

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment

CHAPTER 2 TECHNICAL MEMORANDUM

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

FROM: Thomas Olmstead *TO*
Environmental Engineer

SUBJECT: **National Gallery of Art, 6th and Constitution Avenue NW, Permit Nos. 7270-7275 to Construct and Operate Six Identical 6.0 MMBtu/hr Boilers**

DATE: November 18, 2019

BACKGROUND INFORMATION

On September 4, 2019 the Air Quality Division (“AQD”) of the Department of Energy and Environment (“DOEE” or “the Department”) received a set of Chapter 2 permit applications to construct and operate six (6) natural gas-fired Fulton Vantage VTG-6000 condensing boilers, each rated at 6.0 MMBtu/hr. The applicant is the National Gallery of Art.

National Gallery of Art has not requested that any aspects of the application be held confidential.

TECHNICAL INFORMATION

The boilers to be permitted are as follows:

Emission Unit ID	Model Number	Natural Gas Rating (MMBTU/hr)	Permit Number
Boiler 1 - B1	Fulton Vantage VTG-6000	6.0	7270
Boiler 2 - B2	Fulton Vantage VTG-6000	6.0	7271
Boiler 3 - B3	Fulton Vantage VTG-6000	6.0	7272
Boiler 4 - B4	Fulton Vantage VTG-6000	6.0	7273
Boiler 5 - B5	Fulton Vantage VTG-6000	6.0	7274
Boiler 6 - B6	Fulton Vantage VTG-6000	6.0	7275

Based on the emission calculations provided by the facility, these boilers have the potential to

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emit the following:

Pollutant	Maximum Annual Emissions (tons/yr)	
	Each Boiler	Boilers (Sum)
Total Particulate Matter (PM Total)	0.20	1.17
Sulfur Dioxide (SO ₂)	0.02	0.09
Nitrogen Oxides (NO _x)	0.96	5.74
Volatile Organic Compounds (VOC)	0.14	0.87
Carbon Monoxide (CO)	0.97	5.83

REGULATORY REVIEW

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

20 DCMR 200 – General Permit Requirements: The boilers are stationary and have the potential to emit air pollutants. Each of the boilers has a heat input rating greater than 5 MMBtu/hr. Therefore each 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 project consists of the construction of six 6.0 MMBtu/hr natural gas-fired boilers. The potential to emit of all regulated air pollutants are below the relevant NNSR thresholds (25 tons per year of NO_x or VOC). From the entire project, the expected maximum potential emissions increase of NO_x is expected to be 5.74 tons per year while the expected maximum potential emissions increase of VOC is expected to be 0.87 tons per year. Based on this analysis, 20 DCMR 204 is not applicable.

Note that, while the District does not directly implement a PSD program, potential emissions from the units are also below all relevant PSD thresholds.

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.

Each of the natural gas-fired boilers at the National Gallery of Art has a maximum heat input of 6.0 MMBtu/hr and is therefore not subject to this subpart.

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20 DCMR 209 – Permit Requirements for Non-Major Stationary Sources (Minor New Source Review):

Minor New Source Review, 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, individually, would have the potential to emit equal to or greater than 5 tons per year (tpy) per unit of any criteria pollutant (excluding CO, ozone, and lead) or aggregate of hazardous air pollutants (HAPs). The boilers do not individually have a potential to emit 5 tons per year of NO_x or any other pollutant listed in Section 209.1(b). Therefore the boilers do not trigger a minor source review evaluation pursuant to this regulation.

20 DCMR Chapter 3: Operating Permits and Acid Rain Programs

A source that has the potential to emit more than 25 tons per year of Oxides of Nitrogen (NO_x) is considered a Major Source and is required to obtain a Title V permit. The National Gallery of Art is not a major source, therefore it is not subject to Chapter 3 and will not need an operating permit in accordance with 20 DCMR 300.1.

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 permits 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 0.11 pounds per million BTU. This requirement is contained in Condition II(d) of the permit.

20 DCMR Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606.1 are applicable to all 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.

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 superseded 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_x RACT)

NO_x RACT is not applicable to this facility pursuant to 20 DCMR 805.1(a) because it is not a major source of NO_x.

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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(c) 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.

40 CFR 63, Subpart JJJJJ – National Emission Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers Area Sources:

This facility does not emit or have a potential to emit 10 tons per year or more of a single hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAPs. Consequently, the facility is considered an area source of HAP emissions.

The boilers operate on natural gas exclusively and are therefore exempted from Subpart JJJJJ.

CONCLUSIONS

The proposed project (as it relates to the six boilers addressed in this action) 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 November 29, 2019 through December 30, 2019. AQD will resolve any comments received before taking final action on the applications. If no adverse comments are received, I recommend that permit Nos. 7270-7275 be issued in accordance with 20 DCMR 200.1 and 200.2 promptly following the end of the public comment period.

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