regulation. This requirement has been included in Condition II (e) of the permit.

20 DCMR 903 – Odorous or Other Nuisance Air Pollutants: The boiler and related equipment in the facility are subject to this odor standard. No regular monitoring is required in the permits as it is unlikely that these units would cause such violations.

FEDERAL REGULATIONS

40 CFR 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: The boiler is not subject to Subpart Dc because of its size (less than 10 MMBtu/hr of heat input) – Also see 20 DCMR 205 which was discussed previously.

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40 CFR 63, Subpart JJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources: 40 CFR 63 Subpart JJJJJ is applicable to fuel-oil burning boilers. The Grit Chamber boiler burns only natural gas therefore is exempt from 40 CFR 63, Subpart JJJJJ, pursuant to 40 CFR 63.111195, and is considered gas fired boiler as defined by the rule. No Subpart JJJJJ requirements are part of the permit.

Conclusions

Subject to receiving no adverse public comments with regard to a segment of this project or all of it, I recommend, based on all the aforementioned regulatory review that the permit be issued to DC Water following completion of the public review period. If comments are received during the public review period, they will be addressed before issuance of any permit for the boiler.

JCN