

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment

CHAPTER 2 TECHNICAL MEMORANDUM

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

FROM: Wyatt Bohmann
Environmental Engineer

**SUBJECT: Smith Property Holdings Five DC LLC
Avalon the Albemarle, 4501 Connecticut Avenue NW
Permit Nos. 7348 and 7349 to Operate Two Dual-Fuel Boilers**

DATE: May 10, 2023

BACKGROUND INFORMATION

On January 30, 2023, the Air Quality Division (AQD) received a set of Chapter 2 permit applications from Smith Property Holdings Five DC LP for the operation of two (2) 8.369 MMBTU/hr dual fuel fired boilers located at the Avalon the Albemarle, 4501 Connecticut Avenue NW. An updated set of applications was received by AQD on April 11, 2023 to request a limitation on the secondary fuel to avoid applicability of 40 CFR 63, Subpart JJJJJ. An updated Certificate of Clean Hands was received on April 13, 2023.

The publication of this draft permit action is planned for May 19, 2023, in the D. C. Register. Public comment for the permit action will be solicited through June 20, 2023.

Smith Property Holdings Five DC LP has not requested that any aspects of the application be held confidential.

TECHNICAL INFORMATION

The two boilers are identified as Boiler 1 and Boiler 2. The units both can fire on No. 2 fuel oil and natural gas with heat input ratings being 8.165 MMBTU/hr and 8.369 MMBTU/hr for the two fuels, respectively. They are Cleaver Brooks model CB.300-200 fire-tube boilers that were installed in 1983. More detailed technical information is included with the permit applications.

Emissions Evaluation

The potential to emit (PTE) from each boiler, based on AP-42 emissions factors, is shown in Table 1.

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smith Property Holdings Five DC LP

Avalon the Albemarle, 4501 Connecticut Avenue NW

Permit Nos. 7348 and 7349 to Operate Two 8.369 MMBTU/hr Dual-Fuel Boilers

May 10, 2023

Page 2

Table 1 – Emissions from Each Boiler

Pollutant	Short-Term Rate (Natural Gas) (lb/hr)	Short-Term Rate (No. 2 Fuel oil) (lb/hr)	PTE (highest fuel at 8760 hrs/yr operations) (tons/y)
Carbon Monoxide (CO)	0.69	0.28	3.02
Oxides of Nitrogen (NO _x)	0.82	1.12	4.91
Total Particulate Matter (PM Total) [†]	0.06	0.19	0.81
Sulfur Dioxide (SO ₂)	0.01	0.01	0.05
Volatile Organic Compounds (VOC)	0.05	0.02	0.20

[†]PM Total includes both filterable and condensable fractions.

REGULATORY REVIEW

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 facility is located in a non-attainment area for ozone with a 25 ton per year major source threshold for oxides of nitrogen (NO_x) and volatile organic compounds (VOCs), the two categories of ozone precursors. Additionally, the area is a maintenance area for fine particulate matter (PM_{2.5}). Note that these are the current standards and are not those that would have applied in 1983 when the equipment was installed, but at that time, the PM_{2.5} standard did not exist and the ozone precursor standards were less stringent in the District.

20 DCMR 204 requires 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 (LAER), (3) obtain emission offsets, and (4) certify compliance of all sources located within the District that are owned or operated by applicant. The Avalon the Albemarle does not have potential emissions that exceed the NNSR thresholds and hence the project, when installed, did not result in “significant” emissions increase for NO_x or VOCs.

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-

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smith Property Holdings Five DC LP

Avalon the Albemarle, 4501 Connecticut Avenue NW

Permit Nos. 7348 and 7349 to Operate Two 8.369 MMBTU/hr Dual-Fuel Boilers

May 10, 2023

Page 3

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.

Both of the boilers at this facility have a maximum heat input of 8.369 MMBTU/hr and were constructed in 1983, and are therefore not subject to this subpart.

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). Since the boilers were installed at the site in 1983, they are not considered new stationary sources. The boilers also do not individually have the 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:

The potential to emit of the boilers in aggregate does not exceed 25 tons per year of NO_x. In fact, the maximum PTE for NO_x from each boiler is 4.91 tons per year for a total of 9.82 tons per year (this figure is under the major source threshold of 25 tons per year), thus a Chapter 3 permit is not required. The equipment is also 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 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(c) of the permit. Unless stack testing is requested it will be assumed that operating using natural gas, with ultralow sulfur No. 2 fuel oil as backup, will ensure compliance with the requirement.

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 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

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smith Property Holdings Five DC LP

Avalon the Albemarle, 4501 Connecticut Avenue NW

Permit Nos. 7348 and 7349 to Operate Two 8.369 MMBTU/hr Dual-Fuel Boilers

May 10, 2023

Page 4

contained in Condition II(b) of the permits. Quarterly visible emissions monitoring is required pursuant to Condition IV(c), when burning natural gas and weekly monitoring is required when burning No. 2 fuel oil. Annual formal EPA Reference Method 9 visible emissions testing is required pursuant to Condition IV(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_x RACT)

This facility is not a major source pursuant to 20 DCMR 805.1(a) hence the provisions of this regulation are not applicable. Consequently, the requirements of this regulation were excluded from 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.

FEDERAL REGULATIONS

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 constructed prior to June 9, 1989. The requirements of this regulation are not included in the permit as a result.

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

The units are not subject to the requirements of Subpart JJJJJ as the units meet the definition of “gas-fired boilers” under the provisions of 40 CFR 63.11195(e), and 40 CFR 63.11237. Appropriate permit conditions have been placed in the permit, pursuant to 40 CFR 63.11195 to ensure that liquid oil is only utilized in the affected boilers consistent with the definition of “gas-fired boiler” in 40 CFR 63.11237.

CONCLUSIONS

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

CHAPTER 2 TECHNICAL SUPPORT MEMORANDUM

Smith Property Holdings Five DC LP

Avalon the Albemarle, 4501 Connecticut Avenue NW

Permit Nos. 7348 and 7349 to Operate Two 8.369 MMBTU/hr Dual-Fuel Boilers

May 10, 2023

Page 5

Public comments for the permit action will be solicited from May 19, 2023, through June 20, 2023. AQD will resolve any comments received before taking final action on the applications. If no comments are received, I recommend that permit Nos. 7348 and 7349 be promptly issued in accordance with 20 DCMR 200.2, following the end of the public comment period.

WEB