BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF	)	
	)	
Clean Air Act Title V Permit (Renewal; Significant and Minor Modifications)	)	
	)	
Issued to the University of North Carolina at Chapel Hill	)	Air Quality Permit No. 03069T36
	)	
Issued by Air Quality Division of the North Carolina Department of Environmental Quality	)	
	)	

Petition to Object to Air Quality Permit No. 03069T36 for the University of North Carolina at Chapel Hill

Pursuant to section 505(b)(2) of the Clean Air Act, 42 U.S.C. § 7661d(b)(2), and 40 C.F.R. § 70.8(d), the Center for Biological Diversity; Sierra Club; and the Town of Carrboro, North Carolina (collectively, "Petitioners") respectfully petition the Administrator of the United States Environmental Protection Agency ("Administrator" or "EPA") to object to the Title V Permit No. 03069T36 ("Permit") issued by the North Carolina Department of Environmental Quality's Division of Air Quality ("DAQ") on

August 5, 2021 to the University of North Carolina at Chapel Hill ("UNC"). Being unable to use the Central Data Exchange, Petitioners are filing this with EPA via email per 40 C.F.R. § 70.14, and are providing copies via e-mail to DAQ and UNC.

Petitioners submitted timely comments[1] on the draft permit during the public comment period, which closed on May 6, 2021. DAQ responded to public comments[2] and forwarded a proposed permit to EPA for its 45-day review period, which ended on August 2, 2021 without EPA's objection. Petitioners submit this petition within 60 days of the close of EPA's 45-day review period (October 1, 2021)[3] as required by 42 U.S.C. § 7661d(b)(2).

PETITIONERS

Petitioner Center for Biological Diversity is a nonprofit, 501(c)(3) organization that works through science, law, and creative media to secure a future for all species, great or small, hovering on the brink of extinction**.** The Center also pursues the protection of human health as one of its primary environmental objectives. The Center is incorporated in California and headquartered in Tucson, Arizona, with field offices across the United States, including in North Carolina. The Center has more than 69,000 members, including over 1,300 members in North Carolina. The Center and its members

[1] Petitioners' comments are attached hereto as Exhibit 1.
[2] DAQ's responses to comments are attached hereto as Exhibit 12.
[3] *See* U.S EPA, North Carolina Proposed Title V Permits, *at* https://www.epa.gov/caa-permitting/north-carolina-proposed-title-v-permits, where a full copy of the Permit, with all supporting materials, may be found.

have interests in the conservation of air quality in North Carolina and with the effective implementation of the Clean Air Act.

Petitioner Sierra Club is the oldest and largest grassroots environmental organization in the United States, with nearly 780,000 members nationally, including more than 20,000 members in North Carolina. Sierra Club is a nonprofit, membership organization incorporated in California. Its national headquarters are located in Oakland, California, and its North Carolina offices are located in Raleigh, North Carolina. Sierra Club's mission is to explore, enjoy, and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's resources and ecosystems; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. Sierra Club and its members are greatly concerned about the effects of air pollution on the environment and human health and have a long history of involvement in activities related to air quality and source permitting under the Clean Air Act.

Petitioner Carrboro is a municipality of the state of North Carolina with a population of 21,295 (2020 U.S. Census Bureau). Petitioner Carrboro is deeply concerned about the peril of exposure to the Cameron Avenue Cogeneration Plant. Since this coal-fired cogeneration plant is located a mere tenth of a mile from Carrboro's border, its emissions put at risk the health, safety, and well-being of its residents as well as visitors to its central business district. Petitioner Carrboro is especially concerned that the plant's emissions disproportionately negatively impact the air quality for residents of

Carrboro's historically Black neighborhoods of Tin Top, Pine Knolls, Lloyd-Broad, and Northside, further burdening these residents. Furthermore, over the last dozen years, Petitioner Carrboro has adopted robust climate justice goals through its *Energy and Climate Protection Plan* and *Community Climate Action Plan*.

GROUNDS FOR OBJECTION

For the reasons set forth below, the Permit fails to comport with the Clean Air Act. Petitioners raised all of the below issues in their comments on the draft permit.

A. The Permit Fails to Include Emission Limits Adequate to Prevent Violations of the National Ambient Air Quality Standards, as the State Implementation Plan Requires

Petitioners raised the following issues in their comments on the draft permit (Ex. 1) at pages 1 through 4. Under the Clean Air Act and its implementing regulations, the Administrator must object to a Title V permit where the permit is "not in compliance with the applicable requirements of this chapter, including the requirements of an applicable implementation plan". 42 U.S.C. § 7661d(b)(1); *see also* 40 C.F.R. § 70.8(c)(1) ("The Administrator will object to the issuance of any proposed permit determined by the Administrator not to be in compliance with applicable requirements or requirements under this part.")

Here, the Administrator must object to the Permit because, although North Carolina's State Implement Plan (SIP) requires that the Permit contain emission limits

adequate to ensure that UNC does not cause exceedances of National Ambient Air Quality Standards (NAAQS), the permit fails to so do for the sulfur dioxide (SO_2) and nitrogen dioxide (NO_2) NAAQS. 40 C.F.R. § 70.8(c)(1).

North Carolina's SIP prohibits any pollution source from operating in such a manner as to cause a violation of the NAAQS:

> In addition to any control or manner of operation necessary to meet emission standards in this Section, **any source of air pollution shall be operated with such control or in such manner that the source shall not cause the ambient air quality standards of Section .0400 of this Subchapter to be exceeded** at any point beyond the premises on which the source is located.

15A NCAC 2D .0501(c) (emphasis added).[4] Moreover, the SIP places the onus on the permit writer to incorporate source-specific control measures into the permit to ensure that the NAAQS are not exceeded:

> **When controls more stringent than named in the applicable emission standards in this Section are required to prevent violation of the ambient air quality standards** or are required to create an offset, **the permit shall contain a condition requiring these controls**.

Id. (emphasis added). Likewise, the SIP provides that "[n]o facility or source of air pollution shall cause any ambient air quality standard in this Section to be exceeded or contribute to a violation of any ambient air quality standard in this Section . . . ." 15A

[4] Approved by EPA in 67 Fed. Reg. 51,461 (Aug. 8, 2002).

NCAC 2D.0401(c).[5] Accordingly, to comply with the SIP, the Permit must contain emission limits adequate to ensure that the UNC facility does not cause exceedances of the NAAQS.

DAQ attempts to discharge this obligation through reference to a modeling analysis it undertook to examine the SO_2 and NO_2 limits in the Permit; however, not only are the emission limits inconsistent with the modeling, the modeling itself is flawed. As a result, the emission limits in the permit are not supported and are inconsistent with the SIP.

1. DAQ's Modeling Does Not Support the Permit's SO_2 and NO_2 Emission Limits

First, while the permit sets emission limits for SO_2 and NO_2 for UNC's cogeneration boilers #6 and #7 in terms of pounds of pollutant per million British thermal units of heat (MMbtu) input, the modeling DAQ relied upon was conducted in terms of pounds of pollution per hour. *See* Ex. 2 at 17. This conversion was effected through reference to an assumed hourly heat input of 323.17 MMbtu per hour.

[5] Approved by EPA in 59 Fed. Reg. 41,708 (Aug. 15, 1994). 15A NCAC 2D.0401(c) does contain two exceptions, but they are not applicable here. *See id.* ("except as allowed by 15A NCAC 02D .0531 or .0532"); *compare* 15A NCAC 02D .0531 *and* 15A NCAC 02D .0532 (concerning new major sources in existing nonattainment areas) *with* U.S. EPA, North Carolina Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (showing no current nonattainment designation for Orange County, home of the pre-existing UNC facility) *at* https://www3.epa.gov/airquality/greenbook/anayo_nc.html.

Figure 1: Stoichiometry of DAQ's Modeling Input Figure

x[lbs pollutant / MMbtu] * y[MMbtu / hour] = z[lbs. pollutant / hour]

where

x = the permit limit

y = DAQ's assumed heat input

z = the modeled figure

In other words, the number of pounds of SO_2 or NO_2 DAQ modeled was related not just to the permit limit, but to DAQ's heat input assumption, and the modeling would accordingly only accurately assess the impact of the permit limits on the NAAQS if that heat input assumption was correct.

Unfortunately, UNC's heat input assumption was not correct. The 323.17 MMbtu/hour figure DAQ relies on is neither a physical limit nor, more importantly, a permit limit, on the heat input for boilers #6 and #7, and instead those boilers can operate at much higher heat inputs: as much as 384 MMbtu/hour. Indeed, boilers #6 and #7 have operated above 323.17 MMbtu/hour on hundreds of occasions in the past two years alone. *See* Exs. 3, 4, 5, 6, 7. As such, the boilers can, under the Permit's lbs/MMbtu emission limits and without a 323 MMbtu/hour limit, emit 19% more SO_2 and NO_2 pollution than DAQ modeled.[6] For example, under DAQ's assumed 323.17 MMbtu/hour

[6] (384 – 323)/323 = 0.189, or ~19%.

heat input, units #6 and #7 could emit under the Permit's 0.45 lbs SO_2/MMbtu limit 290.9 lbs of SO_2 per hour, but if the units operated at a heat input of 323 MMbtu/hour, they could emit 346 lbs SO_2/hour while "complying" with that same Permit limit.

That 19% increase in pollution is the difference between DAQ's modeling that purports to show protection of the SO_2 and NO_2 NAAQS, and more accurate modeling that demonstrates that the emission limits in the Permit are inadequate. Petitioners did, in fact, commission aerial dispersion modeling to assess the Permit's SO_2 and NO_2 emission limits without DAQ's unrealistically low heat input assumption. *See* Lindsey Meyers, Air Quality Review and Comments: UNC Manning and Cogeneration Power Plants (May 6, 2021) (hereinafter "Meyers Report"), attached hereto as Ex. 8. This modeling was conducted with the same parameters and assumptions as DAQ used with the exception that it employed a heat input of 384 MMbtu/hour, rather than the inaccurately low 323.17 MMbtu/hour figure DAQ used, and it showed that the Permit's SO_2 and NO_2 limits allowed significant exceedances of both the SO_2 and NO_2 NAAQS. *See id.* at 6-7, 9-10.

Accordingly, without appropriate limits on either the units' heat input or total hourly mass of pollution emitted, the Permit's SO_2 and NO_2 emission limits are incompatible with 15A NCAC 2D .0501(c) and 15A NCAC 2D.0401(c), and EPA must object to them.

In face of this, DAQ suggests that imposing a 0.41 lbs SO_2/MMbtu emission limit over a 30-day rolling average somehow resolves the problem. However, a 30-day

average emission cannot protect a 1-hour NAAQS like the SO_2 NAAQS. Exposure to SO_2 in even very short time periods—such as five minutes—has significant health impacts, including decrements in lung function, aggravation of asthma, and respiratory and cardiovascular morbidity. *See* Primary National Ambient Air Quality Standard for Sulfur Dioxide Final Rule, 75 Fed. Reg. 35,520, 35,525 (June 22, 2010) (hereinafter "Final SO_2 NAAQS Rule"). Further, short-term SO_2 exposure is especially risky for children with asthma. *See* Final SO_2 NAAQS Rule, 75 Fed. Reg. at 35,525. To address the dangers flowing from short-term exposure to SO_2, EPA not only lowered the NAAQS from 140 parts per billion ("ppb") to 75 ppb, but—critically—slashed the averaging period for the standard from 24 hours to just one hour. This standard is evaluated through reference to the 4th-highest daily maximum ambient concentration annually, meaning that ambient air quality conditions can be rendered unsafe by as few as four hours of elevated emissions over the course of a year.

As a result, an emission limit with an averaging period of longer than one hour is highly unlikely to be able to protect this short-term standard. Spikes in emissions (perhaps coinciding with startup or shutdown conditions, or temporary malfunctions in control operation) could cause short term elevations in ambient SO_2 levels sufficient to violate the NAAQS while nonetheless averaging out over longer periods such that the Permit is "complied" with. *See* EPA Region 7 Comments re Sunflower Holcomb Station Expansion Project 4 (August 12, 2010) (finding that "[t]o ensure the source does not cause or contribute to a violation of the NAAQS, the emission limits must. . . have the

same averaging period, i.e. in this case 1-hour average emission rates for the 1-hour NAAQS"), attached hereto as Ex. 9; *see also* EPA Region 5 Comments re Monroe Power Plant Construction Permit 1 (February 1, 2012) ("Compliance with emissions limits. . . should be determined based on averaging times consistent with the NAAQS. The SO_2 and NO_2 averaging times of 24-hour and annual, respectively, are much longer than the 1-hour averaging for the NAAQS and consequently, may not be protective of the standards."), attached hereto as Ex. 10.[7]

Here, the 30-day average emission limits for UNC's SO_2 emissions are fully *720 times* the standard. As such, the SO_2 limits in the Permit are incompatible with the SIP's requirements, and must be objected to.

2. *DAQ's Modeling Improperly Spreads 500 Hours' Worth of NO_2 Pollution over 8760 Hours*

In addition, DAQ's NO_2 emissions modeling failed to actually model the emission limits in the Permit, and instead severely underassesses impacts on the NO_2 NAAQS by spreading out the emissions from 500 operating hours over an entire year for units ES-006 and ES-007. While these units have a 500-hour annual operating limit imposed by DAQ to purportedly protect the NO_2 NAAQS (*see* Permit at 52), DAQ did not model 500

[7] Earlier national-level guidance published by EPA concerning the SO_2 NAAQS was likewise in accord. *See also* U.S. EPA 1-Hour SO_2 NAAQS Guidance Memo at 7, attached hereto as Ex. 11. DAQ, in its comments response document, attempts to draw distinctions between permit limits, SIP requirements, and PSD programs, to argue that while long-term emission limits cannot protect a short term NAAQS in most regulatory contexts, perhaps somehow they can in a SIP. These arguments are both specious and unavailing.

hours' worth of emissions at the hourly emission rate limit in the Permit to test whether that hourly emission rate protected the NAAQS. Instead, it divided the total amount of NO_2 pollution the Permit permitted to occur during those 500 hours over the *8760* hours of an entire year, resulting in a *94% reduction* in the amount of hourly pollution modeled versus what the Permit permits. *See* DAQ Comment Response Document at 12.

The DAQ modeling accordingly fails to ensure that the Permit limits actually protect the NO_2 NAAQS, as the SIP requires. *See* 15A NCAC 2D .0501(c) and 15A NCAC 2D.0401(c). To the contrary, Petitioners modeled the Permit limits for NO_2 for units ES-006 and ES-007, and even using the modeling approach and assumptions that DAQ employed, determined that those Permit limits allowed significant exceedances of the NO_2 NAAQS. *See* Ex. 8 at 9-10.

B. The Permit Lacks Numerous Monitoring, Record Keeping, and Reporting Requirements

Petitioners raised the following issues in their comments on the draft permit (Ex. 1) at pages 5 through 6. Numerous provisions in the Permit lack the monitoring, record keeping, and reporting requirements necessary to ensure compliance with the applicable emissions limits and enable enforcement for permit deviations. These permit provisions are divided into two groupings below, based on DAQ's justifications for these omissions.

1. *DAQ Relies on an Unjustified Expectation that No Excess Emissions Will Occur*

   a. Section 2.1.C.1.c contains no provisions requiring monitoring, recordkeeping, or reporting for particulate matter emissions from firing natural gas and No. 2 fuel oil in Boilers 9 and 10 necessary to ensure compliance with the applicable emissions limit and enable enforcement for permit deviations;

   b. Section 2.1.C.3.c contains no provisions requiring monitoring, recordkeeping, or reporting for sulfur dioxide emissions from firing natural gas in Boilers 9 and 10 necessary to ensure compliance with the applicable emissions limit and enable enforcement for permit deviations.

   c. Section 2.1.G.1.c contains no provisions requiring monitoring, recordkeeping, or reporting for sulfur dioxide emissions from firing natural gas and No.2 fuel oil in 81 emergency generators and 3 fire water pumps necessary to ensure compliance with the applicable emissions limit and enable enforcement for permit deviations.

   d. Section 2.1.H.1.d contains no provisions requiring monitoring, recordkeeping, or reporting for sulfur dioxide emissions from firing No.2 fuel oil in nonemergency generators ES-006 and ES-007 necessary to ensure compliance with the applicable emissions limit and enable enforcement for permit deviations.

In order to dismiss Petitioners' objections to all four of these omissions, DAQ's response to comments states that these monitoring, record keeping, and reporting requirements are unnecessary because DAQ does not expect emissions to be high enough to trigger a violation of the applicable emission limits. Ex. 12 at 14, 15 (e.g., "No monitoring, recordkeeping or reporting is required for . . . permit condition [2.1.C.1.c] because particulate lb/MMBtu emissions from natural gas and fuel oil are expected to be significantly less than the 0.164 lb/MMBtu limit established under 15A NCAC 02D .0503.") However, as we have demonstrated with UNC's monitoring records regarding excess heat input events, *supra*, agency expectations and assumptions alone do not protect public health and the environment from unlawful pollution events.[8] Therefore, the Administrator must object to the permit because this provision lacks monitoring, record keeping, and reporting requirements that assure compliance with all applicable requirements at the time of permit issuance. 40 C.F.R. § 70.8(c)(1).

2. *DAQ Relies on an Unjustified Expectation of Proper Maintenance and Operation of Generators*

   a. Section 2.1.G.2.c contains no provisions requiring monitoring, recordkeeping, or reporting for visible emissions from firing natural gas and No.2 fuel oil in 81 emergency generators and 3 fire water pumps

[8] *See* Exs. 3, 4, 5, 6, and 7; *see also*, analysis at A.1. "DAQ's Modeling Does Not Support the Permit's $S0_2$ and NO_2 Limits," *supra*.

necessary to ensure compliance with the applicable emissions limit and enable enforcement for permit deviations.

b. Section 2.1.H.2.c contains no provisions requiring monitoring, recordkeeping, or reporting for visible emissions from firing No.2 fuel oil in nonemergency generators ES-006 and ES-007 necessary to ensure compliance with the applicable emissions limit and enable enforcement for permit deviations.

In order to dismiss Petitioners' objections to both of these omissions, DAQ's response to comments states that "properly operated and maintained generators should be in compliance" with applicable requirements. Ex. 12 at 15-16 (e.g., "[d]ue to the nature of the fuel being fired, properly operated and maintained generators should be in compliance with 2D .0521.") However, DAQ's assumptions that UNC will properly operate and maintain its equipment do not protect the public from unlawful pollution events. *See, e.g.*, Exs. 3, 4, 5, 6, and 7. Moreover, UNC admitted to DAQ during the pendency of this permitting action–and separately in sworn testimony–that it does not consistently operate its generators in compliance with its permit. Ex. 13; Ex. 14 at 23. Therefore, the Administrator must object to the Permit because this provision lacks operating requirements that assure compliance with all applicable requirements at the time of permit issuance. 40 C.F.R. § 70.8(c)(1).

CONCLUSION

For the reasons identified above, EPA must object to Air Permit No. 03069T36. As clearly identified in Petitioners' comments, the Permit lacks emission limits adequate to prevent violations of the NAAQS and comply with the SIP. Additionally, the Permit lacks monitoring, record keeping, and reporting requirements necessary to ensure compliance with the applicable emissions limits and enable enforcement for permit deviations. Accordingly, Petitioners respectfully request that EPA object to issuance of the Permit, and require North Carolina to revise and reissue the Permit in a manner that complies with the requirements of the Clean Air Act and the SIP by correcting the legal deficiencies identified.

Respectfully submitted,

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On behalf of Center for Biological Diversity, Sierra Club, and the Town of Carrboro

DATED: October 1, 2021

Attachments: Exhibit 1, Comments on the Draft Permit, Petitioners, May 6, 2021

Exhibit 2, Application Review for UNC's Title V Permit, N.C. DAQ, August 5, 2021

Exhibit 3, Memo re Emissions Testing for UNC Boilers 6 and 7, N.C. DAQ, July 18, 2015

Exhibit 4, Boiler 6 Heat Input Summary, UNC, 5/1/2019-12/31/2019

Exhibit 5, Boiler 6 Heat Input Summary, UNC, 12/1/2019-3/17/2021

Exhibit 6, Boiler 7 Heat Input Summary, UNC, 5/1/2019-12/31/2019

Exhibit 7, Boiler 7 Heat Input Summary, UNC, 12/1/2019-3/17/2021

Exhibit 8, Air Quality Review and Comments: UNC Manning and Cogeneration Power Plants, Lindsey Meyers, May 6, 2021

Exhibit 9, Comments re Sunflower Holcomb Station Expansion Project 4, EPA Region 7, August 12, 2010

Exhibit 10, Comments re Monroe Power Plant Construction Permit 1, EPA Region 5, February 1, 2012

Exhibit 11, 1-Hour NAAQS SO_2 Guidance Memo, U.S. EPA, August 23, 2010

Exhibit 12, Hearing Officer's Report and Recommendations, DAQ, August 5, 2021

Exhibit 13, UNC letter to DAQ documenting generator noncompliance events, November 14, 2019

Exhibit 14, Excerpts of 30(b)(6) Deposition Transcript for UNC Corporate Representative Lewis Kellogg, September 3, 2020

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