

GOVERNMENT OF THE DISTRICT OF COLUMBIA  
Department of Energy and Environment

**CHAPTER 2 PERMIT TECHNICAL MEMORANDUM**

TO: File

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

FROM: Wyatt Bohmann  
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**SUBJECT: Permit No. 7346 to Construct and Operate Stationary Diesel-Fired  
Emergency Engine Exempt from NSPS Subpart IIII but Subject to NESHAP  
Subpart ZZZZ**

DATE: March 13, 2023

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***BACKGROUND INFORMATION***

The Air Quality Division (AQD) of the Department of Energy and Environment (the Department) received a Chapter 2 permit application on June 14, 2023 to construct and operate a stationary emergency generator set (Thomas Jefferson Building Generator 2) powered by a compression ignition (CI) internal combustion engine at the Thomas Jefferson Building. The unit proposed for installation is a model year 2004 and is thus exempt from compliance with the federal New Source Performance Standard (NSPS) “Standards of Performance for Stationary Compression Ignition Internal Combustion Engine” (40 CFR 60, Subpart IIII), but subject to the federal “National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE)” (40 CFR 63, Subpart ZZZZ). The applicant resubmitted the engine’s emission calculations on February 23, 2023 to better represent the unit’s potential maximum power rating, as reflected on the engine plate (a photo of which was included with the application), and use the unit’s certified emission factors.

***TECHNICAL INFORMATION***

The model year 2004 emergency internal combustion engine operates exclusively on diesel fuel, and is exempt from the requirements of 40 CFR 60, Subpart IIII on the basis that the engine has not been modified or reconstructed as defined in 40 CFR 60.14 or 60.15 and that it does not fall into any of the three following categories:

1. The model year of the engine is 2007 or later for engines that are not fire pump engines;
2. The engine is for a fire pump and its model year is equal to or newer than those specified in the following table, based on the size of the engine:

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<b>Fire Pump Engine Applicability Table</b>		
<b>Engine Power</b>		<b>Starting Applicability Model Year*</b>
<b>Mechanical Kilowatts (kW<sub>m</sub>)</b>	<b>Horsepower (hp)</b>	
kW <sub>m</sub> < 75	hp < 100	2011
75 ≤ kW <sub>m</sub> < 130	100 ≤ hp < 175	2010
130 ≤ kW <sub>m</sub> ≤ 560	175 ≤ hp ≤ 750	2009
kW <sub>m</sub> > 560	hp > 750	2008

\* Fire pump engines with a maximum engine power greater than or equal to 37 kW<sub>m</sub> (50 hp) and less than 450 kW<sub>m</sub> (600 hp) and a rated speed of greater than 2,650 revolutions per minute (rpm) are covered only three years after the model year listed in this table for the applicable power category.

or;

3. The engine was ordered by the owner or operator after July 11, 2005 and one of the following is true:
  - i. The engine was manufactured after April 1, 2006 and is not a fire pump engine; or
  - ii. The engine was manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006;

The engine is, however, subject to the requirements of 40 CFR 63, Subpart ZZZZ, on the bases that [See 40 CFR 63.6585 and 40 CFR 63.6590]:

1. The engine is not located at a major source of hazardous air pollutants (HAPs) (i.e. it is located at an area source of HAPs); and
2. The engine has not claimed an exemption as an existing residential, commercial, or institutional stationary reciprocating internal combustion engine (RICE) or as an eligible RICE used for national security purposes.

The engine will not be used for economic or emergency demand response purposes.

### ***REGULATORY REVIEW***

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

The stationary emergency generator set's engine burns fuel and will therefore be a source of oxides of nitrogen and other air pollutants. Thus a Chapter 2 permit is required for installation and operation of such engine.

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#### **20 DCMR Chapter 2, Section 204: Permit Requirements for Major Sources Located in Non-Attainment Areas (New Source Review):**

The potential to emit NO<sub>x</sub> from this unit (the construction of which constitutes the whole project) is 1.44 tons per year, well below the 25 tons per year trigger threshold for this regulation. Similarly, the emissions estimates for all other pollutants are well below the “significant” level to trigger applicability of this regulation.

#### **20 DCMR Chapter 2, Section 209: Permit Requirements for Non-Major Stationary Sources (Minor New Source Review)**

While the unit in question is an older unit, the estimated potential to emit of NO<sub>x</sub> from the unit, 1.44 tons per year, assuming 500 hours per year of operation, is less than the 5 ton per year trigger threshold for this regulation. Similarly, potential emissions of the several other pollutants addressed by the regulation are below 5 tons per year as well. As such, this regulation does not apply to this unit.

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

This unit will be located at the Thomas Jefferson Building, which is a building under the Title V permit for the Architect of the Capitol’s Library Buildings and Grounds Jurisdiction, which is a major source of NO<sub>x</sub>. They are operating under Title V Permit No. 053. Condition I(g) of the permit specifies, pursuant to DCMR 301.1(a)(3), that the Permittee must submit a permit application to incorporate the requirements of this permit into the facility’s Title V permit. Additionally, Condition VI requires that the Permittee report on compliance with this permit as part of their semi-annual and annual compliance reports and certifications. Additionally, the record keeping requirements in the permit have been extended to five years from three years required in 20 DCMR 500.8 as Chapter 3 requires this longer retention schedule per 20 DCMR 302.1(c)(2)(B).

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

The stationary emergency generator set is subject to the visible emissions requirements of 20 DCMR 606 Therefore, Condition II(a) of the permit includes the requirements of that regulation.

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

Some engines have the potential to be covered by 20 DCMR 805, Reasonably Available Control Technology (RACT) for Major Stationary Sources of the Oxides of Nitrogen. However, pursuant to 20 DCMR 805.1(c)(2), emergency standby engines operated less than 500 hours for any purpose and less than 100 hours for maintenance and testing, during any consecutive 12-month period, are exempt from this regulation. Conditions III(a) and (c) of the permit include these requirements. As such, the equipment is considered exempt from the requirements of this regulation.

#### **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

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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. It is contained in Condition II(b) of the permit.

40 CFR 60, Subpart III, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:

As discussed previously, the equipment covered by this permit is not subject to this regulation.

40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines:

As discussed previously, this regulation applies to the engine powering the generator set. The requirements of this regulation have been incorporated into the permit, notably including Condition III(g) which requires certain regular maintenance activities.

***RECOMMENDATIONS***

The public notice announcement was submitted to the D.C. Register for publication in the March 24, 2023 edition. The draft permit is available for public comment through April 24, 2023.

The attached proposed permit complies with all applicable federal and District air pollution control laws and regulations. I recommend that the attached permit No. 7346 be issued upon completion of the public review period, assuming no adverse comments are received.

If adverse comments are received, such comments will be addressed prior to the Department taking any final action on the permit application.

WEB