

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: Olivia Achuko *SSO For OA*  
Environmental Engineer

**SUBJECT: Vicinity Energy Baltimore Corporation  
Permit Nos. 7291 through 7296 to Construct and Operate Six (6)  
Identical 6.0 MMBTU/Hour Dual Fuel Fired Boilers located at the  
Watergate Central Plant**

DATE: March 9, 2021

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**BACKGROUND INFORMATION**

On November 19, 2020, the Air Quality Division (AQD) of the Department of Energy and Environment (DOEE) received a construction and operating permit application package from Vicinity Energy Baltimore Corporation (Vicinity) to construct and operate six new, identical, dual fuel-fired fuel boilers at the Watergate Central Plant, located at 2500 Virginia Avenue NW, Washington DC. from Vicinity Energy (Vicinity). The boilers are each rated at 6.0 MMBTU/hour of heat input. The fee payments associated with the applications were received on January 28 and 29, 2021.

In February of 2020, ownership and control of the Watergate Central Plant was transferred to Vicinity from Washington Gas Company. The current emission units are operating under DOEE Title V permit No. 012-R2-A1. Vicinity is planning to install six (6) identical dual-fuel (natural gas and No. 2 fuel oil) condensing boilers, each rated 6.0 MMBTU/hour of heat input. Construction of the proposed boilers is expected to begin following issuance of the Chapter 2 permits, with an estimated completion date of the project in October 2021. These boilers will operate primarily on natural gas and have No. 2 fuel oil capabilities as back up.

Vicinity has not requested that any of the materials submitted with this application be held confidential.

**TECHNICAL INFORMATION**

The six boilers are Fulton Vantage VTG-6000-DF model, gas/oil condensing boilers. Each of the boilers is heat input rating of 6.0 MMBtu/hr with industrial grade firetube

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construction with modern condensing boiler efficiency. Detailed technical information was filed with the applications.

#### **Emissions Evaluation**

The potential to emit (PTE) from each boiler is shown in Table 1.

Table 1 – Emissions from Each 6.0 MMBTU/hr Boiler

<b>Pollutant</b>	<b>Short-Term Rate (Natural Gas) (lb/hr)</b>	<b>Short-Term Rate (No. 2 Fuel oil) (lb/hr)</b>	<b>PTE (highest fuel at 8760 hrs/yr operations) (tons/y)</b>
Carbon Monoxide (CO)	0.27	0.27	1.17
Oxides of Nitrogen (NO <sub>x</sub> )	0.26	0.88	3.85
Total Particulate Matter (PM Total) <sup>1</sup>	0.04	0.14	0.62
Sulfur Dioxide (SO <sub>2</sub> )	0.004	0.01	0.04
Volatile Organic Compounds (VOC)	0.03	0.01	0.05

<sup>1</sup>PM Total includes both filterable and condensable fractions.

#### **REGULATORY REVIEW**

##### **20 DCMR Chapter 2, Section 200: General Permit Requirements**

A Chapter 2 air permit is required to allow the construction of a new source, the modification of an existing stationary source, or the installation or modification of any air pollution control device on a stationary source within the District. The applicant is requesting a permit to construct fuel burning equipment units greater than 5 MMBTU/hr heat input. Therefore, a Chapter 2 permit is required before construction. All applicable fees have been paid.

##### **20 DCMR 204 – Permit Requirements for Major Stationary Sources Located in Non-attainment Areas (Non-attainment New Source Review (NNSR))**

The major source threshold under NNSR is 25 tpy for NO<sub>x</sub> and VOC. Watergate Central plant is currently classified as a major source for NO<sub>x</sub> under NNSR program and minor source for VOC. The potential emissions from proposed project are below all applicable major source threshold. The NO<sub>x</sub> potential to emit from the project (all six boilers combined) has been estimated to be 23.07 tons per year. As such, the proposed project does not trigger major NNSR.

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

Subsection 205.1 of 20 DCMR adopts the federal New Source Performance Standards (NSPS) under 40 CFR Part 60. 40 CFR 60 Subpart Dc does not apply to the boilers because each boiler is rated at less than 10 MMBTU per hour of heat input, which is the threshold of applicability.

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

New and modified stationary sources and air pollution control device installations are required to comply with the minor NSR program if they are not subject to Major NSR or a plantwide applicability limit and the project results in an increase in potential to emit of 5 tpy or more of any criteria pollutant (excluding CO, ozone, and lead) or aggregate of hazardous air pollutants (HAPs) from an individual unit. Total potential emissions from each of the proposed boilers is below 5 tpy for each of the applicable pollutants. Therefore, the equipment does not trigger 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<sub>x</sub>) is considered a Major Source and is required to obtain a Title V permit. Based on the PTE calculations in the applications, emissions of oxides of nitrogen from the new units are below the major source thresholds of 25 tons per year but, they are part of a current emission source inventory at this facility.

Vicinity currently operates the Watergate Central Plant under Title V Permit No. 012-R2-A1. The renewal of the permit is pending while this Chapter 2 permit is being processed. Following the proposed project of replacing the boilers, Watergate Central Plant will continue to be subject to Title V permitting program until the existing boilers are all removed. Then, Vicinity will work with DOEE to determine permitting timing and possible transfer to a minor source permit. Condition I(g) of the draft Chapter 2 permit requires Vicinity to apply to update/modify the facility's Title V Operating permit to include the requirements of the Chapter 2 permit into the Title V if the Title V permit is still required.

The project is not subject to the Acid Rain Program.

#### 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 permits can be evaluated.

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#### **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 MMBTU. This requirement is contained in Condition II(c) of the permits.

#### **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. The affirmative defense provision of 20 DCMR 606.5 is also found in Condition II(b).

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 801: Asbestos, Sulfur, Nitrogen Oxides, and Lead**

The provision of 20 DCMR 801.3 with respect to sulfur content of fuel oils is applicable since the equipment may burn fuel as alternative under limited circumstances. The back-up fuel for the boilers shall be No. 2 fuel oil containing no more than 0.0015% sulfur by weight per 20 DCMR 801.3. This requirement is contained in Condition III(b) of the permits. Appropriate monitoring, testing, and record keeping requirements have also been included in the permit to ensure compliance with this standard.

#### **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 applicable to this equipment pursuant to 20 DCMR 805.1(a)(4) because the facility is a major stationary source of NO<sub>x</sub> and the equipment is a part of that major stationary source. See the discussion above related to 20 DCMR Chapter 3 applicability. The proposed boilers are thereby required to have a combustion adjustment performed annually. The relevant requirements can be found in Conditions II(e) and V(g) of the permits.

#### **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.

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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 for Industrial, Commercial, and Institutional Boilers at Area Sources

These boilers would have the potential to be covered by this subpart, but the applicant has indicated that they intend to operate the boilers on natural gas as the primary fuel and oil only in accordance with the allowances specified in the definition of a “gas-fired boiler” found in 40 CFR 63.11237. The requirement to do so has been placed in Condition III(a), (b), and (c) of the permits. As such, the equipment is not subject to Subpart JJJJJ, pursuant to 40 CFR 63.11195(e).

**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 March 19, 2021 through April 19, 2021. AQD will resolve any comments received before taking final action on the applications. If no comments are received, I recommend that permit Nos. 7291 through 7196 be issued in accordance with 20 DCMR 200.1 and 200.2 promptly following the end of the public comment period.

SSO:OA