

Blue Ridge Environmental Defense League

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N.C. Division of Air Quality
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Email: DAQ.publiccomments@ncdenr.gov
Subject: Carolina Sunrock – Burlington North

Delivered via email

COMMENTS REGARDING CAROLINA SUNROCK LLC – BURLINGTON NORTH APPLICATION 1700016.21A DRAFT AIR PERMIT

To Whom It May Concern:

I am submitting comments on behalf of the Blue Ridge Environmental Defense League (BREDL), our Protect Caswell chapter and North Carolina members. Our chapter will submit additional comments.

Draft Permit must be denied

The draft permit made available for public comment on the NC DAQ website¹ contained numerous errors. These errors include duplicate numbering of conditions and an exclusion of a referenced condition. In addition, there are several issues with the air modeling which was completed to demonstrate compliance with criteria and hazardous air pollutant standards. Please see additional details under our Arbitrary and Capricious use of Air Modeling heading within this document. Revised air modeling analysis and a revised draft permit must be posted. These errors made it impossible to properly review the draft permit. Please see additional details under our Draft Permit heading within this document.

Request for extension of Public Comment Period

BREDL requests an extension of the Public Comment Period as stated in 15A NCAC 02Q .0307(d). Due to high interest in the Caswell County community for both Carolina Sunrock draft permits (Facility IDs: 1700016 and 1700017), there needs to be more time to allow impacted residents to review documents for both proposed sites. Scheduling the public hearings and comment periods on adjacent days may restrict some public participation. BREDL requests a corrected, revised version of the draft permit be posted with an allowable extension for public

¹ <https://deg.nc.gov/about/divisions/air-quality/air-quality-permitting/asphalt-plants/carolina-sunrock-draft-permits#carolina-sunrock---burlington-north>

comments.

Arbitrary and Capricious use of Air Modeling

Per 15A NCAC 02D.1106, “Modeling shall be used to determine process operational and air pollution control parameters and emission rates for toxic air pollutants to place in the air quality permit...”

As NC DAQ has stated, “These sources will be required to be operated under the parameters that they are modeled; therefore, it is very important that the parameters in the toxics and NAAQS modeling match exactly.”²

Thus, the air modeling needs to be as accurate as possible as it affects the air permit.

We have notable concerns about the North Carolina Division of Air Quality (NC DAQ) arbitrary and capricious use of air modeling for the proposed Burlington North facility. BREDL received the air modeling files from NC DAQ on August 10, 2021.

Both the air modeling that was completed for the previous application received by NC DAQ on September 17, 2019 (previous air modeling) and the current resubmitted application received by NC DAQ on April 22, 2021 (current air modeling) used the five-year dataset for the years 2014-2018.

The NC DAQ website³ lists using the Danville prepared dataset for Caswell County. Previous Toxic Air Pollution (TAPS) modeling completed by Carolina Sunrock in 2019 did initially use the Danville dataset. Then, when NC DAQ completed NAAQS air modeling for the previous application, the agency used the Burlington dataset. The current air modeling for the current resubmitted application used the Burlington dataset for both TAPs and NAAQS.

- NC DAQ needs to explain why the Burlington Airport dataset was used. If this is because of proximity to the proposed facility, then that should be stated.

The current air modeling utilizes the adjusted friction velocity (ADJ_U*) option for low wind speed stable conditions. Since the previous air modeling did not use this ADJ_U* option, NC DAQ needs to provide an explanation for this change in modeling – especially since the same five-years of data were used.

- NC DAQ needs to explain why the ADJ_U* option was used in the current air modeling when it was not used in the previous air modeling.

² NC DAQ Email to Carolina Sunrock, Additional information need for permit applications for the proposed [sic] Caswell County Carolina Sunrock facilities, Stewart to Martino, 10:06 AM, June 16, 2021.

³ <https://deq.nc.gov/about/divisions/air-quality/air-quality-permits/modeling-meteorology/meteorological-data>

It's interesting to note that in the previous air modeling, NC DAQ denied the permit – in part based on NO₂ Tier 1 modeling. For the current air modeling, Tier 2 was used. NC DAQ needs to provide an explanation as to why this change in modeling.

- NC DAQ needs to explain why a permit was denied based on NO₂ Tier 1 modeling in 2020, but NO₂ Tier 2 modeling was used in the current modeling.

The August 24, 2020 NC DAQ Air Modeling Review memo regarding the previous air modeling indicated that the background concentration for NO₂ is “about 60 ug/m³”⁴. Now, a few months later, NC DAQ is stating that the background concentration for NO₂ is 15.3 ug/m³ using the 2015-2017 data. The NC DAQ 2015-2017 data indicates four NO₂ monitors⁵ were in use (Forsyth, Lee, Mecklenburg and Wake) [See Attachment 1]. The Forsyth, Lee and Wake monitors are all identified as Urban location types on the NC Urban Toxics Network.⁶

The Lee County monitor concentration is roughly converted to 15.04 ug/m³. While the Forsyth and Wake monitors' concentrations are converted to 67.68 ug/m³. The Forsyth County monitor is over 23 miles closer to the Burlington North proposed facility [See Attachment 2] than the Lee County monitor which was used for the background concentration.

We also point out that NC DAQ used 2017-2019 data for the NAAQS background concentrations for SO₂ and PM but did not for NO₂. In addition, the monitors located nearest to the proposed Burlington North facility were used for SO₂ and PM, but not for NO₂.

NC DAQ cannot just randomly decide to use whichever monitor has the lowest concentration. NC DAQ needs to provide an explanation for this change in background concentration.

- NC DAQ needs to show rationale and use the proper background concentration of 67.68 ug/m³ for NO₂. The agency cannot go all willy-nilly when making these important modeling decisions.
- Using the proper NO₂ background concentration will increase the total impact concentration to 197.41 ug/m³ which is above the NO₂ 1-Hour NAAQS of 188 ug/m³.

We do commend NC DAQ for completing updated air modeling for toxins. Carolina Sunrock in its resubmitted application indicated that no changes were made since the original submittal “other than the acceptance of utilizing ultra-low sulfur diesel...”. In that resubmitted application the previous air modeling for TAPs was resubmitted without remodeling. However, there were stack height changes which impacts the modeling. The Hot Mix Asphalt stack height (emissions source CD_1) has been increased from 9.20 m to 14.02 m in the new application. This is an increase of 15.81 feet. In the new application the concrete plant stack

⁴ North Carolina Division of Air Quality Memorandum, Criteria Pollutant Air Dispersion Modeling Analysis for Carolina Sunrock, LLC, Jones, August 24, 2020, p.2

⁵ <https://deq.nc.gov/about/divisions/air-quality/air-quality-monitoring/historical-data-summaries/design-value-2#2015---2017>

⁶ <https://deq.nc.gov/about/divisions/air-quality/air-quality-data/urban-air-toxics-network>

height (emissions source CD_2) has been increased 5 feet from 10.668 m to 12.19 m. The stack height changes the air modeling for both the AERMOD and the BPIPPRM building parameters files. This affects the modeled concentration results.

We do point out a discrepancy with the BPIPPRM building parameter files. There is a change in these files in the Carolina Sunrock air modeling compared to the NC DAQ air modeling. It appears that NC DAQ has not changed its BPIPPRM file to indicate the changes in the current application. We have included the building parameters for the Hot Mix Asphalt Plant CD_1/CD1 as an example of this discrepancy [See Attachment 3].

- NC DAQ needs to double-check the building parameters for all emission sources, make the necessary changes, then re-run the air modeling.

Health Impacts

This proposed facility will emit several dozen harmful pollutants with varying health impacts. The following list details a few of these. In addition, the University of North Carolina at Chapel Hill Gillings School of Global Public Health conducted a health survey [See Attachment 4] of the Anderson Township. Anderson is one of the communities that will be impacted by the Burlington North facility.

Formaldehyde

Formaldehyde is a colorless, flammable gas at room temperature. It has a pungent, distinct odor and may cause a burning sensation to the eyes, nose, and lungs at high concentrations. The breakdown products of formaldehyde in air include formic acid and carbon monoxide. The most common health symptoms include irritation of the eyes, nose, and throat, along with increased tearing, which occurs at air concentrations of about 0.4–3 parts per million (ppm). National Institute for Occupational Safety and Health (NIOSH) states that formaldehyde is immediately dangerous to life and health at 20 ppm. One large study of people with asthma found that they may be more sensitive to the effects of inhaled formaldehyde than other people.⁷

A recent media report⁸ details an Environmental Protection Agency (EPA) draft assessment from 2017 of formaldehyde that was suppressed by the previous Administration. The assessment found that the pollutant causes myeloid leukemia. The draft assessment concluded that 1 microgram of formaldehyde in a cubic meter of air increases the number of myeloid leukemia cases by roughly 3.5 in 100,000 people. That's more than three times the cancer risk in the assessment now in use.

Cadmium

Cadmium (as oxide, chloride, and sulfate) will exist in air as particles or vapors (from high

⁷ <https://www.atsdr.cdc.gov/ToxProfiles/tp111-c1-b.pdf>

⁸ <https://theintercept.com/2021/08/19/formaldehyde-leukemia-epa-trump-suppressed/>

temperature processes). It can be transported long distances in the atmosphere, where it will deposit (wet or dry) onto soils and water surfaces. Breathing air with lower levels of cadmium over long periods of time (for years) results in a build-up of cadmium in the kidney, and if sufficiently high, may result in kidney disease. The U.S. Department of Health and Human Services (DHHS) has determined that cadmium and cadmium compounds are known human carcinogens. The International Agency for Research on Cancer (IARC) has determined that cadmium is carcinogenic to humans. The EPA has determined that cadmium is a probable human carcinogen.⁹

Arsenic

Arsenic released from combustion processes is usually attached to very small particles. Arsenic contained in wind-borne soil is generally found in larger particles. These particles settle to the ground or are washed out of the air by rain. Arsenic that is attached to very small particles may stay in the air for many days and travel long distances. If you breathe high levels of inorganic arsenic, then you are likely to experience a sore throat and irritated lungs. You may also develop some of the skin effects mentioned above. The exposure level that produces these effects is uncertain, but it is probably above 100 micrograms of arsenic per cubic meter ($\mu\text{g}/\text{m}^3$) for a brief exposure. Longer exposure at lower concentrations can lead to skin effects, and also to circulatory and peripheral nervous disorders.¹⁰

Benzene

Benzene reacts with other chemicals in the air and breaks down within a few days. Benzene in the air can attach to rain or snow and be carried back down to the ground. It breaks down more slowly in water and soil, and can pass through the soil into underground water. Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death. The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the bloodforming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.¹¹

Mercury

Mercury combines with other elements, such as chlorine, sulfur, or oxygen, to form inorganic mercury compounds or "salts," which are usually white powders or crystals. Mercury also

⁹ <https://www.atsdr.cdc.gov/PHS/PHS.asp?id=46&tid=15>

¹⁰ <https://www.atsdr.cdc.gov/ToxProfiles/tp.asp?id=22&tid=3>

¹¹ <https://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=38&tid=14>

combines with carbon to make organic mercury compounds. The nervous system is very sensitive to all forms of mercury. Methylmercury and metallic mercury vapors are more harmful than other forms, because more mercury in these forms reaches the brain. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. The EPA has determined that mercuric chloride and methylmercury are possible human carcinogens.¹²

Nickel

Nickel can combine with other elements such as chlorine, sulfur, and oxygen to form nickel compounds. Many nickel compounds dissolve fairly easy in water and have a green color. Nickel and its compounds have no characteristic odor or taste. In the air, it attaches to small particles of dust that settle to the ground or are taken out of the air in rain or snow; this usually takes many days. The most common harmful health effect of nickel in humans is an allergic reaction. Approximately 10-20% of the population is sensitive to nickel. People can become sensitive to nickel when jewelry or other things containing it are in direct contact with the skin for a long time. Once a person is sensitized to nickel, further contact with the metal may produce a reaction. Some people who are sensitive to nickel have asthma attacks following exposure to nickel. Some sensitized people react when they consume food or water containing nickel or breathe dust containing it.

NO_x

Health Impacts from NO_x include inflammation of the airways and an increase in heart attack risk. Long term exposure increases the risk of respiratory conditions, can decrease lung function, and increases the response to allergens. Long-term exposure to traffic-related nitrogen dioxide (NO₂) and nitrogen oxides (NO_x) may contribute to the development of COPD with possibly enhanced susceptibility in people with diabetes and asthma.

VOCs

There are various health impacts from volatile organic compounds. Short-term exposure to VOCs may cause irritation of the eyes and respiratory tract, headaches, dizziness, visual disorders and memory problems. Long-term exposure to VOCs may cause irritation of the eyes, nose, and throat, nausea, fatigue, cancer, loss of coordination, damage to the liver and kidneys and damage to the central nervous system.

PM 2.5

Health impacts from Particulate Matter include increased hospital admissions, aggravated asthma, increases in respiratory symptoms (coughing, difficult/painful breathing), chronic bronchitis, decreased lung function, premature death, increases dementia risk, increases risks for heart attacks, heart disease, strokes, and increases premature births. Lung cancer rose by

¹² <https://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=113&tid=24>

18% for every increase of 5 ug/m3 in PM 2.5. PM 2.5 causes about 200,000 early deaths each year. Reducing particulates has added 5 months to urban life expectancy.

SO₂

Sulfur dioxide irritates the skin and mucous membranes of the eyes, nose, throat, and lungs. Short-term exposures to SO₂ can harm the human respiratory system and make breathing difficult. Symptoms can include pain when taking a deep breath, coughing, throat irritation, and breathing difficulties. People with asthma, especially children, can suffer effects.

Applicant's attempt to curtail public participation

We want to make part of the public record the applicant's attempt to curtail public participation prior to the official public commenting period. Several subpoenas have been served to dozens of residents along with community groups. In addition, these citizens have had to answer intrusive legal interrogatories and some are having to deliver depositions. To date, neither BREDL nor our chapter Protect Caswell has appealed local Caswell County decisions through the local governmental process or court system. Yet, BREDL has been served with 3 separate subpoenas related to individuals' or other organizations' actions regarding the proposed Burlington North and Prospect Hill Quarry facilities. The applicant has sued at least 55 residents who chose to appeal a local watershed review board's decision on Watershed Protection and Special Non-residential Intensity Allocation (SNIA) permits. The resident's appeal was an administrative appeal within the county government. However, the applicant chose to take these community members to Superior Court instead of letting the local appeal process conclude. To date, Caswell County has not scheduled a date to hear these residents' appeals.

Public comments, meetings and hearings are an integral part of our free society and a huge part of our Constitutional rights. There are still many countries in the world where these activities are not granted. Federal, state and local statutes govern these public participation opportunities ensuring that we as citizens have our chance to speak out in favor or opposition to various proposals and projects, or simply to share our thoughts on an issue. It's just one of many things that make this country great. Any attempt to curtail these rights should not be taken lightly. Residents should not feel intimidated about participating in the permitting process.

Carolina Sunrock actions have included

- September 11, 2020: Files Administrative Appeal on NC DAQ permits denial decisions - Carolina Sunrock v. NC DEQ, DAQ Administrative Hearings case. Heard in January 2021, working on negotiations end of February 2021. Instead of appealing further, in March, Carolina Sunrock asked for the case to be dismissed and decided to resubmit their applications.

- November 2020: Began subpoenaing citizens regarding Carolina Sunrock v. NC DEQ, DAQ Administrative Hearings case. They requested correspondence that could have been easily obtained via FOIA to NC DEQ – correspondence between the individuals and NC DEQ. BREDL also received a subpoena in this case that BREDL is not involved in. BREDL responded mid-November.
- April 22, 2021: Sues 55 citizens in Superior Court for using their U.S. First Amendment and NC administrative rights in appealing county permitting decisions to the County Watershed Review Board.
- April 2021: Carolina Sunrock sends letter to Caswell County requesting the County send them any correspondence between the County and Protect Caswell and any of the 55 defendants.
- May 5, 2021: Requests info from BREDL – seeking correspondence between BREDL and DEQ and Caswell County. A case that BREDL is not involved in. BREDL responded on May 27, 2021.
- July 30, 2021: Subpoena for info regarding Foust/Shoffner/NAACP administrative hearing case against NC DEQ, DWR. A case that BREDL is not involved in. Commanded to produce, permit inspection and copying of communications between said individuals.

In addition, residents who have corresponded with Caswell County officials receive a note such as this:

** Please note, as part of a standing public records request, Bill Brian of Morningstar Law Group (currently representing Carolina Sunrock) is copied on this email.

The above is another example of how local citizens, even those not involved with the company’s lawsuit, can feel intimidated thus reducing public participation.

Draft Permit

In Section A – Specific Conditions and Limitations, Item no. 3 Compliance with Emission Control Standards, under a. Production Limitations, there is a reference to Condition A.20 (Section A, Item 20). There is no A.20 listed in the draft permit. There appears to be some misnumbering of Section A. Item numbers 15, 16 and 19 are repeated {15. Fabric Filter Requirements...(Page 11), 15. Control and Prohibition of Odorous Emissions (Page 12); 16. Toxic Air Pollutant Emissions...(Page 11), 16. Zoning Specific Condition (Page 12); 19. Vendor Supplied Recycled...(Page 14), 19. Toxic Air Pollutant Emissions...(Page 15)}. Therefore, we are not sure which condition the A.3.a reference applies to. This duplication of numbers has made the draft permit impossible to understand. Clarification is needed.

Condition A.10B.i and ii (page 5) limitations are unclear with regards to the referenced statute 15A NCAC 2D .0524/ 40 CFR Part 60 . Clarification is needed as to how the specific limits were derived from statutes.

Unsure why Condition A.11.b.i is listed in the permit when this affected facility will have

commenced after April 22, 2008. Including A.11.b.i. limit only serves to add confusion in the permit for the applicable limits. Only A.11.b.ii should be included in the permit.

Per Draft Permit condition A.16 (the second A.16 listed on pages 12-13), the applicant cannot begin construction or operation until all local permissions have been granted. There are several local permits that are in question. Several residents appealed the Caswell County Watershed Review Board's decisions in January to approve the Watershed Protection and Special Non-residential Intensity Allocation (SNIA) permits. However, the county has not set a hearing date on these appeals. In addition, the applicant has sued these residents in Superior Court. There is no court date set for that hearing. In addition, there may be future zoning requirements which may affect this facility. NC DAQ must stay informed on these issues and not allow the applicant to violate this condition of the permit. The applicant cannot begin construction or operation until these hearings have been held. The upcoming decisions from those hearings significantly affect this facility.

EPA Review of Synthetic Minor Permit

On July 8, EPA Office of Inspector General (OIG) released a report¹³ outlining details of their "audit to determine whether EPA and state and local agencies provide sufficient oversight to assure that synthetic-minor sources of air emissions comply with the limits in their air permits."

As mentioned in the OIG report accompanying "At a Glance" document, synthetic-minor facilities agree to permit restrictions in order to reduce their emissions below major-source thresholds thus avoiding more stringent permitting and compliance requirements.

The OIG reviewed 16 permits and found that nearly 1 in 5 permit limits did not have sufficient information within the permit to determine whether the limits were technically accurate. Of those limits, over 1 in 10 did not have sufficient monitoring requirements to determine whether the facility's assumed pollution reduction was being achieved. As the OIG document pointed out, "This could result in a synthetic-minor facility emitting pollutants at or above major-source levels without being detected."

In lieu of this EPA OIG report, we will request that EPA review this permit to ensure that it is technically accurate with regards to limits and monitoring requirements.

Thank you for this opportunity to comment.

Respectfully submitted,

¹³ EPA Should Conduct More Oversight of Synthetic-Minor-Source Permitting to Assure Permits Adhere to EPA Guidance, Report # 21-P-0175, July 8, 2021, EPA, <https://www.epa.gov/office-inspector-general/report-epa-should-conduct-more-oversight-synthetic-minor-source-permitting>

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Attachment 1

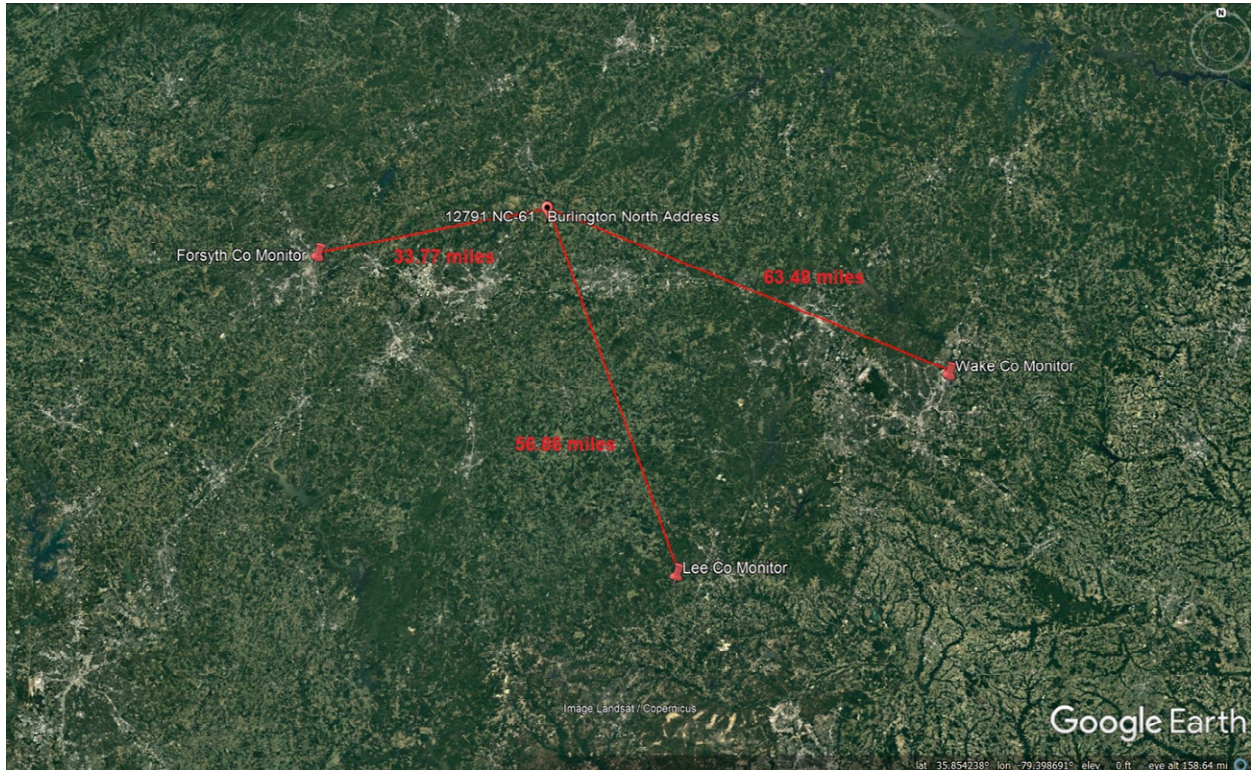
North Carolina NO² Monitors in use during 2015-2017

County	Average 98th Percentile	Site Name	Arithmetic Mean	Site Name
Forsyth	36 ppb ^[a]	Hattie Avenue ^[1]	7 ppb	Hattie Avenue ^[1]
Lee	8 ppb ^[a]	Blackstone ^[2]	1 ppb	Blackstone ^[2]
Mecklenburg	39 ppb	Remount Road ^[1]	11 ppb	Remount Road ^{[1][*]}
Wake	36 ppb	Millbrook ^[1]	9 ppb	Triple Oak ^[1]

Source: <https://deq.nc.gov/about/divisions/air-quality/air-quality-monitoring/historical-data-summaries/design-value-2#2015---2017>

Attachment 2

NO² Monitors proximity to proposed Burlington North facility



Attachment 3

Carolina Sunrock TAPs Modeling – October 14, 2019

1	SO BUILDHGT CD1	10.67	10.67	10.67	6.86	6.86	6.86
2	SO BUILDHGT CD1	6.86	6.86	6.86	10.67	10.67	10.67
3	SO BUILDHGT CD1	10.67	10.67	10.67	10.67	10.67	10.67
4	SO BUILDHGT CD1	10.67	10.67	10.67	6.86	6.86	6.86
5	SO BUILDHGT CD1	6.86	18.29	18.29	18.29	10.67	10.67
6	SO BUILDHGT CD1	10.67	10.67	10.67	10.67	10.67	10.67
7	SO BUILDWID CD1	14.00	12.48	10.58	8.11	5.79	5.80
8	SO BUILDWID CD1	8.11	10.18	11.94	14.00	15.10	15.74
9	SO BUILDWID CD1	15.90	15.58	15.58	15.90	15.74	15.10
10	SO BUILDWID CD1	14.00	12.48	10.58	8.11	5.79	5.80
11	SO BUILDWID CD1	8.11	7.14	8.25	8.84	15.10	15.74
12	SO BUILDWID CD1	15.90	15.58	15.58	15.90	15.74	15.10
13	SO BUILDLEN CD1	14.00	15.10	15.74	14.98	14.63	14.64
14	SO BUILDLEN CD1	14.99	14.89	14.33	14.00	12.48	10.58
15	SO BUILDLEN CD1	8.35	5.88	5.88	8.36	10.58	12.48
16	SO BUILDLEN CD1	14.00	15.10	15.74	14.98	14.63	14.64
17	SO BUILDLEN CD1	14.99	10.00	9.25	8.30	12.48	10.58
18	SO BUILDLEN CD1	8.35	5.88	5.88	8.36	10.58	12.48
19	SO XBADJ CD1	5.32	3.69	1.94	-0.49	-0.07	-0.05
20	SO XBADJ CD1	-0.42	-0.78	-1.12	-12.19	-13.49	-14.38
21	SO XBADJ CD1	-14.83	-14.84	-15.72	-17.45	-18.65	-19.28
22	SO XBADJ CD1	-19.33	-18.79	-17.68	-14.49	-14.56	-14.59
23	SO XBADJ CD1	-14.57	-43.74	-43.92	-42.80	1.01	3.80
24	SO XBADJ CD1	6.48	8.96	9.84	9.09	8.07	6.80
25	SO YBADJ CD1	5.19	7.25	9.09	-2.01	-0.77	0.50
26	SO YBADJ CD1	1.76	2.96	4.07	12.33	11.24	9.81
27	SO YBADJ CD1	8.08	6.11	3.95	1.67	-0.66	-2.97
28	SO YBADJ CD1	-5.19	-7.25	-9.09	2.01	0.77	-0.50
29	SO YBADJ CD1	-1.76	6.76	-0.10	-6.94	-11.24	-9.81
30	SO YBADJ CD1	-8.08	-6.11	-3.95	-1.67	0.66	2.97

NC DEQ NAAQS Modeling – August 18, 2020

1	SO	BUILDHGT	CD_1	9.14	24.38	24.38	24.38	24.38	24.38
2	SO	BUILDHGT	CD_1	9.14	9.14	9.14	9.14	9.14	9.14
3	SO	BUILDHGT	CD_1	2.13	2.13	4.57	7.62	7.62	7.62
4	SO	BUILDHGT	CD_1	9.14	9.14	9.14	9.14	9.14	9.14
5	SO	BUILDHGT	CD_1	9.14	9.14	9.14	9.14	9.14	9.14
6	SO	BUILDHGT	CD_1	2.13	2.13	2.13	7.62	7.62	7.62
7	SO	BUILDWID	CD_1	9.76	8.86	9.71	10.37	10.73	10.76
8	SO	BUILDWID	CD_1	13.19	13.39	13.18	12.57	11.58	10.24
9	SO	BUILDWID	CD_1	20.11	16.15	9.62	12.38	12.80	16.70
10	SO	BUILDWID	CD_1	9.76	11.20	12.31	13.03	13.37	13.29
11	SO	BUILDWID	CD_1	13.19	13.39	13.18	12.57	11.58	10.24
12	SO	BUILDWID	CD_1	20.11	16.15	11.71	9.98	12.80	15.23
13	SO	BUILDLEN	CD_1	12.57	8.64	7.58	6.37	5.08	3.43
14	SO	BUILDLEN	CD_1	3.87	6.04	8.02	9.76	11.20	12.31
15	SO	BUILDLEN	CD_1	24.07	26.04	17.82	41.22	42.14	41.78
16	SO	BUILDLEN	CD_1	12.57	11.58	10.24	8.59	6.68	4.56
17	SO	BUILDLEN	CD_1	3.87	6.04	8.02	9.76	11.20	12.31
18	SO	BUILDLEN	CD_1	24.07	26.04	27.22	18.65	19.53	19.81
19	SO	XBADJ	CD_1	-12.96	-37.62	-37.92	-37.11	-35.22	-31.70
20	SO	XBADJ	CD_1	-12.82	-13.49	-13.75	-13.59	-13.02	-12.06
21	SO	XBADJ	CD_1	-0.05	0.29	-29.03	12.75	13.12	13.08
22	SO	XBADJ	CD_1	0.39	2.29	4.13	5.84	7.37	8.68
23	SO	XBADJ	CD_1	8.95	7.45	5.73	3.83	1.82	-0.25
24	SO	XBADJ	CD_1	-24.02	-26.34	-27.86	-53.98	-55.26	-54.86
25	SO	YBADJ	CD_1	8.71	7.58	1.69	-4.25	-10.06	-7.71
26	SO	YBADJ	CD_1	-1.42	-3.29	-5.06	-6.67	-8.09	-9.25
27	SO	YBADJ	CD_1	-8.90	-6.68	5.22	-7.57	-0.88	6.30
28	SO	YBADJ	CD_1	-8.71	-7.42	-5.91	-4.21	-2.38	-0.49
29	SO	YBADJ	CD_1	1.42	3.29	5.06	6.67	8.09	9.25
30	SO	YBADJ	CD_1	8.90	6.68	4.26	8.77	0.88	-7.04
31									

Carolina Sunrock NAAQS Modeling – December 7, 2020

1	SO BUILDHGT	CD_1	10.67	19.81	19.81	19.81	19.81	19.81
2	SO BUILDHGT	CD_1	10.67	10.67	10.67	10.67	10.67	10.67
3	SO BUILDHGT	CD_1	10.67	9.14	7.62	7.62	10.67	10.67
4	SO BUILDHGT	CD_1	10.67	10.67	10.67	10.67	10.67	10.67
5	SO BUILDHGT	CD_1	10.67	10.67	10.67	10.67	10.67	10.67
6	SO BUILDHGT	CD_1	10.67	9.14	7.62	7.62	10.67	10.67
7	SO BUILDWID	CD_1	11.91	8.86	9.76	10.38	10.73	10.76
8	SO BUILDWID	CD_1	16.32	16.48	16.14	15.31	14.01	12.29
9	SO BUILDWID	CD_1	10.20	15.45	22.88	12.38	7.30	9.75
10	SO BUILDWID	CD_1	11.91	13.70	15.08	16.01	16.44	16.38
11	SO BUILDWID	CD_1	16.32	16.48	16.14	15.31	14.01	12.29
12	SO BUILDWID	CD_1	10.20	15.45	22.88	9.98	7.30	9.75
13	SO BUILDLEN	CD_1	15.31	8.64	7.29	6.08	5.08	3.43
14	SO BUILDLEN	CD_1	4.62	7.30	9.75	11.91	13.70	15.08
15	SO BUILDLEN	CD_1	16.01	25.80	51.11	41.22	16.48	16.14
16	SO BUILDLEN	CD_1	15.31	14.01	12.29	10.20	7.79	5.15
17	SO BUILDLEN	CD_1	4.62	7.30	9.75	11.91	13.70	15.08
18	SO BUILDLEN	CD_1	16.01	25.80	51.11	18.65	16.48	16.14
19	SO XBADJ	CD_1	-15.04	-37.62	-35.51	-35.29	-35.22	-31.70
20	SO XBADJ	CD_1	-1.75	-1.56	-1.32	-1.04	-0.73	-0.40
21	SO XBADJ	CD_1	-0.05	-9.07	0.63	12.75	0.38	0.06
22	SO XBADJ	CD_1	-0.27	-0.58	-0.88	-1.16	-1.39	-1.59
23	SO XBADJ	CD_1	-2.87	-5.74	-8.43	-10.87	-12.97	-14.69
24	SO XBADJ	CD_1	-15.95	-16.73	-51.74	-53.98	-16.86	-16.20
25	SO YBADJ	CD_1	-4.91	7.58	5.09	-0.53	-10.06	-7.71
26	SO YBADJ	CD_1	-8.86	-8.62	-8.13	-7.39	-6.42	-5.26
27	SO YBADJ	CD_1	-3.94	-6.33	-9.85	-7.57	2.09	3.56
28	SO YBADJ	CD_1	4.91	6.12	7.14	7.95	8.51	8.82
29	SO YBADJ	CD_1	8.86	8.62	8.13	7.39	6.42	5.26
30	SO YBADJ	CD_1	3.94	6.33	9.85	8.77	-2.09	-3.56
31								

NC DEQ TAPs Modeling – June 23, 2021

1	SO BUILDHGT	CD1	9.14	24.38	24.38	24.38	24.38	24.38
2	SO BUILDHGT	CD1	9.14	9.14	9.14	9.14	9.14	9.14
3	SO BUILDHGT	CD1	2.13	2.13	4.57	7.62	7.62	7.62
4	SO BUILDHGT	CD1	9.14	9.14	9.14	9.14	9.14	9.14
5	SO BUILDHGT	CD1	9.14	9.14	9.14	9.14	9.14	9.14
6	SO BUILDHGT	CD1	2.13	2.13	2.13	7.62	7.62	7.62
7	SO BUILDWID	CD1	9.76	8.86	9.71	10.37	10.73	10.76
8	SO BUILDWID	CD1	13.19	13.39	13.18	12.57	11.58	10.24
9	SO BUILDWID	CD1	20.11	16.15	9.62	12.38	12.80	16.70
10	SO BUILDWID	CD1	9.76	11.20	12.31	13.03	13.37	13.29
11	SO BUILDWID	CD1	13.19	13.39	13.18	12.57	11.58	10.24
12	SO BUILDWID	CD1	20.11	16.15	11.71	9.98	12.80	15.23
13	SO BUILDLEN	CD1	12.57	8.64	7.58	6.37	5.08	3.43
14	SO BUILDLEN	CD1	3.87	6.04	8.02	9.76	11.20	12.31
15	SO BUILDLEN	CD1	24.07	26.04	17.82	41.22	42.14	41.78
16	SO BUILDLEN	CD1	12.57	11.58	10.24	8.59	6.68	4.56
17	SO BUILDLEN	CD1	3.87	6.04	8.02	9.76	11.20	12.31
18	SO BUILDLEN	CD1	24.07	26.04	27.22	18.65	19.53	19.81
19	SO XBADJ	CD1	-12.96	-37.62	-37.92	-37.11	-35.22	-31.70
20	SO XBADJ	CD1	-12.82	-13.49	-13.75	-13.59	-13.02	-12.06
21	SO XBADJ	CD1	-0.05	0.29	-29.03	12.75	13.12	13.08
22	SO XBADJ	CD1	0.39	2.29	4.13	5.84	7.37	8.68
23	SO XBADJ	CD1	8.95	7.45	5.73	3.83	1.82	-0.25
24	SO XBADJ	CD1	-24.02	-26.34	-27.86	-53.98	-55.26	-54.86
25	SO YBADJ	CD1	8.71	7.58	1.69	-4.25	-10.06	-7.71
26	SO YBADJ	CD1	-1.42	-3.29	-5.06	-6.67	-8.09	-9.25
27	SO YBADJ	CD1	-8.90	-6.68	5.22	-7.57	-0.88	6.30
28	SO YBADJ	CD1	-8.71	-7.42	-5.91	-4.21	-2.38	-0.49
29	SO YBADJ	CD1	1.42	3.29	5.06	6.67	8.09	9.25
30	SO YBADJ	CD1	8.90	6.68	4.26	8.77	0.88	-7.04
31								

Attachment 4

CHECKING UP ON THE HEALTH OF ANDERSON TOWNSHIP



ANDERSON TOWNSHIP IS LOCATED IN CASWELL COUNTY, NORTH CAROLINA

Data, unless otherwise cited, are from a recent phone survey of a sample of Anderson Township residents (n=48). The survey was conducted by the University of North Carolina at Chapel Hill Gillings School of Global Public Health.

77% OF RESIDENTS REPORT A FORMALLY DIAGNOSED CHRONIC ILLNESS 48% REPORT HAVING THREE OR MORE

RESIDENTS REPORT HIGHER THAN AVERAGE RATES OF MULTIPLE CHRONIC ILLNESSES*

- Asthma is three times more prevalent than state average¹.
- High blood pressure and Type 2 Diabetes are twice as prevalent².
- Lung disease and a mental health diagnosis were both more prevalent^{3,4}.

CASWELL COUNTY, COMPARED TO THE STATE AVERAGE, HAS:

- Higher rates of death due to heart disease, cancer, and diabetes
- Higher than average rate of preterm births, child mortality, and infant death
- Nearly half the average number of primary care physicians⁵



ENVIRONMENTAL HEALTH ISSUES

- 60% of residents report plumes of smoke in their community
- 62% report strange smells
- The local animal park is a major source of odor and noise complaints

*when compared to NC state average

¹Centers for Disease Control and Prevention ²Community Clinical Connections ³North Carolina Medical Journal ⁴North Carolina Health News

⁵North Carolina Department of Health and Human Services

For questions about the survey, contact Dr. Courtney Woods (courtney.woods@unc.edu)