

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: Abraham Hagos *MO FOR ATH*  
Environmental Engineer

SUBJECT: **Permit No. 7298 to Install and Operate One Temporary Boiler at the U.S. Capitol Power Plant (CPP) Facility Located at 25 E Street SE**

DATE: February 24, 2021

---

**BACKGROUND INFORMATION**

On December 23, 2020 the Air Quality Division (AQD) of the Department of Energy and Environment (DOEE) received from the Architect of the Capitol, Capitol Power Plant, a Chapter 2 permit application to install and operate one (1) temporary natural gas and No. 2 fuel oil-fired boiler with a maximum heat input less than or equal to 99 million British thermal units per hour (MMBTU/hr).

CPP is requesting permit flexibility to allow the installation of a temporary boiler onsite at times when steam generation capacity is insufficient to meet potential demand and redundancy requirements. For example, should an existing boiler have to undergo significant maintenance and be unavailable, the temporary boiler would be used to meet steam generation requirements. The boiler would meet the temporary boiler definition under both the federal New Source Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants for Boilers (NESHAP, i.e., the area source Boiler MACT requirements). Requirements of major New Source Review (NSR) are not applicable to this project as CPP operates under Plantwide Applicability Limit (PAL) Permits for NSR, and emissions from the temporary boiler would be covered under the PAL.

Emissions from the temporary boiler will be accommodated under the CPP's existing PAL permits and operation of the boiler will replace steam production from existing boilers. As such, there is no expected increase in plantwide fuel consumption or emissions from the use of the temporary boiler.

Different temporary boilers could be installed at different times through the duration of the permit as long as each boiler installed was the only boiler onsite under the authority of the permit and that any boiler installed at the site under the authority of the permit complied with all conditions of the permit.

CPP has not requested that any aspects of the application be held confidential.

## **CHAPTER 2 TECHNICAL MEMORANDUM**

**Architect of the Capitol, Capitol Power Plant, 25 E Street SE**

**Permit No. 7298 to Install and Operate a Temporary Boiler**

February 24, 2021

Page 2

The fee payment associated with the application was received January 8, 2021.

### **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 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 non-attainment with respect to the 1979 1-hour ozone National Ambient Air Quality Standard (NAAQS). The area was subsequently designated moderate and marginal non-attainment for the 1997 and 2008 8-hour ozone standards, respectively, and is currently a maintenance area for PM<sub>2.5</sub> standard. The District of Columbia is also located within the Northeast corridor of the Ozone Transport Region (OTR). Nitrogen oxide (NO<sub>x</sub>) 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<sub>x</sub> and VOCs that were applicable for severe nonattainment classification under the 1-hour ozone standard as a measure taken against backsliding.

The requirements of 20 DCMR 204 are 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.

CPP operates under a plantwide applicability limit (PAL) permit for NO<sub>x</sub>, Permit No. 6577 issued by the Department on June 5, 2013. In accordance with 20 DCMR 208.4, since the temporary boiler emissions will be accommodated under the PAL limit, 20 DCMR 204 is not applicable to the project. In addition, VOC emissions from the project are below the significant emission rate (SER) of 25 tpy. Based on this analysis, 20 DCMR 204 is not applicable.

20 DCMR 205 – Permit Requirements for New Source Performance Standards (NSPS):

The requirements of this section adopt certain federal NSPSs codified in 40 CFR 60. See the discussion below regarding applicability of NSPSs.

## **CHAPTER 2 TECHNICAL MEMORANDUM**

**Architect of the Capitol, Capitol Power Plant, 25 E Street SE**

**Permit No. 7298 to Install and Operate a Temporary Boiler**

February 24, 2021

Page 3

### 20 DCMR 208 – Plantwide Applicability Limit (PAL) Permits for Major Sources:

The temporary boiler will be located at the CPP which operates under a PAL permit for NO<sub>x</sub> and particulate matter with an aerodynamic diameter less than 2.5 microns (PM<sub>2.5</sub>), Permit No. 6577 issued by DOEE, and a PAL permit for greenhouse gases (GHGs), nitrogen dioxide (NO<sub>2</sub>) and particulate matter with an aerodynamic diameter less than 10 microns (PM<sub>10</sub>), Permit No. EPA-R3-PAL-001 issued by U.S. Environmental Protection Agency (EPA). The temporary boiler will be subject to the requirements of these permits. The requirement to comply with the PAL permits is included in Condition II(f) of this temporary boiler permit.

### 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 boiler individually has a potential to emit greater than 5 tons per year of NO<sub>x</sub>. However, per 20 DCMR 209.1(a), sources required to comply with the PAL regulations in 20 DCMR 208 are not subject to 20 DCMR 209. As such, the temporary boiler is not subject to Minor New Source Review.

### 20 DCMR Chapter 3 – Operating Permits and Acid Rain Programs:

This unit will be located at the CPP, which is a major source subject to Chapter 3 (Title V). CPP is operating under extended Permit No. 033. CPP has submitted timely, complete renewal applications for this permit and as such, the permit remains valid under an application shield per 20 DCMR 303.3(c). The facility will be required to include the temporary boiler in an amendment to its Title V permit renewal application. This is required pursuant to Condition I(g) of the permit.

### 20 DCMR Chapter 5, Section 500: Source Monitoring and Testing Requirements

Appropriate monitoring and testing requirements have been included in Condition IV of the permit 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.

Note that, in the permit application, the applicant requested approval to use ASTM method D-7039 as an alternative to the other test methods specified as default methods in 20 DCMR 502. AQD agrees that this is an acceptable method for this purpose, and has specified it as an acceptable method in Condition IV(c)(2) of the permit, pursuant to 20 DCMR 502.6(d).

### 20 DCMR Chapter 6, Section 600: Fuel Burning Particulate Emission

Total suspended particulate emission from the temporary boiler shall not exceed the limit as calculated by the equation in 20 DCMR 600.1. This requirement is contained in Condition II(c) of the temporary boiler permit. Because different sizes of boiler may be installed at different times under the authority of this permit, a specific calculated emission limit cannot be specified in the permit.

## **CHAPTER 2 TECHNICAL MEMORANDUM**

**Architect of the Capitol, Capitol Power Plant, 25 E Street SE**

**Permit No. 7298 to Install and Operate a Temporary Boiler**

February 24, 2021

Page 4

### 20 DCMR Chapter 6, Section 606: Visible Emissions

The visible emissions limitations of 20 DCMR 606.1 are applicable to the temporary boiler. Visible emissions shall not be emitted into the outdoor atmosphere from the operation of the temporary boiler; 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 permit. Specific testing requirements related to this regulation are also included in the permit.

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 801: Sulfur Content of Fuel Oils

The purchase, sale, offer for sale, storage, transport, or use of No. 2 commercial fuel oil limitation of 20 DCMR 801.3 is applicable to the temporary boiler. On and after July 1, 2018, the purchase, sale, offer for sale, storage, transport, or use of number two (No. 2) commercial fuel oil is prohibited if it contains more than fifteen parts per million (15 ppm) or fifteen ten-thousandths percent (0.0015%) by weight of sulfur, unless otherwise specified in § 801.5.

Therefore, a limit of 0.0015% sulfur by weight has been included in Condition III(b) of the permits.

### 20 DCMR Chapter 8, Section 804: Nitrogen Oxides Emissions

The temporary boiler authorized under this permit are fossil-fuel-fired steam-generating units with a heat input rating less than or equal 99 MMBTU/hr. This regulation applies to such units only if the heat input rating exceeds 100 MMBTU/hr. Therefore, this regulation is not applicable.

### 20 DCMR Chapter 8, Section 805: Reasonably Available Control Technology for Major Stationary Sources of the Oxides of Nitrogen (NO<sub>x</sub> RACT)

Because the temporary boiler is fossil-fuel-fired steam-generating unit with a heat input greater than 20 MMBTU/hr at a major stationary source of NO<sub>x</sub>, 20 DCMR 805 is applicable to the temporary boiler. As such, requirements from 20 DCMR 805 were placed in the permit. Specifically, the requirement to perform combustion adjustments pursuant to 20 DCMR 805.8 is contained in Conditions II(d) and V(f).

### 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(e) of the permit.

## CHAPTER 2 TECHNICAL MEMORANDUM

Architect of the Capitol, Capitol Power Plant, 25 E Street SE

Permit No. 7298 to Install and Operate a Temporary Boiler

February 24, 2021

Page 5

### 20 DCMR Chapter 14, Section 1410: Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers

20 DCMR 1401.1 adopts 40 CFR 63, Subpart JJJJJ by reference. Please see the more detailed discussion of the federal regulation below.

### 40 CFR 60, Subpart D - Standards of Performance for Fossil-Fuel-Fired Steam Generators

The requirements of 40 CFR 60, Subpart D are not applicable to the temporary boiler because it would have a heat input rate of less than 250 MMBtu/hr.

### 40 CFR 60, Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

The requirements of 40 CFR 60, Subpart Db are not applicable to the boiler because it would have a heat input rate of less than 100 MMBtu/hr.

### 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

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. CPP's temporary boiler will meet the definition of a temporary boiler as defined in 60.41c because it will not be onsite for more than 180 consecutive days and will have a sulfur dioxide (SO<sub>2</sub>) emission rate of less than 0.060 lb/MMBtu. As such, Subpart Dc is not applicable to the temporary boiler in accordance with 60.40c(i). Emission and operating limits to ensure the boiler meets the definition of a temporary boiler are contained in Conditions II(a) and III(c) of the temporary boiler permit.

### 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

The requirements of 40 CFR 63, Subpart DDDDD are not applicable to the temporary boiler because CPP is not a major source of HAPs.

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

CPP is considered an area source of HAP emissions. Per limits contained in Permit No. 6663-C issued by DOEE, 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. CPP's temporary boiler will meet the definition of a temporary boiler as defined in 63.11237 because it will not be onsite for more than 12 consecutive months and will fire only natural gas and No. 2 fuel oil. As such, Subpart JJJJJ is not applicable to the temporary boiler in accordance with 63.11195(h). Operating limits to ensure the boiler meets the definition of a temporary boiler are contained in Conditions III(a) and III(c) of the temporary boiler permit.

**CHAPTER 2 TECHNICAL MEMORANDUM**

**Architect of the Capitol, Capitol Power Plant, 25 E Street SE**

**Permit No. 7298 to Install and Operate a Temporary Boiler**

February 24, 2021

Page 6

**CONCLUSIONS**

The proposed project (as it relates to the temporary boiler addressed in this action) and attached permit comply with all applicable federal and District air pollution control laws and regulations.

Public comments for the permit action will be solicited from March 5, 2021 through April 5, 2021. AQD will resolve any comments received before taking final action on the application. If no comments are received, I recommend that permit No. 7298 be issued in accordance with 20 DCMR 200.1 and 200.2 promptly following the end of the public comment period.

ATH