

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 *SSO For ATH*
Environmental Engineer

SUBJECT: **Gallaudet University
Amended Permits (#6647-A1 and #6648-A1) to Construct and Operate
Boilers #2 and #3**

DATE: March 23, 2015

BACKGROUND INFORMATION

A permit application to construct and operate one (1) 33.48 MMBtu per hour natural gas and No. 2 fuel oil fired boiler and one (1) 10.04 MMBtu per hour natural gas and No. 2 fuel oil fired boiler at the Gallaudet University facility, located at 800 Florida Avenue, was received by the Air Quality Division (AQD) on September 11, 2012. Subsequently, AQD also received additional supplemental information dated January 22, 2013. Gallaudet University did not request that any of the materials submitted with these applications be held confidential.

The permit action was published in the DC Register on April 5, 2013. Public comments for the permit action were solicited through May 6, 2013. The resultant permits were issued May 15, 2013.

Following issuance, AQD identified that the design capacities of these two boilers, as reported on the applications, were less than their actual installed designed capacities of 42.00 and 12.60 MMBtu per hour for boilers 2 and 3 respectively. Note that it appears that the actual design capacity did not change between the original application and the installation, but rather Gallaudet made an error in completing the original application forms.

On September 11, 2014, the applicant, Gallaudet University, submitted revised applications and requested that the permits (#6647 and #6648) be amended to reflect the correct design capacities



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of the boilers.

Based on these revised applications, the Department is proposing to issue amended permits #6647-A1 and #6648-A1 to Gallaudet University.

TECHNICAL REVIEW

The permit amendments are required to reflect the correct design capacity of Boilers #2 and #3. Because of the change in the design capacity of Boiler #2 from 33.48 to 42.00 MM Btu per hour and Boiler #3 from 10.04 to 12.60 MM Btu per hour, the emission limitations of Boiler #2 and #3 has changed by approximately 25% each. These emission limitations increase are included in Condition II(a) of the two permits.

Note that between the issuance of the previous permits and the date of this memo, Gallaudet performed stack testing on both units 2 and 3 for both permitted fuels. Boiler #2 met appropriate emission standards to be included in the revised permit, except that compliance with the total suspended particulate (TSP) standard was not documented. No new testing will be required for Boiler #2, as long as data collected during the test can be used to show compliance with the TSP standard. However, in order to ensure that testing occurs at least once every five years, testing will be required by November 14, 2019 (five years from the date of the last test) for this unit.

Boiler #3, however, did not meet appropriate emission standards. For particulate matter, the emissions using natural gas were inordinately high. AQD suspects that there was an error with the stack test. Also for Boiler #3, the NO_x emissions were unexpectedly high, while the carbon monoxide emissions were extremely low. AQD suspects that the boiler was not tuned correctly. As a result, AQD is still establishing the planned emission limits (based on AP-42 factors used in the permit applications to represent potential to emit). For Boiler #3, new testing for NO_x, CO, and particulate matter will be required promptly to ensure that it is meeting the standards set in the revised permit. A full round of new testing will be required by November 14, 2019.

REGULATORY REVIEW

Chapter 2, Section 200: General Permit Requirements:

Gallaudet University 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.

Chapter 3, Section 301: Operating Permit Requirements

Gallaudet University facility is a major source subject to Chapter 3 and are required to apply for an operating permit in accordance with 20 DCMR 300.1 for the new sources within 12 months of issuance of the initial permit to operate the units. To date, this has not yet been completed though the date has passed as the applicant has been attempting to resolve issues related to the Chapter 2 permits first. Condition I(g) of the permits has been revised to require prompt submittal of the revised Title V application.

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Chapter 5, Section 500: Source Monitoring and Testing Requirements

Gallaudet University will maintain written records of the amount of emissions of pollutants specified in Conditions II(a) and (b) from Boilers #2 and #3 in accordance with 20 DCMR 500.2 and must submit the information to the District in accordance with 20 DCMR 500.2. These requirements have been established in Conditions V(g) and (h) of the permits.

Additionally, emission testing and fuel oil testing has been required pursuant to 20 DCMR 502 in Conditions IV(a) and (e) of the Boiler #3 permit. As noted above, new testing of Boiler #2 is not immediately required (unless data from the November 2014 test cannot show compliance with the TSP standard), but will be required by November 14, 2019, pursuant to Condition IV(a).

Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606.1 are applicable to the units. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of 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.

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

Because the facility, as a whole, is a major stationary source and these boilers are part of that major stationary source, both boilers are subject to Section 805. 20 DCMR 805 is applicable to Boiler #2 pursuant to 20 DCMR 805.1(a)(1) and Boiler #3 pursuant to 20 DCMR 805.1(a)(4). NO_x RACT for Boiler #2 is explicitly an annual adjustment of the combustion process in accordance with the requirements of 20 DCMR 805.8. AQD considers NO_x RACT for Boiler #3 to be the same. These requirements are included in Conditions II(f) and V(h) of Boiler #2 permit and Condition II(e) of the Boiler #3 permit..

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(c) of the Boilers #3 permit and Condition II(d) of the Boiler #2 permit..

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

The back-up fuel for the boilers shall be #2 fuel oil containing no more than 0.5% sulfur by weight [40 CFR 60.42c(d)]. However, the applicant indicates that the facility will be using fuel oil with a weight percent sulfur of 0.0015%. Therefore, a limit of 0.0015% sulfur by weight has been included in Condition III(b) of the boiler permits.

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Additionally, the opacity limit of 40 CFR 60.43c(c) has been included in Condition II(c) of the permit for Boiler #2. Because the unit will have to comply with a stringent sulfur in fuel requirement, other particulate matter standards contained in Subpart Dc are not applicable. Related performance testing requirements required pursuant to 40 CFR 60.8 have been included in Condition IV(b) of the Boiler #2 permit. Due to smaller size of the Boiler #3, this requirement is not applicable to that unit.

NESHAP Subpart JJJJJ: Area Source Boiler MACT

“Gas fired boilers” with a #2 oil as a back-up fuel, as defined at 40 CFR 63.1237 are not subject to the NESHAP Subpart JJJJJ area source boiler rule per 40 CFR 63.11195(e). To ensure that the boilers are operated to meet the definition of “gas-fired boiler”, Condition III(c) has been added to the boiler permits, along with associated record keeping requirements in Condition V(f) (Boiler #2) and Condition V(e) (Boiler #3).

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 amendment actions will be solicited from April 3, 2015 through May 4, 2015. AQD will resolve any comments received before issuing the final permits, and if no comments are received, I recommend that permits #6647-A1 and #6648-A1 be issued in accordance with 20 DCMR 200.2.