UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
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NEW YORK, NY 10007-1866

November 12, 2020

Mr. Thomas John
Section Chief, Division of Air Resources
New York State Department of Environmental Conservation, Region 2
47-40 21st Street
Long Island City, NY 11101
thomas.john@dec.ny.gov

Re: Draft title V Operating Permit Renewal New York University Central Plant,
Permit ID # 2-6205-00246/00005, New York City, New York County, NY

Dear Mr. John:

Thank you for the opportunity to comment on the draft renewal title V operating permit for the New York University Central Plant ("NYU Plant or facility") that the New York State Department of Environmental Conservation Region 2 office (NYSDEC) issued for a 30-day public review on October 14, 2020.

The NYU Plant is an on-campus cogeneration power plant that provides electricity, high temperature hot water and steam, as well as cooling needs for the NYU buildings. It is comprised of the following emission sources:

- Three identical dual fueled (natural gas (NG) and fuel oil) boilers, each rated at 65 MMBTU/hr;
- Two identical dual-fueled combined cycle combustion turbines, each rated at 5 MW;
- One GE-Jenbacher JSM-616 (GE) natural gas fired engine rated at 2.6 MW (3,485 HP), manufactured after July 2010 and will be used to generate electricity; and
- One Caterpillar 3516C fuel oil-fired generator set (CAT GS), model year 2019, rated at 2.5 MW (3,627 HP) and will be used as black start engine for the 2 turbines at the facility as well as for demand response programs.

The 2 engines were permitted in 2018 as new engines but were not yet installed. Both will use selective catalytic reduction to reduce their NO_x emissions and oxidation catalyst to reduce their CO, VOC and HAPs emissions. The facility anticipates that the 2 engines would become operational during the 2020-2021-time frame. NYU is located in an ozone severe-nonattainment area and in a PM_{10} moderate non-attainment area. The NYU Plant is an existing major source under the Nonattainment New Source Review (NNSR) regulations because of its PTE of NO_x (which is an ozone precursor) of 158 tpy which is greater than the major source threshold of 25 tpy.

We reviewed the draft permit, permit review report (PRR), and some related application documents and have identified significant concerns regarding the draft permit. Our overarching concerns are as follows:

(1) The draft permit omits applicable requirements from federal standards (NSPS and NESHAP) for the above identified boilers and engines;
(2) The draft permit incorrectly identifies the origin of authority for several permit conditions as a federal standard (NSPS);
(3) The draft permit incorrectly determines that one federal standard (NESHAP) does not apply to the engines and certain provisions of a federal standard (NSPS) do not apply to the turbines; and
(4) Some conditions of the draft permit are incorrectly labeled as "Applicable Federal Requirements" instead of "Applicable State Requirements."

To ensure that the draft permit complies with New York's approved title V Operating Permit Program, NYSDEC's air regulations and applicable Clean Air Act (CAA) requirements, EPA recommends that the NYSDEC address the comments included in Enclosure A of this letter.

We look forward to working with you to address these comments. If you have any further questions or wish to discuss any of these issues, please feel free to contact Ms. Viorica Petriman at 212-637-4021 or petriman.viorica@epa.gov.

Sincerely,

SUILIN CHAN Digitally signed by SUILIN CHAN
Date: 2020.11.12 13:58:20 -05'00'

Suilin W. Chan, Chief
Permitting Section
Air and Radiation Division

Enclosures A, and 1 through 3

ENCLOSURE A

1. Missing Applicable Requirements

As specified at CAA §§504(a) and (c), 40 CFR §70.6, and 6 NYCRR 201-6.4, each title V permit must include all emission limitations and standards, as well as operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance. The permit must also include all necessary testing, monitoring, recordkeeping, and reporting requirements to demonstrate compliance with the emission limitations. The draft permit fails to include requirements from the specific standards that apply to the emission sources listed below.

Omitted Requirements for the GE and CAT GS Engines:
- 40 CFR part 60, Subpart JJJJ "Standards of Performance for Spark Ignition (SI) Internal Combustion Engines" (NSPS 4J)
- 40 CFR 60, Subpart IIII "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" (NSPS 4I)

EPA has included in Enclosures 1 and 2 the requirements from NSPS 4J and 4I that apply to the above engines. The NYSDEC should include those requirements as permit conditions for these engines.

Omitted Requirements for the 3 Boilers:
- 40 CFR 63 Subpart JJJJJJ "National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers" (NESHAP 6J)

EPA has included in Enclosure 3 the requirements from NESHAP 6J that apply to the 3 boilers. The NYSDEC should include these requirements as permit conditions for the boilers. Further, it should be noted that the origin of the applicable requirements should not be cited broadly by using high-level citations, as it was done in Condition 41, Condition 47, and Condition 57 of the draft permit where "40 CFR 60 NSPS IIII," "40 CFR 60 NSPS JJJJ," and "40 CFR 63 NESHAP JJJJJJ" were cited, respectively.

2. Incorrect Origin Of Authority for Permit Conditions

As specified at 40 CFR §70.6 (a)(1)(i) and 6 NYCRR 201-6.4 (a)(1)(i), each title V permit must include the origin of authority for each term or condition, and note in the PRR any difference in form as compared to the applicable requirement upon which the term or condition is based.

a. Conditions of Draft Permit Incorrectly Citing to NSPS 4J as Origin of Authority

Conditions 48, 50, 51 and 52 of the draft permit relate to the new GE-Jenbacher JSM 616 (GE) engine and establish (1) emission limits for PM, CO, NO_x and VOC that apply to the GE engine for the purposes of avoiding the applicability of NNSR; and (2) performance testing to verify compliance with those emission limits. Although these emission limits do not represent the

NSPS 4J emission standards that apply to the GE engine, all of the above-mentioned conditions cite to 40 CFR 60.4243(b)(2)(ii) of NSPS 4J as their origin of authority. This is an incorrect origin of authority for those conditions.

The GE engine is subject to the NSPS 4J emission standards, specified in §60.4233(e) and Table 1 to Subpart NSPS 4J that apply to non-emergency SI natural gas engines with a maximum engine power greater than 500 HP and a manufacture date of July 1, 2010 or later. According to an email dated October 28, 2020, the NYSDEC stated that the GE engine NYU purchased is a non-certified engine but NYU will demonstrate compliance with the emission standards specified in §60.4233(e) by conducting performance tests and maintaining certain records as allowed in §60.4243(b)(2)(ii) in lieu of the certificate. However, the use of §60.4243(b)(2)(ii) as the origin of authority for the above-mentioned draft permit conditions is incorrect because the emission limits for PM, CO, NO_x and VOC are non-NSPS 4J emission standards. To correct this error, please address the following:

i. NYSDEC may allow NYU to use the performance tests methodology prescribed in §60.4243(b)(2)(ii) to demonstrate compliance with the emission limits in Conditions 50 through 52, but the origin of authority for those conditions should cite to 6 NYCRR 201-6.4 (b) (2) "Permit conditions for monitoring"[1] or other SIP approved regulation, as appropriate.

ii. The NSPS 4J requirements that may be used in Conditions 50 through 52 should be limited to the §60.4243(b)(2)(ii) provisions related to conducting an initial performance test and subsequent performance tests every 8,760 hr of engine operation or 3 years, whichever comes first. All other language containing provisions from §60.4243(b)(2)(ii), currently included in Conditions 50 through 52 should be removed because these are specific for demonstrating compliance with the NSPS 4J emission standards and not with non-NSPS 4J emissions limits. These specific provisions of 60.4243(b)(2)(ii) should be included in other conditions addressing the NSPS 4J requirements that apply to the GE engine at NYU as discussed in Enclosure 1.

iii. Alternatively, Conditions 50 through 52 could be revised as follows (1) revise the origin of authority for these conditions from 60.4243(b)(2)(ii) to 6 NYCRR 201-6.4 (b) (2) "Permit conditions for monitoring" or other SIP approved regulation, as appropriate; (2) retain only the language pertaining to the non-NSPS 4J emission limits, all other language should be removed; and (3) add language which should state that compliance

[1] 6 NYCRR Part 201-6.4(b) Permit conditions for monitoring:
Each title V facility permit issued under this Part shall include the following provisions pertaining to monitoring:
(1) all emissions monitoring and analysis procedures or test methods required under the applicable requirements, including any procedures and methods for compliance assurance monitoring as required by the act shall be specified in the permit;
(2) where the applicable requirement does not require periodic testing or instrumental or non-instrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), the permit shall specify the periodic monitoring sufficient to yield reliable data from the relevant time periods that are representative of the major facility's compliance with the permit. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirements;

with the non-NSPS 4J emission limits should be demonstrated during the performance tests that are required by §60.4243(b)(2)(ii) to demonstrate compliance with the applicable NSPS 4J NO_x, CO and VOC emission standards specified in §60.4233(e).

iv. Condition 48 of the draft permit that cites to 60.4243(b)(2)(ii) states, "The NSPS Particulates limit for this engine is 0.04 g/BHP-hr or 45 ppmvd...." The NSPS 4J does not establish PM emission standard for engines such as the GE engine at NYU. What is the basis of the above-mentioned statement in Condition 48?

v. Condition 48 should be revised by removing the reference to NSPS PM limit and to paragraphs (a) through (f) of 40 CFR 60.4244 as the Reference Test Method for measuring the PM emissions from the GE engine. NSPS 4J neither include PM emission standards nor PM test methods for engines such as the GE engine.

b. Conditions of Draft Permit Incorrectly Citing to NSPS 4I as Origin of Authority

Conditions 43, 44, 45 and 46 of the draft permit relate to the new Caterpillar 3516C (CAT) generator set (GS) and establish (1) emission limits for NO_x, CO, PM and VOC for the purposes of avoiding the applicability of NNSR and (2) performance testing to verify compliance with those emission limits. Although these emission limits do not represent the NSPS 4I emission standards that apply to this engine all of the above-mentioned conditions cite to 40 CFR §60.4211(g) as their origin authority. As discussed below, use of 60.4211(g) as the origin of authority for draft permit Conditions 43 through 46, which establish non-NSPS 4I emission standards, is incorrect.

As indicated in the "EPA Certificate of Conformity with the Clean Air Act" issued to the CAT GS manufacturer, which NYU included with its application, the CAT GS was certified by EPA to the applicable NSPS 4I emission standards in 40 CFR §60.4204(b). Specifically, the CAT GS is subject to the following emission standards (which are only provided in g/kW-hr) in Table 1 of 40 CFR §1039.101(b) that apply to generator sets with a maximum engine power of greater than 560 kW, 2014 model year or later: NO_x: 0.67 g/kW-hr (0.50 g/BHP-hr); CO: 3.5 g/kW-hr (2.6 g/BHP-hr); PM: 0.03 g/kW-hr (0.02 g/BHP-hr); NMHC: 0.19 g/kW-hr (0.14 g/BHP-hr). The g/BHP-hr values included above were calculated by EPA by multiplying each "g/kW-hr' value by 0.7457 to convert it to g/BHP-hr.

Based on 40 CFR §60.4211(c) owners or operators of 2007 model year and later, which are subject to the NSPS 4I emission standards in 40 CFR §60.4204(b), such as the CAT GS at NYU, must comply by purchasing an engine certified to the emission standards in §60.4204(b). Further, §60.4211(c) provides that no additional compliance requirements, such as performance tests, are required for those engines certified to the applicable emission standards if the engines and control devices are installed, configured, operated, and maintained according to the manufacturer's emission-related written specifications, as detailed in §60.4211(a). Condition 42 of the draft permit that cites to §60.4211(a) requires NYU to comply with all of the provisions at §60.4211(a), which, as discussed above, satisfy the compliance demonstration with the NSPS 4I emission standards.

40 CFR §60.4211(g), on the other hand, provides the compliance demonstration methodology including performance tests and additional recordkeeping requirements for those purchased engines that are certified to the applicable NSPS 4I emission standards but the engines and control devices are not installed, configured, operated, and maintained according to the manufacturer's emission-related written instructions or the specifications. Thus, since the draft permit requires the facility to meet the provisions at §60.4211(a) to demonstrate compliance with the NSPS 4I emission standards, the facility is no longer required to conduct performance tests required under §60.4211(g). To revise the use of the incorrect citation of §60.4211(g) in Conditions 43 - 46, Please address the following:

i. If NYSDEC wishes to allow NYU to use the performance tests methodology prescribed in 60.4211(g) to demonstrate compliance with the non-NSPS 4I emission limits in Conditions 43 through 46, the origin of authority for those permit conditions should be revised from §60.4211(g) to 6 NYCRR 201-6.4(b)(2) "Permit conditions for monitoring" or other SIP approved regulation, as appropriate.

ii. The NSPS 4I requirements that may be used in Conditions 43 through 46 should be limited to the §60.4211(g) provisions that are related to conducting (1) an initial performance test within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions or within 1 year after the emission-related settings are changed in a way that is not permitted by the manufacturer; and (2) subsequent performance tests every 8,760 hr of engine operation or 3 years, whichever comes first. All other language, currently included in Conditions 43 through 46, should be removed because it is either specific for demonstrating compliance with the NSPS 4I emission standards and not with non-NSPS 4I emissions limits or inconsistent with the regulatory language in §60.4211(a). These specific provisions of §60.4211(a) will be included in those conditions addressing the NSPS 4I requirements that apply to the CAT GS at NYU as discussed in Enclosure 2.

iii. Condition 43 of the draft permit establishes a NO_x emission limit of 0.59 g/BHP-hr, which as stated in this condition is based on manufacturer emission information. This emission limit is greater than the applicable NSPS 4I NO_x emission standard of 0.50 g/BHP-hr. Condition 43 should be updated to include the more stringent NO_x emission limit of 0.50 g/BHP-hr.

iv. Condition 45 of the draft permit establishes a PM emission limit of 0.03 g/BHP-hr. There is no explanation in the draft permit regarding the basis of this emission limit. This emission limit is greater than the applicable NSPS 4I PM emission standard of 0.02 g/BHP-hr. Condition 45 should be updated to include the more stringent PM emission limit of 0.02 g/BHP-hr.

v. Conditions 43 through 46 indicate "Paragraphs (a) through (f) of 40 CFR 60.4244" as the "Reference Test Method" that the facility should use to conduct performance tests for the NO_x, CO, PM and VOC emissions for the CAT GS. Note that §60.4244 is a NSPS 4J requirement that applies to spark-ignition engine, while compression-ignition engines,

such as the CAT GS, are subject to NSPS 4I. Please explain why the NYSDEC requires the use of NSPS 4J Test Methods for the CAT GS, which is subject to NSPS 4I and not to NSPS 4J?

3. Incorrect Non-Applicability Determinations of Federal Standards

Condition 25 of the draft permit establishes that the SO_2 emission standards requirements of 40 CFR 60 Subpart KKKK "Standards of Performance for Stationary Combustion Turbines" (NSPS 4K) do not apply to the two turbines at NYU while combusting fuel oil and the requirements of 40 CFR 63 Subpart ZZZZ "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines" (NESHAP 4Z) do not apply to the two engines at NYU. The origin of authority cited is 6 NYCRR 201-6.4(g) "Permit shield." As discussed below, we find no regulatory basis for these NYSDEC determinations.

a. NSPS 4K - The emission standard of 0.060 lb SO_2/MMBTU in 40 CFR §60.4330(a)(2) applies to each turbine subject to NSPS 4K while combusting either fuel oil or natural gas, such as the 2 turbines at NYU. Condition 25 states that the 0.060 lb SO_2/MMBTU is equivalent to a sulfur content in fuel oil of 500 ppm or 0.05 % sulfur by weight. Thus, the NYSDEC determines that since the draft permit imposes a more stringent sulfur content in fuel oil limit of 15 ppm or 0.0015% than the 500 ppm or 0.05 % sulfur by weight as required by 6 NYCRR 225-1.2(h), the emission standard of 0.06 lb SO_2/MMBTU in §60.4330 (a)(2) would no longer be applicable to the turbines while firing fuel oil. There is no regulatory basis for this determination. The 0.06 lb SO_2/MMBTU in §60.4330(a)(2) applies even though the turbine is subject to a more stringent SO_2 limit under a SIP-approved regulations.

Please address the following:

i. The draft permit should be updated by including the emission standard of 0.06 lb SO_2/MMBTU in §60.4330(a)(2); or

ii. If the facility and or NYSDEC wishes to streamline the NSPS 4K SO_2 emission standard (while the turbine combusts fuel oil) and the limit on the sulfur content in fuel oil (6 NYCRR 225-1.2(h)), EPA's March 5, 1996 *White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program* (EPA White Paper #2) must be followed.[2] A brief discussion of how the streamlining should be done according to the EPA White Paper #2 is presented in Item 5 below.

b. NESHAP 4Z - Condition 25 correctly identifies the applicable NESHAP 4Z provision from §63.6590(c) which requires affected sources comprising of new engines located at an area source of HAP (such as the 2 new engines at NYU) to meet the requirements of NESHAP 4Z by meeting the requirements of NSPS 4I or NSPS 4J. §63.6590(c) further provides that no additional NESHAP 4Z requirements apply to such affected sources. Since the new CAT GS is subject to NSPS 4I and the new GE engine is subject to NSPS 4J, these 2 engines will meet the requirements of NESHAP 4Z by meeting the requirements of NSPS 4I and 4J, respectively. It is incorrect to state in Condition 25 that NESHAP 4Z requirements no longer

[2] EPA White Paper #2 can be find at https://www.epa.gov/sites/production/files/2015-08/documents/wtppr-2.pdf

apply to new engines that meet the requirements of NSPS 4I or NSPS 4J. The draft permit should be revised to include the following conditions to address this error:

i. The Permittee shall comply with the requirements of 40 C.F.R. Part 63, subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) for the GE engine identified as ENG08 of Emission Unit: 2-00000 by meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines) as specified in this permit. [40 C.F.R. § 63.6590(c)(1)]

ii. The Permittee shall comply with the requirements of 40 C.F.R. Part 63, subpart ZZZZ (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) for the CAT GS identified as ENG09 of Emission Unit: 2-00000 by meeting the requirements of 40 C.F.R. Part 60, Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines) as specified in this permit. [40 C.F.R. § 63.6590(c)(1)]

4. Permit Conditions incorrectly labeled as "Applicable Federal Requirements"

Conditions 64, 67,69, 79, 83 and 85 of the draft permit which include case-by-case NO_x RACT limits for turbines and duct burners at the facility, are incorrectly identified as "Applicable Federal Requirements." Based on our records, although these case-by-case NO_x RACT limits were established by the NYSDEC many years ago, they were not shared with EPA either in draft or as an official SIP revision. State approved case-by-case RACT limits are not federal applicable requirements as defined at 40 C.F.R. §70.2**,** until approved into the SIP by the EPA. The above-mentioned draft permit conditions should be labeled as "Applicable State Requirements." The NYSDEC should submit the source-specific SIP revision for NYU's case-by-case NO_x RACT limits as soon as practicable.

5. Streamlining in title V Permits

The EPA White Paper #2 recommends that when streamlining is utilized, the permit should contain language indicating that when the facility is in compliance with the more restrictive limit, it is in compliance with the less restrictive limit. The citation of authority for the streamlined condition should reference the authority of the streamlined emission limit or more restrictive limit, as well as the authority of the subsumed or less restrictive limit. Also, the EPA White Paper #2 provides that a streamlining demonstration should include a side-by-side comparison (streamlining demonstration) of all of the applicable requirements, including emission limits, monitoring, recordkeeping and reporting requirements in the statement of basis, or the PRR in the case of NY. Different limit formats (different "units" of measurement) require a detailed discussion to demonstrate which limit is more stringent, including a conversion factor established to allow for conversion from one unit of measure to another, and a side-by-side comparison of the streamlined requirements. In determining the stringency of an emission limit the averaging times should be reviewed closely.