

# Hearing Officer's Report and Recommendations

The University of North Carolina at Chapel Hill  
Digital Public Hearing via Webex  
May 4, 2021

Public Comment Period: March 31, 2021 through May 6, 2021

Pertaining to Permit Application Nos.  
6800043.15A, 6800043.15B, 6800043.18A, and 6800043.19A  
and  
Draft Air Quality Permit No. 03069T36 for:

The University of North Carolina at Chapel Hill  
1120 Estes Drive Extension  
Chapel Hill, NC, Orange County  
Facility ID No. 6800043  
Fee Class: Title V

Hearing Officer  
Elizabeth T. Huddleston, CPM  
Regional Supervisor, Washington Regional Office

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The University of North Carolina at Chapel Hill  
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## **I. Background**

The North Carolina Department of Environmental Quality (DEQ), Division of Air Quality (DAQ) has combined four permit applications submitted by the University of North Carolina at Chapel Hill (UNC-CH) for review and drafting of permit 03069T36. A summary of each permit application's content is provided below.

Air Permit Application No. 6800043.15A was submitted to the DAQ on May 18, 2015. The application is for a significant modification to incorporate limestone injection rate parametric monitoring limits and oxygen (O<sub>2</sub>) trim concentration limits into the Title V permit 112(j) conditions for Boiler ID No. ES-001-Boiler #6 and Boiler ID No. ES-002-Boiler #7. UNC-CH was required to record the concurrent limestone injection rates and O<sub>2</sub> trim concentrations during performance testing to establish limits to be continuously monitored for compliance demonstrations with the 112(j) emissions limits for hydrogen chloride (HCl) equivalents, mercury (Hg), and carbon monoxide (CO). This permit application was deemed unnecessary pending the removal of the 112j permit conditions (see application .18A summary below).

Air Permit Application No. 6800043.15B was submitted to DAQ on July 24, 2015, for permit renewal. No permit changes were requested in the application.

Air Permit Application No. 6800043.18A was submitted to DAQ on March 19, 2018, for a minor modification to add dry sorbent injection systems (ID Nos. CD-004.3 and CD-005.3) on ES-001-Boiler #6 and ES-002-Boiler #7 to supplement the existing HCl control provided by the limestone injection/baghouse systems and to ensure compliance with the 15A NCAC 02D .1111 Maximum Achievable Control Technology (MACT) 40 CFR 63, Subpart DDDDD hydrogen chloride emission limit. UNC-CH also requested the 15A NCAC 02D .1112, 112(j) Case-by-Case MACT permit conditions applicable to all UNC-CH boilers be replaced with a generic interim permit condition requiring compliance with 15A NCAC 02D .1111 MACT 40 CFR 63, Subpart DDDDD.

Air Permit Application No. 6800043.19A was submitted to DAQ on June 5, 2019, for a minor modification pursuant to 15A NCAC 02Q .0515 to replace one existing 168 hp (125 kW) diesel-fired emergency generator engine ID No. ES-Gen-42 (at the Dean Smith Center) with one new 400 kW diesel-fired emergency generator engine. UNC-CH requested removal of two natural gas-fired water heaters from the Insignificant Activities attachment to the permit and removal of three emergency generators from the permit due to their decommissioning and removal from the facility. UNC-CH also requested correction of a diesel-fired water pump (ID No. ES-FP-3) output descriptor to be 123 hp.

Some acronyms are repeated throughout this report. A list is provided below for reference.

CEMS – continuous emissions monitoring system  
MACT - Maximum Achievable Control Technology  
NAAQS – National Ambient Air Quality Standards  
NESHAP – National Emission Standards for Hazardous Air Pollutants  
NSPS – New Source Performance Standards  
RICE – reciprocating internal combustion engine

## II. Air Quality Permit Applications and Review

DAQ's mission is to protect outdoor, or ambient, air quality in North Carolina for the health, benefit and economic well-being of all. To accomplish this mission DAQ requires industrial facilities to apply for and receive air quality permits prior to construction and operation of air pollution sources and air pollution control equipment to ensure compliance with all applicable federal and state regulations. Title V permitted facilities must submit permit renewal applications six months prior to the date of permit expiration.

### Application No. 6800043.15A

The 112(j) permit conditions in permit 03069T35 sunsetted on May 20, 2019. While not incorporated into the draft permit until now, the facility was required to comply with the limestone injection rate limits and oxygen trim concentration limits established with the 112(j) December 17-18, 2014, performance testing under the 112(j) conditions in permit 03069T35 for Boiler ID Nos. ES-001-Boiler #6 and ES-002-Boiler #7 until the 112(j) sunset date. As of May 20, 2019, all boilers at the facility became subject to 15A NCAC 02D .1111 "Maximum Achievable Control Technology," 40 CFR Part 63, Subpart DDDDD. The limestone injection rate limits and oxygen trim concentration limits for Boiler #6 and Boiler #7 have been re-established with performance testing required by Subpart DDDDD, and along with associated monitoring and recordkeeping conditions, are included in the Subpart DDDDD permit conditions in draft permit 03069T36.

### Application No. 6800043.15B

No modifications were requested in the permit renewal application by UNC-CH. For permit renewals DAQ conducts a review of all applicable regulations and permit conditions, modifies the permit to include conditions for new regulatory requirements, removes conditions that no longer apply, and updates any standardized formatting or condition language. Several changes were made to draft permit 03069T36 as a result of the permit renewal review, including, but not limited to:

- removal of 112(j) conditions due to the sunset date of May 20, 2019,
- addition of 40 CFR Part 63, Subpart DDDDD, Boiler MACT permit conditions for each of the boilers,
- removal of the 15A NCAC 02D .0614 "Compliance Assurance Monitoring" (CAM) condition for sulfur dioxide because the continuous emissions monitoring systems (CEMs) on Boiler #6 and Boiler #7 provide data in the units of the New Source Performance Standards (NSPS) emissions standard, thereby exempting them from CAM,
- removal of the 15A NCAC 02D .2400 "Clean Air Interstate Rule" (CAIR) condition because CAIR no longer applied as of January 1, 2015,
- updated language for operating restrictions under 40 CFR, Part 63, Subpart ZZZZ for reciprocating internal combustion engines, and
- removal of the 15A NCAC 02D .0530(u) "Prevention of Significant Deterioration" condition (formerly 2.1.A.5.) because the recordkeeping and reporting requirements were met for the 5-year life span of the condition.

Discussion of the changes to the permit are provided in more detail in the 03069T36 permit review document.

On September 25, 2018, draft permit 03069T36 was sent to 30-day public notice and 45-day EPA review for permit renewal. In October 2018 DAQ received requests for a 60-day extension of the public comment period and a request to hold a public hearing. On October 29, 2018, the DAQ received an air dispersion modeling analysis report from the Center for Biological Diversity (Center) that assessed compliance with the 1-hour sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide(NO<sub>2</sub>) National Ambient Air Quality Standards (NAAQS) for UNC-CH Manning and Cogeneration Power Plants. DAQ did not issue permit 03069T36 at the end of the EPA 45-day review period in order to consider the modeling report and comments received from the Center and the public.

Between January 19, 2019 and July 1, 2019 DAQ met with UNC-CH concerning the Center's modeling report. UNC-CH performed their own modeling analysis for the 1-hour SO<sub>2</sub> and NO<sub>2</sub> NAAQS, and UNC-CH submitted their modeling analysis to DAQ for review. DAQ completed review of the UNC-CH modeling on October 7, 2019. A more detailed timeline during this period and leading up to the public notice of the revised draft permit on March 31, 2021 is provided in DAQ's permit review document for draft permit 03069T36.

The draft permit was then modified to include the following changes:

- incorporation of a SO<sub>2</sub> limit for Boilers ES-001-Boiler #6 and ES-001-Boiler #7 when combusting coal of 0.41 lb SO<sub>2</sub>/million Btu heat input per 30-day rolling average,
- lowering the sulfur content limit in fuel oil consumed in the Cogeneration Facility Boiler ID No. ES-003-Boiler #8 and the non-emergency generators ID Nos. ES-006 and ES-007 from 0.5 percent sulfur content by weight to 0.12 percent sulfur content by weight, and
- limiting operation of the non-emergency generators ID Nos. ES-006 and ES-007 from 7,500 hours each on a consecutive 12-month period to 500 hours each on a consecutive 12-month period to ensure compliance with both the 1-hour and annual NO<sub>2</sub> NAAQS.

#### Application 6800043.18A

The dry sorbent injection (DSI) systems (ID Nos. CD-004.3 and CD-005.3) for ES-001-Boiler #6 and ES-002-Boiler #7 are included in the draft permit as boiler control devices, and are incorporated as HCl controls in the 40 CFR, Part 63, Subpart DDDDD, Boiler MACT conditions. The permit review for draft permit 03069T36 includes an evaluation of emissions that could be affected by the DSI systems.

At the time of the application's receipt, DAQ decided that the 112(j) permit conditions for each boiler should remain in the permit since all boilers were still required to comply with the 112(j) conditions until May 19, 2019. The conditions were removed as part of the permit renewal, and were replaced in draft permit 03069T36 with 40 CFR 63, Subpart DDDDD, Boiler MACT conditions for each of the boilers.

### Application 6800043.19A

The 400 kW diesel-fired emergency generator engine (ID No. ES-Gen-42) replacement at the Dean Smith Center is included as a new source in draft permit 03069T36. New Source Performance Standards (NSPS) Subpart IIII and the Reciprocating Internal Combustion Engine (RICE) National Emission Standards for Hazardous Air Pollutants (NESHAP) apply to the engine, and it is included as an affected source in those respective permit conditions. Major modification thresholds for NO<sub>x</sub> and SO<sub>2</sub> subject to Prevention of Significant Deterioration (PSD) New Source Review (NSR) permitting requirements were not exceeded with the replacement of ID No. ES-Gen-42 with a larger engine.

DAQ is required to perform an unacceptable risk assessment for North Carolina Air Toxics with any permit modification involving new sources of toxic pollutant emissions or an increase in toxics emissions. UNC-CH conducted a *facility-wide* dispersion modeling analysis for all toxics emissions in excess of the toxic air pollutant emission rates provided in 15A NCAC 02Q .0711(a). The air toxic with the greatest maximum modeled impact is benzene at 15.5% of the 1.21E-1 ug/m<sup>3</sup> Acceptable Ambient Level (AAL). DAQ concluded the generator replacement will not present an unacceptable risk to human health based on the dispersion modeling.

### **III. Notice of Public Hearing**

At the discretion of the Director of the DAQ a notice of the opening of a public comment period and a notice of public hearing on the draft air quality permit for UNC-CH were posted on the DAQ website, and a press release was issued on March 31, 2021. The notice of public hearing on the draft air quality permit for UNC-CH was also published on March 31, 2021 in the News of Orange newspaper. The public comment period opened on March 31, 2021 and closed on May 6, 2021.

The DAQ sent outreach emails concerning the draft permit, hearing and comment period on April 15, 2021 to representatives of the following entities:

- UNC-CH Environmental Affairs Committee of Student Government
- Sustain Chapel Hill (Town of Chapel Hill, [sustainchapelhill.org](http://sustainchapelhill.org))
- UNC-CH School of Public Health-Office of Student Affairs
- Chair of UNC-CH Undergraduate Environmental Justice Minor
- Chair of UNC-CH Undergraduate Environmental Studies Major
- Chair of UNC-CH Department of City and Regional Planning
- Associate Chair of UNC-CH Department of Environmental Sciences and Engineering

Facebook and Twitter reminders concerning the public hearing and public comment period were released eight times between April 7<sup>th</sup> and April 29<sup>th</sup>, and on May 3, 2021.

Copies of the air quality permit applications, permit applications' reviews, draft air permit, and draft Environmental Justice Report were posted on the DAQ website during the public review period. Copies of the air quality permit applications and related documents were also available for public review at DAQ's Raleigh Regional Office and Raleigh Central Office (Green Square) throughout the public comment period.

In addition to the public hearing, the DAQ accepted comments concerning the draft permit via mail, electronic mail, and voicemail during the public comment period. A designated email address and phone number for comments were provided in the DAQ notice for the public hearing.

The public hearing was conducted virtually on May 4, 2021 via Webex to allow for public participation while protecting public health to prevent the spread of COVID-19. Additionally, a dedicated telephone number was provided during the hearing to give citizens the ability to call in if they had no internet access or a poor internet connection. The hearing officer was Ms. Elizabeth "Betsy" Huddleston, Regional Air Quality Supervisor for the DAQ's Washington Regional Office (WaRO). During the hearing Mr. David Hughes, Raleigh Central Office Permit Engineer, who reviewed the permit applications and drafted the permit, discussed the applications, the draft permit and the air permitting procedures prior to opening the hearing for comments.

#### **IV. Public Comments Received and Hearing Officer Responses**

All comments were given equal consideration, whether they were written, left orally in the voice mail box designated for comment, or made orally at the virtual public hearing. Over the duration of the public comment period three hundred and twelve (312) individuals, organizations and governmental entities submitted comments to DAQ. Four (4) written comments were received after the close of the comment period, but were included for review by the hearing officer. Twenty-two (22) speakers provided oral comments during the May 4, 2021, virtual public hearing (five registered speakers did not present). Fifteen (15) people provided comments via the dedicated voicemail box for public comments. Some individuals provided comments in both written and oral format.

All email comments have been consolidated and saved to an Adobe file. Document attachments to emailed comments have been saved to separate electronic files. Voicemail comments have been transcribed to a Word document. The hearing was recorded and the attendance list is saved to electronic file. Names and affiliations of all individuals who provided comments (written, by phone, and during the hearing) and short summaries of their comments have been compiled into an Excel spreadsheet. These electronic documents are available by request.

**No comments were received in support of the draft permit. All commenters oppose issuing the permit as the draft is currently constructed.**

Several public officials spoke at the public hearing and/or provided written comments in opposition of the draft permit. These officials include:

- Pam Hemminger, Mayor, on behalf of the Town of Chapel Hill and the Town Council
- Sammy Slade, Carrboro Town Council and Lydia E. Lavelle, Mayor, on behalf of the Town of Carrboro
- David Stancil, Director of DEAPR and Renee A. Price, County Commissioner, on behalf of the Orange County Board of Commissioners

Several environmental advocacy organization representatives and members spoke at the hearing and/or provided written comments in opposition of the draft permit. These organizations include

- Blue Ridge Environmental Defense League on behalf of themselves and their chapter Chapel Hill Organization for Clean Energy (CHOCE)
- Chapel Hill for Clean Energy
- Chapel Hill-Carrboro NAACP
- Center for Biological Diversity on behalf of themselves and the Sierra Club
- Church Women United in North Carolina
- Clean Earth 4 Kids
- Climate Action NC
- Orange County Chapter of Climate Reality
- Protect All Children's Environment
- Sierra Club Beyond Coal Campaign
- Triangle Women's International League for Peace and Freedom

Two hundred twenty (220) written email comments submitted to the DAQ were form letters provided by the Sierra Club Beyond Coal Campaign. There were an additional twenty-four written comment submissions that were a different form letter. Examples of each letter are provided as attachments to this report. All personal comments included within these form letters were considered by the hearing officer.

The issues cited in the written and oral comments submitted to DAQ were consistently communicated across almost all commenters, except for the comments submitted by the Center for Biological Diversity (on behalf of their members and the Sierra Club). They provided a letter (with attachments) that contains specific technical and regulatory comments with respect to modeling of emissions against the 1-hour SO<sub>2</sub> and NO<sub>2</sub> National Ambient Air Quality Standards (NAAQS), creation of operating limits associated with those NAAQS and content of specific permit conditions. To concisely address all issues and minimize redundancy, I have grouped comments by topic similarity where possible. Other than the summary above, no differentiation is made regarding whether a comment was provided orally or in written form.

Unless the public comments received during the public comment period reveal that DAQ was in error or incomplete in its evaluation of the four permit applications, and if it appears the facility can meet all federal and state laws and rules for the protection of air quality, DAQ is obligated to issue an air permit to the University of North Carolina at Chapel Hill. The following hearing officer responses to written and oral public comments address issues raised in light of these requirements.

**A. Center for Biological Diversity and the Sierra Club Technical, Regulatory and Specific Permit Conditions Comments**

The Center for Biological Diversity (Center) letter cites several issues related to the 1-hour SO<sub>2</sub> and NO<sub>2</sub> NAAQS modeling analyses conducted by UNC-CH and reviewed by DAQ for the draft permit. They provided their own modeling analysis report as an attachment to their letter. The Center's letter and modeling report are attached to this hearing officer report for reference.

- 1) The letter states that their modeling used UNC-CH's inputs and EPA's latest air model. Their analysis concluded that Boilers #6 through #10 and the two non-emergency generators ES-006 and ES-007 resulted in an impact of 217.9 ug/m<sup>3</sup> of SO<sub>2</sub> in excess of the 2010, 1-hr NAAQS of 196.2 ug/m<sup>3</sup>. The areas of exceedance are cited as UNC-CH's Dogwood, Cardinal, and Jackson parking decks, the Thurston-Bowles Building and the Mary Ellen Jones Building.

#### Hearing Officer Response

The modeled 1-hour SO<sub>2</sub> concentrations presented by the Center are primarily based on changes in model emissions assumptions, mostly pertaining to heat input and lb/MMBtu SO<sub>2</sub> emission limits on Boilers #6 and Boiler #7 at the Co-Gen facility. The Center's addition of receptors at the Co-Gen facility driveways, walkways and parking deck areas (e.g., Jackson and Dogwood Parking Decks), and buildings (e.g., Thurston Bowles and Mary Ellen Jones Buildings) on campus assume the general public would have access at a level that would create exposures to modeled impacts above the 1-hour SO<sub>2</sub> NAAQS. DAQ respectfully disagrees with addition of these receptors at the Co-Gen facility, and on-campus parking deck areas and buildings. The driveways and walkways at the Co-Gen facility are on private property, and members of the general public would have only uninvited access to those driveways and walkways where the Center has added receptors. The parking deck areas and buildings on campus are structures where access and exposure of the general public to ambient modeled impacts would not occur for any significant amount of time at any location external to these structures and buildings. As such, modeling of receptors located on the parking deck areas is inappropriate for demonstrating compliance with the NAAQS. The DAQ finds no changes to the meteorology or modeling options presented that would unduly influence NAAQS compliance. In summary, UNC-CH's modeled receptors and meteorology are consistent with NC DAQ and EPA modeling guidance and NAAQS regulations, and therefore, show the modeling provided by UNC-CH demonstrates compliance with the 1-hour SO<sub>2</sub> NAAQS.

- 2) The Center's letter states that DAQ's reliance on modeling at 290.9 lbs SO<sub>2</sub>/hr, based upon assuming a maximum heat input of 323.17 MMBtu/hr and 0.45 lb SO<sub>2</sub>/MMBtu for each of the coal boilers is arbitrary because DAQ did not establish any lb/hr or heat input limits in the 1-hour proposed SO<sub>2</sub> NAAQS permit condition. Furthermore, the Center objects to the proposed 30-day rolling average 0.41 lb SO<sub>2</sub>/MMBtu NAAQS limit stated in Specific Condition 2.2.A.3.a. of the draft permit. The Center submits that compliance must be demonstrated on the basis of a 1-hour averaging period. The Center suggests DAQ modify the permit condition to include a 290.2 lbs/hr SO<sub>2</sub> emissions limit based on a one-hour averaging period with CEMS as the method of monitoring, and/or include a heat input limit of 323.17 MMBtu/hr for each boiler.

#### Hearing Officer Response

The 0.41 lb/MMBtu limit is based on following Section V.D.2 ("Averaging times for SO<sub>2</sub> emission limits") and Appendices B and C of the following EPA guidance document:

*EPA, 2014. Guidance for 1-Hour SO<sub>2</sub> Nonattainment Area SIP Submissions. Stephen D. Page Memorandum, dated April 23, 2014. To: Regional Air Directors, Regions 1 – 10. U.S. EPA Office of Air Quality Planning and Standards. Research Triangle Park, NC.*

This guidance document was considered applicable to UNC-CH given that any source operating in a nonattainment area for the 1-hour SO<sub>2</sub> NAAQS would be required by the permitting authority to develop a compliance plan using modeling or monitoring (or combination thereof) and appropriate emission offsets/limits to demonstrate the source would not cause or contribute to a violation of the NAAQS. While UNC-CH does not operate within a nonattainment area, the compliance plan and associated methodology proposed by UNC-CH was found to be consistent with this 2014 EPA guidance for the 1-hour SO<sub>2</sub> NAAQS enforceable emission limits and associated modeling demonstration.

Section V.D.2 of the guidance document provides background discussions and a narrative of the applicability and purpose of the guidance within the context of the 1-hour SO<sub>2</sub> NAAQS. Appendix B documents EPA's own analyses and case studies in comparing the stringency of a 1-hour average to a longer-term averaging period (such as a 30-day rolling average) SO<sub>2</sub> limit (lb/hr or lb/MMBtu) for demonstrating modeled compliance with the 1-hour SO<sub>2</sub> NAAQS. Appendix C shows example calculations and steps for several existing sources where a 30-day rolling average limit would maintain similar stringency required for a 1-hour average limit to demonstrate compliance with the 1-hour SO<sub>2</sub> NAAQS and attainment. The EPA calculations and analysis steps, and UNC-CH assumptions are discussed as follows:

- *Step 1: Determine a critical threshold emission rate value that shows modeled compliance with the 1-hour SO<sub>2</sub> NAAQS. This involves finding the highest emission rate in lb/hr (e.g., as calculated from lb/MMBtu x MMBtu/hr = lb/hr) that would model at less than the 99<sup>th</sup> percentile 1-hour SO<sub>2</sub> NAAQS using AERMOD (i.e., 196 ug/m<sup>3</sup>).*

UNC-CH proposed a critical threshold emission value for each boiler.  
0.45 lb/MMBtu x 323.17 MMBtu/hr = 145.43 lb/hr per boiler  
(a total of 290.9 lbs SO<sub>2</sub>/hr)

- *Step 2: Compile representative hourly average emissions data to characterize the statistical distributions of frequency, magnitude and duration of emission rates.*

UNC-CH proposed hourly CEMS data from the period of calendar years 2016-2018 when Boilers #6 and #7 were burning coal.

- *Step 3: Use the emissions data from Step 2 to determine corresponding distributions of 1-hour and longer-term emission rate averages.*

UNC-CH provided hourly and 30-day rolling average emission rates in terms of lb/MMBtu for each boiler, calculated on an hourly and daily basis, respectively.

- *Step 4: Use the 1-hour and 30-day average emission rate distributions to determine the 99<sup>th</sup> percentile values for both averaging periods.*

UNC-CH proposed the following 99<sup>th</sup> percentiles:

Boiler #6: 1-hour value of 0.3 lb/MMBtu, 30-day value of 0.271 lb/MMBtu

Boiler #7: 1-hour value of 0.3 lb/MMBtu, 30-day value of 0.282 lb/MMBtu

- *Step 5: Use the hourly and 30-day values to calculate a ratio of 30-day value to 1-hour 99<sup>th</sup> percentile values.*

UNC-CH calculated and proposed the following ratios:

Boiler #6: 0.903

Boiler #7: 0.939

- *Step 6: Multiply the ratios from the previous step 5 by the critical threshold emission value from step 1 to determine a longer-term emission limit with similar stringency to the 1-hour emission limit; this limit would model in compliance with the NAAQS with added conservatism.*

UNC-CH proposed an average emission limit for Boilers #6 and #7 with a common stack as follows:  $(0.903+0.939)/2 \times 0.45 \text{ lb/MMBtu} = 0.414 \text{ lb/MMBtu}$

The modeling provided by UNC-CH shows that the 0.45 lb SO<sub>2</sub>/MMBtu (290.9 lbs/hr total from Boilers #6 and #7 (with model impact of 174.3 ug/m<sup>3</sup>) plus background (15.7 ug/m<sup>3</sup>) for Boilers #6 and #7 would not cause a violation of the 1-hour SO<sub>2</sub> NAAQS (190 ug/m<sup>3</sup> total is less than the 196 ug/m<sup>3</sup> NAAQS). The 0.41 lb/MMBtu permit limit as determined by following the EPA guidance cited above provides an additional margin of safety, or layer of conservatism for the coal-fired boilers to account for the stringency of the 1-hour emission limitation within the context of the 99<sup>th</sup> percentile 3-year form of the 1-hour SO<sub>2</sub> NAAQS. In other words, the model impacts using the 0.41 lb/MMBtu x 323.17 MMBtu/hr = 267.0 lbs/hr SO<sub>2</sub> effective limit would be approximately 10% less (i.e., 170 ug/m<sup>3</sup>) than those impacts modeled by UNC-CH for the coal-fired boilers.

Furthermore, there is additional conservatism provided by the unadjusted friction velocity applied in the hourly meteorology used in the 1-hour SO<sub>2</sub> (and NO<sub>2</sub>) UNC-CH modeling demonstrations. The adjusted friction velocity option is supported as a regulatory option by EPA to address AERMOD overpredictions of model impacts during hours and periods of time with low-winds. Application of this adjusted friction velocity option typically results in refinements in AERMOD concentration predictions reduced by as much as 10-30%. Therefore, the UNC-CH NAAQS modeling is conservative both in terms of meteorology and acceptance of the 0.41 lb/MMBtu 30-day rolling average permit limit for the coal-fired boilers.

- 3) The letter states that the UNC-CH model uses an unexplained NO/NO<sub>2</sub> in-stack ratio of 0.2. The Center applied the 0.2 ratio in their model, and the resulting impacts were 330.23 ug/m<sup>3</sup> in comparison to the 188 ug/m<sup>3</sup>, 1-hour NO<sub>2</sub> NAAQS. The letter states that the Center then applied an EPA recommend NO/NO<sub>2</sub> ratio of 0.5, and the analysis showed an impact of 763.75 ug/m<sup>3</sup>.

### Hearing Officer Response

The 0.2 NO<sub>2</sub>/NO<sub>x</sub> in-stack ratio (ISR) proposed by UNC-CH is consistent with EPA guidance for nearby source NO<sub>x</sub> inventory assumptions for cumulative 1-hour NO<sub>2</sub> NAAQS demonstrations where sources are located greater than one to three kilometers apart. The Co-Gen sources are 1.3 km away from the Manning Steam Plant sources, so this assumption was considered appropriate given the distance between any overlapping plumes from both emission activities. No other analytical basis was provided by UNC-CH to support application of the 0.2 ISR to all emission units; however, this value is consistent and in most cases conservative when compared with ISR's applied at other Title V facilities with similar medium to large size boilers in NC within the context of 1-hour NO<sub>x</sub> NAAQS modeling demonstrations.

The 0.5 ISR value is not representative of the ISR's typically observed at other power plants in North Carolina and nationwide. EPA's ISR database (<https://www.epa.gov/scram/nitrogen-dioxidenitrogen-oxide-stack-ratio-isr-database>) shows that 0.5 ISR values are mainly observed for smaller oil-fired engines. The 0.5 ISR value is a conservative default value not representative of the majority of combustion units modeled for UNC-CH.

- 4) The Center states that the draft permit operating limits of 500 hours per year for the two 2,000 kW non-emergency generators (ID Nos. ES-006 and ES-007) do not resolve the 1-hour NO<sub>2</sub> NAAQS violation demonstrated by their modeling. The Center disagrees with limiting operations to 500 hours per year with modeling based on an hourly emissions rate which spreads across 8,760 hours per year. The Center submits that DAQ must deny the permit or impose a 1-hour averaging time NO<sub>x</sub> emission limit for the two non-emergency generators with CEMS as the monitoring method.

### Hearing Officer Response

The methodology UNC-CH applied in their modeling is appropriate when a source is clearly operating "intermittently" as demonstrated by the three years (2007-2009) of hourly data provided by UNC-CH for non-emergency engines. The 2007-2009 timeframe is the highest three-year operational period for the engines since initial startup. The calculation used to derive the annualized 2.32 lb/hr NO<sub>x</sub> emission rate for the non-emergency engines in the UNC-CH 1-hour NO<sub>2</sub> NAAQS demonstration is as follows:

$$\text{GEN1 ES-006 NO}_x \text{ (lb/hr)} = (40.56 \text{ max lb/hr}) * (500 \text{ hrs/yr}) * (1 \text{ yr}/8760 \text{ hrs}) = 2.32 \text{ lb/hr NO}_x$$

The same calculation applies to non-emergency engine ID No. ES-007 as well. This annualized emission rate is in accordance with 1-hour NO<sub>x</sub> EPA modeling guidance referenced in the DAQ Air Quality Analysis Branch modeling review memo (see reference below; paragraph 2, pg. 11) for the draft permit, and is based on the intermittent operations of the non-emergency engines that will occur less than 500 hours per year. The maximum NO<sub>x</sub> emission rate as shown in the above calculation for each non-emergency engine is 40.56 lb/hr, as provided in the UNC-CH modeling report (Table 6). Details and backup data supporting the intermittent source characterization

determination are provided in the UNC-CH modeling report in terms of hourly records (Appendix C) and discussions (Section 5.2).

*Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO<sub>2</sub>, National Ambient Air Quality Standard. U.S. EPA Memorandum Office of Air Quality Planning and Standards. March 1, 2011. [https://www.epa.gov/sites/production/files/2020-10/documents/additional\\_clarifications\\_appendixw\\_hourly-no2-naaqs\\_final\\_03-01-2011.pdf](https://www.epa.gov/sites/production/files/2020-10/documents/additional_clarifications_appendixw_hourly-no2-naaqs_final_03-01-2011.pdf)*

- 5) The Center suggests a 0.07 lb NO<sub>x</sub>/MMBtu limit on Boilers #9 and #10 (each) because that is the emission rate used in the model for the Davis Hall Generator. The Center also recommends NO<sub>x</sub> lb/MMBtu limits for the Davie generator ID No. ES-Gen-13 because their modeling showed NAAQS violations. The Center states that use of significant impact levels (SIL) is inappropriate and lets the “source off the hook.”

Hearing Officer's Response

Please reference the hearing officer's response for Comment 4) above with respect to representation of intermittent emissions in accordance with EPA guidance. After consulting with DAQ Air Quality Analysis Branch and DAQ Central Office Permitting Section to try to understand these comments, the hearing officer has determined that the Center has not provided enough technical justification for DAQ to address whether establishment of lb/MMBtu limits on Boilers #9 and #10 with respect to permitting of the generators at Davis and Davie Halls is necessary.

- 6) The Center cites several permit conditions for sources they believe lack monitoring, recordkeeping and reporting requirements. A list of the sources and the associated permit condition numbers is provided below.

Source	Pollutant	Specific Condition
ES-001-Boiler #6 and ES-002-Boiler #7	particulate	2.1.A.1.c.
Two natural gas/No. 2 fuel oil-fired boilers (ID Nos. ES-004-Boiler#9 and ES-005-Boiler#10)	particulate from natural gas and No. 2 fuel oil	2.1.C.1.c.
	sulfur dioxide	2.1.C.3.c.
Three enclosed railcar dump pits (ID Nos. ES-010.1, ES-010.2 and ES-010.3)	visible emissions	2.1.D.2.c.
Seventy-nine diesel-fired, compression ignition, emergency generators; two natural gas-fired, spark ignition, emergency generators; three No. 2 fuel oil-fired fire water pumps	sulfur dioxide	2.1.G.1.c.
	visible emissions	2.1.G.2.c.
Two No. 2 fuel oil-fired, compression ignition, non-emergency generators (ID Nos. ES-006 and ES-007)	sulfur dioxide	2.1.H.1.d
	visible emissions	2.1.H.2.c.

### Hearing Officer Response

#### *Specific Condition 2.1.A.1.c.*

The Center's letter only references "Sections 1.a and 1.b" as limiting the type and amount of wood that UNC may burn. The hearing officer searched for similar language with these condition labels, and concluded the reference is likely to Specific Condition 2.1.A.1.c for regulation 02D .0503. The monitoring of fuel consumption for this condition only includes natural gas, and the condition cites NSPS Db permit conditions 2.1.A.2.f. through h. for monitoring coal and fuel oil use. Wood consumption is required to be recorded as well per Specific Condition 2.1.A.4.s. (MACT Subpart DDDDD).

**Since the fuel monitoring permit conditions for coal and fuel oil under NSPS are referenced in condition 2.1.A.1.c, the hearing officer recommends including reference to the MACT condition 2.1.A.4.s. in 2.1.A.1.c. as well.**

#### *Specific Condition 2.1.C.1.c.*

No monitoring, recordkeeping or reporting is required for this permit condition 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. Furthermore, under condition 2.1.C.4. (MACT Subpart DDDDD) UNC-CH is self-limited to combustion of natural gas on these boilers except for using fuel oil for periodic testing, maintenance, training, and gas curtailment. Should No. 2 fuel oil be used for any other purpose, UNC-CH is required to comply with permit condition 2.1.C.5., which limits particulate emissions to a more restrictive 7.9E-03 lb/MMBtu. Performance testing, monitoring, recordkeeping and reporting requirements are provided in condition 2.1.C.5. No change to this permit condition is necessary.

#### *Specific Condition 2.1.C.3.c.*

No monitoring, recordkeeping or reporting is required for this permit condition because SO<sub>2</sub> lb/MMBtu emissions from natural gas and fuel oil are expected to be significantly less than the 2.3 lb/MMBtu limit established under 02D .0516. SO<sub>2</sub> emissions from natural gas are considered almost negligible (0.001 lb/MMBtu is a common emission factor applied for natural gas). Furthermore, under condition 2.1.C.2. the NSPS Db fuel oil sulfur content is limited to 0.3 percent by weight, which is a more restrictive limit. UNC-CH is required to obtain and maintain fuel receipts from their fuel supplier certifying that the No. 2 fuel oil meets the definition of distillate oil as defined in 40 CFR 60.41b (i.e. certifying use of low sulfur fuel). No change to this permit condition is necessary.

#### *Specific Condition 2.1.D.2.c.*

One commenter stated they live approximately 0.25 mile from the Co-Gen facility and they observe the trains delivering coal every few days with coal dust spewing as it unloads. The railcar dump pits are subject to NSPS Subpart Y. Monitoring is required when UNC-CH does not use the wet spray dust suppression system. They must conduct a Method 9 visible observation, and if one reading exceeds 20 percent, the water spray must be turned on. General Statute 150B-19.3 does not allow DAQ to impose more restrictive conditions on sources that are meeting conditions of air quality federal regulations. **The hearing officer recommends that the permit engineer review Subpart Y for any operation, monitoring, and/or recordkeeping requirement that**

**could apply to the dump pits' visible emissions when the suppression system is operating. If such a requirement exists, then add it to the permit condition or equivalent language meeting the same purpose.**

*Specific Condition 2.1.G.1.c.*

No monitoring, recordkeeping or reporting is required for this permit condition because SO<sub>2</sub> lb/MMBtu emissions from natural gas and fuel oil from the engines are expected to be significantly less than the 2.3 lb/MMBtu limit established under 02D .0516. Sulfur dioxide emissions from natural gas combustion are considered almost negligible. Furthermore, NSPS Subpart III and/or the RICE NESHAP Subpart ZZZZ apply to all these engines, and both regulations require the facility to purchase fuel oil/diesel with sulfur content limited to 15 ppm. This is a more restrictive limit than the limit set by 02D .0516. No change to this permit condition is necessary.

The 15 ppm sulfur limit is stated in permit specific condition 2.2.C.1.c. for NSPS Subpart III affected engines. However, this limit does not appear to be stated in specific condition 2.1.G.3. **The hearing officer recommends adding a condition to 2.1.G.3. requiring all diesel/fuel oil engines at UNC-CH to use oil with a maximum sulfur content of 15 ppm, a minimum cetane index of 40, and a maximum aromatic content of 35 volume percent (cite 40 CFR 1090.305), or equivalent language meeting the same purpose.**

*Specific Condition 2.1.G.2.c.*

Due to the nature of the fuel being fired, properly operated and maintained generators should be in compliance with 02D .0521. The generators are NSPS and/or MACT applicable, and both regulations contain maintenance requirements according to the manufacturer or site-specific plan. Absent other monitoring, recordkeeping, and reporting conditions for visible emissions in specific applicable requirements, this condition in the draft permit is like conditions in many Title V permits written by DAQ since the mid-1990's. Those conditions have gone through many rounds of public and EPA review and are regularly approved. No change to this permit condition is necessary.

*Specific Condition 2.1.H.1.d.*

No monitoring, recordkeeping or reporting is required for this permit condition because SO<sub>2</sub> lb/MMBtu emissions from fuel oil combustion are expected to be significantly less than the 2.3 lb/MMBtu limit established under 02D .0516. Furthermore, the RICE NESHAP Subpart ZZZZ applies to these engines, and requires the facility to purchase fuel oil/diesel with sulfur content limited to 15 ppm. This is a more restrictive limit than the limit set by 02D .0516. However, this limit does not appear to be stated in specific condition 2.1.H.3. **The hearing officer recommends adding a condition to 2.1.H.3. requiring fuel oil to contain a maximum sulfur content of 15 ppm, a minimum cetane index of 40, and a maximum aromatic content of 35 volume percent (cite 40 CFR 1090.305), or equivalent language meeting the same purpose.**

*Specific Condition 2.1.H.2.c.*

Due to the nature of the fuel being fired, properly operated and maintained generators should be in compliance with 2D .0521. The generators are expected to comply with RICE NESHAP Subpart ZZZZ (Specific Condition 2.1.H.3.) which includes

maintenance, testing, performance monitoring, startup, shutdown and malfunction requirements. Absent other monitoring, recordkeeping, and reporting conditions for visible emissions in specific applicable requirements, this condition in the draft permit is like conditions in many Title V permits written by DAQ since the mid-1990's. Those conditions have gone through many rounds of public and EPA review and are regularly approved. No change to this permit condition is necessary.

- 7) The Center requests more clarification in MACT permit conditions. The letter states, *“For each source for which a MACT standard is listed as applicable, the permit needs to identify which emission limits and other provisions apply to each emission unit, or at least to provide the information for the public, EPA, DAQ, and UNC to know which emission limits and other provisions apply. For example, for some MACT standards, different emissions limits and other provisions apply depending on the size of the generator, e.g. its brake horse power, as well as the type of generator, e.g. spark, compression, rich or lean burn, etc. The permit needs to specify which subsection, including what parts of various tables in the MACT standards apply or at the very least provide all of the relevant information about the emission unit, e.g. size, type, new, reconstructed, existing, etc, so that everyone can tell, by looking at the permit, what are the exact applicable requirements, e.g. emission limits and other requirements.”*

#### Hearing Officer Response

The DAQ Central Office Permitting Section creates the MACT permit conditions (specifically Subparts DDDDD and ZZZZ for this permit) from templates so these conditions may be as consistent as possible across all affected Title V permits. The templates are modified in each permit to accommodate requirements according to the source type, source size, associated limit(s), and control device type. The hearing officer agrees that the templates do need to be improved and expanded; however, clarifications to the permit templates will require significant time for consideration, revision and review by DAQ's Central Office permitting and technical services staff for the purpose of consistency across all permits. The hearing officer has reviewed the Subpart DDDDD and Subpart ZZZZ conditions in draft permit 03069T36 and has recommended additional language for diesel/fuel oil sulfur, aromatic and cetane limitations in Subpart ZZZZ conditions 2.1.G.3. and 2.1.H.3. The hearing officer has confirmed the permit conditions otherwise sufficiently address applicable requirements of these regulations. The conditions are valid for permit issuance. Editing the permit draft to include the Center's suggested clarifications is not recommended by the hearing officer at this time.

- 8) The Center submits that DAQ must perform an increment analysis to determine if generator ID No. ES-Gen-42 violates any increment.

#### Hearing Officer Response

An increment analysis is required by the applicant only in cases where there's a Prevention of Significant Deterioration (PSD) project (i.e., a major modification at a major stationary source as defined under 40 CFR 51.166). However, in the case of an otherwise applicable PSD project occurring at a non-profit educational institution, the source impact analysis required under 40 CFR 51.166(k)(1)(ii) for PSD increment would

not apply to UNC-CH in any case given the exemptions from PSD provided under 40 CFR 51.166(i)(1)(i).

## **B. ES-001-Boiler #6 and ES-002-Boiler#7 Maximum Heat Input Comments and Concerns**

The Center for Biological Diversity (Center) letter states that DAQ removed a 323.17 MMBtu/hour heat input limit in condition 2.1.A from the permit, and it must be placed back into the permit. More than 98% of the commenters noted the same concern, as well as stating the heat input limit needs to be strengthened. Commenters also stated that removal of the heat input limits will result in increase of emissions.

The Center's letter states that removal of the heat input limit invalidates any modeling that includes Boiler #6 and Boiler #7 that underlies the permit, including the modeling to assure compliance with the NAAQS and NCTAPs (toxic air pollutants) limits. The letter states that UNC-CH's modeling assumes heat input below 323.17 MMBtu/hr for every hour, and stack testing of the boilers has proven they are capable of operating at greater heat inputs.

The Center submits that DAQ did not "*provide any justification for this change in the Application Review or any place else. In fact, DAQ left this deletion out of the Table of Changes. This creates the appearance of lack of transparency, at best.*" Several commenters expressed that its absence from the Table of Changes was deliberately misleading.

### Hearing Officer Response

The 323.17 million Btu per hour (MMBtu/hr) heat input in UNC-CH's permit 03069T35 for each of the coal-fired boilers is not considered to be an enforceable limit. It is a boiler-plate heat input capacity that the boiler manufacturer uses to describe a design parameter. The heat input descriptors for all the boilers were removed administratively from the headers for permit sections 2.1.A., 2.1.B, and 2.1.C. in draft permit 03069T36. No deceit was intended by excluding the heat input descriptors from the headers and the Table of Changes attachment to the permit draft. The removals were considered formatting changes to be consistent with the same action conducted in other Title V permit renewals. UNC-CH did not request these heat input descriptions be removed from the permit section headers.

When an applicable regulation that requires limiting heat input to comply with a pollutant emission limit or facility permit category (i.e. synthetic minor cap) exists, the heat input limit would be stated within the body of that specific permit conditions for it to be enforceable. DAQ's definition of the heat inputs as descriptors in Section I and the 2.1.A, 2.1.B. and 2.1.C. section headers of the permit is supported by an EPA Administrator Order dated December 14, 2009 "*In the Matter of: East Kentucky Power Cooperative, INC William C. Dale Power Station, Title V Air Quality Permit #V-08-0090.*" A copy of the order is attached to this report.

The UNC-CH applications did not include any physical or operational changes to Boiler #6 and Boiler #7. The only potential emission increase is particulate (0.0026 lb/MMBtu) resulting from additional loading at the baghouses from the dry sorbent injection systems (ID Nos. CD-004.3 and CD-005.3). Addition of this increase to previous performance test results of 0.0025-0.0040

lb/MMBtu while burning 100% coal is compliant with the most restrictive particulate limit in the permit of 0.04 lb/MMBtu (Boiler MACT, Subpart DDDDD).

The Center submits that removal of the heat input limit invalidates any modeling that includes Boiler #6 and Boiler #7 that underlies the permit, including the modeling to assure compliance with the NAAQS and NCTAPs (toxic air pollutants) limits. DAQ respectfully disagrees with the Center's statement. Please reference the Hearing Officer's Response to issues raised in Section A. above in this report about UNC-CH's modeling against the 1-hr SO<sub>2</sub> and NO<sub>2</sub> NAAQS, and the 30-day rolling average SO<sub>2</sub> 0.41 lb/MMBtu emission limit in the draft permit.

The air toxics modeling analysis provided by UNC-CH on June 2, 2020 shows compliance with all applicable air toxics acceptable ambient levels (AALs) as outlined in 15A NCAC 02D .1104. The pollutants evaluated for modeling were determined by comparison of the potential emission rates with the more conservative toxic pollutant emission rates (TPERs) outlined in Table (a) of 15A NCAC 02Q .0711 that assumes all toxics emissions are released from non-vertical and/or obstructed stacks. In the event that the heat input rates were to increase by up to 20% for the coal-fired Boilers #6 and #7, there would be at most a linear increase in modeled emission rates and resultant impacts as predicted by AERMOD. For example, the benzene impacts predicted at 15% of the AAL would increase to no more than 18% of the AAL. Comparison of the potential emissions of Boilers #6 and #7 (assuming a 20% higher heat input) to the TPERs listed in Table (a) of UNC-CH's report would not require additional air toxics pollutants to be modeled, because the TPER analysis provided by UNC-CH shows the 20% increase in heat input and toxics emissions from the boilers would be insufficient to trigger modeling for any other applicable toxic air pollutants and associated hourly, daily, and annual averaging periods.

The Center submits *“Since DAQ did not provide any legal and factual basis for deleting the heat input limit, it cannot issue the final permit with this change. DAQ cannot provide a legal and factual basis for the first time after the public hearing and the public comment period ends.”* DAQ did not discuss the language being removed from the description or in the technical review because it was understood by DAQ to be included in the review's general comments about bringing the permit into current formatting and making this TV permit consistent with other Title V permits. If it were removed as a “limit,” it would have been discussed as the Center has noted.

While previous UNC-CH permits did not contain boiler heat input limits, draft permit 03069T36 does include heat input limits for Boiler #6 and Boiler #7 in permit Specific Condition 2.1.A.4.1.iv. 40 CFR Part 63, Subpart DDDDD, Table 7 requires the facility to establish a unit specific limit for maximum operating load according to 40 CFR 63.7520(c). The boiler operating load is defined as either heat input rate or steam production rate. UNC-CH is required to install, operate and maintain a continuous monitoring system for operating load and maintain the 30-day rolling average operating load of each boiler such that it does not exceed 110 percent of the highest hourly average operating load recorded during the most recent Subpart DDDDD performance testing. The heat inputs for the boilers during the most recent performance tests were greater than the boiler-plate 323.17 MMBtu/hr heat input descriptors, and compliance was demonstrated against the particulate, CO, HCl and Hg MACT limits. DAQ may not establish lower heat input limits, as DAQ is statutorily restricted from creating limits that are stronger than those established under NESHAP or NSPS regulation (NCGS 150B-19.3).

While reviewing the Subpart DDDDD permit conditions, the hearing officer noted the heat input limits stated in condition 2.1.A.4.1.iv. may not be representative of the highest hourly average recorded during the most recent Subpart DDDDD performance testing for all applicable pollutants. **The hearing officer recommends the permit engineer confirm the heat input limits are correctly cited in Specific Condition 2.1.A.4.1.iv.**

### **C. Environmental Justice and Title VI Concerns**

Many commenters remarked that the coal-fired boilers are located less than a quarter-mile from UNC Hospitals and adjacent to Pine Knolls, a “historically and predominantly African-American community that has already been disproportionately harmed by the UNC coal plant’s pollution.” Some environmental justice comments also referred to Tin Top and Northside as environmental justice and equity neighborhoods. One commenter during the public hearing informed DAQ of a nearby senior citizens’ apartment complex. Comments noted removing the coal-fired boilers’ heat input limit from the permit and thereby allowing for increase in emissions would be an act of racial injustice toward adjacent neighborhoods. Poor health outcomes were mentioned by commenters regarding themselves, friends and/or family, or in general for Chapel Hill and Carrboro.

#### **Hearing Officer Response**

The UNC-CH applications did not include any physical or operational changes to Boiler #6 and Boiler #7. The only potential emission increase associated with this permit draft is particulate resulting from additional loading at the baghouses from the dry sorbent injection systems (ID Nos. CD-004.3 and CD-005.3). The boilers must still comply with the most restrictive particulate permit limit of 0.04 lb/MMBtu per Subpart DDDDD (see the discussion in Section B. above).

NCDEQ’s Draft Environmental Justice (EJ) Report provides demographic (race and ethnicity, poverty status, and per capita incomes) information for the population within a one-mile radius of the coal-fired boilers at the Co-Gen facility. The report identifies elevated numbers of certain racial and ethnic groups in comparison to county and state-wide census data. The Draft EJ Report includes information on Orange County’s health rankings and health outcomes. The report also identifies surrounding sensitive receptors and other local industrial sites. NCDEQ identifies UNC Hospitals as a sensitive receptor within the one-mile radius, in addition to four K-12 schools and multiple Town of Chapel Hill subsidized and public housing units.

The Draft EJ Report informed the outreach that NCDEQ conducted in the community. DEQ and the DAQ invested in public engagement and participation to ensure that all affected communities had an opportunity to have meaningful involvement in the permitting process during this public health pandemic. NCDEQ remains committed to EJ and equity, and as such, compiled the aforementioned information within the Draft EJ Report to promote ease of access to this information for the public, the applicant and NCDEQ staff. NCDEQ’s Draft EJ Report is provided as an attachment to this hearing officer’s report.

#### **D. General Comments in Opposition of the Draft Permit**

Paraphrased examples of the more general comments opposed to permit issuance are below, followed by a response. These comments include those from individuals, as well as from the form letters DAQ received.

- The coal fired boilers lack several modern pollution control technologies such as SCR and flue gas desulfurization.
- The weakened permit could lead to increased asthma attacks, heart and lung diseases, heart attacks, cancer, brain and neurological damage, kidney damage, and premature death for nearby hospital patients, students and staff, and surrounding communities.
- UNC's energy facilities have been harming local residents, patrons of downtown businesses, athletes, students, faculty and staff for generations.
- The ash/slag storage is bad as well. The ash/slag goes to landfills.
- The draft permit will also increase water pollution and production of coal ash and fly ash, which contains carcinogenic and toxic compounds including mercury, arsenic, cadmium, and lead.
- Keeping the coal plant puts profit and convenience over health and environment.
- UNC health system profits by continued operation due to increased medical care which makes no sense.
- The best method to stop black lung disease is simply to stop mining Appalachian coal, to stop buying coal, and to stop burning coal.

#### **Hearing Officer Response**

The DAQ is sensitive to involving the protection of human health, environmental impacts, and the protection of the surface and groundwaters of the State of North Carolina. However, these comments are outside of the scope of this Hearing Report. Pertaining to the comment concerning the need for additional emissions controls, DAQ may only require specific emissions control as dictated within applicable air quality federal or state regulations. The decision of whether the air quality permit should be issued to UNC-CH and the content of the permit conditions contained therein must be based on a reasonable assurance that the facility can and will be operated in compliance with existing state and federal air quality regulations.

#### **E. Coal-fired Boilers Retirement Comments**

Many commenters specifically communicated a desire for UNC-CH to retire the coal-fired boilers. Some (paraphrased) examples of these comments are provided below.

- NC chancellor Holden Thorp committed to ending coal use by 2020. UNC should honor the commitment.
- UNC is the only educational institution in the state and one of the few remaining in the country that is still operating a coal plant.

- It is hypocritical to have a public health program at UNC and yet operate the coal boilers.
- UNC's new Climate Action Plan says the "responsibility of being a leader in Climate Action has never been greater for Carolina" yet it still contains no deadline date to quit burning coal, only to eliminate use as quickly as technically and financially as possible.
- The boilers must be replaced with renewable/climate friendly/clean energy.
- UNC needs to be a leader and commit to reduce emissions and harmful impact on neighboring communities. Stop propagating this dirty process.
- Deny the permit outright and require a brand-new application for clean alternatives.
- Require UNC to fully transition to renewable energy as soon as possible.
- It is hard to believe a coal plant exists in environmentally conscious Chapel Hill.
- The permit should require UNC to replace the coal boilers with a specific alternative via a timeline.

The Town of Carrboro, City of Chapel Hill, and the Orange County Commissioners also provided statements concerning retirement of these boilers. Their comments are paraphrased below.

- The Town of Carrboro has "adopted climate justice goals to do our part to mitigate the climate emergency that we are in." The Town recognizes UNC-CH's complex transitioning process and financial constraints toward ending coal use, but they find it "disturbing that *any* coal fire power plants are still being permitted by DAQ." The Town letter states that they are troubled by UNC-CH failing to meet the 2020 commitment to end coal use, and UNC-CH's failure to include a defined timeline for the coal boilers' retirement in the University's new Climate Action Plan.
- The Town of Chapel Hill has recently adopted a Climate Action and Response Plan. UNC-CH's transition to clean renewable energy is "pivotal to our shared success in reaching these goals and will support the goals of the North Carolina Clean Energy Plan."
- The Orange County Board of Commissioners letter states they are aware of UNC-CH's new 2021 Climate Action Plan, and moving away from coal at the earliest opportunity will help protect Orange County residents. They encourage UNC-CH to proceed with ending coal use "with all possible speed."

### Hearing Officer Response

As a permitting authority, the DAQ determines what air quality federal and state regulations apply to a facility, creates a permit that addresses the emissions limits and requirements of each regulation, and creates associated monitoring, recordkeeping and reporting conditions to help ensure compliance with those limits and requirements. DAQ must evaluate and enforce compliance based on the applicable regulations and the Title V permit conditions. If it appears a facility can meet all federal and state laws and rules for the protection of air quality, DAQ is obligated to issue an air permit to the facility.

With respect to the municipalities' comments about their Climate Action Plans, and both their and other commenters urging UNC-CH to swiftly meet goals in its own new Climate Action Plan, it should be noted that the North Carolina Clean Energy Plan (CEP) was published by DEQ in October of 2019. The plan includes 39 stakeholder-developed recommendations to expand the use of clean energy and energy efficiency in the electricity sector through policy, administrative, and voluntary actions. It also established a goal of reducing GHGs by 70% from 2005 levels by 2030 and a second goal of net zero GHG emissions by 2050. Since its publication, several public and private entities (like the Towns of Carrboro and Chapel Hill) as well as DEQ have begun working on implementation of various recommendations, including the GHG goals.

## V. Conclusions and Recommendations

After considering all public comments concerning issuance of the proposed draft air quality Permit No. 03069T36 to the University of North Carolina at Chapel Hill for the construction and operation of dry sorbent injection systems (DSI) (ID Nos. CD-004.3 and CD-005.3) on ES-001-Boiler #6 and ES-002-Boiler #7 and replacement of diesel-fired emergency generator engine (ID No. ES-Gen-42) with a 400 kW engine, as well as issuance of the permit renewal, the hearing officer recommends issuing the permit after addressing the following recommended permit condition modifications and actions.

- Specific Condition 2.1.A.1.c.- Because the condition contains reference to NSPS Db requirements for fuel oil and coal (2.1.A.2.f. through h.) it is recommended to include reference to monitoring and recordkeeping requirement for all fuels (including wood) required by MACT in condition 2.1.A.4.s.
- Specific Condition 2.1.D.2.c.- It is recommended the permit engineer re-review NSPS Subpart Y for any operation, monitoring, and/or recordkeeping requirement that could apply to the dump pits' visible emissions when the suppression system is operating, and if such a requirement exists, add it to the permit condition.
- Specific Conditions 2.1.G.3. and 2.1.H.3. - It is recommended that a maximum sulfur content of 15 ppm, a minimum cetane index of 40, and a maximum aromatic content of 35 volume percent (cite 40 CFR 1090.305) be added to each condition, or equivalent language meeting the same purpose.
- Specific Condition 2.1.A.4.l.iv.- The heat input limits established in the condition may not be representative of the highest hourly average recorded during the most recent Subpart DDDDD performance testing for all applicable pollutants. It is recommended that the permit engineer confirm they are correctly cited in the condition.

  
\_\_\_\_\_  
Elizabeth T. Huddleston, CPM  
Hearing Officer

6/17/2021  
\_\_\_\_\_  
Date

# Hearing Officer's Report and Recommendations

The University of North Carolina at Chapel Hill  
Digital Public Hearing via Webex  
May 4, 2021

## **SUPPORTING DOCUMENTATION**

### **Appendix A:**

Draft Air Quality Permit 0369T36

### **Appendix B:**

Draft Air Quality Permit Review

### **Appendix C:**

Example Public Comment Form Letters

### **Appendix D:**

Center for Biological Diversity Letter Dated May 6, 2021

### **Appendix E:**

Center for Biological Diversity Modeling Report

### **Appendix F:**

DAQ AQAB Modeling Memo Dated October 7, 2019

### **Appendix G:**

EPA Order "In the Matter of: East Kentucky Power Cooperative, INC William C. Dale Power Station,  
Title V Air Quality Permit #V-08-0090."

### **Appendix H:**

Draft Environmental Justice Report -University of North Carolina at Chapel Hill