Hearing Officer's Report and Recommendations

Enviva Pellets Northampton, LLC Public Hearing
August 20, 2019
Northampton High School
Gaston, NC

Public Comment Period: July 19, 2019 through August 23, 2019

Pertaining to Permit Application No. 6600167.18A and
Draft Air Permit No. 10203R06 for:

Enviva Pellets Northampton, LLC
309 Enviva Boulevard
Garysburg, Northampton County, NC
Facility ID No. 6600167
Fee Class: Title V
PSD Class: Major

Hearing Officer
Bruce Ingle, Regional Supervisor, Mooresville Regional Office

Background

On October 1, 2018, the North Carolina Department of Environmental Quality (NC DEQ), Division of Air Quality (DAQ) received an air quality permit application (App. No. 6600167.18A) from Enviva Pellets Northampton, LLC for the modification of its facility located at 309 Enviva Boulevard in Garysburg, North Carolina. The facility submitted an amended application on April 1, 2019. The facility produces wood pellets using the following process equipment: a debarker, wood chipper, green wood hammermills, wood-fired rotary dryer, dry hammermills, dry shavings handling, screeners, pellet presses and coolers, product loadout operations, and other process activities. The permit application requests the following modifications:

- Increase the permitted production rate up to 781,255 ODT per year;
- Cap the amount of softwood to be a maximum of 80%;
- Install a new regenerative thermal oxidizer (RTO) for VOC and HAP control on the existing wood-fired direct heat drying system;
- Install a new direct-fired wood dryer equipped with a new wet electrostatic precipitator in series with a second regenerative thermal oxidizer (construction is optional by application);
- Install four new bagfilters for PM control on the wood handling and dry shavings material operations;
- Install two new Dry Shavings Hammermills and route the exhaust to a new wet scrubber in series with a new regenerative catalytic oxidizer for PM, VOC, and HAP control;
- Install a new scrubber and catalytic oxidizer for PM, VOC, and HAP control on the existing Dry Hammermills;
- Install a new scrubber and catalytic oxidizer for PM, VOC, and HAP control on the exhaust from the Pellet Presses and Pellet Coolers cyclones.

These modifications triggered an air toxic compliance demonstration for 13 toxic air pollutants for 13 different sources. Enviva Pellets Northampton, LLC conducted air dispersion modeling for the TAPs with emissions in excess of the Toxic Air Pollutant Permitting Emission Rates (TPER) thresholds to demonstrate compliance with the Acceptable Ambient Levels (AALs). All modeled TAPs were determined to be less than 24% of the AALs (worst-case TAP) and the modeling was approved by DAQ's Air Quality Analysis Branch (AQAB) on June 3, 2019.

With the addition of the proposed air pollution control devices, the facility will be required to limit emissions from particulate matter, particulate matter less than 10 micrometers, particulate matter less than 2.5 micrometers, volatile organic compounds (VOC), nitrogen oxides (NOx), and carbon monoxide (CO) to less than 250 tons per consecutive 12-month period for each pollutant in order to avoid the requirements of PSD. The modification also controls the emissions of hazardous air pollutants (HAPs) where the facility-wide annual combined HAPS are less than 25 tons per consecutive 12-month period and any single HAP to less than 10 tons per consecutive 12-month period. These limitations become effective following the complete installation of all controls as prescribed by the schedule contained in the draft permit.

The facility is currently a major source under prevention of significant deterioration (PSD) rules. Following are a summary of emissions before and after the modification…

Pollutant	Estimated Potential Emissions from Permit 10203R04 (in tons per year)	Estimated Potential Emissions from Permit 10203R06 (in tons per year)
Decreases		
Volatile Organic Compounds	456.40	129.68
Hazardous Air Pollutants	37.82	21.71
PM-10	121.79	118.75
PM-2.5	93.79	83.75
Increases		
NOx	126.57	242.21
CO	61.88	182.73
PM	128.84	148.97
SO2	19.20	39.52
Co2e	162,292.20	399,490.52

On July 19, 2019, a notice of public hearing was posted in the Roanoke Times and on the DAQ website. The public hearing was held on August 20, 2019 in Gaston, NC at the Northampton High School. The public comment period was July 19, 2019 through August 23, 2019. Copies of the permit application review and draft air permit were also posted on the Division of Air Quality website for public review. Copies of the air quality permit application and related documents were available for public review in DAQ's Raleigh Central Office (RCO) and Raleigh Regional Office (RRO) throughout the public comment period.

Air Quality Permit Application and Review

DAQ's mission is to work with the state's citizens to protect and improve 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 or modification of the air pollution sources to ensure compliance with all applicable federal and state regulations. Permit application No. 6600167.18A was received on October 1, 2018 and an amended version was received on April 1, 2019 for a modification that incorporates emission reduction efforts to comply with 15A NCAC 02Q .0317 Avoidance Conditions for 15A NCAC 02D .0530: Prevention of Significant Deterioration and 15A NCAC 02Q .0317 Avoidance Condition for 15A NCAC 02D .1111: Maximum Available Control Technology (MACT) Standards for HAPs. The proposed modification is also being implemented to meet new customer demands for increased softwood percentage and production rates.

Richard Simpson, permit engineer in the DAQ's RCO, reviewed the application submitted by Enviva Pellets Northampton, LLC and determined that the modifications requested by the facility would comply with all applicable federal and state air quality requirements. This permit action will address the following main changes associated with the modification as outlined in the application:

- Increase production rate from an approximate actual facility throughput of 535, 260 ODT per year to a potential facility throughput at 781,255 ODT per year by upgrading pellet dies with a new prototype;
- Increase the amount of softwood processed from 30% to a maximum of 80%;

- For the existing Dryer (ES-DRYER-1), add a regenerative thermal oxidizer (CD-RTO-1) after the existing wet electrostatic precipitator (CD-WESP-1) for volatile organic compound (VOC), HAP and particulate matter (PM) emissions control;
- Install a new direct-fired wood dryer (ES-DRYER-2) equipped with a new wet electrostatic precipitator (CD-WESP-2) in series with a regenerative thermal oxidizer (CD-RTO-2);
- Add a new dryer bypass stack (ES-DRYBYP-2) and furnace bypass stack (ES-FURNACEBYP-2) for malfunctions and low load startups, shutdowns, and idling operations;
- Remove two existing Green Wood Hammermills (previously referred to as wood re-chippers) and construct five new Green Hammermills (ES-GWH-1 through ES-GWH-5) and route the exhaust to the existing wet electrostatic precipitator (CD-WESP-1) in series with a new regenerative thermal oxidizer (CD-RTO-1). The Green Hammermills will have the capability to be exhausted to CD-WESP-2 and CD-RTO-2 when CD-WESP-1 and CD-RTO-1 are shut down;
- Existing Dry Wood Handling (ES-DWH-1 and ES-DWH-2) will exhaust to new bagfilters (CD-DWH-BF-1 and CD-DWH-BF-2);
- Install Dry Shaving Material Handling (ES-DRYSHAVE-1), Dry Shavings Reception (ES-DSR-1) with associated bagfilter (CD-DSR-BF), and a Dry Shavings Silo (ES-DSS) with associated bagfilter (CD-DSS-BF);
- Install two new Dry Shavings Hammermills (ES-DSHM-1 and ES-DSHM-2) for dry shavings and route the exhaust to a new wet scrubber (CD-WS-1) in series with a new regenerative catalytic oxidizer (CD-RCO-1) that can also operate as a regenerative thermal oxidizer;
- Existing Dry Hammermills (ES-HM-1 through 8) will exhaust from the existing bagfilters to a new wet scrubber (CD-WS-1) in series with a new regenerative catalytic oxidizer (CD-RCO-1);
- Route exhaust from the existing dust control system to a new wet scrubber (CD-WS-1_and regenerative catalytic oxidizer (CD-RCO-1) that can also operate as an RTO and
- Exhaust from the Pellet Presses and Pellet Coolers cyclones will be routed to a new wet scrubber (CD-WS-2) in series with a new regenerative catalytic oxidizer (CD-RCO-2) that can also operate as a regenerative thermal oxidizer.

Unless the public comments received during the public hearing reveal that DAQ was in error or incomplete in its evaluation of the proposed wood pellets plant from an air quality standpoint, and if the applicant has met all federal and state laws, regulations, and rules for the protection of the environment, the division is obligated to issue an air permit to Enviva Pellets Northampton, LLC. The following hearing officer's responses to written and oral public comments will address issues raised in light of these requirements.

Public Comments

Ninety-eight people were in attendance at the public hearing on August 20, 2019. Thirty-nine spoke at the hearing. Thirteen spoke in favor of the permit. Twenty-four spoke against the permit and two speakers did not express an opinion with regard to the permit. In addition to the speakers, three citizens provided written comments none of which addressed the issuance of the permit.

Additionally, 2,405 emails were received during the public comment period.

Of the written and oral comments received, the majority opposed DAQ granting the air permit. The comments have been separated into two sections. Section 1 summarizes and addresses the comments submitted by the Environmental Integrity Project (EIP) and the Southern Environmental Law Center (SELC). Section 2 addresses

comments received from individuals representing themselves or submitted on behalf of an organization. Those comments with similar concerns have been grouped together.

SECTION 1 - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 1 (EIP & SELC Letter Item - I.A):

To estimate NOx emissions from the existing dryer (ES-DRYER-1), Enviva states that "NOx emissions [are] based on stack test results from [a] similar Enviva facility plus 30% contingency." As has been the case with Enviva's other recent permit applications, Enviva provides no further details about which facility and what specific test it relies on, and DAQ admits it has not even requested the tests from Enviva. Here, however, Enviva Northampton has already conducted NOx testing on this dryer that resulted in NOx emissions roughly 25% higher than what Enviva now claims the dryer will emit. ***Most troubling, accepting all of Enviva's other emission factors but utilizing the source-specific Northampton test means the facility will have a PTE of at least 266 tpy,*** *exceeding the major source threshold.*

The 2013 compliance testing at Enviva Northampton, the only compliance testing required at the facility, resulted in an emission rate of 27.8 pounds per hour (lb/hr), which equates to 121.8 tpy. Despite the results of this source-specific testing, Enviva now claims that this same dryer has a lower PTE of 22.23 lb/hr (97.4 tpy), even when including a 30% contingency, based on tests at a different, unidentified Enviva plant. Additionally, DAQ has repeatedly approved a PTE for the existing dryer of 125.5 tpy, presumably also based on the source-specific test, which is significantly higher than the 97.4 tpy Enviva now claims the dryer will emit. For instance, in every single permit review issued by DAQ for Enviva Northampton since the testing occurred, including the most recent review in September 2017, DAQ lists the dryer's PTE as 125.5 tpy- until now.

There is no explanation provided in the permit record indicating that the 2013 source-specific testing is no longer applicable to estimate potential NOx emissions from the existing dryer, nor is there any indication that Enviva has, since the 2013 testing, somehow modified the dryer to reduce NOx emissions. For instance, the annual heat input rating listed in the current application has remained unchanged as compared to prior applications and the 2013 testing. Nor has Enviva stated that this particular modification would somehow result in lower NOx emissions - In fact, the addition of the RTO will actually lead to a slight increase in NOx emissions. Although DAQ believes Enviva may have improved the efficiency of the furnace, DAQ concedes that Enviva did not provide details to support that idea; rather, DAQ merely "assumed" this would be true.

Over the past year, DAQ and Enviva have consistently dismissed the applicability of non-source- specific testing when presented in public comments as a means for estimating a facility's potential emission. This was true even when the facility at issue was under construction and there was no source-specific testing available. For instance, DAQ dismissed tests from numerous facilities relating to VOC emissions at the Enviva Hamlet plant, stating that "[s]tack test data for any facility provides only data for that specific facility ... ***data specific to one Enviva facility should not be assumed to be applicable to another facility."*** *Instead, DAQ and Enviva consistently praise the value of source-specific testing after*

construction to verify emission estimates. Yet here, Enviva is essentially doing the exact opposite-Enviva is ignoring source- specific testing and utilizing testing from a different, unspecified Enviva plant to justify a lower emission rate that conveniently allows the plant to barely escape the major source threshold.

Because PTE is a "worst case" emission calculation, DAQ must reject the lower emission factor proposed by Enviva and rely instead on the source-specific emission factor, unless Enviva can somehow demonstrate that it is no longer capable of emitting NOx at the higher rate. Moreover, any operating practices or physical changes that have enabled the plant to reduce NOx emissions must be incorporated as enforceable permit conditions in order to adequately restrict PTE to avoid PSD. Otherwise, DAQ must implement limits restricting the heat input rate or operating hours of the dryer's furnace in order to restrict PTE to below the major source threshold. Alternatively, Enviva may opt to retain its major source status and treat this modification as a major modification subject to PSD.

Hearing Officer's Response to This Comment:
The DAQ agrees that Enviva Northampton NOx emission factors as presented in the application differ from those established during the site-specific stack testing. The stack test performed October 2013 resulted in a NOx emission factor of 27.8 lb/hr with an associated hardwood/softwood ratio of 94%/6%. During testing, the reported process rate of the dryer was approximately 60 oven dried tons (ODT) per hour. The described process rate of the dryer is 71.71 ODT/hr with a maximum heat capacity of 175.3 million Btu/hr. Scaling up the tested NOx emission factor to account for the described process rate of the existing dryer equates to an emission factor of 33.48 lb/hr or 0.47 lb/ODT. It should be noted that Enviva Northampton's most recently submitted inventories use this scaled factor to calculate its actual annual emissions.

The proposed NOx emission factor in the application is 22.23 lb/hr with an associated hardwood/softwood content of 20%/80% and with the operation of a proposed regenerative thermal oxidizer (RTO). In preparing its application, Enviva evaluated five different dryer NOx source tests from their Cottondale facility where the dryers were being controlled by an RTO. Those results indicated a NOx emission factor that ranged from 10.0 lb/hr to 17.1 lb/hr. Enviva took the highest factor of 17.1 lb/hr from a November 2011 test with an added 30% contingency factor, equating to the submitted 22.23 lb/hr. Each of the Cottondale dryers have a maximum capacity of 151 million Btu/hr.

The DAQ Stationary Source Compliance Branch Supervisor, Gary Saunders reviewed the supplied Cottondale Dryer 2 November 2011 engineering test and supplied the following comments via email:

> *I have reviewed the test data that was supplied for the Cottondale, Florida facility. As noted in the pages supplied, it was an "engineering test" conducted on November 16, 2011. There are a couple of points worth noting with this test including the note at the bottom that "the methods may not have been strictly followed":*
>
> *It appears that a single moisture test was conducted during the first run of the two NOx (and VOC) runs to represent the moisture in the stack during the two runs. If the moisture does not vary significantly (and there is no way to tell from a single run) then this does not present a serious issue. The moisture content in the gas stream is quite high at nearly 47% by volume. The presence of a high moisture level may help in the reduction of NOx formation during the combustion process by limiting the peak flame temperature that has a significant influence on formation.*

The velocity traverses conducted during each test run indicated two separate concerns. First was the temperature variation between individual points. That is likely due to the operation of the RTO and the way it might cycle through the regenerative cycle.
The second item was the fact that flow rates were much higher on one side of the traverse than the other. It is possible that there is some biased flow in the ducts with implications for stratification in the duct work.

It appears that the pollutant test runs are sampled at a single point as there is no indication that multiple points were sampled or that a stratification test (part of the Method 7E testing methodology) was conducted prior to the sampling to justify single point sampling.

Finally, the engineering test consists of only two runs that are each 45 minutes in length. Although the calibration, bias, and drift tests for the emissions test monitors look correct and the calculations for the adjusted values also appear correct, there is concern that averaging two shortened runs may not be as representative of emissions that might be available from a more comprehensive test of three runs with all the testing requirements fulfilled.

I also checked the calculations contained in the report. The calculations associated with the flow rates and the concentrations appear correct (with slight differences that can be attributed to rounding issues) and there are example calculations for both moisture and gas flow rate calculations included in the report. Although example calculations for the emission rate are not given, calculation of the individual run values for lb/hr are also within the rounding error of the various data. However, the "average" lb/hr value reported from the table is not the average from the two runs and I am unable to determine how that value was derived.

Finally, because NOx formation is typically related to combustion conditions that may be nonlinear with respect to production rates and maybe dependent upon RTO or dryer combustion conditions, more comprehensive data than this engineering study may be necessary to determine whether this emission rate is characteristic of performance over a broad range of operation levels or for all systems that are similarly configured.

As a result of these comments and those presented by EIP, DAQ supports the use of site-specific emission factors for calculating NOx emissions from the existing and the proposed dryers.

The draft permit requires NOx testing to establish a new NOx emission factor once all the requirements of Section 2.3 A., "Actions to be Taken by the Permittee", have been met. Until that time, Enviva Northampton is not permitted to operate its existing dryer above current permitted levels as listed in Permit Conditions 2.2 A.2.b (i through iii). Existing inventories indicate NOx emissions below PSD significant thresholds at the current production rates. Once the new emission factor is approved, Enviva Northampton can submit an application to update the permitted limitations and conditions. After the construction has been completed, the facility is required to perform an initial stack test for all criteria pollutants and establish site-specific emission factors to demonstrate compliance with all of the PSD avoidance limits in Permit Condition 2.2 A.3.b.

Therefore, DAQ will require the Enviva Northampton scaled site-specific NOx emission factor of 33.48 lb/hr to be used until all of the proposed control devices are installed (excluding the new wood dryer controls in the event the second dryer is not installed) and new site-specific approved NOx factors have been established through stack testing.

Recommendation: It is recommended that the permit reflect the requirement of Enviva Northampton to use the scaled site-specific NOx emission factor of 33.48 lb/hr until all of the proposed control devices are installed (excluding the new wood dryer controls in the event the second dryer is not installed) and new site-specific approved NOx emission factors have been established through stack testing.

Comment 2 (EIP & SELC Letter - Item I.B):

As noted above, the second wood-fired furnace and dryer (ES-DRYER-2) that Enviva intends to install has a slightly higher heat input rating of 180 MMBtu/hr, compared to the 175.3 MMBtu/hr for the existing dryer. Despite the fact that higher heat input should mean more NOx emissions, Enviva claims that both dryers will have the same emission rate for NOx-22.23 lb/hr. Regardless of this apparent (and unexplained) discrepancy, Enviva appears to have otherwise underestimated the new dryer's PTE based on Enviva's own emissions estimates for an identical dryer at its Southampton, Virginia facility. ***Utilizing the emissions estimates for the Southampton dryer, even assuming all of Enviva's other emissions factors are correct (including for Dryer 1), results in the Northampton facility having a NOx PTE of 265,*** *exceeding the major source threshold.*

In its parallel permitting process in Virginia, Enviva is also installing a new 180 MMBtu/hr wood-fired furnace at the nearly identical Enviva Southampton facility. In almost all respects, the application for that permit modification is identical to the Enviva Northampton modification, e.g. both applications contemplate an increase to 781,255 tpy, 80% softwood, and the installation of RTOs. Yet for the new 180 MMBtu/hr dryer at Southampton, Enviva lists the emission rate of27.73 lb/hr, based on "stack test data from similar Enviva facilities." Enviva, of course, does not provide details on the test or facility, but this rate is remarkably similar to the rate from the Enviva Northampton stack test discussed above-27.8 lb/hr.

Given Enviva's use of a 27.73 lb/hr NOx emission rate for the 180 MMBtu/hr furnace at Southampton, Enviva's contention that an identical 180 MMBtu/hr furnace at Northampton will emit at a rate of only 22.23 lb/hr is highly suspect. DAQ must require Enviva to identify any differences between the 180 MMBtu/hr furnaces at the two plants that justifies Enviva's use of different NOx emission factors; if there are none, then DAQ must at a minimum utilize the higher emission rate of 27.73 lb/hr, which results in a facility-wide PTE of 265 tpy (ignoring, of course, the underestimated emission issues with Dryer I discussed above).

Moreover, even the 27.73 lb/hr rate used for Enviva Southampton may be an underestimation. If that rate does come from the Enviva Northampton testing, then it is flawed on at least three grounds: first, the rate is lower than the actual tested rate of 27.8 lb/hr; second, the testing occurred on a furnace with a lower heat input rate of 175.3 MMBtu/hr; third, the testing occurred on a dryer without an RTO, yet the new dryer will include an RTO, meaning NOx emissions from the RTO itself are not represented in the emission rate.

Hearing Officer's Response to This Comment:
EIP contends that Enviva Northampton's proposed dryer should have a different NOx emission factor than the existing dryer due to the size difference. The existing dryer is rated at 175.2 million Btu/hr and the new dryer is rated at 180 million Btu/hr; a difference less than 3%. Because DAQ is requiring the use of a higher NOx emission factor than presented in the application or suggested by EIP, DAQ believes the scaled emission factor of 33.48 lb/hr is appropriate for both dryers until new site-specific approved NOx factors have been established.

Recommendation: No changes other than those discussed in response to SECTION I, Item 1.A above are deemed necessary to address this comment.

Comment 3 (EIP & SELC Letter - Item I.C):

Under the Clean Air Act's PSD program, a wood pellet facility such as Enviva Northampton is considered a major stationary source if it "emits, or has the potential to emit, 250 tons per year or more of a regulated [new source review] pollutant." 40 C.F.R. § 52.21(B)(l)(i)(b). Potential to emit, in turn, is defined as the "maximum capacity of a stationary source to emit a pollutant under its physical and operational design." 40 C.F.R. § 52.21(B)(4) (emphasis added). As EPA and courts have explained, PTE is a "worst case emissions calculation" that is "not to be confused with actual emissions, which may be significantly lower."

As explained above, Enviva's PTE calculations for NOx emissions are flawed for two independent reasons. Utilizing the appropriate and verifiable rates listed above for NOx emissions from each of the two dryers, i.e. 27.8 lb/hr for Dryer 1 and 27.72 lb/hr for Dryer 2, the two dryers have a combined PTE of243.6 tpy. The non-dryer sources at Enviva Northampton, meanwhile, have a combined PTE of 47.25 tpy, ***meaning the facility-wide PTE is 290.85 tpy.*** *Moreover, even this calculation is likely an underestimation of the facility's potential NOx emissions because it does not include NOx emissions from the dryer RTOs (as explained above, the 2013 stack test occurred on a dryer without an RTO, and therefore did not include NOx emissions from the RTO Enviva will install as part of this modification), as well as the other flaws with the Dryer 2 emission rate addressed above.* ***Therefore, the actual PTE is likely to exceed at least 300 tpy.*** *Accordingly, the Enviva Northampton modification results in a PTE that exceeds the major-source threshold of250 tpy, and the facility is therefore a PSD major source for NOx.*

Additionally, because Enviva Northampton is currently a major source, unless the facility truly reduces its PTE to below 250 tpy, then the relevant threshold for PSD applicability is not 250 tpy, as it would be for a minor source, but is actually the threshold for a major modification applicable to major sources. For NOx, a major modification subject to PSD is any modification that increases PTE by greater than 40 tpy. 40 C.F.R. § 52.21(b)(23)(i). Here, of course, Enviva is proposing to increase NOx by 115 tpy by its own calculations. Further, the proposed modification would also constitute a major modification for carbon monoxide, as Enviva proposes to increase carbon monoxide emissions by 120 tpy, exceeding the significance threshold of 100 tpy.

For the foregoing reasons, DAQ must either require Enviva Northampton to apply for a PSD permit governing the modification, or DAQ must implement stricter operating limits to reduce PTE, such as limiting the annual heat input rate of the dryers. Currently, the two dryers have a combined annual heat input capacity of 3,112,248 MMBtu/yr. According to our calculations the permit must restrict the annual heat input to less than about 2,600,000 MMBtu/yr in order to restrict facility-wide NOx emissions to below the major source PSD threshold.

Finally, we emphasize that reliance on post-construction stack testing is especially inappropriate where the facility's PTE has already been established by source-specific testing. PSD is a preconstruction review, and limits established to avoid PSD must be sufficient to ensure a source does not undertake a major modification.

Hearing Officer's Response to This Comment:
DAQ agrees that the facility is currently classified as a major source for PSD because of volatile organic compounds (VOC) emissions. However, Enviva Northampton proposes to install wet electrostatic precipitators, regenerative thermal or catalytic oxidizers, scrubbers, and new bagfilters as part of this application to limit facility-wide emissions of particulate matter, particulate matter less than 10 micrometers, particulate matter less than 2.5 micrometers, volatile organic compounds (VOC), nitrogen oxides (NOx), and carbon monoxide (CO) to less than 250 tons per consecutive 12-month period for each pollutant. These limitations become effective following the complete installation of all controls as prescribed by the schedule contained in the permit. Once completed, this facility will be classified as a minor source for PSD for all pollutants. The restrictions to limit PTE from the facility are established in Permit Condition 2.2 A.3 of the permit.

Recommendation: No changes other than those discussed in response to SECTION I, Item 1.A above are deemed necessary to address this comment.

Comment 4 (EIP & SELC Letter - Item I.D):

As discussed above, Enviva is rejecting source-specific testing for NOx and instead using testing from a different but "similar" Enviva facility. As we have already emphasized, this is almost certainly wholly inappropriate in the face of representative source-specific testing. However, to the extent that DAQ decides to rely on the non-source-specific Enviva testing, Enviva must at least identify the testing, make the testing part of the permit record, and explain why it is more representative than source-specific testing. Furthermore, even if DAQ rejects the non-source- specific test for Dryer 1, Enviva still relies on the unidentified test for Dryer 2, which again is dubious considering the higher NOx emission rate selected for the Enviva Southampton plant.

DAQ concedes that Enviva has not submitted the "similar" NOx test to DAQ for review, nor has DAQ requested it. Nor has Enviva even provided the most basic of information regarding this test to DAQ, such as which facility was tested and the specific results of the test. While we do not necessarily expect DAQ to scrutinize every single source of every emission factor in every permit (although we certainly would not object), where a company is proposing to reject source- specific stack testing in favor of non-source-specific testing that is significantly lower, DAQ must verify that the testing is not only valid, but more suitable than the source-specific test.

Furthermore, for several reasons, we are skeptical that the test Enviva relies upon is truly representative of Northampton's existing wood dryer, or if it is, that it has ever been submitted to a state agency for review. First, there are only three Enviva plants in existence that operate a 175.3 MMBtu/hr wood-fired furnace: Enviva Northampton, Enviva Southampton, and Enviva Ahoskie. Each of the other Enviva plants has significantly different heat input ratings.

Therefore, the only two plants Enviva could reasonably call "similar" are Ahoskie and Southampton, but neither appear to have performed NOx testing that supports Enviva's emission factor. First, we cannot find any NOx testing for Enviva Ahoskie in the files available on DAQ's website, but permit applications for that plant do reference 2012 NOx testing. That test reportedly produced an emission factor of 0.243 lb/MMBtu, which equates to 186 tpy for Dryer 1 at Northampton-about double the 97.4 tpy that Enviva

now claims for Northampton.

At Enviva Southampton, meanwhile, any compliance testing there could not possibly be representative of Enviva Northampton, because the furnace there is required to operate with selective non-catalytic reduction (SNCR), and the SNCR is required by permit to reduce NOx by at least 50%. As such, no compliance testing submitted to the state agency would have occurred without using SNCR. Moreover, the stack testing that Southampton relies upon in the parallel proceeding for that plant is listed as "Southampton July 2015 VOC Compliance Stack Test." Virginia DAQ has confirmed that the July 2015 testing was only for VOC emissions and to date the permit writer has not been able to provide other NOx testing.

In sum, Enviva supports its calculation that the modified Northampton plant will not be a major source subject to PSD by relying on a single stack test at an unidentified Enviva facility. We have not been able to find any testing that supports Enviva's proposed emission rate. In fact, the only facility that is truly similar in terms of comparable furnace operations, Enviva Ahoskie, has apparently tested and produced a far higher emission factor.

Again, we believe source-specific testing should trump any non-source-specific testing, but if Enviva believes some other testing is somehow more representative, it must explain why and include the stack test results in the public permit record. Although we believe Enviva should always include this information in its permit applications, here, in the face of source-specific testing, it is especially vital that Enviva justify its decision to ignore that testing.

Moreover, DAQ has a duty as the permitting agency to verify the information provided by Enviva. Instead, as has been shown over the course of the past year, DAQ has repeatedly accepted Enviva's word as it relates to emissions calculations and other permitting decisions, even when faced with credible, contrary evidence. In particular, for the Northampton permit, DAQ has once again taken Enviva at face value by failing to even request copies or results of the stack testing Enviva purportedly relies on and by making assumptions in favor of the company, rather than acting to protect the people of North Carolina.

Hearing Officer's Response to This Comment:
As noted above in SECTION I, Item I.A., the engineering test that Enviva Northampton relied upon for the dryer NOx emission factor was from the Enviva Cottondale facility conducted in November 2011. Enviva Northampton supplied the engineering test on September 16, 2019. However, after review of the Cottondale test, DAQ agrees that the use of the Enviva Northampton site-specific stack tests are more appropriate as discussed in SECTION I, Item 1.A above.

Recommendation: No changes other than those discussed in response to SECTION I, Item 1.A above are deemed necessary to address this comment.

SECTION II - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 5 (EIP & SELC Letter - Item II.A.) -

At a fundamental level, the dryer bypass provision allows for significant periods of unnecessary air pollution. For instance, if Enviva has only used 15 hours of dryer bypass in the prior 12- month period, the company has little incentive to shut down while addressing, for instance, a malfunction in the RTO. Most importantly, however, our modeling shows that by continuing to operate the facility's dryers at full capacity during use of the bypass stacks, Enviva will cause exceedances of the NAAQS and AALs.

Although malfunctions are generally considered too "unpredictable" to model, when, as here, a permit condition explicitly allows for a set amount of time of malfunction bypass, the layer of unpredictability for purposes of modeling is removed. In other words, if the permit treats malfunctions within the first 50 hours differently than malfunctions outside of that window, the impacts from the first 50 hours must be considered. Moreover, as discussed below, continuing to operate at full capacity while a control device malfunctions is not, in the totality, a malfunction-the decision to continue operating results in predictable and quantifiable emissions, based on which we have produce.A.d the following modeling data.

1. *NAAQS Exceedances*

Under North Carolina's federally approved state implementation plan (SIP), "any source of air pollution shall be operated with such control or in such manner that the source shall not cause the [N"AAQS] to be exceeded at any point beyond the premises." 15A N.C. Admin. Code 2D .050l(c). We conducted air dispersion modeling demonstrating that, with the emission rates and parameters given by Enviva, operations during dryer bypass mode will cause impermissible exceedances of the NAAQS for PM2.5, PMI0, and NOx.

Our air dispersion modeling utilized the data and parameters from Enviva' s own modeling files for the Northampton modification as well as the permit application. This modeling shows that "under dryer bypass conditions lasting only two (2) hours, modeled impacts (added to the appropriate background concentrations) result in ambient concentrations that exceed the PMI0 (24-hour), PM2.5 (24-hour), and NOX (I-hour) NAAQS." Specifically, during a two-hour bypass for one dryer, the relevant NAAQS were exceeded by 121 µg/m^3 (PM2.5), 143 µg/m^3 (PMIO), and 2,816 µg/m^3 (NOx):

TABLE 11
***NAAQS** RESULTS SUMMARY- **(1)** DRYER BYPASS*

Pollutant	Period	Metric	Impact (ug/m3)	Back (ug/m3)	Tata/ (ug/m3)	NMQS (ug/m3)	OK?
PM2.5	24-hour	H8H impact/5 years	140	16	156	35	NO
PM10	24-hour	H6H impact/5 years	235	58	293	150	NO
NOX	1-hour	H8H impact/5 years	2,946	58	3,004	188	NO

As this table and our report show, authorizing up to 50 hours per year for each dryer to continue operating and bypass controls during malfunctions is unacceptable because such operations cause or contribute to impermissible exceedances of the NAAQS.

Hearing Officer's Response to This Comment:
The DAQ agrees that North Carolina regulations define "malfunctions" as "any unavoidable failure of air pollution control equipment, process equipment, or process to operate in a normal or usual manner that results in excess emissions" [15A NCAC 02D .0535(a)(2)]. Similarly, EPA has defined malfunction as a "sudden and unavoidable" or "unpredictable and unforeseen" event [80 FR 33,840, at 33,842 and n. 2 (June 12, 2015)]. Accordingly, excess emissions from foreseeable events, including avoidable failures, are not considered malfunctions. *See, e.g.*, 15A NCAC 02D .0535(a)(2) ("Poor maintenance, careless operations or any other upset condition within the control of the emission source are not considered a malfunction"). The draft permit did authorize Enviva Northampton's two wood furnaces and dryers to bypass the control devices at normal load as a safety and malfunction measure as discussed in the application. Enviva Northampton described potential malfunction or abort periods caused by failsafe interlocks associated with the dryer and emissions control systems as well as utility supply systems (i.e., electricity, compressed air, water/fire protection). Dryer abort may also be triggered if a spark is detected. Enviva Northampton further mentioned that malfunctions are infrequent and unpredictable.

Because malfunctions cannot be planned for, the DAQ agrees to remove the condition allowing up to 50 hours of malfunction for each dryer line bypass stack. Any malfunction event for Enviva Northampton will be regulated per 15A NCAC 02D .0535 "Excess Emissions Reporting and Malfunctions". This regulation establishes reporting and corrective action measures when a source has excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions. The facility must notify the Division within an appropriate amount of time and describe the nature and cause of the malfunction or breakdown, the time when the malfunction or breakdown is first observed, the expected duration, and an estimated rate of emissions.

Recommendation: It is recommended to remove the malfunction language noted above.

Comment 6 (EIP & SELC Letter - Item II.B.):

In Enviva's parallel permitting procedure in Virginia for the Enviva Southampton plant, Enviva submitted an application that contains identical information regarding the use of the bypass stacks as here. Virginia apparently rejected the idea of preemptively authorizing the use of the bypass stacks during malfunction, as the draft permit currently undergoing public notice and comment contains no provision comparable to Condition 2.2(A)(3)(c)(vii) authorizing use of the dryer bypass during 50 hours of malfunction.

We support Virginia's approach to the bypassing issue and urge DAQ to adopt a similar approach that specifically limits bypassing to two well defined scenarios during which emissions will be minimized by limits on the heat input of the furnaces.

Finally, we note that none of the permits issued to Enviva over the past several years have contained blanket exemptions allowing for bypass stacks during any period of malfunction. For instance, neither of the two recent permits issued by DAQ to Enviva Hamlet or Enviva Sampson contain a comparable provision authorizing bypassing during malfunctions.

Hearing Officer's Response to This Comment:
As noted above, the DAQ agrees the Enviva Northampton draft permit included hourly limitations for the bypass stacks during malfunctions which are now being removed. This removal will make the draft permit consistent with the recently issued Enviva Hamlet and Enviva Sampson permits. The DAQ has reviewed the draft bypass language contained in the Enviva Sampson permit for cold start-up bypass mode and will implement similar language in the Northampton permit.

Recommendation: It is recommended to remove the malfunction language noted in SECTION II, Item II.A. above, include similar cold start-up bypass language, and be consistent with bypass conditions with Enviva Sampson.

SECTION III - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 7 (Section III):

It appears that Enviva desires the ability to continue operating its dryers at full capacity even when pollution controls are unavailable-for instance, Enviva lists the full dryer production rate of 71.71 ODT/hr for dryer bypass mode, and calculates the facility's compliance with its synthetic minor limit using this number. As discussed above, however, operating the dryers while using the dryer bypass stack to avoid controls leads to impermissible exceedances of the NAAQS and AALs. To ensure that emissions from this facility will not cause or contribute to exceedances of the NAAQS and AALs, Enviva's permit must expressly require Enviva to shut down the dryer whenever it becomes necessary to vent emissions through the dryer bypass stack. In addition, the permit must make clear that continuing to operate the dryer when the pollution controls are bypassed (beyond the amount of time that it takes to shut it down) cannot be considered a malfunction.

While unexpected events may certainly force Enviva to bypass the pollution controls-we do not dispute that malfunctions happen--continuing to operate the dryer without controls beyond the amount of time it takes to shut it down is not an "unavoidable" scenario beyond Enviva's controls. 15A N.C. Admin. Code 02D .0535(a)(2). Continuing to operate while the controls are bypassed is a deliberate and readily avoidable alternative operating scenario that must not be authorized. Moreover, North Carolina's regulations require that, when determining if excess emissions are the result of a malfunction, the "Director shall consider ... [whether] the amount and duration of the excess emissions ... have been minimized to the maximum extent practicable." 15A N.C. Admin. Code 02D .0535(c)(3). Authorizing continued operations at full capacity during bypass events plainly cannot qualify as "minimize[ing]" emissions to the "maximum extent practicable."

Hearing Officer's Response to This Comment:
DAQ agrees to remove the condition allowing up to 50 hours of malfunction for each dryer line bypass stack. Any malfunction event for Enviva Northampton will be regulated per 15A NCAC 02D .0535 "Excess Emissions Reporting and Malfunctions". This regulation establishes reporting and corrective action measures when a source has excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions. The facility must notify the Division within an appropriate amount of time and describe the nature and cause of the malfunction or breakdown, the time when the malfunction or breakdown is first observed, the expected duration, and an estimated rate of emissions.

Recommendation: It is recommended to remove the malfunction language noted in SECTION II, Item II.A. above, include similar cold start-up bypass language, and be consistent with bypass conditions with Enviva Sampson.

SECTION IV - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 8 (Section IV):

The draft permit requires Enviva to track and record its monthly emissions of NSR pollutants, and submit semi-annual reports of 17-months-worth of emissions. The permit does not, however, specify how Enviva shall calculate its emissions. In order to make the PTE limits enforceable, the permit must include an equation and the specific emission factors that Enviva shall use to calculate its rolling 12-month emissions. Most critically, it must be clear that emissions from startup, shutdown, malfunction, and idle modes shall be included in the 12-month rolling emissions.

As EPA has consistently explained, a limit intended to restrict PTE "can be relied upon ... only if it is legally and practicably enforceable." EPA has further explained practical enforceability as such:

> *In order to be considered practically enforceable, an emissions limit must be accompanied by terms and conditions that require a source to effectively constrain its operations so as to not exceed the relevant emissions threshold. These terms and conditions must also be sufficient to enable regulators and citizens to determine whether the limit has been exceeded and, if so, to take appropriate enforcement action.*

Without the emission factors in the permit, it is impossible for citizens to "determine whether the limit has been exceeded." More specifically, EPA has objected to permits that lacked emission factors because, "without a clearly identified method for determining monthly emissions ... the limitations on ... emissions are legally and practically unenforceable." Such is the case here.

The permit is silent on how Enviva shall calculate emissions and whether it must include emissions from malfunctions and startup and shutdown. DAQ must remedy this in order to ensure the PTE limits are enforceable as a practical matter.

Hearing Officer's Response to This Comment:
Excluding NOx emissions, the post modification potential emissions from each remaining criteria pollutant are below 183 tpy; therefore, specific equations are not necessary. Furthermore, compliance will be established via stack testing and the required semi-annual recordkeeping and reporting conditions.

Because the PTE for NOx is estimated to be close to the PSD threshold of 250 tpy, DAQ agrees the permit should include appropriate calculation methodology indicating compliance with the 12-month rolling average as stipulated in the permit. The following equation will be added to the permit in response to comments. The equation will enable regulators and citizens to determine compliance with the limit.

Total NOx emissions per month are from the combined operation of dryers with associated oxidizers, and other miscellaneous combustion sources. The miscellaneous sources at Enviva Northampton have a combined potential to emit of 47.25 tpy of NOx (3.94 tons per month). The dryer emission factor of 0.47 lb/ODT is derived and scaled up from the October 2013 site-specific stack test as noted in SECTION II, Item I.A. above. Each dryer RTO is rated at

32 million Btu/hr. The associated propane and natural gas hourly emission factors (lb/hr) are from the DAQ's website. Calculations shall be made monthly and recorded in a logbook (written or in electronic format), according to the following formula for the facility and then totaled:

$$E_{\text{NOx(Total)}} = \sum E_{\text{NOx(Dryer1)}} + \sum E_{\text{NOx(Dryer2)}} + \sum E_{\text{NOx(RTO1)}} + \sum E_{\text{NOx(RTO2)}} + 3.94$$

$$E_{\text{NOx(Dryer1 or Dryer2)}} = \frac{(0.47 \; x \; Q_D)}{2000}$$

$$E_{\text{NOx(RTO1 or RTO2)}} = \left(\frac{(4.55 \times P_{\text{RTO}}) + (3.15 \times NG_{\text{RTO}})}{2{,}000}\right)$$

Where:

$E_{\text{NOx(Total)}}$	=	total tons of NOx emissions per month from the facility.
$E_{\text{NOx(Dryer1 or 2)}}$	=	total tons of NOx emissions per month from each dryer
$E_{\text{NOx(RTO1)}}$	=	number of tons of NOx emissions per month from RTO1 fuel combustion.
$E_{\text{NOx(RTO2)}}$	=	number of tons of NOx emissions per month from RTO2 fuel combustion.
Q_D	=	the oven dried tons of processed wood through the dryers per month.
0.47	=	dryer line NOx emission factor 0.47 lbs/ODT is derived from the October 2013 site-specific stack test of 33.48 lb/hr at maximum throughput.
$P_{\text{RTO1 or RTO2}}$	=	propane hours per month when oxidizer deemed "in operation", is not bypassed, and oxidizer temperature is greater than or equal to the hourly block average temperature specified per stack test with an emission factor of 4.55 lb/hr.
$NG_{\text{RTO1 or RTO2}}$	=	natural gas hours per month when oxidizer deemed "in operation", is not bypassed, and oxidizer temperature is greater than or equal to the hourly block average temperature specified per stack test with an emission factor of 3.15 lb/hr.
3.94	=	equates to the monthly PTE for the miscellaneous sources including; double duct burners, propane vaporizer, catalytic oxidizers, bypass stacks, emergency generators, and a fire water pump

Recommendation: It is recommended that the equation above be added to the PSD avoidance condition related to operations post modification in order to determine compliance with the 250 ton per year NOx PSD Avoidance limit.

SECTION V - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 9 (Section V):

The draft permit is also deficient because it fails to require adequate monitoring to ensure compliance with the applicable 20% opacity limit set forth in 15A N.C. Admin. Code 02D .0521. In short, the monitoring requirement under Permit Condition 2.1(A)(3)(c) allows an untrained individual to pick any time during the first 30 days of the permit's effective period to subjectively determine a "normal" opacity level from the sources. The draft permit provides no further requirements for how normal opacity is determined. This then sets the bar for opacity monitoring for the subsequent, indefinite term of the permit. Once a week thereafter, the permittee makes another subjective observation concerning whether the opacity is "above normal." Notably, the draft permit does not require the original observer to record his or her qualitative description of the normal level of opacity and provides no mechanism for the original observer to communicate to any future observer what

normal opacity looks like. Likewise, the recordkeeping requirement fails to require the weekly observers to record any description of their observations (only the "results," which presumably would be normal or not normal), the methods they used to make the observation, or the time of day and conditions at the time the observation was made.

The draft permit fails to assure compliance with the 20% opacity limit because (1) DAQ has not demonstrated that monthly monitoring is sufficient to assure compliance with a 20% opacity limit that applies at all times, (2) DAQ has not demonstrated that the parameter being monitored ("normal" opacity) correlates with demonstrating that opacity remains below 20% at all times, (3) the permit fails to specify the method that the facility must use to determine opacity, and (4) the permit lacks recordkeeping and reporting needed to document the results of required monitoring. DAQ must amend the permit to require monitoring that objectively and adequately determines the level of visible emissions on a time frame sufficient to demonstrate ongoing compliance (i.e., at least daily), and require recordkeeping and reporting sufficient to document monitoring results and enable DAQ and the public to promptly identify any non-compliance.

Hearing Officer's Response to This Comment:
The air permit will require the facility to conduct monthly visible observations and establish "normal" within 30 days following commencement of operation of the equipment. If the visible emissions are above normal the appropriate action must be taken to correct the above normal emissions as soon as practicable and record the action taken or demonstrate that the percent opacity from the emission point is below the opacity limit in accordance with 15A NCAC 2D .2610 (Method 9).

The visible observation procedures are long established by DAQ and are sufficient to ensure compliance with 15A NCAC 02D .0521. The EPA periodically conducts audits of DAQ's Title V permitting program and routinely reviews Title V permits. The EPA has not indicated DAQ's visible observation procedures are deficient nor fail to meet the intent of the Title V monitoring requirements. In addition, during DAQ's annual full compliance evaluation inspection, the DAQ inspector, who is Method 9 certified, observes emission release points to determine compliance with the visible emission standard and reviews the facility's records to ensure the proper information is being recorded. The facility must record the following visible emission observation information:

1) the date and time of each recorded action;
2) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
3) the results of any corrective actions performed.

Recommendation: No changes to the draft permit are deemed necessary to address this comment.

SECTION VI - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 10 (Section VI):

Wood pellet plants generate a lot of fugitive dust, i.e., airborne particulate matter. In fact, one of the most common air pollution complaints raised by residents of communities where wood pellet plants are located is the large amount of fugitive dust that escapes into surrounding neighborhoods. Enviva Northampton is no

exception. As DAQ is aware, neighbors of the plant expressed frustration that dust is still coating their property years after first raising the issue with Enviva. As one commenter noted, fugitive dust plans should be standard for this industry.

Major sources of fugitive dust at wood pellet plants include wood handling, wood storage piles, conveyor transfer points, yard dust, haul road dust, and engine exhaust. Health problems associated with exposure to particulate matter pollution primarily involve damage to the lungs and respiratory system due to inhalation. Specifically, the inhalation of dust particles can irritate the eyes, nose and throat; cause respiratory distress, including coughing, difficulty in breathing and chest tightness; increase the severity of bronchitis, asthma and emphysema; cause heart attacks and aggravate heart disease; and lead to premature death in individuals with serious lung or heart diseases. When exposed repeatedly over a longer time period, fugitive dust exposure can lead to severe illness such as cancers. In addition to affecting human health, fugitive dust reduces visibility, affects surface water, reduces plant growth, and can be a nuisance.

Condition 2.2(A)(l) of Enviva Northampton's draft permit addresses the requirements of North Carolina Rule 15A N.C. Admin. Code 02D .0540, "Particulates from Fugitive Dust Emission Sources." Under this draft permit condition, Enviva Northampton must "not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary." Furthermore, "[i]f substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 02D .0540(f)." (emphasis added).

In light of the well-documented fugitive dust problems associated with wood pellet manufacturing plants, and dust the complaints from several residents during the August 20 public hearing, DAQ should revise the draft permit to require Enviva to prepare such a fugitive dust control plan. DAQ should also include the specific requirements of such plan in the permit as enforceable conditions. The plan should be specific to the unique sources of dust at Enviva Northampton and require enforceable conditions to reduce fugitive dust emissions to the maximum degree reasonably achievable.

The need for a fugitive dust plan for this facility is especially acute due to the fact that, as discussed below, this facility will impact the health and well-being of communities that are already plagued by numerous polluting facilities. Because the draft permit authorizes the facility to increase its wood pellet production, the facility will generate substantially more fugitive dust than was originally projected. Given the vulnerability of the affected community, DAQ should be proactive in ensuring that Enviva does everything within reason to reduce the facility's adverse impact on nearby communities.

Hearing Officer's Response to This Comment:
As required by 15A NCAC 2D .0540 "Particulates From Fugitive Dust Emissions Sources", Enviva Northampton shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. Enviva shall submit a fugitive dust plan within 30 days of receiving written notification from the Director of two substantive complaints in a 12-month period. Enviva shall also submit a fugitive dust plan if DAQ observes excessive fugitive dust emissions from the facility beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A).

There have been no substantive fugitive dust complaints regarding the facility. In addition, the DAQ inspector has not observed any evidence of fugitive dust beyond the property boundaries during the full compliance evaluation inspections. If there are substantive fugitive dust complaints or excessive fugitive dust emissions from the facility, the facility may be required to submit a fugitive dust plant as described in 15A NCAC 2D .0540.

Recommendation: No changes to the draft permit are deemed necessary to address this comment.

SECTION VII - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 11 (Section VII):

First, we acknowledge and-appreciate that the reporting condition related to operations after the modification has expanded the list of pollutants that must be quantified and reported. See draft Condition (2.2)(A)(3)(t)(i). Yet the draft permit will cease requiring Enviva to report its production information after the modification. We are unsure why that reporting requirement would be dropped as the plant is still subject to a production limit to avoid PSD.

Perhaps more importantly, now that NOx will be the pollutant closes to the PSD threshold (and, we believe, exceeding it), the draft permit should implement the requirement to monitor and report the heat input of the dryers. While pellet production rates are loosely linked with NOx emissions, heat input is the key parameter most directly associated with NOx emissions. This is because Enviva may run the furnace at higher capacity than the dryer at times, especially during start-up, shutdown, and malfunction. Monitoring and reporting the heat input is the most direct way for the public to verify that the facility is not exceeding its NOx limit and the PSD major source threshold, or to take action when exceedances do occur.

Hearing Officer's Response to This Comment:
First, DAQ agrees that the current requirement for reporting production information should be retained post modification. Therefore, the draft permit should be modified to include in Permit Condition 2.2 A.3.t the requirement to track both monthly ODT of pellets per year and the monthly hardwood/softwood mix as currently required in Permit Condition 2.2 A.2.e.

Second, the DAQ also agrees that heat rate monitoring may be a better way to calculate the NOx emissions from the combustion processes at the Enviva Northampton facility; however, because the Division has not been able to identify any federal or site specific emissions factors for NOx emissions on a heat input basis (lbs/million Btu) for wood and bark direct-fired furnaces and dryers, we will continue to monitor NOx on a pound per ODT basis. This is consistent with the current application, site specific testing, and the other permits issued to Enviva plants in North Carolina. The permit will continue to require initial and periodic testing on an ODT basis as drafted.

Recommendation: It is recommended to modify the reporting condition in Permit Condition 2.2 A.3.t to add reporting of monthly ODT levels as well as hardwood/softwood mixes.

SECTION VIII - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 12 (EIP & SELC Letter - Item VIII.A.)

"Environmental justice" is defined as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." In 2000, North Carolina's Department of Environmental Quality (DEQ) (then, N.C. Department of Environment and Natural Resources) officially recognized the need to address environmental justice concerns and instituted a policy "[t]o ensure that agency programs substantially affecting human health or the environment operate without discrimination" and "[t]o provide information for citizens and neighborhood groups to allow meaningful participation in regulatory processes." With this initiative, DEQ set forth several actions it would take in order to meet these goals. Specifically, DEQ committed to:

- *Address environmental equity issues in permitting decisions for projects potentially having a disparate impact on communities protected by Title VI of the Civil Rights Act of 1964,*
- *Promote greater use and analysis of demographic information to identify communities that may be disproportionately impacted by sources of pollution,*
- *Use demographic information to determine whether there is: 1) a need for greater outreach to [a] community in order to encourage more meaningful participation, or 2) special health risks based on the nature of the population, [and]*
- *Develop guidelines for assessing the cumulative effects of permitted facilities.*

In May 2018, DEQ, which oversees DAQ, recommitted itself to these goals by establishing the Secretary's Environmental Justice and Equity Board "to assist [DEQ] in achieving and maintaining the fair and equal treatment and meaningful involvement of North Carolinians regardless of where they live, their race, religion or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."

Despite its commitment to addressing environmental justice in permitting decisions, DAQ has issued the draft permit modification to Enviva Northampton without conducting a full environmental justice analysis. Instead, DAQ issued an "Environmental Justice Snapshot"-a document that merely provides an overview of demographic and socioeconomic data for a portion of the area affected by Enviva's planned modification. The Environmental Justice Snapshot ("Snapshot" or "Enviva Northampton Snapshot") fails to ensure adequate outreach to potentially impacted communities or inform DAQ of potential environmental justice concerns and therefore does not meet the commitments DEQ has set for itself in its Environmental Equity Initiative.

Hearing Officer's Response to This Comment:
The Department is committed to evaluate the community's demographic and socioeconomic make up. DEQ conducted an EJ Snapshot to inform the inclusive and meaningful engagement of the community for this permit application. A final EJ report has been completed as well. DAQ has considered environmental justice and equity.

Recommendation: No changes to the draft permit are deemed necessary to address this comment.

Comment 13 (EIP & SELC Letter - Item VIII.B.)

Over the course of the last year, DAQ has continued to rely on a new, two-step process for assessing environmental justice issues in the permitting process, at least as it pertains to wood pellet permitting actions. Under this new process, DAQ will first issue a "Snapshot ... at the beginning of the application process" that will be made available to the public "before the close of the public comment period." Then, at some point after close of the comment period DAQ may conduct a full environmental justice review and develop an environmental justice report. According to a July 11, 2018, DAQ presentation for the inaugural meeting of the Secretary's Environmental Justice and Equity Advisory Board, DAQ sets out this two-step process and makes clear that identification of impacted communities and further outreach to those communities, when necessary, will not be conducted until the "EJ Review" stage. Thus, according to DAQ's own explanation of its process, identification and increased outreach will not occur until after the notice and comment period has ended. This backwards process undercuts rather than supports DEQ's goal of meaningful participation in the permitting process.

A lack of meaningful participation is once again playing out, this time with respect to the draft permit for the Enviva Northampton modification. As discussed more fully below, the Enviva Northampton Snapshot is inadequate to inform DAQ of the potential environmental justice impacts from the proposed modifications and DAQ's process has also not fostered meaningful participation. Based on the information provided to the public through the Snapshot, it does not appear that DAQ has taken the next step of using the information contained in the Snapshot to "identify communities that may be disproportionately impacted" or "determine whether there is ... a need for greater outreach ... or ... special health risks based on the nature of the population[.]" For public participation to be meaningful, potentially affected communities must be given the chance to participate in permitting decisions in a way that will actually contribute to and influence the decision-making process as EPA has explained,

> *The capacity of communities to participate in the decision-making process is a crucial determinant of the success of civic engagement in terms of preventing high burdens of emitting sources and exposure to environmental stressors at the community level. . . . [Thus,] when communities are unable to participate effectively in decision-making, they may be more likely to be the recipients of negative environmental consequences including impacts associated with emissions sources.*

In order for DAQ to ensure that all stakeholders are able to meaningfully participate in the permitting process, it must identify those potential environmental justice communities that require additional outreach. Then, it must actually engage in that heightened outreach prior to issuing the draft permit and prior to the close of the comment period. Accordingly, DAQ must conduct a full environmental justice review prior to issuing a modified draft permit for the Enviva Northampton facility.

Hearing Officer's Response to This Comment:
The Department utilized the results from the EJ Snapshot to conduct additional meaningful outreach. The outreach performed included:

- Notice of public hearing in the Roanoke Rapids Daily Herald on July 19, 2019 (required)
- Posted on website information on public comment period and public hearing. (required)
- Press releases mailed to all homes within a 1-mile radius of facility on July 30, 2019. (additional)
- Press releases mailed to 18 local community organizations, churches and schools on July 30, 2019. (additional)

- The DAQ Deputy Director called the Concerned Citizens of Northampton County & spoke to a member about the meeting, hearing & the proposed permit action. (additional)
- Staff trip to Northampton County on 8/9/19 to post flyers and talk with local business owners and community members to educate about the permit application and promote the public hearing. 20 local businesses, schools, organizations and churches were visited. (additional)

The final EJ Report is not completed until after the public comment period closes to provide staff an opportunity to consider comments received during the public comment period.

Recommendation: No changes to the draft permit are deemed necessary to address this comment.

Comment 14 (EIP & SELC Letter - Item VIII.C.)

DAQ arbitrarily narrowed the scope of its Environmental Justice Snapshot in a manner that fails to provide a full picture of the impacts of the proposed modification to nearby low-income communities and communities of color. With this overly narrow focus, the Snapshot does not provide full and accurate information to the public regarding the relevant geographic area that may be impacted by the proposed expansion. As such, the Snapshot fails to ensure that members of the public can meaningfully participate in the permitting process.

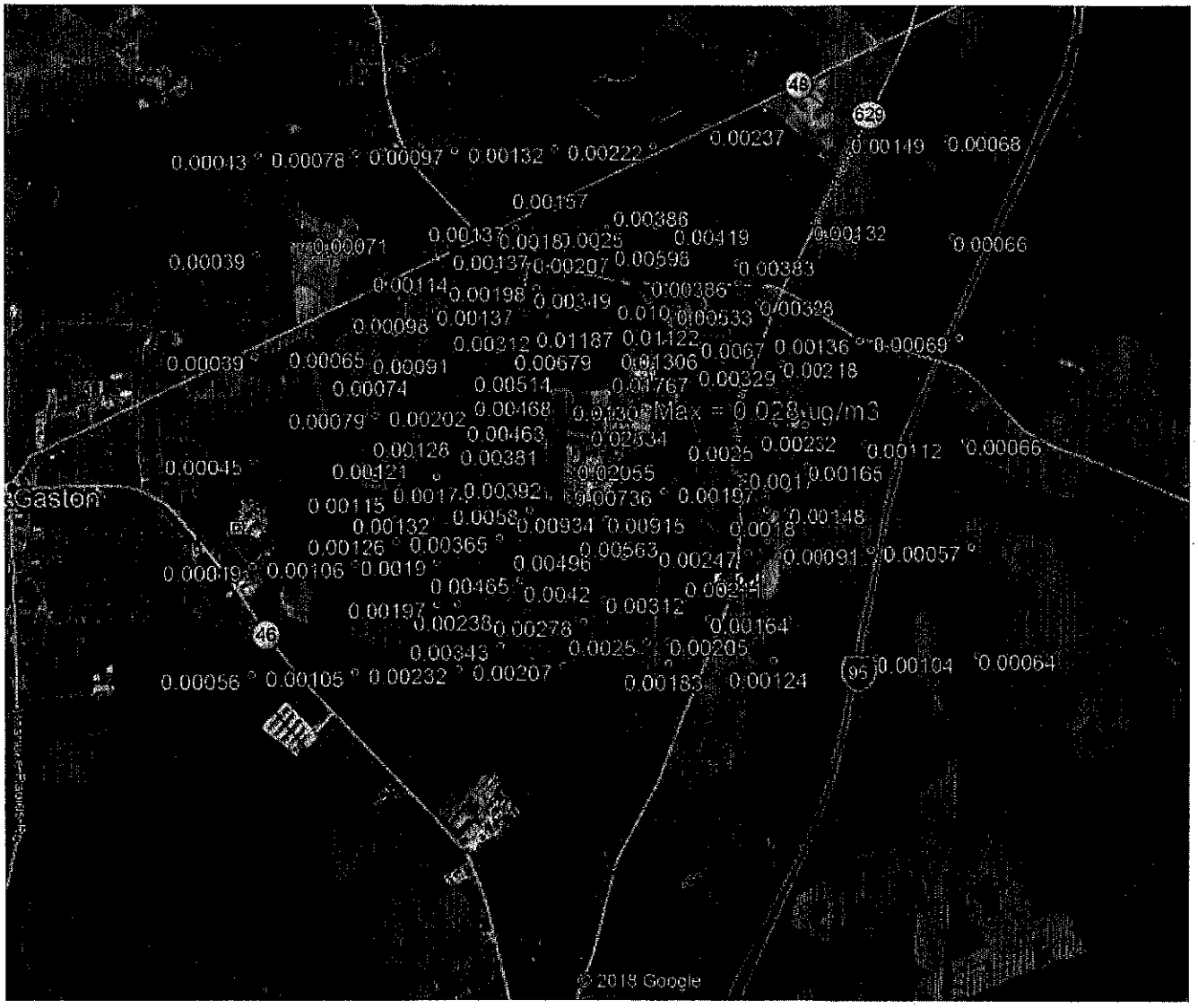
DAQ appears to have arbitrarily narrowed the Snapshot's focus to only a two-mile radius around the facility. DAQ provided essentially no explanation or documentation to support such a decision. Instead, DAQ states that because the highest ambient air impacts from the facility are at the fence line, a two-mile radius was used. No further explanation is provided and the passing reference to dispersion modeling is not explained, nor is the modeling or underlying data provided to the public. By narrowing the geographic area of the Snapshot to two miles, DAQ has significantly limited its analysis to just over 1,000 individuals and only three additional sources of air pollution. Increasing the geographic area to a five-mile radius, provides DAQ will a more complete understanding of the potentially affected communities and environmental justice harms from the Enviva Northampton modification.

Specifically, DAQ's geographic scope excludes nearby Garysburg and Pleasant Hill, in Northampton County, as well as Roanoke Rapids in Halifax County. At a five-mile radius, the analysis would more appropriate consider the over 23,000 people living nearby to the Enviva Northampton facility. Within this area, the population is 48% minority and 49% low-income, with a demographic index in the 72nd percentile when compared to the rest of the state. EPA's EJSCREEN is an environmental justice screening tool that combines environmental and demographic indicators and provides national, regional, and state information on eleven environmental justice indexes ("EJ Indexes"). According to the EJSCREEN for a five-mile radius, this area is near the 70th percentile for several relevant EJ indexes. In particular, this area is ranked in the 69th percentile for PM2.s, 70th percentile for air toxics, and 71st percentile for respiratory hazards, all of which will be affected by Enviva Northampton's expanded operation.

Moreover, the Snapshot failed to include several "sensitive receptors" within DAQ's proscribed two-mile radius, as well as the many additional receptors located between two and five miles of the facility. Sensitive receptors are areas "where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants." Because children, the elderly, and those with preexisting medical conditions are generally more susceptible to the harmful effects of such pollutants, "sensitive receptors" often include hospitals, schools, daycares, and elderly care facilities. DAQ identified three such receptors within the

proscribed two-mile radius, as well as an additional five receptors located outside this area. A quick google maps search, however, uncovers at least four additional sensitive receptors within a two-mile radius, and another four within a five-miles radius.

Hearing Officer's Response to This Comment:
According to the Division of Air Quality (DAQ), the highest off-site ambient air impacts from Enviva Pellets Northampton dispersion modeling occur at the plant fence line. The location and magnitude of the maximum modeled toxic impact (0.028 ug/m3 for Benzene) rapidly decrease with distance away from the facility with predicted concentrations at a 1-mile radius at roughly an order of magnitude less than the maximum concentration. The fence line level of Benzene is 24% of the Allowable Ambient Limit (AAL). All other Toxic Air Pollutants (TAP) modeled were under 10% of the AAL. Based on this modeling, a two-mile radius was used for analyzing the local demographics and socioeconomic factors. DAQ will look into the additional sensitive receptors identified in this comment and include those that were missed in the Snapshot in the full EJ Report.



Recommendation: No changes to the draft permit are deemed necessary to address this comment.

Comment 15 (EIP & SELC Letter - Item VIII.D.) -

Finally, DAQ's Snapshot failed to consider the cumulative impacts of the proposed modification on nearby communities. Specifically, the Snapshot does not present a full picture of other, nearby polluting sources because they fall outside the arbitrary two-mile radius.

Northampton County recently ranked 96 out of North Carolina's 100 counties for overall health outcomes, with neighboring Halifax County ranked 91 and of 100. This area's poor health outcomes are coupled with proximity to a large number of pollution sources that negatively impact the health and wellbeing of nearby communities. According to DAQ's air permit tracking system, there are 10 facilities with current air permits in Northampton County (excluding Enviva Northampton) and an additional 20 air permitted facilities in Halifax County. Specifically, within a five-mile radius from the Enviva Northampton facility there are a total of 17 additional sources of air pollution.

Additionally, there are multiple other sources of pollution within a five-mile radius of the Northampton facility, including 17 water discharges, IO toxic releases, and 5 brownfield sites. Not only were the pollution sources located outside the two-miles radius not included in the Snapshot's list of "local industrial sites," but DAQ failed to actually analyze the cumulative impact of all of these sources as it relates to the proposed modification at Enviva Northampton.

The proposed modification will add to the cumulative impact of pollution sources in the area. These other polluting sources must be considered in order for DAQ to adequately identify and address potential environmental justice concerns. In addition to using the pure demographic data presented in the Snapshot to determine whether there is need for greater outreach, DAQ should use that information to determine whether there are "special health risks based on the nature of the population" and assess "the cumulative effects of permitted facilities," as provided for in DEQ's Environmental Equity Initiative.

Hearing Officer's Response to This Comment:
As the commenters point out, NCDEQ's Snapshot acknowledges the presence of other permitted facilities in the area around the Northampton facility. Moreover, the decision to limit its analysis to a two-mile radius was not arbitrary. That decision was based on air quality impacts. The metrics considered within those two miles included race and poverty (decennial census year), per capita income and Ability to speak English (most current American Community Survey (ACS) census range), the current North Carolina Department of Commerce county tier, and presence of native American territory. NCDEQ is committed to environmental justice and equity; however, there is no state law or regulation relative to air permitting that either mandates or directs NCDEQ to perform the more expansive type of cumulative impact analysis envisioned by the commenters.

Recommendation: No changes to the draft permit are deemed necessary to address this comment.

SECTION IX - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 16 (EIP & SELC Letter - Item IX) -

On October 29, 2018, Governor Cooper signed Executive Order titled, "North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy." Executive Order 80 "reaffirms North Carolina's commitment to reducing statewide greenhouse gas emissions"77 and orders that North Carolina "will support the 2015 Paris Agreement goals and honor the state's commitments to the United States Climate Alliance." To do so, the Executive Order sets several goals, including a 40 percent greenhouse gas emissions reduction from 2005 levels by 2025. The order also created the North Carolina Climate Change Interagency Council, with representatives from every state cabinet, and directs DEQ specifically to develop a North Carolina Clean Energy Plan to encourage the use of clean energy, including wind, solar, energy efficiency, and energy storage. Finally, the order makes clear Governor Cooper's commitment to addressing resiliency throughout all state cabinets:

> *Cabinet agencies shall integrate climate adaptation. and resiliency planning into their policies, programs, and operations (i) to support communities and sectors of the economy that are vulnerable to the effects of climate change and (ii) to enhance the agencies' ability to protect human life and health, property, natural and built infrastructure, cultural resources, and other public and private assets of value to North Carolinians.*

With this executive order and North Carolina's recommitment to the goals of the Paris Agreement, the state and DEQ as the agency charged with protection of North Carolina's environmental resources need to reevaluate the role of biomass and the wood pellet industry in North Carolina. According to the United Nations Intergovernmental Panel on Climate Change ("IPCC"), the world only has twelve years to cut manmade carbon emissions to keep warming to no more than l .5°C and avoid the worst impacts from climate change. Contrary to Executive Order 80, the wood pellet industry results in a net increase in atmospheric CO2 emissions (especially over the relevant time frames needed to curb the worst impacts of climate change), destroys forest carbon stocks and thereby reduces the forests ability to absorb CO2, and decreases the resiliency of vulnerable communities when facing extreme weather events. DEQ must therefore re-examine its continuing support for the wood pellet industry and the expansion of the Enviva Northampton facility specifically.

Despite industry claims to the contrary, burning wood pellets for large-scale electricity production (as is the case with Enviva's products) is not carbon neutral, but actually emits as much or more CO2 per megawatt hour as coal. This instantaneous increase in atmospheric carbon can persist for decades to a century or more, even assuming trees are immediately replanted. In fact, the entire wood pellet supply chain-including the harvesting, transport, and manufacturing that occurs in North Carolina--emits CO2 and contributes to climate change. The Enviva Northampton modification itself will result in an increase of over 237,000 tpy of CO2 equivalent emissions. Moreover, numerous investigations have uncovered the fact that Enviva uses whole trees from clear-cut forests to supply its wood pellet plants, including those in North Carolina. Such a process liquidates carbon stocks, harms biodiversity, and removes needed storm and flood protections for vulnerable communities.

DAQ's draft permit modification allows the Enviva Northampton facility to increase its wood pellet production from 535,260 to 781,255 tons per year: This increased production will result in an additional 4,500 acres of forests being harvested from the area every year.

This proposed modification mirrors similar requests from Enviva at three of its other facilities in North Carolina (Enviva Sampson and Hamlet) and Virginia (Enviva Southampton, located just seven miles from the North Carolina border), and collectively Enviva requests a production increase of approximately 600,000 tons per year, which equates to an additional 10,000 acres of forests being harvested every year primarily from

North Carolina. Such an increase in production and resulting forest harvests is inconsistent with the executive order's call for carbon reductions and building more resilient communities. DAQ must reexamine the draft permit modification for consistency with Executive Order 80.

Hearing Officer's Response to This Comment:
Governor Cooper's Executive Order 80 sets emission reduction goals for the state of North Carolina to strive to achieve. Those goals include a reduction in statewide greenhouse gas emissions of 40% below 2005 levels, an increase in zero emission vehicles, and energy consumption reductions in state owned buildings of 40% from 2002-2003 levels. The NC Climate Change Interagency Council is charged with developing holistic approaches and programs so that North Carolina can strive to accomplish all the goals in Executive Order 80 while ensuring that North Carolina's vibrant economy continues to expand. The Council presented the North Carolina Clean Energy Plan to Governor Cooper on September 27, 2019. A key outcome from this process is the level of greenhouse gas emissions expected under current conditions and reductions achievable under alternative future scenarios with recommended policy, administrative, and voluntary actions taken by public and private entities. Until such time when legislative or regulatory proposals are considered and acted upon, projects such as this proposed modification must be evaluated based on the current state and federal rules and regulations in place. DAQ will continue to develop an emissions inventory of key sources and monitor the effects of large projects on projected emissions levels.

Recommendation: No changes to the draft permit are deemed necessary to address this comment.

SECTION X - Comments from the Environmental Integrity Project (EIP) and Southern Environmental Law Center (SELC)

Comment 17 (EIP & SELC Letter - Item X)

Under the Clean Air Act, facilities subject to Title V permits must apply for a Title V permit within 12 months of commencing operation. 40 C.F.R. 70.5(a)(l). Thereafter, permitting authorities must take final action issuing or denying the Title V permit within 18 months. 40 C.F.R. 70.7(a)(2). Here, Enviva Northampton submitted its initial Title V application in April 2014, more 64 months ago, yet DAQ has not issued a Title V permit to Enviva Northampton. While we understand the source of much of this delay, given the length of the delay to date we urge DAQ to expedite processing the Title V permit for this facility. Title V permits serve an important role in assuring facilities comply with all applicable requirements of the Clean Air Act, for instance by requiring annual compliance certifications. Moreover, Title V permits also help the public understand what requirements apply and whether the facility is in compliance with those requirements.

Hearing Officer's Response to This Comment:
DAQ agrees with EIP on the importance of issuing timely Title V permits. The permitting history of this facility is well documented including any delays associated with the processing of the applications in house (6600167.14B and 6600167.18A). It is important to draft a Title V permit that includes a complete picture of the facility's operations. In order to accomplish this task, Permit Condition 2.2 A.11 will be modified requiring that the Title V first time application (6600167.14B) be amended to include the facility modifications described in application 6600167.18A within 90 days of the issuance of Permit No. 10203R06.

Recommendation: It is recommended to include the amended permit condition as described above.

SECTION 2 – Comments Grouped by Similar Concerns

The following comments were provided by individuals representing themselves or an organization. Many of the comments express similar concerns. To address all issues and minimize redundancy, comments addressing similar issues have been grouped together.

Comment Grouping 1:

Of the 2405 emails received, 2,295 (95%) reference the paragraph below:

The wood pellet industry, led by Enviva, is driving the destruction and degradation of tens of thousands of acres of North Carolina forests, which are cut down, turned into wood pellets, and shipped overseas to be burned for electricity. We need standing, diverse, healthy forests to store carbon, protect us from flooding and storms, and provide us with clean air and water. Any expansion of this industry hampers North Carolina's ability to meet its commitment on climate mitigation and adaptation as well as communities' ability to rebound and recover after storms like Hurricane Florence.

Other comments expressed similar concerns:

- *Every agreed permit means more communities living with poor air, more wildlife with nowhere to live and more carbon dioxide in the atmosphere.*
- *We are not sure if Carbon sequestration is happening in young forest and until we are sure we should protect our citizens.*
- *Relative to land area they also sequester huge amounts of carbon in plants above ground and in roots and soil below.*
- *Alone that's more clear cuts, more carbon in the atmosphere, less habitat for wildlife, and less protection from natural disasters.*
- *This means 18,000 acres of forests to be cut down each year to feed that facility.*
- *Natural forests and wetlands absorb flood-waters and slow them down, buffering communities from flooding and reducing costly property damage.*
- *I ask you deny this permit and grant moratorium on the devastation of our forests.*
- *What is suffering, are our local communities, forests, and a climate on the brink.*
- *Forest are our number 1 defense against flooding filtering our air.*
- *NC cannot afford the scale of our increased forest degradation.*
- *Here to support my fellow North Carolinians in Northampton County because we need to plant forest without cutting forest.*
- *If Enviva operations in Northampton county are expanded the critical forests which alleviate disastrous storm waters will be at risk from clear cutting and removal.*
- *There is documented evidence that the company sources from bottomland and coastal hardwood forests.*

Hearing Officer's Response to These Comments

Many commenters expressed concerns with the impacts that harvesting trees for the forest products industry will have on the local community and environment, and climate worldwide. The sourcing of timber is also a concern especially from bottomland hardwood forests. Healthy trees and forests are an important part of the environment and it is important to protect and manage this resource.

An important indicator of a sustainable forest is a constant or increasing area to timberland and forest type. According to information from Enviva and their website, Enviva uses a Track and Trace program to manage the sourcing of the wood they process.

> *"Enviva records the geographic location, age, and forest type of all of the primary wood. We know how and by whom each tract was harvested, as well as the proportion of wood that was sent to Enviva versus other forest product industry consumers. Enviva does not source from old growth forest, protected forests or forests that are being harvested for land use conversion. Enviva works with the US Endowment for Forestry and Communities who independently identify bottomland forest ecosystems that may process high conservation value (HCV) attributes. We will only agree to purchase wood from a harvest once we have determined that the tract is a working forest that is likely to regenerate with the desired composition of species. When tracts are determined as non-HCV and where harvest is appropriate, Enviva works with suppliers to develop an individualized harvest technique that is most suitable for the site."*

Information provided by the United States Department of Agriculture (USDA) indicates the forests in North Carolina are stable. The Forest Inventory and Analysis program shows that approximately 55% of the state land area is forest and the diversity and mix is steady. The North Carolina Forestry Service (NCFS) indicates the forest size and mix has been steady since the early 2000s. The growth to removal rate of softwood is 1.61 and hardwood is 2.36 which indicates that inventory levels are expected to increase over time. The North Carolina Greenhouse Gas Inventory (1990-2030) published January 2019 indicates that carbon sinks are primarily due to carbon sequestered in above ground biomass and storage of carbon in wood products. There has been a 4% increase in the annual carbon sequestered between 2005 and 2017. This annual sequestration of carbon reflects North Carolina's sustainable management of its forests and their economic uses.

An area of concern is the bottomland hardwood forests. The NCFS is aware of the concerns over the sustainability of bottomland hardwood forest and continues to manage and gather data on these areas. According to the NCFS, the net growth of bottomland hardwood forest has returned to more sustainable levels. The management of bottomland swamp forest is relatively passive and occurs over a much longer timeframe due to the relatively slower growth cycle of timber in swamps.

Properly managed forests provide many benefits to the environment. An unmanaged stand of trees may have high density with too many trees crowded together. This means the trees grow more slowly as they must compete for a limited amount of soil nutrients, water and light and this stress makes trees more susceptible to disease and pests. The NCFS is ultimately charged with overseeing the sustainability of timber crops. The NCFS is familiar with Enviva's operation and believe the suppliers are operating within generally accepted forest management practices.

Recommendation: No changes to the draft permit are deemed necessary to address these comments.

<u>Comment Grouping 2</u>

Of the 2405 emails received, 2,295 (95%) reference the paragraph below:

A report by the Environmental Integrity Project has shown a shocking pattern of air quality violations or noncompliance at all wood pellet facilities, with Enviva's North Carolina facilities being the most egregious in terms of skirting the Clean

Air Act's requirements. In fact, Enviva's Northampton facility has been operating as an illegal major source for years now.

Other comments expressed similar concerns:

- *I would like to revisit the permitting of the Enviva facility in Richmond County. The Northampton facility has been operating for years as an illegal source of pollution to the local community.*
- *As an internal medicine physician who is deeply concerned about the health effects from air pollution and as Enviva has continued to be one of the worse offenders in violating the Clean Air Act*
- *This company has proven itself to be a notorious violator of air quality standards - across the board at ALL of its wood pellet facilities.*

Hearing Officer's Response to These Comments

A review of the compliance history for existing Enviva facilities indicate there have been two Notice of Deficiencies (NOD) at the Enviva Northampton facility since the facility began operations. No letters of violation have been issued. The deficiencies are as follows:

Northampton
- NOD issued December 7, 2016 for late permit renewal
- NOD issued August 22, 2014 for late report

In addition to the Northampton facility, Enviva has one transport and three other manufacturing facilities in North Carolina. The facilities are located in Wilmington, Ahoskie, Hamlet, and Sampson. The compliance history for these facilities is as follows:

Wilmington
- no violations or deficiencies (transport facility only)

Ahoskie
- NOV issued March 14, 2017 for a late Annual Compliance Certification
- NOV issued July 21, 2016 for 31 days of downtime for grid No. 1 on the WESP due to malfunctions. Grids 2 and 3 continued to operate as designed
- Notice of Deficiency (NOD) issued September 3, 2014 for a late report
- NOD issued July 28, 2014 for recordkeeping deficiencies
- NOD issued August 12, 2013 for late report
- NOV issued May 2, 2013 for fugitive dust plan deficiencies.

Hamlet
- The facility commenced operation on July 24, 2019.

Sampson
- Notice of Violation with Recommendation for Enforcement (NRE) issued on June 5, 2018 for failed source test in March 2017 for VOC.
- NRE issued November 3, 2017 for failed source test in March 2017 for CO
- Notice of Violation (NOV) issued February 3, 2017 for visible emissions monitoring and recordkeeping violations.

Of the violations found at the Enviva facilities, two violations pertained to emission exceedances occurred at the Sampson facility. An initial stack test was conducted in March 2017 to assure compliance with designed performance specification for the wood dryer (ES-DRYER). The dryer had been installed but had not yet reached full production rate. The stack test indicated an exceedance of the permit limit for CO and was

inconclusive for VOC. Operational changes were made by Enviva to maintain CO within permit limits. In November 2017 the DAQ required Enviva to retest for VOCs. A second test was performed in March 2018 for VOC and indicated non-compliance with the permit limit. Enviva attributed both stack test failures to the wood dryer (ES-DRYER) not meeting design specifications. The company responded that "It was only when production was increased for the compliance testing that it was realized the furnace was not designed to adequately operate at the elevated production rates for extended periods." As a result, a Special Order by Consent (SOC) was signed and the facility installed a Regenerative Thermal Oxidizer (RTO) as a control device for the dryer. A stack test was conducted on February 7, 2019. The stack test report was received by DAQ's Fayetteville Regional Office on March 6, 2019 and indicated compliance with the VOC emission rate for the wood-fired direct heat drying system while processing 50% softwood. The report was reviewed and approved by DAQ's Stationary Source Compliance Branch. As part of the air permit requirements, Enviva Sampson will be required to conduct stack testing for select criteria pollutants and hazardous air pollutants to ensure compliance with air emission limits. Full compliance evaluation inspections will continue to be conducted by DAQ staff to ensure compliance with all conditions of the air permit.

Recommendation: No changes to the draft permit are deemed necessary to address these comments.

Comment Grouping 4:

General comments not directly related to the expressed intent of the public hearing.

Below are sample comments paraphrased and in no particular order:

- *Do you really want to allow Enviva to expand when it regularly logs hardwood forest in a time when the Inter-Governmental Panel on Climate Change strongly recommends that we scale up forest protection?*
- *Enviva has increased our tax revenue and their proposed enhancement will increase it even more.*
- *The restoration economy supports more jobs than logging, coal mining, iron and steel. By their very nature restoration projects take place in rural areas. It is time for the South to capitalize on restoration opportunities.*
- *Wetlands are our most diverse habitats we have in North Carolina.*
- *Currently Enviva's tree farm group represents one out of every 11 acres certified when compared to the North Carolina State Tree Farm program.*
- *A partnership with Enviva and other forest industry allows land owners to become more aware of the role the forest industry plays in forest markets and products*
- *Natural forests and wetlands increase the resiliency of flood-prone areas, whereas forest degradation, clear cut logging, and conversion to plantations significantly decrease flood* protection benefits to surrounding communities.
- Investing financial and volunteer support on multiple occasions has proven to the local community that Enviva cares for the community and seeks to improve the lives of is staff and surrounding area.

Hearing Officer's Response to These Comments

While most of the comments received were thoughtful and worth considering in the proper forum, some of the comments received were not directly related to the Enviva Northampton, LLC air quality permit application or the air quality permitting process. As such, these comments fall outside the purview of this public hearing and are therefore not directly addressed in this report.

Recommendation: No changes to the draft permit are deemed necessary to address these comments.

Conclusions and Recommendations

After considering all the public comments regarding whether or not the Division of Air Quality should issue an air quality permit to Enviva Pellets Northampton, LLC to allow for the modification of a wood pellet manufacturing facility at 309 Enviva Boulevard, Garysburg, Northampton County, North Carolina, it is the recommendation of the hearing officer that the Director issue the Air Quality permit after considering the following:

- In response to Comments 1 through 4, it is recommended that the permit reflect the requirement of Enviva Northampton to use the scaled site-specific NOx emission factor of 33.48 lb/hr until all of the proposed control devices are installed (excluding the new wood dryer controls in the event the second dryer is not installed) and new site-specific approved NOx factors have been established through stack testing.

- In response to Comments 5 through 7, it is recommended to remove the malfunction language noted in SECTION II, Item II.A. above, include similar cold start-up bypass language, and be consistent with bypass conditions with Enviva Sampson.

- In response to Comment 8, it is recommended that the equation, as designated above, be added to the PSD avoidance condition related to operations post modification in order to determine compliance with the 250 ton per year PSD Avoidance limit.

- In response to Comment 11, it is recommended to modify the reporting condition in Permit Condition 2.2 A.3.t to add reporting of monthly ODT levels as well as hardwood/softwood mixes.

- In response to Comment 17, it is recommended that Permit Condition 2.2 A.11 be modified requiring that the Title V first time application (6600167.14B) be amended to include the facility modifications described in application 6600167.18A within 90 days of the issuance of Permit No. 10203R06.

Bruce Ingle, Hearing Officer

10-25-19
Date

SUPPORTING DOCUMENTS

(The following supporting documents are located on the DAQ SharePoint site)

Air Quality Permit Application Review and Draft Permit
Public Hearing Attendance Forms
Audio Recording of August 20, 2019 Public Hearing
Summary of Public Hearing Comments
Emails received during the Public Comment Period
Written Comments received during the Public Comment Period
Environmental Justice Study