ENVIVA PELLETS
P/N 10203
NORTHAMPTON COUNTY

2013

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North Carolina Department of Environment and Natural Resources
Division of Air Quality

Pat McCrory
Governor

Sheila C. Holman
Director

John E. Skvarla, III
Secretary

September 9, 2013

Mr. Pete Najera
Vice President of Operations
Enviva, LP
7200 Wisconsin Avenue, Suite 1000
Bethesda, Maryland 20814

Dear Mr. Najara:

SUBJECT: Air Quality Permit No. 10203R02
Facility ID: 6600167
Enviva Pellets Northampton, LLC
Gaston, North Carolina
Northampton County
Fee Class: Title V

In accordance with your completed Air Quality Permit Application for a modification of your permit received September 3, 2013, we are forwarding herewith Air Quality Permit No. 10203R02 to Enviva Pellets Northampton, LLC, Lebanon Church Road, Gaston, North Carolina authorizing the construction and operation, of the emission source(s) and associated air pollution control device(s) specified herein. Additionally, any emissions activities determined from your Air Quality Permit Application as being insignificant per 15A North Carolina Administrative Code 2Q .0503(8) have been listed for informational purposes as an "ATTACHMENT." Please note the requirements for the annual compliance certification are contained in General Condition P in Section 3. The current owner is responsible for submitting a compliance certification for the entire year regardless of who owned the facility during the year.

The Permittee shall file a Title V Air Quality Permit Application pursuant to 15A NCAC 2Q .0504 for those air emission sources (ID Nos. ES-DRYER, ES-GN, ES-FWP, ES-HM-1 through ES-HM-7, ES-NDS, ES-PFB-1, ES-FPH, ES-PB-1 through 12, ES-PL1, ES-PL2, ES-PPS, and ES-CLR-1 through ES-CLR-6) on or before 12 months after commencing operation of the first unit.

As the designated responsible official it is your responsibility to review, understand, and abide by all of the terms and conditions of the attached permit. It is also your responsibility to ensure that any person who operates any emission source and associated air pollution control device subject to any term or condition of the attached permit reviews, understands, and abides by the condition(s) of the attached permit that are applicable to that particular emission source.

RECD AUG 13 REGIONAL RECORDS MGMT

Permitting Section
1641 Mail Service Center, Raleigh, North Carolina 27699-1641
217 West Jones Street, Raleigh, North Carolina 27603
Phone: 919-707-8405 / Fax: 919-715-0717
Internet: www.ncair.org

If any parts, requirements, or limitations contained in this Air Quality Permit are unacceptable to you, you have the right to request a formal adjudicatory hearing within 30 days following receipt of this permit, identifying the specific issues to be contested. This hearing request must be in the form of a written petition, conforming to NCGS (North Carolina General Statutes) 150B-23, and filed with both the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, North Carolina 27699-6714 and the Division of Air Quality, Permitting Section, 1641 Mail Service Center, Raleigh, North Carolina 27699-1641. The form for requesting a formal adjudicatory hearing may be obtained upon request from the Office of Administrative Hearings. Please note that this permit will be stayed in its entirety upon receipt of the request for a hearing. Unless a request for a hearing is made pursuant to NCGS 150B-23, this Air Quality Permit shall be final and binding 30 days after issuance.

You may request modification of your Air Quality Permit through informal means pursuant to NCGS 150B-22. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which the modification is sought. Please note that this Air Quality Permit will become final and binding regardless of a request for informal modification unless a request for a hearing is also made under NCGS 150B-23.

The construction of new air pollution emission source(s) and associated air pollution control device(s), or modifications to the emission source(s) and air pollution control device(s) described in this permit must be covered under an Air Quality Permit issued by the Division of Air Quality prior to construction unless the Permittee has fulfilled the requirements of GS 143-215-108A(b) and received written approval from the Director of the Division of Air Quality to commence construction. Failure to receive an Air Quality Permit or written approval prior to commencing construction is a violation of GS 143-215.108A and may subject the Permittee to civil or criminal penalties as described in GS 143-215.114A and 143-215.114B.

This Air Quality Permit shall be effective from September 9, 2013 until February 28, 2017, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein. Should you have any questions concerning this matter, please contact Ms. Jenny Kelvington at (919) 707-8481.

Sincerely yours,

Donald R. van der Vaart, Ph.D., P.E., J.D.
Chief

Enclosure

c: Patrick Butler, Supervisor, Raleigh Regional Office
Central Files

State of North Carolina,
Department of Environment,
and Natural Resources

Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.	Effective Date	Expiration Date
10203R02	10203R01	September 9, 2013	February 28, 2017

Until such time as this permit expires or is modified or revoked, the below named Permittee is permitted to construct and operate the emission source(s) and associated air pollution control device(s) specified herein, in accordance with the terms, conditions, and limitations within this permit. This permit is issued under the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and Title 15A North Carolina Administrative Codes (15A NCAC), Subchapters 2D and 2Q, and other applicable Laws.

Pursuant to Title 15A NCAC, Subchapter 2Q, the Permittee shall not construct, operate, or modify any emission source(s) or air pollution control device(s) without having first submitted a complete Air Quality Permit Application to the permitting authority and received an Air Quality Permit, except as provided in this permit.

Permittee: **Enviva Pellets Northampton, LLC**
Facility ID: **4600107**

Facility Site Location:
City, County, State, Zip: **874 Lebanon Church Road**
Garysburg, Northampton County, North Carolina, 27831

Mailing Address:
City, State, Zip: **7200 Wisconsin Avenue**
Bethesda, Maryland, 20814

Application Number: **6600167.13B**
Complete Application Date: **September 6, 2013**

Primary SIC Code: **2499**
Division of Air Quality,
Regional Office Address: **Raleigh Regional Office**
3800 Barrett Drive
Raleigh, North Carolina, 27609

ATTACHMENT to Permit No. 10203R02

Insignificant Activities under 15A NCAC 2Q .0503(8)

Emission Source ID No.	Emission Source Description
IES-DWH	Dried wood handling
IES-PP	Pellet press system
IES-FPH	Finished product handling
IS-TK1 and IS-TK2	Two diesel storage tanks (2,500 gallon and 500 gallon capacity)
IES-EPWC	Electric powered green wood chipper
IES-RCHP-1 and 2	Two electric powered wood re-chippers
IES-GWHS	Green wood handling and storage
IES-GWFB	Green wood fuel storage bin
IES-GN **NSPS IIII, MACT ZZZZ**	One emergency use generator (350 brake horsepower)
IES-FWP **NSPS IIII, MACT ZZZZ**	One fire water pump (300 brake horsepower)

1. Because an activity is insignificant does not mean that the activity is exempted from an applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.
2. When applicable, emissions from stationary source activities identified above shall be included in determining compliance with the permit requirements for toxic air pollutants under 15A NCAC 2D .1100 "Control of Toxic Air Pollutants" or 2Q .0711 "Emission Rates Requiring a Permit".
3. For additional information regarding the applicability of GACT see the DAQ page titled "The Regulatory Guide for Insignificant Activities/Permits Exempt Activities". The link to this site is as follows: http://daq.state.nc.us/permits/insig/

Table Of Contents

SECTION 1- PERMITTED EMISSION SOURCES AND ASSOCIATED AIR POLLUTION CONTROL DEVICES AND APPURTENANCES

The following table contains a summary of all permitted emission sources and associated air pollution control devices and appurtenances:

Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-DRYER	Direct heat, wood-fired dryer (174 million Btu per hour heat input)	CD-DC -and- CD-WESP	One simple cyclone (149 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)
ES-HM-1 through ES-HM-7	Seven hammermills	CD-HM- CYC-1 through CD-HM-CYC-7 –and- CD-HM-BF1, through CD-HM-BF3	Seven simple cyclones (120 inches in diameter each) in series with three fabric filters (6,250 square feet of filter area each)
ES-NDS	Nuisance dust system	CD-HM-BF-3	One fabric filter (6,250 square feet of filter area)
ES-PMFS	Pellet feed mill silo	CD-PMFS-BV	One bin vent filter (377 square feet of filter area)
ES-PFB-1	Pellet fines bin	CD-PFB-BV-1	One bin vent filter (780 square feet of filter area)
ES-CLR1, through ES-CLR-6	Pellet coolers	CD-CLR-1 through CD-CLR-6	Six simple cyclones (54 inches in diameter each)
ES-FPH ES-PB-1 through ES-PB-12 ES-PL-1 and ES-PL-2	Finished product handling Twelve (12) pellet load-out bins Pellet mill load-out 1 and 2	CD-FPH-BF	One fabric filter (4,842 square feet of filter area)

SECTION 2 - SPECIFIC LIMITATIONS AND CONDITIONS

2.1- Emission Sources and Control Devices Specific Limitations and Conditions

The emission sources and associated air pollution control devices and appurtenances listed below are subject to the following specific terms, conditions, and limitations, including the testing, monitoring, recordkeeping, and reporting requirements as specified herein:

A. Wood-fired dryer system (ID No. ES-DRYER) with associated cyclone and wet electrostatic precipitator (ID Nos. CD-DC and CD-WESP);
Hammermills (ID Nos. ES-HM-1 through ES-HM-7) with associated cyclones (ID Nos. CD-HM-CYC-1 through CD-HM-CYC-7) and fabric filters (ID Nos. CD-HM-BF1 through CD-HM-BF3);
Nuisance dust system (ID No. ES-NDS) with associated fabric filter (ID No. CD-HM-BF-3);
Pellet mill feed silo (ID No. ES-PMFS) with associated bin vent filter (ID No. CD-PMFS-BV);
Pellet fines bin (ID No. ES-PFB-1) with associated fabric filter (ID No. CD-PFB-BV-1);
Pellet coolers (ID Nos. ES-CLR1 through 6) with associated cyclones (ID Nos. CD-CLR-1 through CD-CLR-6);
Finished product handling (ID No. ES-FPH), pellet load-out bins (ID Nos. ES-PB-1 through 12), and pellet mill load-out (ID Nos. ES-PL-1 and 2) with associated fabric filter (ID No. CD-FPH-BF)

The following table provides a summary of limits and standards for the emission sources described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate matter	$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph $E = 55 \times P^{0.11} - 40$ for process weight rate ≥ 30 tph Where, E = allowable emission rate (pounds per hour) P = process weight rate (tons per hour)	15A NCAC 2D .0515
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
Visible emissions	20 percent opacity when averaged over a six minute period	15A NCAC 2D .0521
Toxic air pollutants	See Section 2.2 A.	15A NCAC 2D .1100
Volatile organic compounds and carbon monoxide	For Dryer System (ID No. ES-DRYER) Less than 250 tons per consecutive 12 month period.	15A NCAC 2Q .0317 for avoidance of 15A NCAC 2D .0530

1. 15A NCAC 2D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

a. Emissions of particulate matter from these sources shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 2D .0515(a)]

$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph
$E = 55 \times P^{0.11} - 40$ for process weight rate ≥ 30 tph

Where E = allowable emission rate in pounds per hour
P = process weight in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

Testing

b. Under the provisions of NCGS 143-215.108, the Permittee shall test the wet electrostatic precipitator (**ID No. CD-WESP**) for total suspended particulate (TSP) control efficiency in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of operation unless an alternate date is approved by the DAQ.

Monitoring/Recordkeeping

c. Particulate matter emissions shall be controlled as follows:

- Particulate matter emissions from the wood dryer system (**ID No. ES-DRYER**) shall be controlled by a simple cyclone (**ID No. CD-DC**) in series with a wet electrostatic precipitator (**ID No. CD-WESP**).
- Particulate matter emissions from the seven hammermills (**ID Nos. ES-HM-1 through ES-HM-7**) shall be controlled by seven simple cyclones (**ID Nos. CD-HM-CYC-1 through CD-HM-CYC-7**) in series with three fabric filters (**ID Nos. CD-HM-BF1 through CD-HM-BF3**).
- Particulate matter emissions from the nuisance dust system (**ID No. ES-NDS**) shall be controlled by one fabric filter (**ID No. CD-HM-BF3**).
- Particulate d. matter emissions from the pellet mill feed silo (**ID No. ES-PMFS**) shall be controlled by a bin vent filter (**ID No. CD-PMFS-BV**).
- Particulate matter emissions from the pellet mill fines bin (**ID No. ES-PFB-1**) shall be controlled by a fabric filter (**ID No. CD-PFB-BV-1**).
- Particulate matter emissions from the pellet coolers (**ID Nos. ES-CLR-1 through ES-CLR-6**) shall be controlled by six simple cyclones (**ID Nos. CD-CLR-C1 through CD-CLR-C6**).
- Particulate matter emissions from the finished product handling (**ID No. ES-FPH**), pellet load-out bins (**ID Nos. ES-PB-1 through 12**), and pellet mill load-out (**ID No. ES-PL-1 and 2**) shall be controlled by one fabric filter (**ID No. CD-FPH-BF**).

For bagfilters and cyclones:

d. To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:
   i. a monthly visual inspection of the system ductwork and material collection unit for leaks.
   ii. an annual (for each 12 month period following the initial inspection) internal inspection of the bagfilters' structural integrity.

For wet electrostatic precipitator:

e. To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the Permittee shall establish the minimum primary voltage and minimum current within the first 30 days following operation of the dryer. To assure compliance and effective operation of the wet electrostatic precipitator, the Permittee shall monitor and record the primary voltage and current through the precipitator daily. The daily observation must be made for each day of the calendar year period. The Permittee shall be allowed three (3) days of absent observations per semi-annual period.

f. The results of inspection and maintenance shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:
   i. the date and time of each recorded action;
   ii. the results of each inspection;
   iii. the results of any maintenance performed; and
   iv. any variance from manufacturer's recommendations, if any, and corrections made.

Reporting

g. The Permittee shall submit the results of any maintenance performed on the WESP, cyclones and bagfilters within 30 days of a written request by the DAQ.

2. 15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

a. Emissions of sulfur dioxide from the wood dryer system (**ID No. ES-DRYER**) shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 2D .0516]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .2601.

Monitoring/Recordkeeping

c. No monitoring/recordkeeping is required for sulfur dioxide emissions from firing wood for the wood dryer system.

3. 15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS

a. Visible emissions from these sources (**ID Nos. ES-DRYER, ES-HM-1 through ES-HM-7, ES-NDS, ES-PMFS, ES-PFB, ES-CLR-1 through ES-CLR-6, ES-FPH, ES-PB-1 through ES-PB-12, ES-PL-1 and ES-PL-2**) shall not be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. [15A NCAC 2D .0521 (d)]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .2601.

Monitoring

c. To assure compliance, once a month the Permittee shall observe the emission points of this source for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either:
   i. take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or
   ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .2601 (Method 9) for 12 minutes is below the limit given in Section 2.1 A.3. a. above.

Recordkeeping

d. The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:
   i. the date and time of each recorded action;
   ii. 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
   iii. the results of any corrective actions performed.

4. 15A NCAC 2Q. 0317: AVOIDANCE CONDITIONS
15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION

a. In order to avoid applicability of this regulation, the dryer system (**ID No. ES-DRYER**) shall discharge into the atmosphere less than 250 tons of volatile organic compounds (VOCs) and carbon monoxide (CO) each per consecutive 12-month period. [15A NCAC 2D .0530]

Testing

b. Under the provisions of NCGS 143-215.108, the Permittee shall establish emission factors for calculating total VOC and CO used in compliance calculations under Section 2.1 A.4. c. below by testing the dryer system (**ID No. ES-DRYER**) in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of operation unless an alternate date is approved by the DAQ.

Monitoring/Recordkeeping

c. Calculations of the monthly VOC and CO emissions from the dryer system (**ID No. ES-DRYER**) shall be made at the end of each month. Until stack testing for VOC and CO is conducted, VOC and CO emissions shall be determined by multiplying the approved VOC and CO emission factors (**0.95 lb/ODT for VOC and 0.81 lb/ODT for CO**) by the plant process rate. Once testing. conducted pursuant to Section 2.1 A.4. b. above, has been completed in accordance with an approved NC DAQ testing protocol, the facility shall calculate VOC and CO emissions using the lb/ODT emission factors derived from testing. Calculations and the total amount of VOC and CO emissions shall be recorded monthly in a log (written or electronic format).
d. The Permittee shall not process more than 10% softwood on an annual basis. The hardwood/ softwood mix shall be recorded in a monthly log.
e. The product moisture content shall not be less than 13% from the dryer outlet. The Permittee shall monitor and record average moisture content on a 30 day rolling average.

Reporting

f. The Permittee shall submit a semi-annual summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:
   i. The monthly hardwood/softwood mix for the previous 17 months.
   ii. The 30 day rolling average product moisture content.
   iii. The monthly VOC and CO emissions for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months.

2.2- Multiple Emission Sources Specific Limitations and Conditions

A. Facility-wide sources

STATE-ONLY REQUIREMENT:

1. **TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REQUIREMENT** - Pursuant to 15A NCAC 2D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limit shall not be exceeded:

EMISSION SOURCE	TOXIC AIR POLLUTANTS	EMISSION LIMITS
Dryer system (ID No. ES-DRYER)	Acrolein	1.41 lb/hr
	Arsenic & compounds	2.43 lb/year
	Benzene	4,094.25 lb/year
	Benzo(a)pyrene	3.96 lb/year
	Cadmium	0.453 lb/year
	Chlorine	3.29 lb/day
	Formaldehyde	8.61 lb/hr
	Hexachlorodibenzo-p-dioxin	2.43 lb/year
	Hydrogen chloride	0.331 lb/hr
	Phenol	1.72 lb/hr
	Mercury	0.0146 lb/day
	Nickel	0.138 lb/day
	Vinyl chloride	27.43 lb/year

a. No reporting is required.

STATE-ONLY REQUIREMENT:

2. **TOXIC AIR POLLUTANT EMISSION RATES REQUIRING A PERMIT** – Pursuant to 15A NCAC 2Q .0711, a permit to emit toxic air pollutants is required for any facility whose actual rate of emissions from all sources are greater than any one of the following rates:

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
1,3-Butadiene (106-99-0)	11			
Acetaldehyde (75-07-0)				6.8
Beryllium (7440-41-7)	0.28			
Carbon tetrachloride (56-23-5)	460			
Chlorobenzene (108-90-7)		46		
Chloroform (67-66-3)	290			
Di(2-ethylhexyl)phthalate (117-81-7)		0.63		
Ethylene dichloride (107-06-2)	260			
Manganese & compounds		0.63		
Methyl chloroform (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		78		

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Pentachlorophenol (87-86-5)		0.063	0.0064	
Perchloroethylene (127-18-4)	13000			
Polychlorinated biphenyls (1336-36-3)	5.6			
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-p-dioxin (1746-01-6)	0.00020			
Trichloroethylene (79-01-6)	4000			
Toluene (108-88-3)		98		14.4
Trichlorofluoromethane (75-01-4)			140	
Xylene (1330-20-7)		57		16.4

SECTION 3 - GENERAL CONDITIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to:

   Mr. Patrick Butler
   Regional Air Quality Supervisor
   North Carolina Division of Air Quality
   Raleigh Regional Office
   3800 Barrett Drive
   Raleigh, NC 27609
   (919) 791-4200

2. PERMIT RENEWAL REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, DAQ.

3. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.

4. ANNUAL EMISSION INVENTORY REQUIREMENTS – The Permittee shall report by June 30 of each year the actual emissions of each air pollutant listed in 15A NCAC 02Q .0207(a) from each emission source within the facility during the previous calendar year. The report shall be in or on such form as may be established by the Director. The accuracy of the report shall be certified by the responsible official of the facility.

5. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

6. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenance(s).

7. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:
   a. changes in the information submitted in the application regarding facility emissions;
   b. changes that modify equipment or processes of existing permitted facilities; or
   c. changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

8. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.

9. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.

10. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

11. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

12. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.

13. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

14. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

15. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.

16. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

17. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. This condition is federally-enforceable only.

Permit issued this the 9th day of September, 2013.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Donald R. van der Vaart, PhD., P.E., J.D., Chief,
Air Permits Section Division of Air Quality
By Authority of the Environmental Management Commission

Air Permit No. 10203R02

ATTACHMENT

List of Acronyms

AOS	Alternate Operating Scenario
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CEM	Continuous Emission Monitor
CFR	Code of Federal Regulations
DAQ	Division of Air Quality
DENR	Department of Environment and Natural Resources
EMC	Environmental Management Commission
EPA	Environmental Protection Agency
FR	Federal Register
GACT	Generally Available Control Technology
HAP	Hazardous Air Pollutant
MACT	Maximum Achievable Control Technology
NAA	Non-Attainment Area
NCAC	North Carolina Administrative Code
NCGS	North Carolina General Statutes
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standard
OAH	Office of Administrative Hearings
PM	Particulate Matter
PM_{10}	Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less
POS	Primary Operating Scenario
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
tpy	Tons per Year
VOC	Volatile Organic Compound

NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: September 9, 2013

Region: Raleigh Regional Office
County: Northampton
NC Facility ID: 6600167
Inspector's Name: Will Wike
Date of Last Inspection: 07/24/2012
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Enviva Pellets Northampton, LLC

Facility Address:
Enviva Pellets Northampton, LLC
874 Lebanon Church Road
Garysburg, NC 27831

SIC: 2499 / Wood Products, Nec
NAICS: 321999 / All Other Miscellaneous Wood Product Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 2D .0515, .0521
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Roland Burnett Plant Manager (910) 318-2743 874 Lebanon Church Rd Garysburg, NC 27831	Pete Najera VP of Operations (703) 380-9957 7200 Wisconsin Avenue, Suite 1000 Bethesda, MD 20814	Joe Harrell EHS Manager (252) 209-6032 142 NC Route 561 East Ahoskie, NC 27910

Application Data

Application Number: 6600167.13C
Date Received: 09/03/2013
Application Type: Modification
Application Schedule: State

Existing Permit Data
Existing Permit Number: 10203/R01
Existing Permit Issue Date: 02/26/2013
Existing Permit Expiration Date: 02/28/2017

Review Engineer: Jenny Kelvington

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 10203/R02
Permit Issue Date: 09/09/2013
Permit Expiration Date: 02/28/2017

I. Introduction and Purpose of Application

Enviva Pellets Northampton, LLC (Enviva) is permitted to construct and operate a wood pellet mill at their plant site located in Garysburg, Northampton County, North Carolina. Green wood consisting of whole logs and/or chipped wood, is delivered by truck. Logs are debarked and chipped. The bark fuels the dryer system which dries chipped wood to a 13% moisture content. Dry wood is then transferred to hammermills for further size reduction and then collected in the in-feed screw pellet mill feed silo prior to pelletization. Screw presses compact the wood into pellets. Finally, pellets are conveyed to one of six pellet coolers and then to storage and load-out.

This application is for the replacement of a pellet fines bin (**ID No. ES-PFB**) and associated fabric filter (**ID No. CD-PFB-BV**; 325 square feet of filter area) with the same size pellet fines bin and a bin vent filter with a larger filter area as specified below:

Source ID No.	Emission Source Description	Control ID No.	Control Device Description
ES-PFB-1	Pellet fines bin	CD-PFB-BV-1	One bin vent filter (780 square feet of filter area)

The bin vent filter collects dust from fines loading.

The application was received on September 3, 2013 and contained all the required elements except forms B and B6 and the $889 processing fee. A zoning consistency determination and a PE seal are not required since no expansion will take place and the flowrate through the new bin vent filter is only 3,600 acfm. The application was deemed complete on September 6, 2013 upon receipt of the application fee and B forms.

II. Statement of Compliance

The facility was last inspected on July 24, 2012 by Mr. Will Wike. At the time, the facility was under construction and had not commenced operation. Compliance is expected.

III. Regulatory Review – Specific Emission Source Limitations

A. 15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes" – This regulation establishes an allowable emission rate for particulate matter from any stack, vent, or outlet resulting from any industrial process for which no other emission control standards are applicable. It applies to particulate matter (PM) less than 100 micrometers (μm). The allowable emission rate is calculated using the following equation:

$$E = 4.10 \times P^{0.67} \qquad \text{for } P < 30 \text{ tph}$$

where, E = allowable emission rate (lb/hr)
P = process weight rate (tph)

According to application, the pellet fines bin processes up to 6 tons per hour. The allowable PM emission rate is calculated to be 13.6 lb/hr. Uncontrolled PM emissions are 90 lb/hour. The hourly PM emission rate after 99.9% control is expected to be 0.1 lb/hr.

The DAQ Bagfilter Design Evaluation spreadsheet was used to verify the control device is properly designed. It indicated the fabric filter should reasonably provide a 99.84% reduction in PM emissions with a controlled emission rate of 0.14 lb/hr. Compliance is indicated.

Monitoring, recordkeeping, and reporting requirements will be the same for the new pellet fines bin and fabric filter as the existing units they will replace. Compliance is expected.

B. 15A NCAC 2D .0521 "Control of Visible Emissions" – This regulation establishes a visible emission standard for sources based on the manufacture date. For sources manufactured after July 1, 1971, the standard is 20% opacity when averaged over a 6-minute period. The Permittee will be required to establish 'normal' visible emissions from the pellet fines bin within the first 30-days of the permit effective date. In order to demonstrate compliance, the Permittee must observe visible emissions on a monthly basis for comparison to 'normal'. If emissions are observed outside of 'normal', the Permittee shall take corrective action. Recordkeeping and reporting are required. Because the pellet fines bin will be adequately controlled by a fabric filter, compliance is expected.

IV. Facility Wide Emissions

The permit application included the following facility wide potential controlled emissions:

Source Description	CO (tpy)	NOx (tpy)	TSP (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO2 (tpy)	VOC (tpy)	CO_2e (tpy)
Dryer System *(ES-DRYER)*	193.09	124.74	27.77	27.77	27.77	19.05	183.05	60.82
Emergency Generator *(ES-EG)*	0.50	0.58	0.03	0.03	0.03	0	0	93.04
Fire Water Pump *(ES-FWP)*	0.43	0.49	0.02	0.02	0.02	0	0	79.75
Hammermills/Nuisance Dust System *(ES-HM-1 to ES-HM-7 and ES-NDS)*	-	-	13.52	13.52	13.52	-	-	-
Pellet Mill Feed Silo *(ES-PMFS)*	-	-	0.28	0.28	0.28	-	-	-
Pellet Mill Fines Bin *(ES-PFB-1)*	-	-	0.12	0.12	0.12	-	-	-
Pellet Coolers *(ES-CLR1 to ES-CLR6)*	-	-	38.52	35.05	21.19	-	-	-
Log Debarking/Chipping & Rechipping *(ES-RCHP-1 and ES-RCHP-2)*	-	-	-	-	-	-	2.88	-
Finished Product Handling *(ES-FPH)*	-	-	-	-	-	-	-	-
Load-out Bins *(ES-PB1 to ES-PB12)*	-	-	4.00	3.64	2.20	-	-	-
Diesel Storage Tanks *(TK1 and TK2)*	-	-	-	-	-	-	3.79E-03	-
Facility Wide Total	***194.0***	***125.8***	***84.5***	***80.7***	***65.4***	***19.1***	***185.9***	***233.6***

Enviva is a minor source with respect to PSD and has previously accepted CO and VOC limits from their dryer system (**ID No. ES-DRYER**) to avoid PSD review.

V. Other Regulatory Considerations

- An application fee of $889.00 is required and was received 9/6/13.
- The appropriate number of application copies was submitted.
- A Professional Engineer's Seal is not required.
- A zoning consistency determination is not required but to no facility expansion.
- The facility does not store any materials above the 112r applicability threshold.
- The application was signed by Mr. Pete Najera, Vice President Operations, on August 30, 2013.

VI. Recommendations

This application has been reviewed to determine compliance with all procedures and requirements for the proposed pellet fines bin and associated bin vent filter replacement. DAQ has determined that the facility appears to be complying or is expected to achieve compliance as specified in the permit with all applicable requirements. The applicant and RRO were provided a draft on September 3, 2013. The applicant requested minor administrative changes which have been incorporated into the permit. On September 4, 2013, Mr. Charles McEachern and Mr. Will Wike, RRO, responded by email that they were fine with the permit issuance. **Recommend issuance of Permit No. 10203/R02**

Bagfilter Evaluation - Enviva 10203R02

User Input

User must supply information in blue (double outline).

Optional user information is single outlined.

Particulate Material: Wood

Estimated Efficiency (%): 99

Actual Air Flow Rate (acfm): 3,600

Cloth Area (sq ft): 780

Maximum Operating Temperature (F): 100

Proposed Cloth Material: Polyethylene

Pulse Jet?: no

Uncontrolled Particulate Rate (lb/hr): 90.0

Process Rate (lb/hr): 12,000

Maximum Pressure Drop (in H2O): 6

No. of compartments: 1

Gas Stream Moisture (%): 23.00

Felted?: no

Time Between Cleanings (min):

Cleaning Time (min): ?

Particle Size Distribution

Avg. Size (um)	Size Ranges (um)	Size (um)	Cumul. Mass (% < size)
1.25	0 - 2.5	0	5.8
3.75	2.5 - 5	2.5	16.5
7.5	5 - 10	5	40.3
12.5	10 - 15	10	51.6
17.5	15 - 20	15	57.0
20	> 20	20	100.0

Information Source(s)

Particle size distribution unknown.

Program Output

Filtering Velocity Analysis

Typical Filtering Velocity (fpm): 3.5

Applicant Filtering Velocity (fpm): 4.6

Typical filtering velocity exceeded by: 31.9 %

Fabric Durability Analysis

	Chemical Resistance		
	Acid	Alkali	Organics
Fabric appropriate for max. oper. temp.	Fair	Fair	Fair

Particulate Emissions Analysis

Controlled Particulate Rate (lb/hr): 0.141

Gas Stream Particulate Loadings (gr/dscf)

Uncontrolled: 3.63

Controlled: 0.0057

Note: Correct gas stream temperature and moisture content must be entered!

The estimated collection efficiency is reasonable.

Allowable Emissions per 2D .0515 (lb/hr): 13.62

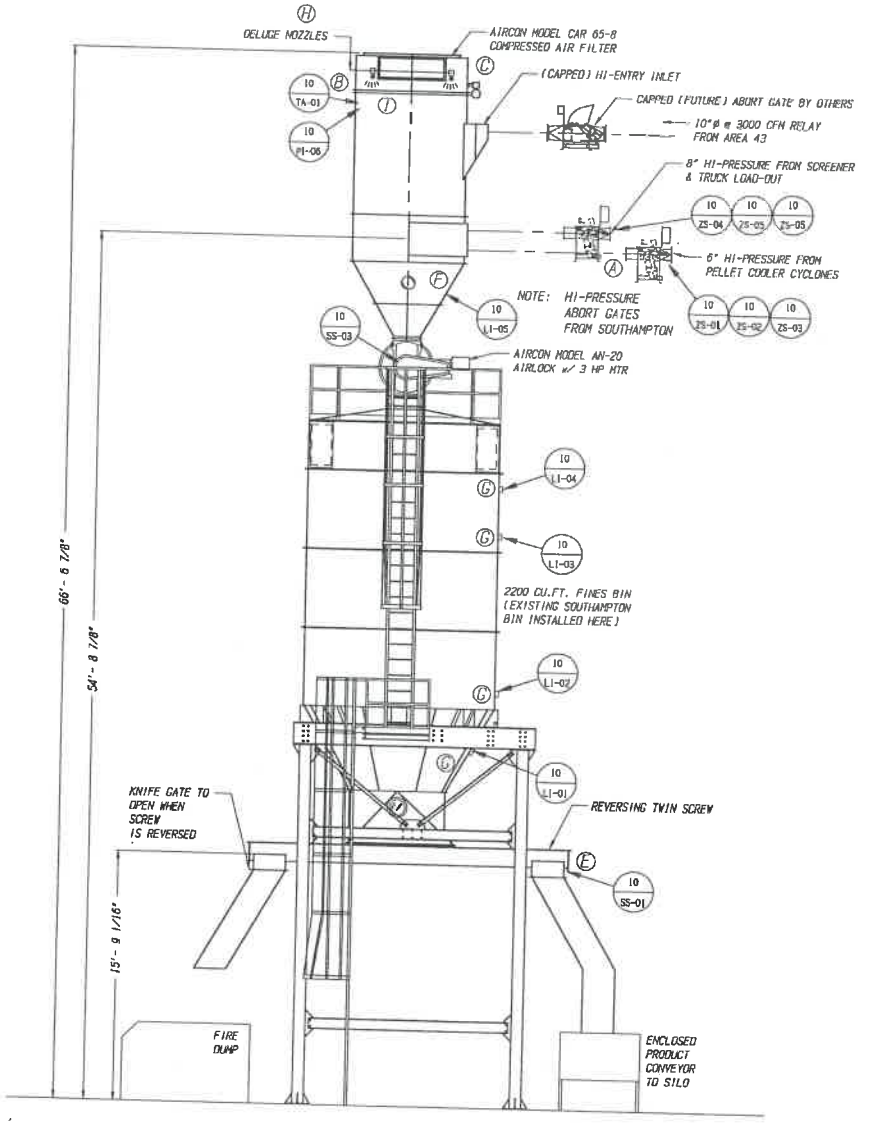
Maximum Areal Dust Loading (gr/sq ft): 0.0

Dust drag (K2) parameter ((inH2O/fpm)/(lb/sq ft)): 0

Efficiency Calculations

Mass in Range (%)	Control Efficiency (%)	eta-m (%)
5.8	98.00	5.68
10.7	99.90	10.69
23.8	99.90	23.78
11.3	99.99	11.30
5.4	99.99	5.40
43.0	99.99	43.00
	Overall Control Efficiency =	99.84 %
	Penetration =	0.16 %

Bagfilter evaluation developed by:
William D. Willets, M.S., E.I.T.
North Carolina Division of Environmental Management
Air Quality Permitting
Version 3.3; September 23, 1999



NEW FINES BIN ELEVATION

DEVICE LIST for HIGH-PRESSURE LINES & FINES BIN

DEVICE #	LOCATION	FUNCTION
10 PI-01	* Silo Bin Vent	Diff. Pressure Transmitter
10 LI-01	LL (Low-Low) Level	Level Sensor
10 LI-02	L (Low) Level	Level Sensor
10 LI-03	H (High) Level	Level Sensor
10 LI-04	HH (High-High) Level	Level Sensor
10 LI-05	** Filter High Level	Level Sensor
10 PI-02	* Blower Transfer Line	Diff. Pressure Transmitter
10 PI-03	* Blower Intake Filter	Diff. Pressure Transmitter
10 PI-04	* Blower Transfer Line	Diff. Pressure Transmitter
10 PI-05	* Blower Intake Filter	Diff. Pressure Transmitter
10 PI-06	Fines Filter	Diff. Pressure Transmitter
10 ZS-01	Abort Gate (HP line #1)	Armed Detection
10 ZS-02	Abort Gate (HP line #1)	Aborted Detection
10 ZS-03	Abort Gate (HP line #1)	Retracted Position
10 ZS-04	Abort Gate (HP line #2)	Armed Detection
10 ZS-05	Abort Gate (HP line #2)	Aborted Detection
10 ZS-06	Abort Gate (HP line #2)	Retracted Position
10 SS-01	Discharge Auger	Zero Speed Switch
10 SS-02	* Airlock Feeder	Zero Speed Switch
10 SS-03	** Fines Filter Airlock	Zero Speed Switch
10 TA-01	** Fines Filter	Temperature Switch

* Existing equipment noted with an asterisk are shown as drawings 5816-DL-01and 5816-DL-02
** New Equipment noted with a double asterisk. All others are relocated from former bin location

RECD AIR QUALITY PERMITS MGMT OCT 16 13

DEVICE LIST CODE DESCRIPTIONS

Code	Description
LI	Level Indicator
SS	Zero Speed Switch
ZV	Limit Switch (position Indicator)
ZS	Solenoid Valve
PI	Pressure Indicator
TA	Temperature Alarm

POWER REQUIREMENTS

		ELECTRICAL / DEVICE / AIR	
A.	2	ABORT GATES	110/120V
B.	1	TIMER BOARD, CAR 65-10	110/120V
C.	1	COMPRESSED AIR FOR CLEANING 90 TO 100 PSI CLEAN AIR	10 SCFM
D.	1	AN-20 AIRLOCK w/ 3 HP MTR	230/460V
E.	1	REVERSING AUGER 10 HP MTR	230/460V
F.	1	FILTER PLUG DETECTOR	110/120V
G.	4	DUST BIN LEVEL SENSORS	110/120V
H.	1	DELUGE NOZZELS COUPLING	WATER
I.	1	FILTER TEMPERATURE SENSOR	110/120V

NO.	REVISION - DESCRIPTION	DATE	BY

Aircon CORPORATION
P.O. BOX 80446
MEMPHIS, TN 38108-0446
PHONE: (901) 452-0230
FAX: (901) 452-0264
E-MAIL : Johnaaircon-corporation.com

FINES BIN DEVICE LOCATIONS

ENVIVA BIO-MASS

GARYSBURG NORTH CAROLINA

DRAWN jja/JT
APPROVED
SCALE 3/16" = 1'-0"
DATE 8/19/13
PROJ.NO. 13-5999
DWG.NO. 5999-DL-01-R0

Comprehensive Application Report for 6600167.13C

Enviva Pellets Northampton, LLC - Gaston (6600167)

Northampton County

09/10/2013

General Information:	Permit/Latest Revision: 10203/ R02
Permit code:	State
Application type:	Modification
Engineer/Rev. location:	Jenny Kelvington/RCO
Regional Contact:	Charles McEachern
Facility location:	Raleigh Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	Issued

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
09/03/2013			12/02/2013

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd;
$0.00	09/03/2013	889.00		

Fund type:	Deposit Slip #:	Location rec'd:	Location deposited:
2333			

Contact Information

Type	Name	Address	City State ZIP	Telephone
Technical/Permit	Glenn Gray, Plant Manager	7200 Wisconsin Avenue	Bethesda, MD 20814	(757) 274-8377
Authorized	Norb Hintz, Vice President Engineering	7200 Wisconsin Avenue	Bethesda, MD 20814	(301) 657-5567

Acceptance Criteria

Received?	Acceptance Criteria Description
No	Application fee
No	Appropriate number of apps submitted
N/A	Zoning Addressed
Yes	Source recycling/reduction form
Yes	Authorized signature
N/A	PE Seal

Completeness Criteria

Received?	Complete Item Description
No	Reqd app forms submitted & completed
Yes	Supporting materials/calcs received
N/A	PE seal if 15A NCAC 2Q.0112
N/A	Modeling protocol acceptable
N/A	Confirmation of pollutants modeled

Comprehensive Application Report for 6600167.13C

Enviva Pellets Northampton, LLC - Gaston (6600167)

Northampton County

Application Events

Event	Start	Due	Complete	Comments	Staff
Regional technical review completed/mailed	09/13/2013	10/13/2013	09/13/2013		mjcuilla
Permit issued	09/09/2013		09/09/2013		kmhash

Comprehensive Application Report for 6600167.13C

Enviva Pellets Northampton, LLC - Gaston (6600167)

Northampton County

09/10/2013

Outcome Information

Class before:	Title V	Class after:	Title V		
2Q .0711:	No	2D .1100:	No		
NSPS:	No	NESHAPS/MACT:	No	PSD/NSR:	No
PSD/NSR Avoid:	No	Prohibitory Small:			No
PSD/NSR Status After:	Minor	General permit:			No
Multi-site permit:	No	Multi. permits at facility:			No
Quarry permit:	No	HAP Major (10/25 tpy):			Minor
2Q .0705 Last MACT/Toxics:	NO	NESHAPS/GACT:			NO
New Source RACT/LAER:	NO	Existing Source RACT:			NO
RACT/LAER Added Fee:	NO	RACT Avoidance:			NO
2Q .0702 (a)(18) - Toxics/Combustion Source(s) After 07/10/10:					NO

Permit/Revision: 10203/R02

Revision Issue Date: 09/09/2013

Accumulated process days (includes public notice periods): 6

Public notice/hearing/add info after 80 days:

Manager's discretion: Appealed? No

Current Permit Information:

Issue	Effective	Expiration	Revision #
09/09/2013	09/09/2013	02/28/2017	R02

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
2Q	.0317	Avoidance Conditions
Part 60 - NSPS	Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions
2D	.0524	New Source Performance Standards
2D	.1100	Control of Toxic Air Pollutants
2D	.1111	Maximum Achievable Control Technology
Part 63 - NESHAP/MACT	Subpart ZZZZ	Reciprocating Internal Combustion Engines
Avoidance	2D .0530	Prevention of Significant Deterioration

Comprehensive Application Report for 6600167.13C

Enviva Pellets Northampton, LLC - Gaston (6600167)

Northampton County

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor
engineer	09/06/2013	972 (Jenny Kelvington)	899 (Connie Horne)	Connie Horne
engineer	09/09/2013	899 (Connie Horne)	972 (Jenny Kelvington)	Connie Horne
perm_Code	09/10/2013	TV300 (TV- State Only)	300 (State)	Mark Cuilla

FORM A1

FACILITY (General Information)

REVISED 11/01/02 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — A1

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

☑ Local Zoning Consistency Determination (if required) ☑ Facility Reduction & Recycling Survey Form (Form A4) ☑ Application Fee
☑ Responsible Official/Authorized Contact Signature ☑ Appropriate Number of Copies of Application ☑ P.E. Seal (if required)

GENERAL INFORMATION

Legal Corporate/Owner Name:	Enviva Pellets Northampton, LLC
Site Name:	Enviva Pellets Northampton, LLC
Site Address (911 Address) Line 1:	874 Lebanon Church Road
Site Address Line 2:	
City:	Garysburg
State:	North Carolina
Zip Code:	27866
County:	Northampton

CONTACT INFORMATION

Permit/Technical Contact:		*Facility/Inspection Contact:*	
Name/Title:	Joe Harrell	Name/Title:	Roland Burnett
Mailing Address Line 1:	142 N.C. Route 561 East	Mailing Address Line 1:	Same as Site Address
Mailing Address Line 2:		Mailing Address Line 2:	
City:	Ahoskie	City:	
State:	NC	State:	
Zip Code:	27910	Zip Code:	
Phone No. (area code)	(252) 209-6032	Phone No. (area code)	(910) 318-2743
Fax No. (area code)		Fax No. (area code)	
Email Addres	Joe.Harrell@envivabiomass.com	Email Address:	roland.burnett@envivabiomass.com
Responsible Official/Authorized Contact:		*Invoice Contact:*	
Name/Title:	Pete Najera	Name/Title:	Same as permit/technical contact
Mailing Address Line 1:	7200 Wisconsin Avenue	Mailing Address Line 1:	
Mailing Address Line 2:	Suite 1100	Mailing Address Line 2:	
City:	Bethesda	City:	
State:	MD	State:	
Zip Code:	20814	Zip Code:	
Phone No. (area code)	(703) 380-9957	Phone No. (area code)	
Fax No. (area code)		Fax No. (area code)	
Email Addres	Pete.Najera@envivabiomass.com	Email Address:	

APPLICATION IS BEING MADE FOR

☑ New Non-permitted Facility/Greenfield ☐ Modification of Facility (permitted) ☐ Renewal with Modification
☐ Renewal (TV Only)

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

☐ General ☐ Small ☐ Prohibitory Small ☐ Synthetic Minor ☑ Title V

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s): Facility ID No. : (to be assigned)
Wood pellet manufacturing facility

Primary SIC/NAICS Code:	2499 (Wood Products, Not Elsewhere Classified)	Current/Previous Air Permit No.	10203R01
Facility Coordinates: Latitude:	256,700 UTM E	Expiration Date	2/28/2017
		Longitude:	4,042,900 UTM N
Does this application contain confidential data?	☐ YES ☑ NO		

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name:	Joe Sullivan	Firm Name:	Trinity Consultants, Inc.
Mailing Address Line 1:	One Copley Parkway	Mailing Address Line 2:	Suite 310
City:	Morrisville	Zip Code:	27560
State:	North Carolina	County:	Wake
Phone No.	(919) 462-9693	Email Address:	Jsullivan@trinityconsultants.com
Fax No.	(919) 462-9694		

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Pete Najera — Title: Vice President of Operations
X Signature(Blue Ink): Pete Najera — Date: 8/30/13

Attach Additional Sheets As Necessary

Received
SEP 06 2013
Air Permits Section

RECD 13 RECORDS MGMT

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REVISED 04/10/07 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **A2**

EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
ES-PFB	Pellet Fines Bin	CD-PFB-BV	Bin Vent Filter
Existing Permitted Equipment To Be MODIFIED By This Application			
Equipment To Be DELETED By This Application			

112(r) APPLICABILITY INFORMATION — **A 3**

Is your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Federal Clean Air Act? Yes / (No)

If No, please specify in detail how your facility avoided applicability:

Enviva Pellets Ahoskie, LLC will not handle any of the substances subject to 112(r)

If your facility is Subject to 112(r), please complete the following:

A. Have you already submitted a Risk Management Plan (RMP) to EPA Pursuant to 40 CFR Part 68.10 or Part 68.150?

Yes ☐ No ☐ Specify required RMP submittal date: _____ If submitted, RMP submittal date: _____

B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard?

Yes ☐ No ☐ If yes, please specify: _____

Attach Additional Sheets As Necessary

FORM A4

SURVEY OF AIR EMISSIONS AND FACILITY - WIDE REDUCTION & RECYCLING ACTIVITIES

DATE: Does facility have an environmental mangement system in place? ( ) YES (X) NO If so, is facility ISO 14000 Certified? ( ) YES (X) NO

Facility Name:	Enviva Pellets Northampton, LLC			Permit Number:	0
Facility ID:	N/A (to be assigned)	County:	Northampton	Environmental Contact:	Joe Harrell
Mailing Address Line 1:	874 Lebanon Church Road			Phone No. ( )	(252) 209-6032
Mailing Address Line 2:				Zip Code:	27866
City:	Garysburg	State:	North Carolina	Email Address:	Joe.Harrell@envivabiomass.com

Fax No. ( )
County: Northampton

AIR EMISSIONS SOURCE REDUCTIONS

Any Air Emissions Source Reductions in the past year? ( ) YES (X) NO

Source Description and ID	Air Pollutant	Enter Code for Emission Reduction Option (See Codes)	Date Reduction Option Implemented (mo/yr)	Quantity Emitted from prior annual report to DAQ (lb/yr)	Quantity Emitted from current annual report to DAQ (lb/yr)	Has reduction activity been discontinued? If so, when was it discontinued? (mo/yr)	Addition detail about source
N/A							

Comments:

FACILITY - WIDE REDUCTIONS & RECYCLING ACTIVITIES

Any Reductions or Recycling Activities in the past year? ( ) YES (X) NO

Source Description or Activity	Pollutant or Recycled or Reduced Materials	Enter Code for Emission Reduction Option (See Codes)	Date Reduction Option Implemented (mo/yr)	Quantity Emitted from prior annual report	Quantity Emitted from current annual report	Has reduction activity been discontinued? If so, when was it discontinued? (mo/yr)	Addition detail about source
N/A							

Comments:

The requested information above shall be used for fulfilling the requirements of North Carolina General Statute 143-215.108(g). The permit holder shall submit to the Department a written description of current and projected plans to reduce the emissions of air pollutants by source reduction or recycling. The written description shall accompany any application for a new permit, modification of an existing permit and for each annual air quality permit fee payment. Source reduction is defined as reducing the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal. If no activity has taken place since the previous report, simply indicate so by checking the no box in that section. Once completed, this form should be submitted along with your fee payment. Examples are listed on the first line of each section of the form for your benefit.

NC Division of Pollution Prevention and Environmental Assistance

POLLUTION PREVENTION PAYS

REVISED 1/07

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: Pellet Fines Biin	EMISSION SOURCE ID NO ES-PFB
	CONTROL DEVICE ID NO(S): CD-PFB-BV
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-12

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet matrial from cooler aspiration pollution control system, hammermill pollution control system, finished product handling bag filter, and screening operation is collected in the bag house then rotary fed into the pellet fines bin then discharged to the pellet mill feed silo infeed mechanical conveyor or discharged to the emergency dump.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

- ☐ Coal,wood,oil, gas, other burner (Form B1)
- ☐ Int.combustion engine/generator (Form B2)
- ☐ Liquid storage tanks (Form B3)
- ☐ Woodworking (Form B4)
- ☐ Coating/finishing/printing (Form B5)
- ■ Storage silos/bins (Form B6)
- ☐ Manufact. of chemicals/coatings/inks (Form B7)
- ☐ Incineration (Form B8)
- ☐ Other (Form B9)

START CONSTRUCTION DATE: 9/11/2013	OPERATION DATE: 9/12/2013	DATE MANUFACTURED: 2013
MANUFACTURER / MODEL NO.: Aircon	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION: 8760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	See attached calculations						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	N/A						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	N/A			

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — B6

EMISSION SOURCE DESCRIPTION: Pellet Fines Bin	EMISSION SOURCE ID NO: ES-PFB
	CONTROL DEVICE ID NO(S): CD-PFB-BV
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): EP-12

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet matrial from cooler aspiration pollution control system, hammermill pollution control system, finished product handling bag filter, and screening operation is collected in the bag house then rotary fed into the pellet fines bin then discharged to the pellet mill feed silo infeed mechanical conveyor or discharged to the emergency dump.

MATERIAL STORED: Fine Pellet Material				DENSITY OF MATERIAL (LB/FT3): 40		
CAPACITY	CUBIC FEET: 2200			TONS:		
DIMENSIONS (FEET)	HEIGHT: 20.4	DIAMETER: 12	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)		ACTUAL: 52560		MAXIMUM DESIGN CAPACITY:		

PNEUMATICALLY FILLED	MECHANICALLY FILLED		FILLED FROM
☒ BLOWER	☐ SCREW CONVEYOR	MOTOR HP:	☐ RAILCAR
☐ COMPRESSOR	☐ BELT CONVEYOR		☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR		☐ STORAGE PILE
	☐ OTHER:		☒ OTHER fines collection equipment
NO. FILL TUBES: 2			
MAXIMUM ACFM: 3,600			

MATERIAL IS FILLED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?
Mechanically through rotary feeder into screw convevory to pellet mill feed silo infeed mechanical conveyor or emergency dump.

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): 6 tph

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): 6 tph

COMMENTS:

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C1

CONTROL DEVICE ID NO: CD-PFB-BV	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-PFB
EMISSION POINT (STACK) ID NO(S): EP-PPS	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: Aircon	MODEL NO: CAR65-8
DATE MANUFACTURED: 2013	PROPOSED OPERATION DATE: Sept 2013
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: ASAP
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ∂ YES X NO

DESCRIBE CONTROL SYSTEM:

A bin vent filter collects dust from from fines loading.

POLLUTANT(S) COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):				
CAPTURE EFFICIENCY:	%	%	%	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See calculations in Appendix B			

PRESSURE DROP (IN. H_20): MIN: MAX: 6 (nominal)	GAUGE? ∂ YES ∂ NO	WARNING ALARM? ∂ YES ∂ NO	
BULK PARTICLE DENSITY (LB/FT^3):		INLET TEMPERATURE (°F): Slightly above ambient	
POLLUTANT LOADING RATE: 0.003 ∂ LB/HR ∂ GR/FT^3		OUTLET TEMPERATURE (°F): Slightly above ambient	
INLET AIR FLOW RATE (ACFM): 3,600		FILTER MAX OPERATING TEMP. (°F): N/A	
NO. OF COMPARTMENTS: 1	NO. OF BAGS PER COMPARTMENT: 65	LENGTH OF BAG (IN.): 96"	
DIAMETER OF BAG (IN.):	DRAFT: ∂ INDUCED/NEG. ∂ FORCED/POS	FILTER SURFACE AREA (FT^2): 780	
AIR TO CLOTH RATIO: 4.62	FILTER MATERIAL: Polyester or equivalent	∂ WOVEN ∂ FELTED	

DESCRIBE CLEANING PROCEDURES:

∂ AIR PULSE ∂ SONIC
∂ REVERSE FLOW ∂ SIMPLE BAG COLLAPSE
∂ MECHANICAL/SHAKER ∂ RING BAG COLLAPSE
∂ OTHER Cleaning procedure dependent on final design

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1	Unknown	
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles

METHOD FOR DETERMINING WHEN TO CLEAN:

∂ AUTOMATIC ∂ TIMED ∂ MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

∂ ALARM ∂ INTERNAL INSPECTION ∂ VISIBLE EMISSION ∂ OTHER

SPECIAL CONDITIONS: None

∂ MOISTURE BLINDING ∂ CHEMICAL RESISTIVITY ∂ OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations or common industry practices

ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S).

RECD AIR RECORDS MGMT OCT - 4 13

Attach Additional Sheets As Necessary

[1]Final equipment selection has not yet occurred but will be similar in design to specifications shown.

FORM D1

FACILITY-WIDE EMISSIONS SUMMARY

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — D1

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

AIR POLLUTANT EMITTED	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr
PARTICULATE MATTER (PM)	See attached calculations		
PARTICULATE MATTER < 10 MICRONS (PM_{10})			
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)			
SULFUR DIOXIDE (SO2)			
NITROGEN OXIDES (NOx)			
CARBON MONOXIDE (CO)			
VOLATILE ORGANIC COMPOUNDS (VOC)			
LEAD			
OTHER			

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

HAZARDOUS AIR POLLUTANT EMITTED	CAS NO.	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr
		N/A - HAP emissions are not impacted by this application		

TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

INDICATE REQUESTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS. EMISSIONS ABOVE THE TOXIC PERMIT EMISSION RATE (TPER) IN 15A NCAC 2Q .0711 MAY REQUIRE AIR DISPERSION MODELING. USE NETTING FORM D2 IF NECESSARY.

TOXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Modeling Required ? Yes	No

COMMENTS:

RECD AIR RECORDS MGMT OCT -4 '13

Attach Additional Sheets As Necessary

TABLE 1
FACILITY-WIDE CRITERIA POLLUTANT SUMMARY
ENVIVA PELLETS NORTHAMPTON, LLC

Source Description	Unit ID	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)	CO_{2e} (tpy)
Dryer System	ES-DRYER	193.09	124.74	27.77	27.77	27.77	19.05	183.05	60.82
Emergency Generator	ES-EG	0.50	0.58	0.03	0.03	0.03	0.00	0.00	93.04
Fire Water Pump	ES-FWP	0.43	0.49	0.02	0.02	0.02	0.00	0.00	79.75
Hammermills/ Nuisance Dust System	ES-HM-1 thru 7/ ES-NDS	-	-	13.52	13.52	13.52	-	-	-
Pellet Mill Feed Silo	ES-PMFS	-	-	0.28	0.28	0.28	-	-	-
Pellet Mill Fines Bin	ES-PFB	-	-	0.41	0.41	0.41	-	-	-
Pellet Coolers	ES-CLR1 thru -6	-	-	38.52	35.05	21.19	-	-	-
Log Debarking/Chipping	ES-CHIP-1	-	-	-	-	-	-	1.44	-
Rechipping	ES-RCHP-1, -2	-	-	-	-	-	-	1.44	-
Finished Product Handling/ Pellet Loadout Bins/ Pellet Loadout Areas	ES-FPH/ ES-PL1 & 2/ ES-PB-1 thru 12	-	-	4.00	3.64	2.20	-	-	-
Diesel Storage Tanks	TK1 & TK2	-	-	-	-	-	-	3.79E-03	-
Total Project Emission Increases		**194.02**	**125.80**	**84.54**	**80.71**	**65.41**	**19.05**	**185.94**	**233.62**
PSD Major Source Threshold		**250**	**250**	**250**	**250**	**250**	**250**	**250**	**100,000**
PSD Review Required?		**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

TABLE 2
BAGFILTER AND CYCLONE EMISSIONS
ENVIVA PELLETS NORTHAMPTON, LLC

Emission Unit	Emission Source ID	Filter. Vent -or- Cyclone ID	Flowrate[1] (cfm)	Pollutant Loading[2] (gr/cf)	Annual Operation (hours)	% PM that is		Potential Emissions					
								PM		PM_{10}[3]		$PM_{2.5}$[3]	
						PM_{10}	$PM_{2.5}$	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Hammermills Bagfilter 1	ES-HM-1 through 3	CD-HM-BF1	45,000	0.003	8,760	100%	100%	1.16	5.07	1.16	5.07	1.16	5.07
Hammermills Bagfilter 2	ES-HM-4 through 6	CD-HM-BF2	45,000	0.003	8,760	100%	100%	1.16	5.07	1.16	5.07	1.16	5.07
Hammermills Bagfilter 3	ES-HM-7; ES-NDS	CD-HM-BF3	30,000	0.003	8,760	100%	100%	0.77	3.38	0.77	3.38	0.77	3.38
Pellet Mill Feed Silo Bin Vent Filter	ES-PMFS	CD-PMFS-BV	2,500	0.003	8,760	100%	100%	0.06	0.28	0.06	0.28	0.06	0.28
Pellet Mill Fines Bin Bin Vent Filter	ES-PFB	CD-PFB-BV	3,600	0.003	8,760	100%	100%	0.09	0.41	0.09	0.41	0.09	0.41
Pellet Coolers Cyclone 1	ES-CLR-1	CD-CLR-1	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 2	ES-CLR-2	CD-CLR-2	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 3	ES-CLR-3	CD-CLR-3	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 4	ES-CLR-4	CD-CLR-4	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 5	ES-CLR-5	CD-CLR-5	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 6	ES-CLR-6	CD-CLR-6	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Finished Product Handling Bagfilter	ES-FPH, ES-PL1 & 2, ES-PB-1 thru 12	CD-FPH-BF	35,500	0.003	8,760	91%	0.55	0.91	4.00	0.83	3.64	0.50	2.20
							TOTAL	**12.95**	**56.72**	**12.08**	**52.89**	**8.58**	**37.59**

Note:

[1] Filter, Vent, and Cyclone inlet flow rate (cfm) provided by design engineering firm (Mid-South Engineering Co.). The exit flowrate was conservatively assumed to be the same as the inlet flowrate.

[2] Pollutant Loading (gr/cf) provided by Aircon.

[3] Pellet cooler cyclone speciation based on AP-42 factors for wet wood combustion (Section 1.6) controlled by a mechanical separator. Since the particle size of particle size of particulate matter from a pellet cooler is anticipated to be larger than flyash, this factor is believed to be a conservative indicator of speciation.

FORM E2

EMISSION SOURCE APPLICABLE REGULATION LISTING

REVISED 12/01/01

Division of Air Quality - Application for Air Permit to Construct/Operate

E2

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	OPERATING SCENARIO INDICATE PRIMARY (P) OR ALTERNATIVE (A)	POLLUTANT	APPLICABLE REGULATION
ES-PFB	*Pellet Fines Silo*	*N/A*	*PM*	*2D .0515, E=4.10 * $P^{.67}$*
ES-PFB	*Pellet Fines Silo*	*N/A*	*Opacity*	*2D .0521, Opacity < 20%*

Attach Additional Sheets As Necessary

Kelvington, Jenny

From: Joe Harrell [joe.harrell@envivabiomass.com]
Sent: Wednesday, September 04, 2013 1:13 PM
To: Kelvington, Jenny
Subject: RE: ENVIVA Northampton Pellet Mill Minor Permit Modification and Permit Review
Attachments: B6-Fines Bin.xlsx; B-Fines Bin.xlsx

Jenny,
Attached are the B forms.

Additional information:

1. Process rate is 6 tons/hr
2. Control efficiency is 99.9% or 0.003 gr/cf @ approx. 4,500 acfm

I will package everything(Completed Application with B forms and $889 check) up today and send to Don on Thursday for a Friday delivery. If you need anything else please feel free to reply.

Thanks,
Joe

From: Kelvington, Jenny [mailto:jenny.kelvington@ncdenr.gov]
Sent: Tuesday, September 03, 2013 2:39 PM
To: Evans, John; Joe Harrell; Wike, Will; Mceachern, Charles
Cc: Joe Sullivan
Subject: ENVIVA Northampton Pellet Mill Minor Permit Modification and Permit Review

All,

Attached are the application, draft permit, and review for a pellet fines bin and associated bin vent filter replacement at Enviva's Northampton Cty pellet mill. NC DAQ previously told Enviva they could use the new 502b10 notification process to make this change and they scheduled the replacement to begin 9/11/13. However, because Enviva has not yet received their initial TV permit, we determined last Thursday that they are not eligible for 502b10 and must first modify their permit to make this change. Enviva submitted their application via email today and plan to submit the complete application with the application fee on Thursday. I hope to get the permit issued on Friday. If you have any comments or concerns, please let me know by Thursday if possible.

Joe,

In addition to the application fee, you need to submit forms B and B6 for the application to be considered complete. Also, please provide the process rate for the pellet fines bin and the pre-controlled emissions rate or control efficiency so that I can complete the permit review write-up.

Thanks,

Jenny Kelvington, Environmental Engineer III
NC DENR, Division of Air Quality
Permit Section
1641 Mail Service Center, Raleigh, NC 27699-1641
Phone/Fax: 919-707-8481
www.ncair.org
jenny.kelvington@ncdenr.gov

Green Square Office Complex at 217 West Jones Street, Raleigh, NC.

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — B6

EMISSION SOURCE DESCRIPTION: Pellet Fines Bin	EMISSION SOURCE ID NO: ES-PFB
	CONTROL DEVICE ID NO(S): CD-PFB-BV
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): EP-12

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet matrial from cooler aspiration pollution control system, hammermill pollution control system, finished product handling bag filter, and screening operation is collected in the bag house then rotary fed into the pellet fines bin then discharged to the pellet mill feed silo infeed mechanical conveyor or discharged to the emergency dump.

MATERIAL STORED: Fine Pellet Material				DENSITY OF MATERIAL (LB/FT3): 40		
CAPACITY	CUBIC FEET: 2200			TONS:		
DIMENSIONS (FEET)	HEIGHT: 20.4	DIAMETER: 12	*(OR)*	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL: 52560			MAXIMUM DESIGN CAPACITY:		

PNEUMATICALLY FILLED	MECHANICALLY FILLED		FILLED FROM
☒ BLOWER	☐ SCREW CONVEYOR	MOTOR HP:	☐ RAILCAR
☐ COMPRESSOR	☐ BELT CONVEYOR		☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR		☐ STORAGE PILE
	☐ OTHER:		☒ OTHER fines collection equipment

NO. FILL TUBES: 2
MAXIMUM ACFM: 3,600

MATERIAL IS FILLED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?
Mechanically through rotary feeder into screw convevory to pellet mill feed silo infeed mechanical conveyor or emergency dump.

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): 6 tph

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): 6 tph

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — **NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate** — **B**

EMISSION SOURCE DESCRIPTION: Pellet Fines Biin	EMISSION SOURCE ID NO ES-PFB
	CONTROL DEVICE ID NO(S): CD-PFB-BV
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-12

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet matrial from cooler aspiration pollution control system, hammermill pollution control system, finished product handling bag filter, and screening operation is collected in the bag house then rotary fed into the pellet fines bin then discharged to the pellet mill feed silo infeed mechanical conveyor or discharged to the emergency dump.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

- ☐ Coal,wood,oil, gas, other burner (Form B1)
- ☐ Int.combustion engine/generator (Form B2)
- ☐ Liquid storage tanks (Form B3)
- ☐ Woodworking (Form B4)
- ☐ Coating/finishing/printing (Form B5)
- ■ Storage silos/bins (Form B6)
- ☐ Manufact. of chemicals/coatings/inks (Form B7)
- ☐ Incineration (Form B8)
- ☐ Other (Form B9)

START CONSTRUCTION DATE: 9/11/2013	OPERATION DATE: 9/12/2013	DATE MANUFACTURED: 2013
MANUFACTURER / MODEL NO.: Aircon	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION: 8760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	See attached calculations						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	N/A						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	N/A			

RECD AIR RECORDS MGMT OCT - 7 13

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

CENTRAL OFFICE PERMIT TRACKING SLIP

Facility Name: Enviva Pellets Northampton, LLC **Facility/Application ID:** 6600167 13C

County/Regional Office: Northampton / Raleigh Regional Office **Engineer:** Kelvington

Send Regional Office Copy of Application: ☐ Yes ☐ No

PART I - ACCEPTANCE CHECKLIST

Acknowledgement Letter: ☐ Already Sent ☐ Please Send

Initial Event(s): ☐ TV-Ack./Complete ☐ State Ack. Letter due

☐ TV-Ack./Incomplete add info ☐ State App. not accepted – add info request

Fee Information:

Amount Due:
- ☐ PSD or NSR/NAA $13,837
- ☐ PSD and NSR/NAA $26,913
- ☐ ~~TV~~ Greenfield $ 9,140
- ☑ TV $ 889
- ☐ Ownership Change $60, $50, $25
- ☐ Renewal/Name Change – NA

Initial Amount Received: $0

Additional Amount Due: $889 (received 9/6/13)

Acceptance Check List:

	Yes	No	N/A
Appropriate Number of Apps Submitted (# Received_____, #Needed_____)	☑	☐	☐
Application Fee Submitted	☑	☐	☐
Zoning Addressed	☐	☐	☑
Authorized Signature	☑	☐	☐
PE Seal	☐	☐	☑
Request for Confidentiality	☐	☑	
Application Contains Toxics Modification(s)	☐	☑	☑

PART II - IBEAM UPDATES

Application Type:
- ☐ Additional Permit
- ☐ Administrative Amendment
- ☐ Appeal
- ☐ Greenfield Facility
- ☐ Last GACT/Toxics
- ☐ Last MACT/Toxics
- ☑ Modification
- ☐ Name Change
- ☐ New Permit
- ☐ Ownership Change
- ☐ Renewal
- ☐ Renewal w/Modification

Permit Application Schedule:
- ☐ Appeal
- ☐ Director Administrative Amendment
- ☐ Expedited State
- ☒ State
- ☐ PSD

- ☑ ~~TV – State Only~~
- ☐ TV – 502(b)(10)
- ☐ TV – Expedited
- ☐ TV – Minor
- ☐ TV – Greenfield
- ☐ TV – Renewal
- ☐ TV – Reopen for Cause
- ☐ TV – Significant (2Q .0501(c)(2))
- ☐ TV – Administrative
- ☐ TV – Significant
- ☐ TV – Ownership Change
- ☐ TV – 1st Time

PART III - COMPLETENESS CHECKLIST

- ☐ Required Application Forms Submitted and Completed
- ☐ Supporting Materials & Calculations Received
- ☐ PE Seal (If 15A NCAC 2Q .0112)
- ☐ Modeling Protocol Acceptance
- ☐ Confirmation of Pollutants Modeled
- ☐ E5 Form (Significant Modifications)

PART IV - GENERAL COMMENTS

PART V - SUPERVISOR REVIEW CHECKLIST

TVEE Updated (by Engineer): JK 9/9/13 TVEE Verified: 9/9/13 Supervisor: _____ Chief: _____

PART VI - CLOSEOUT INFORMATION

Regulations Applicable to This Application (indicate all new regulations):
- ☐ NESHAPS/MACT
- ☐ NESHAPS/GACT
- ☐ NSPS
- ☐ 2D .1100
- ☐ 2Q .0711
- ☐ 2Q .0705 Last MACT/Toxics
- ☐ PSD/NSR
- ☐ PSD/NSR Avoidance
- ☐ Existing Source RACT/LAER
- ☐ New Source RACT/LAER
- ☐ RACT Avoidance
- ☐ RACT/LAER Added Fee* *(Notify Connie Horne)*
- ☐ Toxics/Combustion Sources After 7/10/10
- ☐ SIP Regulations (list all new):

Permit Class Information

	Before	After
Small	☐	☐
Syn. Minor	☐	☐
Title V	☑	☑
Prof. Small	☐	☐
General	☐	☐

HAP Major Status (after) ☐ Major ☑ Minor ☐ Not Determined

PSD or NSR Status (after) ☐ Major ☑ Minor

Miscellaneous ☐ Multiple Permits at Facility ☐ Multi-Site Permit ☐ Recycled Oil Condition

Permit Dates Issue: 9-9-13 Effective: 9-9-13 Expiration: 2-28-17

IBEAM Closed Out By: KH Permit Number: 10203 Revision Number: R02

☐ Public Notice Published NA ☐ Public Notice Affidavit (if not noticed via DAQ Website) NA

Document Manager Updated by Engineer: _____ Date: _____

RECD AIRS RECORDS MGMT 13

Tracking Slip v41 – cjh 6/17/13

9/9 Scanned to KH By GS

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Air Quality
Sheila C. Holman
Director

Pat McCrory
Governor

John E. Skvarla, III
Secretary

September 27, 2013

Mr. Pete Najera
VP Operations
Enviva Pellets Northampton, LLC
7200 Wisconsin Avenue
Suite 1100
Bethesda, MD 20814

SUBJECT: Enviva Pellets Northampton, LLC
Gaston, Northampton County, North Carolina
Facility ID: 6600167, Permit No. 10203R02
Protocol for Emissions Testing of Wood-fired Dryer ES-DRYER
Submitted by Air Control Techniques (ACT)
Proposed Test Date: October 2, 2013
Tracking No. 2013-166st

Dear Mr. Najera:

The North Carolina Division of Air Quality (DAQ) has reviewed the subject emissions test protocol submittal form (PSF). The testing is proposed for total (filterable and condensible) particulate matter (PM), volatile organic compounds (VOC), and carbon monoxide (CO). The proposed testing is acceptable only as discussed below.

The source to be tested is Emission Source ID ES-DRYER. Emissions from ES-DRYER are controlled by simple cyclone ID No. CD-DC in series with wet electrostatic precipitator ID No. CD-WESP. 15A NCAC 2D .0515 *Particulates From Miscellaneous Industrial Processes* and 15A NCAC 2Q .0317 *Avoidance Conditions* for 15A NCAC 2D .0530 *Prevention of Significant Deterioration* (PSD) fsapply. 15A NCAC 2D .0515 limits total PM based on process rate. VOC and CO emissions are each limited to less than 250 tons per consecutive 12-month period in accordance with 15A NCAC 2Q .0317.

Permit Condition 2.1.A.4.b states "the Permittee shall establish emission factors for calculating total VOC and CO used in compliance calculations under Section 2.1.A.4.c below by testing the dryer." The purpose of testing is to demonstrate compliance with the applicable emissions limits and establish VOC and CO emission factors expressed as pounds per oven dried ton (lb/ODT).

ACT has proposed EPA Methods 1, 2, 3, 4 and 5/202 for total PM, EPA Method 25A and 18 to measure the VOC and methane/ethane emissions, and EPA Method 10 for CO. Enviva and ACT have agreed to include EPA Method 7E for nitrogen oxides (NOx) in response to a request from the DAQ Air Permitting Section on September 26, 2013. The pollutants and methods proposed for the emissions testing at the ES-DRYER are tabulated on the following page.

The PSF states "VOC emissions will be calculated on a pounds per carbon basis after subtracting methane and ethane from the THC [total hydrocarbons] concentration data" and "methane and ethane will be used to correct the total hydrocarbon data to VOCs. Methane and ethane are not classified as VOC". The

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Internet: www.ncair.org

methane/ethane correction to the EPA Method 25A data is acceptable. However, VOC emission rates should be reported on the basis of the total weight of the VOC, not as VOC as carbon. Therefore, the VOC emissions shall be reported as VOC as propane or other representative VOC molecular weight.

Pollutant	Proposed Method	Comments
Total PM	EPA Method 5/202	
VOC	EPA Method 25A	VOC as carbon is not acceptable for emission rate.
Methane, Ethane	EPA Method 18	Methane and ethane to be subtracted from total VOC
CO	EPA Method 10	
NOx	EPA Method 7E	Per DAQ Air Permitting Section request.

Permit Conditions 2.1.A.4.d stipulates the "Permittee shall not process more than 10% softwood on an annual basis." The protocol did not include a proposed wood feed rate or hardwood/softwood ratio for testing. Please note that the test results will only be considered representative of emissions at similar hardwood/softwood ratio operation and process rates. DAQ does not allow the emissions test results to be extrapolated or ratioed to represent emissions at different ratios or process rates. Enviva should consider these factors when determining a wood feed rate and hardwood/softwood ratio for testing.

Permit Conditions 2.1.A.4.e stipulates "the product moisture content shall not be less than 13% from the dryer outlet. The Permittee shall monitor and record average moisture content on a 30 day rolling average." The PSF indicates that the wet ESP primary voltages and currents, the cyclone pressure drop and the wood feed rate to the dryer would be monitored and recorded during testing. Since the permit requires monitoring of product moisture content, that parameter should also be monitored and reported.

Enviva shall monitor and report with the final test results the following parameters in addition to the proposed parameters discussed above: the ratio of hardwood to softwood during testing, the hardwood/softwood ratio during maximum normal operation, and the maximum normal wood feed rate to the dryer. The hardwood/softwood ratios are required to evaluate representative operation. The wood feed rates are required in order to calculate the VOC and CO emissions factors in lb/ODT.

All testing should be performed in strict accordance with the test methods including the verification of absence of cyclonic flow in EPA Method 1. Approval of this sampling protocol does not exempt the tester from the minimum requirements nor exempt Enviva from any other regulatory requirement. Any deviations from the proposed test methods remain subject to approval by DAQ. If you have any questions, please contact me at shannon.vogel@ncdenr.gov or (919) 707-8416.

Sincerely,

Shannon M. Vogel

Shannon M. Vogel

cc: Patrick Butler, Raleigh Regional Office
Joe Harrell, Enviva Pellets
Tom E. Holder, Air Control Techniques
Jenny Kelvington, Air Permitting Section
IBEAM Documents – 6600167

Central Files, Northampton Co.

C7

NCDENR

North Carolina Department of Environment and Natural Resources

Division of Air Quality

Pat McCrory
Governor

Sheila C. Holman
Director

John E. Skvarla, III
Secretary

August 28, 2013

Mr. Pete Najera
Vice President of Operations
Enviva Pellets, LLC
7200 Wisconsin Avenue, Suite 1100
Bethesda, Maryland 20814

Subject: Air Quality Permit No. 10203R01
Facility ID: 6600167
Enviva Pellets, Northampton, LLC
Garysburg, Northampton County, North Carolina

Dear Mr. Najera:

On August 28, 2013, the NC Division of Air Quality received notification of an upcoming 502(b)(10) change at your facility located in Garysburg, North Carolina. The change involves the replacement of pellet fines bin (ID No. ES-PFB) and associated bin vent filter (ID No. CD-PFB-BV; 325 square feet of filter area) with the same size pellet fines bin and a larger associated bin vent as specified below:

Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-PFB1	Pellet fines bin	CD-PFB-BV1	One bin vent filter (780 square feet of filter area)

The replacement bin and filter, which will be located prior to the pellet feed mill silo (ID No. ES-PMFS), are subject to the particulate emissions equation limit in 15A NCAC 2D .0515 and the 20 percent opacity limit in 15A NCAC 2D .0521. Proposed monitoring to demonstrate compliance with these limits is monthly inspections and visual emissions observations. Additionally, monitoring shall include an annual (for each 12 month period following the initial inspection) internal inspection of the new bin vent filter's structural integrity.

You may replace the bin and filter on or after September 5, 2013, provided you have given EPA a seven day advanced notice with the information specified in 15A NCAC 2Q .0523(a)(2) and have attached a copy of the notification to the back of your permit. The permit shield will not extend to pellet fines bin and bin vent filter until they are incorporated into the permit when the next significant modification is processed or upon permit renewal. Until that time, you must certify compliance with the existing permit terms for this 502(b)(10) change on the annual compliance certification.

Permitting Section
1641 Mail Service Center, Raleigh, North Carolina 27699-1641
217 West Jones Street, Raleigh, North Carolina 27603
Phone: 919-707-8405 / Fax: 919-715-0717
Internet: www.ncair.org

Should you have any questions concerning this matter, please contact me at (919) 707-8481 or jenny.kelvington@ncdenr.gov.

Sincerely yours,

Jennifer Kelvington, P.E.
Environmental Engineer III

Enclosure

c: Patrick Butler, Supervisor, Raleigh Regional Office
✓ Central Files

NCDENR
North Carolina Department of Environment and Natural Resc
Division of Air Quality
Sheila C. Holman
Director

Pat McCrory
Governor

August 30, 2013

Mr. Pete Najera
Vice President of Operations
Enviva Pellets, LLC
7200 Wisconsin Avenue, Suite 1100
Bethesda, Maryland 20814

Subject: Air Quality Permit No. 10203R01
Facility ID: 6600167
Enviva Pellets, Northampton, LLC
Garysburg, Northampton County, North Carolina

Dear Mr. Najera:

On August 28, 2013, I sent you a letter regarding receipt of the notification of an upcom the Enviva Garysburg, North Carolina facility. The change involves the replacement of No. ES-PFB) and associated bin vent filter (ID No. CD-PFB-BV; 325 square feet of filte size pellet fines bin and a larger associated bin vent as specified below:

Source ID No.	Emission Source Description	Control Device ID No.	Control Devic
ES-PFB1	Pellet fines bin	CD-PFB-BV1	One bin vent fi feet of filter ar

After mailing the letter, it was determined that NC General Statutes do not allow Title V not yet received their initial Title V permit to make 502b10 changes and minor modifica revision. Mr. Joe Harrell of your staff has been informed that an air quality permit is req pellet fines bin and associated filter. After the initial Title V permit is issued, Enviva wi the notification process for qualifying 502b10 changes. Should you have any questions matter, please contact me at (919) 707-8481.

Sincerely yours,

Jennifer Kelvington, R.E.
Environmental Engineer III

c: Patrick Butler, Supervisor, Raleigh Regional Office
Central Files

Permitting Section
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Internet: www.ncair.org

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North Carolina Department of Environment and Natural Resources
Division of Air Quality

Pat McCrory
Governor

Sheila C. Holman
Director

John E. Skvarla, III
Secretary

February 26, 2013

Mr. Norb Hintz
Vice President, Engineering
Enviva Pellets, LLC
7200 Wisconsin Avenue, Suite 1100
Bethesda, Maryland 20814

Dear Mr. Hintz:

SUBJECT: Air Quality Permit No. 10203R01
Facility ID: 6600167
Enviva Pellets, Northampton, LLC
Gaston, North Carolina
Northampton County
Fee Class: Title V

In accordance with your completed Air Quality Permit Application for a modification of your permit received December 19, 2012, we are forwarding herewith Air Quality Permit No. 10203R01 to Enviva Pellets, LLC, Lebanon Church Road, Gaston, North Carolina authorizing the construction and operation, of the emission source(s) and associated air pollution control device(s) specified herein. Additionally, any emissions activities determined from your Air Quality Permit Application as being insignificant per 15A North Carolina Administrative Code 2Q .0503(8) have been listed for informational purposes as an "ATTACHMENT." Please note the requirements for the annual compliance certification are contained in General Condition P in Section 3. The current owner is responsible for submitting a compliance certification for the entire year regardless of who owned the facility during the year.

The Permittee shall file a Title V Air Quality Permit Application pursuant to 15A NCAC 02Q .0504 for those air emission sources (ID Nos. ES-DRYER, ES-GN, ES-FWP, ES-HM-1 through ES-HM-7, ES-NDS, ES-PFB, ES-FPH, ES-PB-1 through 12, ES-PL1, ES-PL2, ES-PPS, and ES-CLR-1 through ES-CLR-6) on or before 12 months after commencing operation of the first unit.

As the designated responsible official it is your responsibility to review, understand, and abide by all of the terms and conditions of the attached permit. It is also your responsibility to ensure that any person who operates any emission source and associated air pollution control device subject to any term or condition of the attached permit reviews, understands, and abides by the condition(s) of the attached permit that are applicable to that particular emission source.

Permitting Section
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If any parts, requirements, or limitations contained in this Air Quality Permit are unacceptable to you, you have the right to request a formal adjudicatory hearing within 30 days following receipt of this permit, identifying the specific issues to be contested. This hearing request must be in the form of a written petition, conforming to NCGS (North Carolina General Statutes) 150B-23, and filed with both the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, North Carolina 27699-6714 and the Division of Air Quality, Permitting Section, 1641 Mail Service Center, Raleigh, North Carolina 27699-1641. The form for requesting a formal adjudicatory hearing may be obtained upon request from the Office of Administrative Hearings. Please note that this permit will be stayed in its entirety upon receipt of the request for a hearing Unless a request for a hearing is made pursuant to NCGS 150B-23, this Air Quality Permit shall be final and binding 30 days after issuance.

You may request modification of your Air Quality Permit through informal means pursuant to NCGS 150B-22. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which the modification is sought. Please note that this Air Quality Permit will become final and binding regardless of a request for informal modification unless a request for a hearing is also made under NCGS 150B-23.

The construction of new air pollution emission source(s) and associated air pollution control device(s), or modifications to the emission source(s) and air pollution control device(s) described in this permit must be covered under an Air Quality Permit issued by the Division of Air Quality prior to construction unless the Permittee has fulfilled the requirements of GS 143-215-108A(b) and received written approval from the Director of the Division of Air Quality to commence construction. Failure to receive an Air Quality Permit or written approval prior to commencing construction is a violation of GS 143-215.108A and may subject the Permittee to civil or criminal penalties as described in GS 143-215.114A and 143-215.114B.

This Air Quality Permit shall be effective from February 26, 2013 until February 28, 2017, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein. Should you have any questions concerning this matter, please contact Kevin Godwin at (919) 707-8480.

Sincerely yours,

Donald R. van der Vaart, Ph.D., P.E., J.D.
Chief

Enclosure

c: Patrick Butler, Supervisor, Raleigh Regional Office
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State of North Carolina,
Department of Environment,
and Natural Resources

Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
10203R01	10203R00	February 26, 2013	February 28, 2017

Until such time as this permit expires or is modified or revoked, the below named Permittee is permitted to construct and operate the emission source(s) and associated air pollution control device(s) specified herein, in accordance with the terms, conditions, and limitations within this permit. This permit is issued under the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and Title 15A North Carolina Administrative Codes (15A NCAC), Subchapters 2D and 2Q, and other applicable Laws.

Pursuant to Title 15A NCAC, Subchapter 2Q, the Permittee shall not construct, operate, or modify any emission source(s) or air pollution control device(s) without having first submitted a complete Air Quality Permit Application to the permitting authority and received an Air Quality Permit, except as provided in this permit.

Permittee:	**Enviva Pellets, LLC**
Facility ID:	**4600107**
Facility Site Location:	**874 Lebanon Church Road**
City, County, State, Zip:	**Garysburg, Northampton County, North Carolina, 27831**
Mailing Address:	**7200 Wisconsin Avenue**
City, State, Zip:	**Bethesda, Maryland, 20814**
Application Number:	**6600167.13B**
Complete Application Date:	**December 19, 2012**
Primary SIC Code:	**2499**
Division of Air Quality, Regional Office Address:	**Raleigh Regional Office** **3800 Barrett Drive** **Raleigh, North Carolina, 27609**

ATTACHMENT to Permit No. 10203R01

Insignificant Activities under 15A NCAC 2Q .0503(8)

Emission Source ID No.	Emission Source Description
IES-DWH	Dried wood handling
IES-PP	Pellet press system
IES-FPH	Finished product handling
IS-TK1 and IS-TK2	Two diesel storage tanks (2,500 gallon and 500 gallon capacity)
IES-EPWC	Electric powered green wood chipper
IES-RCHP-1 and 2	Two electric powered wood re-chippers
IES-GWHS	Green wood handling and storage
IES-GWFB	Green wood fuel storage bin
IES-GN and IES-FWP **NSPS** **MACT**	One emergency use generator (350 brake horsepower) and one fire water pump (300 brake horsepower)

1. Because an activity is insignificant does not mean that the activity is exempted from an applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.
2. When applicable, emissions from stationary source activities identified above shall be included in determining compliance with the permit requirements for toxic air pollutants under 15A NCAC 2D .1100 "Control of Toxic Air Pollutants" or 2Q .0711 "Emission Rates Requiring a Permit".
3. For additional information regarding the applicability of GACT see the DAQ page titled "The Regulatory Guide for Insignificant Activities/Permits Exempt Activities". The link to this site is as follows: http://daq.state.nc.us/permits/insig/

Table Of Contents

SECTION 1- PERMITTED EMISSION SOURCE (S) AND ASSOCIATED AIR POLLUTION CONTROL DEVICE (S) AND APPURTENANCES

The following table contains a summary of all permitted emission sources and associated air pollution control devices and appurtenances:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-DRYER	Direct heat, wood-fired dryer (174 million Btu per hour heat input)	CD-DC and CD-WESP	One simple cyclone (149 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)
ES-HM-1 through 7	Seven hammermills	CD-HM-CYC-1 through CYC-7, and CD-HM-BF1, BF2, and BF3	Seven simple cyclones (120 inches in diameter each) in series with three fabric filters (6,250 square feet of filter area each)
ES-NDS	Nuisance dust system	CD-HM-BF-3	One fabric filter (6,250 square feet of filter area)
ES-PMFS	Pellet feed mill silo	CD-PMFS-BV	One bin vent filter (377 square feet of filter area)
ES-PFB	Pellet fines bin	CD-PFB-BV	One bin vent filter (325 square feet of filter area)
ES-CLR1, through CLR-6	Pellet coolers	CD-CLR-1 through CLR-6	Six simple cyclones (54 inches in diameter each)
ES-FPH ES-PB-1 through PB-12 ES-PL-1 and 2	Finished product handling Twelve (12) pellet load-out bins Pellet mill load-out 1 and 2	CD-FPH-BF	One fabric filter (4,842 square feet of filter area)

SECTION 2 - SPECIFIC LIMITATIONS AND CONDITIONS

2.1- Emission Source(s) and Control Devices(s) Specific Limitations and Conditions

The emission source(s) and associated air pollution control device(s) and appurtenances listed below are subject to the following specific terms, conditions, and limitations, including the testing, monitoring, recordkeeping, and reporting requirements as specified herein:

A. Wood-fired dryer system (ID No. ES-DRYER), Hammermills (ID Nos. ES-HM-1 through 7), Nuisance dust system (ID No. ES-NDS), Pellet mill feed silo (ID No. ES-PMFS), Pellet fines bin (ID No. ES-PFB), Pellet coolers (ID Nos. ES-CLR1 through 6), Finished product handling (ID No. ES-FPH), Pellet load-out bins (ID Nos. ES-PB-1 through 12), and Pellet mill load-out (ID Nos. ES-PL-1 and 2)

The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate matter	$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph $E = 55 \times P^{0.11} - 40$ for process weigh rate ≥ 30 tph Where, E = allowable emission rate (lb/hr) P = process weight rate (tph)	15A NCAC 02D .0515
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 02D .0516
Visible emissions	20 percent opacity when averaged over a six minute period	15A NCAC 02D .0521
Toxic air pollutants	See Section 2.2 A.	15A NCAC 02D .1100
Volatile organic compounds	Less than 250 tons per consecutive 12 month period, See Section 2.2 B.	15A NCAC 02Q .0317 for avoidance of 15A NCAC 02D .0530

1. 15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

a. Emissions of particulate matter from this source shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 02D .0515(a)]

$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph
$E = 55 \times P^{0.11} - 40$ for process weight rate ≥ 30 tph

Where E = allowable emission rate in pounds per hour
P = process weight in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

Testing

b. Under the provisions of NCGS 143-215.108, the Permittee shall test the wet electrostatic precipitator **(ID No. CD-WESP)** for total suspended particulate (TSP) control efficiency in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of operation unless an alternate date is approved by the DAQ.

Monitoring/Recordkeeping

c. Particulate matter emissions from the wood dryer system (**ID No. ES-DRYER**) shall be controlled by a simple cyclone (**ID No. CD-DC**) in series with a wet electrostatic precipitator (**ID No. CD-WESP**).

Particulate matter emissions from the seven hammermills (**ID Nos. ES-HM-1 through 7**) shall be controlled by seven simple cyclones (**ID Nos. CD-HM-CYC-1 through 7**) in series with three fabric filters (**ID Nos. CD-HM-BF1, BF2, and BF3**).

Particulate matter emissions from the nuisance dust system (**ID No. ES-NDS**) shall be controlled by one fabric filter (**ID No. CD-HM-BF3**).

Particulate matter emissions from the pellet mill feed silo (**ID No. ES-PMFS**) shall be controlled by a bin vent filter (**ID No. CD-PMFS-BV**).

Particulate matter emissions from the pellet mill fines bin (**ID No. ES-PFB**) shall be controlled by a bin vent filter (**ID No. CD-PFB-BV**).

Particulate matter emissions from the pellet coolers (**ID Nos. ES-CLR-1 through 6**) shall be controlled by six simple cyclones (**ID Nos. CD-CLR-C1 through C6**).

Particulate matter emissions from the finished product handling (**ID No. ES-FPH**), pellet load-out bins (**ID Nos. ES-PB-1 through 12**), and pellet mill load-out (**ID No. ES-PL-1 and 2**) shall be controlled by one fabric filter (**ID No. CD-FPH-BF**).

For bagfilters and cyclones:
To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

i. a monthly visual inspection of the system ductwork and material collection unit for leaks.
ii. an annual (for each 12 month period following the initial inspection) internal inspection of the bagfilters' structural integrity.

For WESP:
To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

> The Permittee shall establish the minimum primary voltage and minimum current within the first 30 days following operation of the dryer. To assure compliance and effective operation of the wet electrostatic precipitator, the Permittee shall monitor and record the primary voltage and current through the precipitator daily. The daily observation must be made for each day of the calendar year period. The Permittee shall be allowed three (3) days of absent observations per semi-annual period.

d. The results of inspection and maintenance shall be maintained in a log (written or electronic format)

on-site and made available to an authorized representative upon request. The log shall record the following:

i. the date and time of each recorded action;
ii. the results of each inspection;
iii. the results of any maintenance performed; and
iv. any variance from manufacturer's recommendations, if any, and corrections made.

Reporting

e. The Permittee shall submit the results of any maintenance performed on the WESP, cyclones and bagfilters within 30 days of a written request by the DAQ.

2. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

a. Emissions of sulfur dioxide from this source (**ID No. ES-DRYER**) shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 02D .0516]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601.

Monitoring/Recordkeeping

c. No monitoring/recordkeeping is required for sulfur dioxide emissions from firing wood for these sources.

3. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

a. Visible emissions from these sources shall not be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. [15A NCAC 02D .0521 (d)]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601.

Monitoring

c. To assure compliance, once a month the Permittee shall observe the emission points of this source for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either:

i. take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or
ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2601 (Method 9) for 12 minutes is below the limit given in Section 2.1 A.3. a. above.

Recordkeeping

d. The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:
   i. the date and time of each recorded action;
   ii. 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
   iii. the results of any corrective actions performed.

2.2- Multiple Emission Source(s) Specific Limitations and Conditions

A. Facility-wide sources

STATE-ONLY REQUIREMENT:

1. **TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REQUIREMENT** - Pursuant to 15A NCAC 02D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limit shall not be exceeded:

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dryer system (**ID No. ES-DRYER**)	Acrolein	1.41 lb/hr
	Arsenic & compounds	2.43 lb/year
	Benzene	4,094.25 lb/year
	Benzo(a)pyrene	3.96 lb/year
	Cadmium	0.453 lb/year
	Chlorine	3.29 lb/day
	Formaldehyde	8.61 lb/hr
	Hexachlorodibenzo-p-dioxin	2.43 lb/year
	Hydrogen chloride	0.331 lb/hr
	Phenol	1.72 lb/hr
	Mercury	0.0146 lb/day
	Nickel	0.138 lb/day
	Vinyl chloride	27.43 lb/year

   a. No reporting is required.

STATE-ONLY REQUIREMENT:

2. **TOXIC AIR POLLUTANT EMISSION RATES REQUIRING A PERMIT** – Pursuant to 15A NCAC 02Q .0711, a permit to emit toxic air pollutants is required for any facility whose actual rate of emissions from all sources are greater than any one of the following rates:

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
1,3 Butadiene (106-99-0)	11			
Acetaldehyde (75-07-0)				6.8
Beryllium (7440-41-7)	0.28			
Carbon tetrachloride (56-23-5)	460			
Chlorobenzene (108-90-7)		46		
Chloroform (67-66-3)	290			

Di(2-ethylhexyl)phthalate (DEHP) (117-81-7		0.63		
Ethylene dichloride (1,2-dichloroethane) (107-06-2)	260			
Managanese & cmpds		0.63		
Methyl chloroform (1,1,1-trichloroethane) (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		78		
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Pentachlorophenol (87-86-5)		0.063	0.0064	
Perchloroethylene (tetrachloroethylene) (127-18-4)	13000			
Polychlorinated biphenyls (1336-36-3)	5.6			
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-p-dioxin (1746-01-6)	0.00020			
Trichloroethylene (79-01-6)	4000			
Toluene (108-88-3)		98		14.4
Trichlorofluoromethane (CFC 111) (75-01-4)			140	
Xylene (1330-20-7)		57		16.4

B. 15A NCAC 2Q. 0317: AVOIDANCE CONDITIONS
15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION

1. In order to avoid applicability of this regulation, the pellet dryer (**ID No. ES-DRYER**) shall discharge into the atmosphere less than 250 tons of VOCs and CO each per consecutive 12-month period. [15A NCAC 2D .0530]

Testing

2. Under the provisions of NCGS 143-215.108, the Permittee shall establish emission factors for calculating total VOC and CO used in compliance calculations under requirement 3. below by testing the wood dryer (**ID No. ES-DRYER**) in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of operation unless an alternate date is approved by the DAQ.

Monitoring/Recordkeeping

3. Calculations of VOC and CO emissions per month shall be made at the end of each month. Until stack testing for VOC and CO are conducted, VOC and CO emissions shall be determined by

multiplying the approved VOC and CO emission factor (**0.95 lb/ODT for VOC and 0.81 lb/ODT for CO**) by the plant process rate. Once testing conducted pursuant to Condition 2.2.B.2 has been completed in accordance with an approved NC DAQ testing protocol, the facility shall conduct determinations of VOC and CO emissions using lb/ODT emission factors derived from testing.

4. The Permittee shall not process more than 10% softwood on an annual basis. The hardwood/softwood mix shall be recorded in a monthly log.
5. The product moisture content shall not be less than 13% from the dryer outlet. The Permittee shall monitor and record average moisture content on a 30 day rolling average. Calculations and the total amount of VOC and CO emissions shall be recorded monthly in a log (written or electronic format).

Reporting

6. The Permittee shall submit a semi-annual summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:
   a. The monthly hardwood/softwood mix for the previous 17 months.
   b. The 30 day rolling average product moisture content.
   c. The monthly VOC and CO emissions for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months.

SECTION 3 - GENERAL CONDITIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to:

   Patrick Butler
   Regional Air Quality Supervisor
   North Carolina Division of Air Quality
   Raleigh Regional Office
   3800 Barrett Drive
   Raleigh, NC 27609
   (919) 791-4200

2. PERMIT RENEWAL REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, DAQ.

3. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.

4. ANNUAL EMISSION INVENTORY REQUIREMENTS – The Permittee shall report by June 30 of each year the actual emissions of each air pollutant listed in 15A NCAC 02Q .0207(a) from each emission source within the facility during the previous calendar year. The report shall be in or on such

form as may be established by the Director. The accuracy of the report shall be certified by the responsible official of the facility.

5. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

6. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

7. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:
   a. changes in the information submitted in the application regarding facility emissions;
   b. changes that modify equipment or processes of existing permitted facilities; or
   c. changes in the quantity or quality of materials processed.

   If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

8. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.

9. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.

10. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

11. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

12. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.

13. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such

representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

14. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

15. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.

16. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

17. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. This condition is federally-enforceable only.

Permit issued this the 26th day of February, 2013.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Donald R. van der Vaart, PhD., P.E., J.D., Chief, Air Permits Section
Division of Air Quality
By Authority of the Environmental Management Commission

ATTACHMENT

List of Acronyms

AOS	Alternate Operating Scenario
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CEM	Continuous Emission Monitor
CFR	Code of Federal Regulations
DAQ	Division of Air Quality
DENR	Department of Environment and Natural Resources
EMC	Environmental Management Commission
EPA	Environmental Protection Agency
FR	Federal Register
GACT	Generally Available Control Technology
HAP	Hazardous Air Pollutant
MACT	Maximum Achievable Control Technology
NAA	Non-Attainment Area
NCAC	North Carolina Administrative Code
NCGS	North Carolina General Statutes
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standard
OAH	Office of Administrative Hearings
PM	Particulate Matter
PM_{10}	Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less
POS	Primary Operating Scenario
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
tpy	Tons Per Year
VOC	Volatile Organic Compound

CENTRAL OFFICE PERMIT TRACKING SLIP

Facility Name: Enviva Pellets Northampton Co. **Facility/Application ID:** 6600167.13PB
County/Regional Office: Northampton/RRO **Engineer:** Kevin Godwin

Send Regional Office Copy of Application: ☒ Yes ☐ No

~~need additional copy for~~ EPA

PART I - ACCEPTANCE CHECKLIST

Acknowledgement Letter: ☐ Already Sent ☒ Please Send
Initial Event(s): ☒ TV-Ack./Complete ☐ State Ack. Letter due
☒ TV-Ack./Incomplete add info ☐ State App. not accepted – add info request

Fee Information:

Amount Due: PSD or NSR/NAA $13,488
PSD and NSR/NAA $26,235
TV Greenfield $8,910
TV $867
Ownership Change $62
Renewal/Name Change – NA
Initial Amount Received: 867.00
Additional Amount Due: —

Acceptance Check List:

	Yes	No	NA
Appropriate Number of Apps Submitted (minimum of 2)	☒	☒	☐
Application Fee Submitted	☒	☐	☐
Zoning Addressed	☒	☐	☐
Authorized Signature	☒	☐	☐
PE Seal	☒	☐	☐
Application Contains Toxics Modification(s)	☒	☐	☐

PART II - IBEAM UPDATES

Application Type:
☐ Additional Permit
☐ Administrative Amendment
☐ Appeal
☐ Greenfield Facility
☐ Last GACT/Toxics
☐ Last MACT/Toxics
☒ Modification
☐ Name Change
☐ New Permit
☐ Ownership Change
☐ Renewal
☐ Renewal w/Modification

Permit Application Schedule:
☐ Appeal
☐ Expedited State
☐ PSD
☐ TV – State Only
☐ TV – Expedited
☐ TV – Greenfield
☐ TV – Reopen for Cause
☐ TV – Administrative
☐ TV – Ownership Change
☐ Director Administrative Amendment
☒ State
☐ TV – 502(b)(10)
☐ TV – Minor
☐ TV – Renewal
☐ TV – Significant (2Q .0501(c)(2))
☐ TV – Significant
☐ TV – 1st Time

PART III - COMPLETENESS CHECKLIST

☐ Required Application Forms Submitted and Completed
☐ Supporting Materials & Calculations Received
☐ PE Seal (If 15A NCAC 2Q .0112)
☐ Modeling Protocol Acceptance
☐ Confirmation of Pollutants Modeled
☐ E5 Form (Significant Modifications)

PART IV - GENERAL COMMENTS

Modeling disk and copy of application forwarded to William Willets 2-22-13

PART V - SUPERVISOR REVIEW CHECKLIST

TVEE Updated (by Engineer): KTG TVEE Verified: YS 2/25/2013 Supervisor: _____ Chief _____

PART VI - CLOSEOUT INFORMATION

Regulations Applicable to This Application (indicate all new regulations):

☐ NESHAPS/MACT
☐ NESHAPS/GACT
☐ NSPS
☐ 2D .1100
☐ 2Q .0711
☐ 2Q .0705 Last MACT/Toxics
☐ PSD/NSR
☐ PSD/NSR Avoidance
☐ Existing Source RACT/LAER
☐ New Source RACT/LAER
☐ RACT Avoidance
☐ RACT/LAER Added Fee (Let Connie Horne know)
☐ Toxics/Combustion Sources After 7/10/10
☐ SIP Regulations (list all new): _____

Permit Class Information

Before	After
☐ Small	☑ Title V
☐ Syn Minor	
☑ Title V	
☐ Proh Small	
☐ General	
☐ Transportation	

HAP Major Status (after) ☐ Major ☐ Minor ☐ Not Determined
PSD or NSR Status (after) ☐ Major ☐ Minor
Miscellaneous ☐ Multiple Permits at Facility ☐ Multi-Site Permit ☐ Recycled Oil Condition

Dates Issue 2-26-13 Effective 2-26-13 Expiration 2-28-17

IBEAM Closed Out By: _____ Permit Number: 10203 Revision Number: R01

☐ Public Notice Published ☐ Public Notice Affidavit (if not noticed via DAQ Website)

Document Manager Updated by Engineer: KTG **Date:** 2-26-13

Scanned 2/25/13 to K. Hash.
L. Kuchnia

Tracking Slip v38 - mjc

NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: 26 February 2013

Region: Raleigh Regional Office
County: Northampton
NC Facility ID: 6600167
Inspector's Name: Will Wike
Date of Last Inspection: 07/24/2012
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Enviva Pellets Northampton, LLC

Facility Address:
Enviva Pellets Northampton, LLC
874 Lebanon Church Road
Garysburg, NC 27831

SIC: 2499 / Wood Products, Nec
NAICS: 321999 / All Other Miscellaneous Wood Product Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 02D .0515, .0521
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Roland Burnett Plant Manager (910) 318-2743 874 Lebanon Church Road Garysburg, NC 27831	Norb Hintz Vice President Engineering (301) 657-5567 7200 Wisconsin Avenue Bethesda, MD 20814	Joe Harrell EHS Manager (252) 209-6032 142 NC Route 561 East Ahoskie 27910

Application Data

Application Number: 6600167.13B
Date Received: 12/19/2012
Application Type: Modification
Application Schedule: State

Existing Permit Data
Existing Permit Number: 10203/R00
Existing Permit Issue Date: 03/09/2012
Existing Permit Expiration Date: 02/28/2017

Review Engineer: Kevin Godwin

Review Engineer's Signature: **Date:** 2-26-13

Kevin T. Godwin

Comments / Recommendations:
Issue 10203/R01
Permit Issue Date: 02/26/2013
Permit Expiration Date: 02/28/2017

I. Introduction and Purpose of Application

A. Enviva Pellets is permitted to construct and operate a wood pellet manufacturing facility at this Northampton County site. Sources include hammermills, a wood-fired pellet dryer, pellet coolers, storage bins and silos, and finished product handling.

B. This application is for changes to processing equipment following the pellet dryer. The changes are as follows:

1. add two electric powered wood chippers (ID Nos. IES-RCHP-1 and 2), both considered insignificant activities under 15A NCAC 02Q .0503(8),
2. move the permitted emergency generator (350 brake horsepower, ID No. ES-GN) and fire water pump (300 brake horsepower, ID No. FWP) to the insignificant activity list,
3. add three (3) hammermills (ID Nos. ES-HM-5, 6, and 7), three (3) simple cyclones (120 inches in diameter each, ID Nos. CYC-5, 6, and 7), one bagfilter (6,250 square feet of filter area, ID No. CD-HM-BF-3) and correct the filter area for two permitted bagfilters from 7,442 square feet to 6,250 square feet,
4. remove ES-HMA and associated bagfilter (ID No. BF4) and replace with nuisance dust system (ID No. ES-NDS) venting to CD-HM-BF-3.
5. add pellet fines bin (ID No. ES-PFB) and associated bin vent filter (ID No. CD-PFB-BV),

6. add three simple cyclones (54 inches in diameter each, ID Nos. CD-CLR-4, 5, and 6) installed on the permitted pellet coolers (ID Nos. ES-CLR-1 through 6),
7. add finished product handling (ID No. ES-FPH) controlled by bagfilter (4,842 square feet of filter area, ID No. CD-FPH-BF),
8. add twelve (12) pellet loadout bins (ID Nos. ES-PB-1 through 12) controlled by bagfilter (ID No. CD-FPH-BF),
9. add two pellet mill loadouts (ID Nos. ES-PL1 and 2) controlled by bagfilter (ID No. CD-FPH-BF),

II. Statement of Compliance

The facility was last inspected on July 24, 2012 by Mr. Will Wike. At the time, the facility was under construction and had not commenced operation.

III. Regulatory Review – Specific Emission Source Limitations

A. 15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes" – This regulation establishes an allowable emission rate for particulate matter from any stack, vent, or outlet resulting from any industrial process for which no other emission control standards are applicable. This regulation applies to Total Suspended Particulate (TSP) or PM less than 100 micrometers (μm). The allowable emission rate is calculated using the following equation:

$$E = 4.10 \times P^{0.67} \quad \text{for } P < 30 \text{ tph}$$
$$E = 55 \times P^{0.11} - 40 \quad \text{for } P \geq 30 \text{ tph}$$

where, E = allowable emission rate (lb/hr)
P = process weight rate (tph)

According to information provided by Enviva, the most significant source of PM emissions is the dryer system operating at 70.83 ODT/hr. The allowable emission rate is calculated to be 57.9 lb/hr. Maximum PM emissions are provided by the dryer vendor. The maximum hourly emission rate is 8.5 lb/hr. Therefore, compliance is indicated.

DAQ Bagfilter and Cyclone Design Evaluation spreadsheets are used to verify proper design to yield expected control device efficiencies.

Existing monitoring, recordkeeping, and reporting requirements will remain in the revised permit.

B. 15A NCAC 02D .0521 "Control of Visible Emissions" – This regulation establishes a visible emission standard for sources based on the manufacture date. For sources manufactured after July 1, 1971, the standard is 20% opacity when averaged over a 6-minute period. The Permittee will be required to establish 'normal' visible emissions from these sources within the first 30-days of the permit effective date. In order to demonstrate compliance, the Permittee will be required to observe actual visible emissions on a monthly basis for comparison to 'normal'. If emissions are observed outside of 'normal', the Permittee shall take corrective action. Recordkeeping and reporting are required. Because all emission sources are designed to be well controlled, compliance with this standard is expected.

IV. Regulatory Review – Multiple Emission Source Limitations

A. Existing Multiple Emission Source Limitations are not affected by this modification. The applicant did provide revised emissions estimates based on guarantees provided by the control device vendor. The following table taken from the application provides a summary of criteria pollutant emissions.

Source Description	ID No.	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)	CO2e (tpy)
Dryer system	ES-DRYER	193.09	124.74	27.77	27.77	27.77	19.05	183.05	60.82
Emergency generator	ES-EG	0.50	0.58	0.03	0.03	0.03	0	0	93.04

Source Description	ID No.	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)	CO2e (tpy)
Fire water pump	ES-FWP	0.43	0.49	0.02	0.02	0.02	0	0	79.95
Hammermills/Nuisance Dust System	ES-HM-1 thru 7/ES-NDS	-	-	13.52	13.52	13.52	-	-	-
Pellet Mill Feed Silo	ES-PMFS	-	-	0.28	0.28	0.28	-	-	-
Pellet Mill Fines Bin	ES-PFB	-	-	0.12	0.12	0.12	-	-	-
Pellet Coolers	ES-CLR1 thru 6	-	-	38.52	35.05	21.19	-	-	-
Log debarking/chipping	ES-RCHP-1and 2	-	-	-	-	-	-	1.44	-
Rechipping	ES-RCHP 1and 2	-	-	-	-	-	-	1.44	-
Finished product handling	ES-FPH	-	-	4.00	3.64	2.20	-	-	-
Load-out bins	ES-PB1 thru 12	-	-	4.00	3.64	2.20	-	-	-
Diesel Storage tanks	TK1 and 2	-	-	-	-	-	-	3.79E-03	-

B. The applicant states "during final plant design, it was determined that the layout needed to be modified slightly. Although TAP emissions are identical to previously modeled and permitted, the relocation necessitates a revised air dispersion modeling exercise to demonstrate compliance." The modeling was reviewed by Mr. Chuck Buckler, of the AQAB. According to the memo dated January 22, 2013, the analysis shows compliance on a source-by-source basis for all TAPs modeled. The permit will maintain the existing TAP limits.

V. Other Regulatory Considerations

- An application fee of $867.00 is required and was included.
- The appropriate number of application copies was submitted.
- A Professional Engineer's Seal is required and was included (ref. Joe Sullivan, P.E. Seal #023037).
- A zoning consistency determination is required and was included.
- Public notice is not required for this minor modification under 15A NCAC 02Q .0515.
- IBEAM TVEE update was verified on February 25, 2013.
- According to the application, the facility does not store any materials above the 112r applicability threshold.
- The application was signed by Mr. Norb Hintz, Vice President Engineering, on December 14, 2012.

VI. Recommendations

This application for a permit modification has been reviewed to determine compliance with all procedures and requirements. DAQ has determined that this facility appears to be complying or is expected to achieve compliance as specified in the permit with all applicable requirements. The applicant and RRO were provided a draft on February 19, 2013.

Issue P/N 10203R01.

Comprehensive Application Report for 6600167.13B

Enviva Pellets Northampton, LLC - Gaston (6600167)

Northampton County

02/26/2013

General Information: Permit/Latest Revision: 10203/ R01

Permit code:	State
Application type:	Modification
Engineer/Rev. location:	Kevin Godwin/RCO
Regional Contact:	Dena Pittman
Facility location:	Raleigh Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	Issued

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
12/19/2012	02/02/2013	12/19/2012	03/23/2013

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd:
$867.00	12/19/2012	0.00		

Fund type:	Deposit Slip #:	Location rec'd:	Location deposited:
2333			

Contact Information

Type	Name	Address	City State ZIP	Telephone
Technical/Permit	Glenn Gray, Plant Manager	7200 Wisconsin Avenue	Bethesda, MD 20814	(757) 274-8377
Authorized	Norb Hintz, Vice President Engineering	7200 Wisconsin Avenue	Bethesda, MD 20814	(301) 657-5567

Acceptance Criteria

Received?	Acceptance Criteria Description
Yes	Application fee
Yes	Appropriate number of apps submitted
Yes	Zoning Addressed
N/A	Source recycling/reduction form
Yes	Authorized signature
Yes	PE Seal
Yes	Application contains toxic modification(s)

Completeness Criteria

Received?	Complete Item Description

Application Events

Event	Start	Due	Complete	Comments	Staff
TV - Acknowledgment/Complete	12/19/2012	12/29/2012	01/02/2013		kmhash
Regional technical review completed/mailed	12/19/2012	01/18/2013	01/16/2013		dlpittman
Technical Add Info - for Compliance Info	02/19/2013	03/21/2013	02/22/2013		kgodwin
Permit issued	02/26/2013		02/26/2013		kmhash

Comprehensive Application Report for 6600167.13B

Enviva Pellets Northampton, LLC - Gaston (6600167)

Northampton County

02/26/2013

Outcome Information

Class before: Title V Class after: Title V

2Q .0711: No 2D .1100: No

NSPS: No NESHAPS/MACT: No PSD/NSR: No

PSD/NSR Avoid: No Prohibitory Small: No

PSD/NSR Status After: Minor General permit: No

Multi-site permit: No Multi. permits at facility: No

Quarry permit: No HAP Major (10/25 tpy): Minor

2Q .0705 Last MACT/Toxics: NO NESHAPS/GACT: NO

New Source RACT/LAER: NO Existing Source RACT: NO

RACT/LAER Added Fee: NO RACT Avoidance: NO

2Q .0702 (a)(18) - Toxics/Combustion Source(s) After 07/10/10: NO

Permit/Revision: 10203/R01

Revision Issue Date: 02/26/2013

Accumulated process days (includes public notice periods): 65

Public notice/hearing/add info after 80 days:

Manager's discretion: Appealed? No

Current Permit Information:

Issue	Effective	Expiration	Revision #
02/26/2013	02/26/2013	02/28/2017	R01

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
2Q	.0317	Avoidance Conditions
Part 60 - NSPS	Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions
2D	.0524	New Source Performance Standards
2D	.1100	Control of Toxic Air Pollutants
2D	.1111	Maximum Achievable Control Technology
Part 63 - NESHAP/MACT	Subpart ZZZZ	Reciprocating Internal Combustion Engines
Avoidance	2D .0530	Prevention of Significant Deterioration

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor
reg_Cont	01/10/2013	821 (Charles McEachern)	3460 (Dena Pittman)	Charles McEachern

Zoning Consistency Determination

Facility Name	Enviva Pellets Northampton, LLC
Facility Street Address	Lebanon Church Road (Street Number TBD)
Facility City	Gaston
Description of Process	Wood pellet manufacturing facility
SIC Code/NAICS	SIC – 2499 ; NAICS - 321999
Facility Contact	Glenn Gray
Phone Number	(804) 412-0227
Mailing Address	1309 East Cary Street, Suite 200
Mailing City, State Zip	Richmond, Virginia 23219

Based on the information given above:

☑ I have received a copy of the air permit application (draft or final) AND...

☐ There are no applicable zoning and subdivision ordinances for this facility at this time

☑ The proposed operation IS consistent with applicable zoning and subdivision ordinances

☐ The proposed operation IS NOT consistent with applicable zoning and subdivision ordinances (please include a copy of the rules in the package sent to the air quality office)

☐ The determination is pending further information and can not be made at this time

☐ Other: _____

Agency	NORTHAMPTON COUNTY PLANNING & ZONING DEPT.
Name of Designated Official	WILLIAM E. FLYNN, JR.
Title of Designated Official	DIRECTOR
Signature	William E. Flynn Jr.
Date	DECEMBER 21, 2012

Please forward to the mailing address listed above and the air quality office at the appropriate address as checked on the back of this form.

Courtesy of the Small Business Assistance Program
toll free at 1-877-623-6748 or on the web at www.envhelp.org/sb

Trinity Consultants

FAX

Date:	December 21, 2012	**Pages (including cover):**	2
To:	Mark Cuilla	**Project Number:**	113401.0047
Company:	NCDAQ	☒ Urgent	
Fax Number:	919-715-0717	☐ Original to follow by mail	
From:	Joe Sullivan	☐ Please copy for "copy to" below	

Trinity Fax (919) 462-9694 | Call (919) 462-9693 if there are problems with transmission

Mark,

Attached please find the zoning consistency determination required as part of Enviva Pellets Northampton, LLC's (Enviva's) air permit application for their proposed facility in Gaston, NC. Please feel free to contact me with any questions or concerns.

Happy Holidays!

Joe Sullivan
Managing Consultant

1 Copley Parkway | Suite 310 | Morrisville, NC 27560
P (919) 462-9693| F (919) 462-9694

One Copley Parkway | Suite 310 | Morrisville, NC 27560 | P (919) 462-9693 | F (919) 462-9694
trinityconsultants.com

Trinity Consultants

December 19, 2012

Mr. Kevin Godwin
North Carolina Division of Air Quality (NC DAQ)
217 West Jones Street
Raleigh, NC 27603

RE: Permit Application to Update Control Device Information and Add Dry Wood Handling Equipment
Enviva Pellets Northampton, LLC
Facility ID #6600167.11A, Permit #10203R00

Dear Mr. Evans:

Enviva Pellets Northampton, LLC (Enviva) was issued a construction and operating permit (DAQ Permit #10203R00) on March 9, 2012. Enviva is submitting this air quality permit application that addresses certain equipment changes associated with post-dryer wood processing operations, as well as a minor revision to the facility's emission source layout, which necessitated a revision to the previous air toxics dispersion modeling evaluation submitted to the NC DAQ.

Three copies of the air permit application, a CD ROM containing related air dispersion modeling files, and the required permit application fee of $876 are enclosed. In order to facilitate the NCDAQ's processing of this application, we have included a redline copy of the facility's operating permit that incorporates the requested changes.

DESCRIPTION OF PROCESS CHANGES

The following list of emission sources are impacted by the changes proposed in this application:

1) Addition of three (3) hammer mills (ES-HM-5 through 7);
2) Addition of three (3) hammermill cyclones (CD-CYC-5 through 7) and revised cyclone information for all seven hammermill cyclones;
3) Addition of one (1) hammermill Bagfilter (CD-HM-BF3) with revised bagfilter information for all the hammermill bagfilters;
4) Removal of the hammermill area permitted source (ES-HMA);
5) Addition of nuisance dust system (ES-NDS) controlled by the new hammermill bagfilter (CD-HM-BF3);
6) Addition of three (3) pellet cooler cyclones (CD-CLR4 through 6);
7) Addition of a fines bin (ES-PFB) that will be controlled by a new bin vent filter (CD-PFB-BV);
8) Addition of finished product handling (ES-FPH) that will consist of pellet screening operation and conveying, which will be controlled by a new bagfilter (CD-FPH-BF);
9) Addition of twelve (12) pellet loadout bins that will distribute finished product into trucks in the one of the two new pellet mill loadout and will also be controlled by the new finished product handling bagfilter (CD-FPH-BF); and

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10) Addition of the two (2) pellet mill loadouts (ES-PL-1 and PL-2) used to load finished product into trucks and will be controlled by finished product handling bagfilter (CD-FPH-BF).

A revised process flow diagram for the Northampton Pellet Mill is provided as Figure 1 and additional information regarding the individual changes itemized above is provided below. Revised emissions estimates for emission units impacted by this application are provided in Attachment 1.

Additional Hammermills and Cyclones

During final design it was determined that three (3) additional hammermills and three (3) additional cyclones would be necessary to achieve the original desired production capacity. Similar to the four existing hammer mills, three (3) additional hammermills will vent independently to three additional (3) cyclones with their respective exhaust combining to vent directly to a single fabric filter. Six of the seven hammermills will be routed through each of their respective cyclones and then combined to two of the bagfilters; three per bagfilter (CD-HM-BF1 and 2). The emissions from the 7th hammer mill will be routed through a cyclone and bagfilter (CD-HM-BF3) that dedicated to only the 7th hammer mill and the new nuisance dust system (ES-NDS). The nuisance dust system will be used to control dust from the hammermill building and screener area.

Additional Pellet Cooler Cyclones

During final design it was determined that three (3) additional pellet cyclones would be necessary to dedicate a cyclone to each pellet cooler and properly control emissions.

Pellet Fines Bin

In order to control fine particulate emissions from the pellet cooler cyclones and hammermill cyclones and bagfilters, a pellet fines bin with dedicated bin vent filter is also being added as a part of this permit application.

Finished Product Handling and Loadout

During final design the finished product handling and loadout was redesigned to include finished product handling (ES-FPH), consisting of pellet screeners and belts to transfer product to twelve loadout bins (ES-PB-1 through 12) and then into trucks at one of the two loadout stations (ES-PL-1 and 2). Emissions from these new permitted sources will all be controlled by a new finished product handling bagfilter (CD-FPH-BF). In addition to particulate control by the bagfilter the truck loading emissions are reduced by creating a negative air flow when product is being transferred from the bins to trucks. This keeps any fugitive emissions negligible and all emissions routed to the finished product handling bagfilter (CD-FPH-BF).

It should be noted that facility-wide emissions remain well below the PSD and HAP major source thresholds.

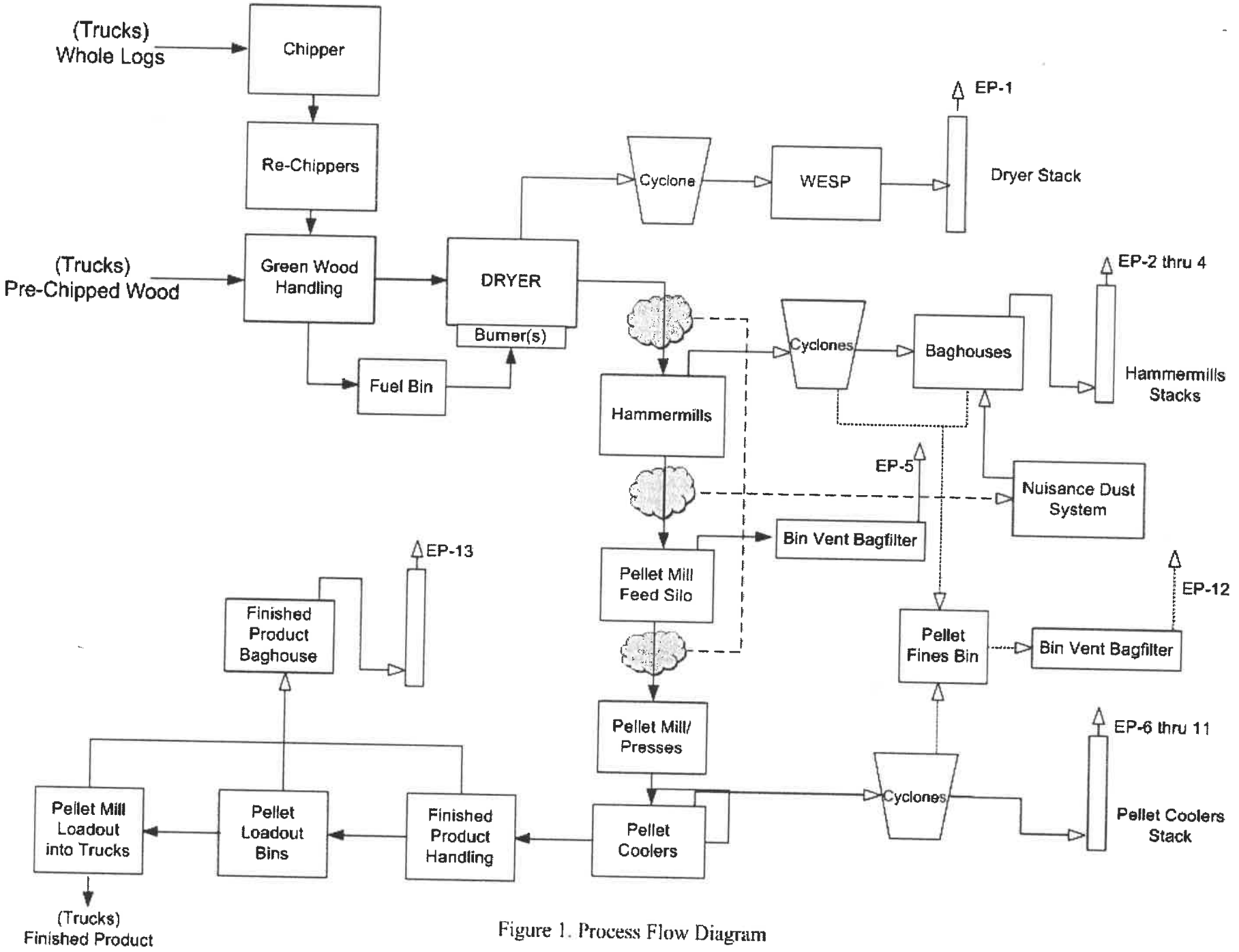

Figure 1. Process Flow Diagram

INSIGNIFICANT EMISSIONS UNITS

Wood Rechippers

Enviva plans to construct and operate two (2) electric powered wood rechippers (IES-RCHP-1, -2) that will process chipped green wood from the electric powered wood chipper (IES-EPWC-1) for further size reduction.

It should be noted that green wood and bark contains a high moisture content of roughly 50 percent by weight and handling operations for wet wood therefore has insignificant emissions well below permitting thresholds of 15A NCAC 2Q .0102(c)(2)(E).. Example emission calculations utilizing EPA's aggregate handling calculations for transfer of wood chips and bark are provided in Attachment 1.

Emergency Engines

The facility is currently permitted to construct and operate a firewater pump and emergency power generator. Enviva is requesting that these units be moved to the list of exempt sources because the r engines meet the exemption criteria of 15A NCAC 2Q .0102(c)(2)(B)(v)(III). It should be noted that the facility is classified as an "area source" of HAPs and the engines are not subject to "MACT" standards; accordingly the exclusion for permitting exemption per 15A NCAC 2Q .0102(b)(6) does not apply.

EMISSIONS ESTIMATES

As indicated earlier, revised emissions estimates for emission units impacted by the project are provided in Attachment 1. The only emissions that are impacted by this application are particulate matter emissions. It should be noted that due to revised emissions guarantees provided by the control device vendor for this project, there are notable emissions decreases associated with the application and the facility-wide emissions summary in Attachment 1 demonstrates that total facility-wide emissions remain well below the PSD permitting threshold.

APPLICATION FORMS AND LOCAL ZONING CONSISTENCY

Permit application forms for the updated and new sources are provided in Attachment 2.

A zoning consistency determination request is enclosed as Attachment 3. A sealed copy indicating receipt of the application will be submitted to the NCDAQ within the next one to two days.

SITE LAYOUT REVISIONS AND REVISED AIR DISPERSION MODELING

During final plant design it was determined that the layout of the Enviva Northampton site needed to be modified slightly. Although the Toxic Air Pollutant (TAP) emissions are identical as previously modeled and permitted, the relocation of emission sources necessitates revised air dispersion modeling to demonstrate compliance with the ambient allowable limits for each respective TAP. In the original application submitted for this project, the NC DAQ had requested discretionary nitrogen dioxide (NO2) modeling, so revised modeling for this criteria compound was also updated. A report summarizing the revised air dispersion modeling evaluation is provided in Attachment 4.

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REDLINE COPY OF PERMIT

To facilitate your processing of this application we have provided a redline version of the permit to indicate the anticipated changes based on processing of this application (Attachment 5). We will also be emailing you an electronic copy of the redlined permit for distribution to the engineer that is assigned for review.

CLOSING

Enviva would greatly appreciate prompt processing of this application. Feel free to contact me at 919-462-9693 or Glenn Gray of Enviva at 804-412-0227 with any questions or comments.

Sincerely,

Joe Sullivan

Joe Sullivan, PE, CM
Managing Consultant

cc: Glenn Gray - Enviva

Attachments

ATTACHMENT 1

UPDATED EMISSIONS CALCULATIONS

TABLE 1
PSD APPLICABILITY SUMMARY
ENVIVA PELLETS NORTHAMPTON, LLC

Source Description	Unit ID	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)	CO_{2e} (tpy)
Dryer System	ES-DRYER	193.09	124.74	27.77	27.77	27.77	19.05	183.05	60.82
Emergency Generator	ES-EG	0.50	0.58	0.03	0.03	0.03	0.00	0.00	93.04
Fire Water Pump	ES-FWP	0.43	0.49	0.02	0.02	0.02	0.00	0.00	79.75
Hammermills/ Nuisance Dust System	ES-HM-1 thru 7/ ES-NDS	-	-	13.52	13.52	13.52	-	-	-
Pellet Mill Feed Silo	ES-PMFS	-	-	0.28	0.28	0.28	-	-	-
Pellet Mill Fines Bin	ES-PFB	-	-	0.12	0.12	0.12	-	-	-
Pellet Coolers	ES-CLR1 thru -6	-	-	38.52	35.05	21.19	-	-	-
Log Debarking/Chipping	ES-CHIP-1	-	-	-	-	-	-	1.44	-
Rechipping	ES-RCHP-1, -2	-	-	-	-	-	-	1.44	-
Finished Product Handling/ Pellet Loadout Bins/ Pellet Loadout Areas	ES-FPH/ ES-PL1 & 2/ ES-PB-1 thru 12	-	-	4.00	3.64	2.20	-	-	-
Diesel Storage Tanks	TK1 & TK2	-	-	-	-	-	-	3.79E-03	-
Total Project Emission Increases		**194.02**	**125.80**	**84.25**	**80.42**	**65.12**	**19.05**	**185.94**	**233.62**
PSD Major Source Threshold		**250**	**250**	**250**	**250**	**250**	**250**	**250**	**100,000**
PSD Review Required?		**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

TABLE 2
BAGFILTER AND CYCLONE EMISSIONS
ENVIVA PELLETS NORTHAMPTON, LLC

Emission Unit	Emission Source ID	Filter, Vent -or- Cyclone ID	Flowrate[1] (cfm)	Pollutant Loading[2] (gr/cf)	Annual Operation (hours)	% PM that is		Potential Emissions					
								PM		PM_{10}[3]		$PM_{2.5}$[3]	
						PM_{10}	$PM_{2.5}$	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Hammermills Bagfilter 1	ES-HM-1 through 3	CD-HM-BF1	45,000	0.003	8,760	100%	100%	1.16	5.07	1.16	5.07	1.16	5.07
Hammermills Bagfilter 2	ES-HM-4 through 6	CD-HM-BF2	45,000	0.003	8,760	100%	100%	1.16	5.07	1.16	5.07	1.16	5.07
Hammermills Bagfilter 3	ES-HM-7; ES-NDS	CD-HM-BF3	30,000	0.003	8,760	100%	100%	0.77	3.38	0.77	3.38	0.77	3.38
Pellet Mill Feed Silo Bin Vent Filter	ES-PMFS	CD-PMFS-BV	2,500	0.003	8,760	100%	100%	0.06	0.28	0.06	0.28	0.06	0.28
Pellet Mill Fines Bin Bin Vent Filter	ES-PFB	CD-PFB-BV	3,600	0.003	2,500	100%	100%	0.09	0.12	0.09	0.12	0.09	0.12
Pellet Coolers Cyclone 1	ES-CLR-1	CD-CLR-1	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 2	ES-CLR-2	CD-CLR-2	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 3	ES-CLR-3	CD-CLR-3	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 4	ES-CLR-4	CD-CLR-4	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 5	ES-CLR-5	CD-CLR-5	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Pellet Coolers Cyclone 6	ES-CLR-6	CD-CLR-6	17,100	0.01	8,760	91%	55%	1.47	6.42	1.33	5.84	0.81	3.53
Finished Product Handling Bagfilter	ES-FPH, ES-PL1 & 2, ES-PB-1 thru 12	CD-FPH-BF	35,500	0.003	8,760	91%	0.55	0.91	4.00	0.83	3.64	0.50	2.20
							TOTAL	**12.95**	**56.43**	**12.08**	**52.60**	**8.58**	**37.30**

Note:

[1] Filter, Vent, and Cyclone inlet flow rate (cfm) provided by design engineering firm (Mid-South Engineering Co.). The exit flowrate was conservatively assumed to be the same as the inlet flowrate.

[2] Pollutant Loading (gr/cf) provided by Aircon.

[3] Pellet cooler cyclone speciation based on AP-42 factors for wet wood combustion (Section 1.6) controlled by a mechanical separator. Since the particle size of particle size of particulate matter from a pellet cooler is anticipated to be larger than flyash, this factor is believed to be a conservative indicator of speciation.

TABLE 3
ELECTRIC POWERED RECHIPPER (ES-RCHP-1, -2) EMISSIONS
ENVIVA PELLETS NORTHAMPTON, LLC

Annual Throughput of Each Rechipper	620,471	tons/year (dry wood)[1]
Short-term Throughput of Each Rechipper	70.83	tons/hr (dry wood)[1]
Maximum Annual Operation	8,760	hours

Pollutant	Emission Factors (lb/dry wood tons)	Emissions[5]	
		(lb/hr)	(tpy)
THC as Carbon[2]	0.0041	2.904E-01	1.27
THC as alpha-Pinene[3]	0.0047	**3.296E-01**	**1.44**
PM[4]	N/A	**N/A**	**N/A**
Methanol[2]	0.0010	**7.083E-02**	**0.31**

[1] It is assumed that the wood received at the facility has a nominal water content of 50%. The annual throughput used for the rechippers are the same as the annual throughput of the dryer; while the short-term throughput is based upon the maximum hourly throughput of the dryer.

[2] Emission factor obtained from available emissions factors for rechippers in AP-42 Section 10.6.3, Table 7 and Section 10.6.4, Tables 7 and 9. Emission factors for THC and Methanol are the same across all three tables.

[3] The THC/VOC makeup of wood is primarily composed of terpenes $(C_5H_8)_n$ [where n = 2, 3, or 4 typically] but to convert from carbon to the equivalent weight in THC/VOC, the assumption was that alpha-pinene (AP) would be the representative THC/VOC (molecular weight = 136.2 lb/lb-mol). The following equation shows the conversion:
*lb VOC/ODT = lb C/ODT * (136.2 lb/mol AP / 12 lb/mol C) * (1 mol AP / 10 mol C)*

[4] PM emission factor is not applicable as rechipper emissions are routed downward to the ground.

[5] Short term emissions were based upon the annual throughput of the rechippers (dry wood) divided by the total hours of operation. Emissions are representative of the total combined emissions for both rechippers.

ATTACHMENT 2

UPDATED FACILITY AND SOURCE FORMS

FORM A1

FACILITY (General Information)

REVISED 11/01/02

NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate

A1

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

☑ Local Zoning Consistency Determination (if required) ☑ Facility Reduction & Recycling Survey Form (Form A4) ☑ Application Fee

☑ Responsible Official/Authorized Contact Signature ☑ Appropriate Number of Copies of Application ☑ E. Seal (if required)

GENERAL INFORMATION

Legal Corporate/Owner Name:	Enviva Pellets Northampton, LLC
Site Name:	Enviva Pellets Northampton, LLC
Site Address (911 Address) Line 1:	Lebanon Church Road (Street Number TBD)
Site Address Line 2:	
City: Gaston	State: North Carolina
Zip Code: 27866	County: Northampton

CONTACT INFORMATION

Permit/Technical Contact:	*Facility/Inspection Contact:*
Name/Title: Glenn Gray / Plant Manager	Name/Title: same as permit/technical contact
Mailing Address Line 1: 7200 Wisconsin Avenue	Mailing Address Line 1:
Mailing Address Line 2: Suite 1100	Mailing Address Line 2:
City: Bethesda State: Maryland Zip Code: 20814	City: State: Zip Code:
Phone No. (area code) (757) 274-8377 Fax No. (area code) (301) 657-5567	Phone No. (area code) Fax No. (area code)
Email Address: Glenn.Gray@envivabiomass.com	Email Address:
Responsible Official/Authorized Contact:	***Invoice Contact:***
Name/Title: Norb Hintz	Name/Title: same as permit/technical contact
Mailing Address Line 1: 7200 Wisconsin Avenue	Mailing Address Line 1:
Mailing Address Line 2: Suite 1100	Mailing Address Line 2:
City: Bethesda State: Maryland Zip Code: 20814	City: State: Zip Code:
Phone No. (area code) (301) 657-5567 Fax No. (area code) (301) 657-5567	Phone No. (area code) Fax No. (area code)
Email Address: Norb.Hintz@envivabiomass.com	Email Address:

APPLICATION IS BEING MADE FOR

☐ New Non-permitted Facility/Greenfield ☑ Modification of Facility (permitted) ☐ Renewal with Modification

☐ Renewal (TV Only)

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

☐ General ☐ Small ☐ Prohibitory Small ☐ Synthetic Minor ☑ Title V

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s): Facility ID No. : 6600167.11A

Wood pellet manufacturing facility

Primary SIC/NAICS Code: 2499 (Wood Products, Not Elsewhere Classified)	Current/Previous Air Permit No. 10203R00 Expiration Date 2/28/2017
Facility Coordinates: Latitude: 256,700 UTM E	Longitude: 4,042,900 UTM N
Does this application contain confidential data? ☐ YES ☑ NO	

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name: Joe Sullivan	Firm Name: Trinity Consultants, Inc.
Mailing Address Line 1: One Copley Parkway	Mailing Address Line 2: Suite 310
City: Morrisville State: North Carolina	Zip Code: 27560 County: Wake
Phone No. (919) 462-9693 Fax No. (919) 462-9694	Email Address: Jsullivan@trinityconsultants.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Norb Hintz	Title: Vice President Engineering
X Signature(Blue Ink):	Date: 12-14-12

Attach Additional Sheets As Necessary

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REVISED 04/10/07 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — A2

EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
ES-HM-5, -6, -7	Three (3) Hammermills	CD-HM-CYC-5 through -7	Three (3) simple cyclones
		CD-HM-BF-2 and 3	Two (2) Bagfilters
ES-PFB	Pellet Fines Bin	CD-PFB-BF	Bin Vent Filter
ES-FPH	Finished Product Handling	CD-FPH-BF	Finished Product Handling Bagfilter
ES-PB-1 through 12	Twelve (12) Pellet Loadout Bins		
ES-PL-1, -2	Pellet Mill Loadout 1 and 2		
ES-NDS	Nuisance Dust System	CD-HM-BF-3	Bagfilter
Existing Permitted Equipment To Be MODIFIED By This Application			
ES-HM-1,2,3,4	Four (4) Hammermills	CD-HM-CYC-1 through -4	Four (4) simple cyclones
		CD-HM-BF-1 and -2	Two (2) Bagfilters
ES-CLR1 through CLR6	Six (6) Pellet Coolers	CD-CLR1 through 3	Three (3) permitted simple cyclones
		CD-CLR4 through 6	Three (3) NEW simple cyclones
Equipment To Be DELETED By This Application			
ES-HMA	Hammermill Area	CD-HMA-BF	One (1) Bagfilter

112(r) APPLICABILITY INFORMATION — A 3

Is your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Federal Clean Air Act? Yes / No

If No, please specify in detail how your facility avoided applicability: _____

If your facility is Subject to 112(r), please complete the following:

A. Have you already submitted a Risk Management Plan (RMP) to EPA Pursuant to 40 CFR Part 68.10 or Part 68.150?

Yes ☐ No ☐ Specify required RMP submittal date: _____ If submitted, RMP submittal date: _____

B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard?

Yes ☐ No ☐ If yes, please specify: _____

Attach Additional Sheets As Necessary

FORM A4

SURVEY OF AIR EMISSIONS AND FACILITY - WIDE REDUCTION & RECYCLING ACTIVITIES

DATE:

Does facility have an environmental mangement system in place? ( ) YES (X) NO If so, is facility ISO 14000 Certified? ( ) YES (X) NO

Facility Name:	Enviva Pellets Northampton, LLC			Permit Number:	N/A		
Facility ID:	66000167.11A	County:	Northampton	Environmental Contact:	Joe Harrell		
Mailing Address Line 1:	874 Lebanon Church Road			Phone No. ( )	(252) 209-6032	Fax No. ( )	
Mailing Address Line 2:				Zip Code:	27910	County:	Hertford
City:	Gaston	State:	North Carolina	Email Address:	Joe.Harrell@envivabiomass.com		

AIR EMISSIONS SOURCE REDUCTIONS

Any Air Emissions Source Reductions in the past year? ( ) YES (X) NO

Source Description and ID	Air Pollutant	Enter Code for Emission Reduction Option (See Codes)	Date Reduction Option Implemented (mo/yr)	Quantity Emitted from prior annual report to DAQ (lb/yr)	Quantity Emitted from current annual report to DAQ (lb/yr)	Has reduction activity been discontinued? If so, when was it discontinued? (mo/yr)	Addition detail about source
N/A							

Comments:

FACILITY - WIDE REDUCTIONS & RECYCLING ACTIVITIES

Any Reductions or Recycling Activities in the past year? ( ) YES (X) NO

Source Description or Activity	Pollutant or Recycled or Reduced Materials	Enter Code for Emission Reduction Option (See Codes)	Date Reduction Option Implemented (mo/yr)	Quantity Emitted from prior annual report	Quantity Emitted from current annual report	Has reduction activity been discontinued? If so, when was it discontinued? (mo/yr)	Addition detail about source
N/A							

Comments:

The requested information above shall be used for fulfilling the requirements of North Carolina General Statute 143-215.108(g). The permit holder shall submit to the Department a written description of current and projected plans to reduce the emissions of air pollutants by source reduction or recycling. The written description shall accompany any application for a new permit, modification of an existing permit and for each annual air quality permit fee payment. Source reduction is defined as reducing the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal. If no activity has taken place since the previous report, simply indicate so by checking the no box in that section. Once completed, this form should be submitted along with your fee payment. Examples are listed on the first line of each section of the form for your benefit.

NCDENR Division of Pollution Prevention and Environmental Assistance

POLLUTION PREVENTION PAY$

REVISED 1/07

Attach Additional Sheets As Necessary

FORM D1

FACILITY-WIDE EMISSIONS SUMMARY

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **D1**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

AIR POLLUTANT EMITTED	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr
PARTICULATE MATTER (PM)	See Emission Calculations in Appendix B		
PARTICULATE MATTER < 10 MICRONS (PM_{10})			
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)			
SULFUR DIOXIDE (SO2)			
NITROGEN OXIDES (NOx)			
CARBON MONOXIDE (CO)			
VOLATILE ORGANIC COMPOUNDS (VOC)			
LEAD			
OTHER			

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

HAZARDOUS AIR POLLUTANT EMITTED	CAS NO.	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) tons/yr	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS) tons/yr
		See Emission Calculations in Appendix B		

TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

INDICATE REQUESTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS. EMISSIONS ABOVE THE TOXIC PERMIT EMISSION RATE (TPER) IN 15A NCAC 2Q .0711 MAY REQUIRE AIR DISPERSION MODELING. USE NETTING FORM D2 IF NECESSARY.

TOXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Modeling Required ? Yes	No
		No icnrease associated with this change				

COMMENTS:

Attach Additional Sheets As Necessary

FORM D4

EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

ACTIVITIES EXEMPTED PER 2Q .0102 OR INSIGNIFICANT ACTIVITIES PER 2Q .0503 FOR TITLE V SOURCES

DESCRIPTION OF EMISSION SOURCE	SIZE OR PRODUCTION RATE	BASIS FOR EXEMPTION OR INSIGNIFICANT ACTIVITY
1. Two (2) Electric Powered Wood Rechippers IES-RCHP-1 and 2	119.4 tph combined (70.83 tph dry basis)	15A NCAC 02Q .0102 (c)(2)(E) - low emissions, see Appendix B
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach Additional Sheets As Necessary

FORM D

TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

REVISED: 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — D5

PROVIDE DETAILED TECHNICAL CALCULATIONS TO SUPPORT ALL EMISSION, CONTROL, AND REGULATORY DEMONSTRATIONS MADE IN THIS APPLICATION. INCLUDE A COMPREHENSIVE PROCESS FLOW DIAGRAM AS NECESSARY TO SUPPORT AND CLARIFY CALCULATIONS AND ASSUMPTIONS. ADDRESS THE FOLLOWING SPECIFIC ISSUES ON SEPARATE PAGES:

A **SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B)** - SHOW CALCULATIONS USED, INCLUDING EMISSION FACTORS, MATERIAL BALANCES, AND/OR OTHER METHODS FROM WHICH THE POLLUTANT EMISSION RATES IN THIS APPLICATION WERE DERIVED. INCLUDE CALCULATION OF POTENTIAL BEFORE AND, WHERE APPLICABLE, AFTER CONTROLS. CLEARLY STATE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFERENCES AS NEEDED TO SUPPORT MATERIAL BALANCE CALCULATIONS.

B **SPECIFIC EMISSION SOURCE (REGULATORY INFORMATION)(FORM E2 - TITLE V ONLY)** - PROVIDE AN ANALYSIS OF ANY REGULATIONS APPLICABLE TO INDIVIDUAL SOURCES AND THE FACILITY AS A WHOLE. INCLUDE A DISCUSSION OUTING METHODS (e.g. FOR TESTING AND/OR MONITORING REQUIREMENTS) FOR COMPLYING WITH APPLICABLE REGULATIONS, PARTICULARLY THOSE REGULATIONS LIMITING EMISSIONS BASED ON PROCESS RATES OR OTHER OPERATIONAL PARAMETERS. PROVIDE JUSTIFICATION FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (PREVENTION OF SIGNIFICANT DETERIORATION (PSD), NEW SOURCE PERFORMANCE STANDARDS (NSPS), NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), TITLE V), INCLUDING EXEMPTIONS FROM THE FEDERAL REGULATIONS WHICH WOULD OTHERWISE BE APPLICABLE TO THIS FACILITY. SUBMIT ANY REQUIRED TO DOCUMENT COMPLIANCE WITH ANY REGULATIONS. INCLUDE EMISSION RATES CALCULATED IN ITEM "A" ABOVE, DATES OF MANUFACTURE, CONTROL EQUIPMENT, ETC. TO SUPPORT THESE CALCULATIONS.

C **CONTROL DEVICE ANALYSIS (FORM C)** - PROVIDE A TECHNICAL EVALUATION WITH SUPPORTING REFERENCES FOR ANY CONTROL EFFICIENCIES LISTED ON SECTION C FORMS, OR USED TO REDUCE EMISSION RATES IN CALCULATIONS UNDER ITEM "A" ABOVE. INCLUDE PERTINENT OPERATING PARAMETERS (e.g. OPERATING CONDITIONS, MANUFACTURING RECOMMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS APPLICATION) CRITICAL TO ENSURING PROPER PERFORMANCE OF THE CONTROL DEVICES). INCLUDE AND LIMITATIONS OR MALFUNCTION POTENTIAL FOR THE PARTICULAR CONTROL DEVICES AS EMPLOYED AT THIS FACILITY. DETAIL PROCEDURES FOR ASSURING PROPER OPERATION OF THE CONTROL DEVICE INCLUDING MONITORING SYSTEMS AND MAINTENANCE TO BE PERFORMED.

D **PROCESS AND OPERATIONAL COMPLIANCE ANALYSIS - (FORM E3 - TITLE V ONLY)** - SHOWING HOW COMPLIANCE WILL BE ACHIEVED WHEN USING PROCESS, OPERATIONAL, OR OTHER DATA TO DEMONSTRATE COMPLIANCE. REFER TO COMPLIANCE REQUIREMENTS IN THE REGULATORY ANALYSIS IN ITEM "B" WHERE APPROPRIATE. LIST ANY CONDITIONS OR PARAMETERS THAT CAN BE MONITORED AND REPORTED TO DEMONSTRATE COMPLIANCE WITH THE APPLICABLE REGULATIONS.

E **PROFESSIONAL ENGINEERING SEAL** - PURSUANT TO 15A NCAC 2Q .0112 "APPLICATION REQUIRING A PROFESSIONAL ENGINEERING SEAL," A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA SHALL BE REQUIRED TO SEAL TECHNICAL PORTIONS OF THIS APPLICATION FOR NEW SOURCES AND MODIFICATIONS OF EXISTING SOURCES. (SEE INSTRUCTIONS FOR FURTHER APPLICABILITY).

I, Joe Sullivan, attest that this application for Enviva Pellets Northampton, LLC has been reviewed by me and is accurate, complete and consistent with the information supplied in the engineering plans, calculations, and all other supporting documentation to the best of my knowledge. I further attest that to the best of my knowledge the proposed design has been prepared in accordance with the applicable regulations. Although certain portions of this submittal package may have been developed by other professionals, inclusion of these materials under my seal signifies that I have reviewed this material and have judged it to be consistent with the proposed design. Note: In accordance with NC General Statutes 143-215.6A and 143-215.6B, any person who knowingly makes any false statement, representation, or certification in any application shall be guilty of a Class 2 misdemeanor which may include a fine not to exceed $10,000 as well as civil penalties up to $25,000 per violation.

(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)

NAME: Joe Sullivan
DATE: 12/16/12
COMPANY: Trinity Consultants, Inc.
ADDRESS: One Copley Parkway, Suite 310
Morrisville, NC 27560
TELEPHONE: (919) 462-9693
SIGNATURE: Joe W Sullivan
PAGES CERTIFIED: All control device application forms ("C Forms")

(IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT THAT IS BEING CERTIFIED BY THIS SEAL)

PLACE NORTH CAROLINA SEAL HERE

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Seven (7) Hammermills**	EMISSION SOURCE ID NO: **ES-HM-1 thru 7**
	CONTROL DEVICE ID NO(S): **CD-HM-CYC-1 through 7**, **CD-HM-BF1 through 3**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-2 through 4**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Dried materials are reduced to the appropriate size needed for pelletization using seven hammermills. PLEASE NOTE THAT HAMMERMILLS 5, 6 AND 7 ARE BEING ADDED IN THIS APPLICATION (ALREADY PERMITTED FOR HAMMERMILLS 1 - 4).

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

- ☐ Coal,wood,oil, gas, other burner (Form B1)
- ☐ Woodworking (Form B4)
- ☐ Manufact. of chemicals/coatings/inks (Form B7)
- ☐ Int.combustion engine/generator (Form B2)
- ☐ Coating/finishing/printing (Form B5)
- ☐ Incineration (Form B8)
- ☐ Liquid storage tanks (Form B3)
- ☐ Storage silos/bins (Form B6)
- ■ Other (Form B9)

START CONSTRUCTION DATE: TBD	OPERATION DATE: 3/1/2013	DATE MANUFACTURED: TBD	
MANUFACTURER / MODEL NO.: TBD	EXPECTED OP. SCHEDULE: 24 HR/DAY	7 DAY/WK	52 WK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):	
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25%	SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY		

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	See Emission Calculations in Appendix B						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
N/A							

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
N/A				

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED: 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B9**

EMISSION SOURCE DESCRIPTION: **Seven (7) Hammermills**	EMISSION SOURCE ID NO: **ES-HM-1 thru 7**
	CONTROL DEVICE ID NO(S): **CD-HM-CYC-1 through 7**, **CD-HM-BF1 through 3**
OPERATING SCENARIO: **1** OF **1**	EMISSION POINT (STACK) ID NO(S): **EP-2 through 4**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Dried materials are reduced to the appropriate size needed for pelletization using seven hammermills. PLEASE NOTE THAT HAMMERMILLS 5, 6 AND 7 ARE BEING ADDED IN THIS APPLICATION (ALREADY PERMITTED FOR HAMMERMILLS 1 - 4).

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS

TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION(UNIT/HR)
Dried Wood	**Tons**	**13 tons per hour each**	

MATERIALS ENTERING PROCESS - BATCH OPERATION

TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)

MAXIMUM DESIGN (BATCHES / HOUR):

REQUESTED LIMITATION (BATCHES / HOUR): (BATCHES/YR):

FUEL USED: **N/A**	TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**
MAX. CAPACITY HOURLY FUEL USE: **N/A**	REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C4

CONTROL DEVICE ID NO: CD-HM-CYC-1 thru -7	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HM-1 through-7
EMISSION POINT (STACK) ID NO(S): EP-2 and 3	POSITION IN SERIES OF CONTROLS NO. 1 OF 2 UNITS
MANUFACTURER: Aircon	MODEL NO: AC-96
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE:
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ◉ YES ○ NO

DESCRIBE CONTROL SYSTEM:
One cyclone is equipped for each hammermill to capture bulk PM emissions. The emissions from the cyclone are then routed to one of three bagfilters.

POLLUTANT(S) COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculations in Appendix B			
CAPTURE EFFICIENCY:	98.0%	98.0%	98.0%	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See calculations in Appendix B			

PRESSURE DROP (IN. H_2O): MIN	MAX 6.0"	WARNING ALARM? ○ YES ○ NO	
INLET TEMPERATURE (°F): MIN	MAX Ambient	OUTLET TEMPERATURE (°F): MIN	MAX Ambient
INLET AIR FLOW RATE (ACFM):	15,000 each cyclone	BULK PARTICLE DENSITY (LB/FT^3):	3.14E-06
POLLUTANT LOADING RATE (GR/FT^3):	0.022		

SETTLING CHAMBER	CYCLONE				MULTICYCLONE
LENGTH (INCHES):	INLET VELOCITY (FT/SEC):	114.65	◉ CIRCULAR ○ RECTANGLE		NO. TUBES:
WIDTH (INCHES):	*DIMENSIONS (INCHES) See instructions*		*IF WET SPRAY UTILIZED*		DIAMETER OF TUBES:
HEIGHT (INCHES):	H: 60	Dd: 20	LIQUID USED:		HOPPER ASPIRATION SYSTEM?
VELOCITY (FT/SEC.):	W: 32.25	Lb: 60	FLOW RATE (GPM):		○ YES ○ NO
NO. TRAYS:	De: 45	Lc: 120	MAKE UP RATE (GPM):		LOUVERS?
NO. BAFFLES:	D: 96	S: 64.75			○ YES ○ NO
	TYPE OF CYCLONE: ◉ CONVENTIONAL		○ HIGH EFFICIENCY	○ OTHER	

DESCRIBE MAINTENANCE PROCEDURES:
Periodic inspection of mechanical integrity during plant outages as specified by manufacturer

DESCRIBE INCOMING AIR STREAM:
The material will be pulled through the cyclone under negative pressure. The cyclone will separate the material from the air stream and the air will discharge to an associated bag filter prior to being discharge to atmosphere via a discharge stack common to all fitlers in this area.

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1	Unknown	
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC:
None

ON A SEPARATE PAGE, ATTACH A DIAGRAM OF THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary

[1]Final equipment selection has not yet occurred but will be similar in design to specifications shown.

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C1

CONTROL DEVICE ID NO: CD-HM-BF-1 and 2	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HM-1 through 6
EMISSION POINT (STACK) ID NO(S): EP-2 and 3	POSITION IN SERIES OF CONTROLS NO. 2 OF 2 UNITS
MANUFACTURER: Aircon	MODEL NO: 16 RAB 412-10
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? (YES) ∂ NO

DESCRIBE CONTROL SYSTEM:

Four (4) bagfilters will be utilized for emission control on seven of the hammermill cyclones. HMs 1 - 3 vent through routed to three individual baghouses. The seventh cyclone be routed routed to an individual baghouse.

POLLUTANT(S) COLLECTED:	PM	PM-10	PM-2.5	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculations in Appendix B			
CAPTURE EFFICIENCY:	~99.9 %	~99.9 %	~99.9 %	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See calculations in Appendix B			

PRESSURE DROP (IN. H_2O): MIN: MAX: 6"	GAUGE? (YES) ∂ NO	WARNING ALARM? (YES) ∂ NO	
BULK PARTICLE DENSITY (LB/FT^3): 1.43E-06		INLET TEMPERATURE (°F): 120	
POLLUTANT LOADING RATE: 0.01 ∂ LB/HR (GR/FT^3)		OUTLET TEMPERATURE (°F): 100	
INLET AIR FLOW RATE (ACFM): 45,000		FILTER MAX OPERATING TEMP. (°F): N/A	
NO. OF COMPARTMENTS: 1	NO. OF BAGS PER COMPARTMENT: 412	LENGTH OF BAG (IN.): 144	
DIAMETER OF BAG (IN.): 5.75	DRAFT: ∂ INDUCED/NEG. (FORCED/POS)	FILTER SURFACE AREA (FT^2): 6,250	
AIR TO CLOTH RATIO: 7.20	FILTER MATERIAL: Polyester or equivalent	∂ WOVEN (FELTED)	

DESCRIBE CLEANING PROCEDURES:

∂ AIR PULSE
(∂ REVERSE FLOW)
∂ MECHANICAL/SHAKER
∂ OTHER
∂ SONIC
∂ SIMPLE BAG COLLAPSE
∂ RING BAG COLLAPSE

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles. Larger particles will have been removed by the upstream cyclone.

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1	Unknown	
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

METHOD FOR DETERMINING WHEN TO CLEAN:
(∂ AUTOMATIC) ∂ TIMED ∂ MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:
∂ ALARM (∂ INTERNAL INSPECTION) ∂ VISIBLE EMISSION ∂ OTHER

SPECIAL CONDITIONS: None
∂ MOISTURE BLINDING ∂ CHEMICAL RESISTIVITY ∂ OTHER
EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations

ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary

[1]Final equipment selection has not yet occurred but will be similar in design to specifications shown.

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C1

CONTROL DEVICE ID NO: CD-HM-BF-3	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HM-7 and ES-NSW
EMISSION POINT (STACK) ID NO(S): EP-4	POSITION IN SERIES OF CONTROLS NO. 2 OF 2 UNITS
MANUFACTURER: Aircon	MODEL NO: 16 RAB 412-10
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? (YES) NO

DESCRIBE CONTROL SYSTEM:

Four (4) bagfilters will be utilized for emission control on seven of the hammermill cyclones. HMs 1 - 3 vent through routed to three individual baghouses. The seventh cyclone be routed routed to an individual baghouse.

	PM	PM-10	PM-2.5	
POLLUTANT(S) COLLECTED:				
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculations in Appendix B			
CAPTURE EFFICIENCY:	~99.9 %	~99.9 %	~99.9 %	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See calculations in Appendix B			

PRESSURE DROP (IN. H_2O): MIN:	MAX: 6"	GAUGE? (YES) NO	WARNING ALARM? (YES) NO
BULK PARTICLE DENSITY (LB/FT^3):	1.43E-06	INLET TEMPERATURE (°F):	120
POLLUTANT LOADING RATE:	0.01 LB/HR (GR/FT^3)	OUTLET TEMPERATURE (°F):	100
INLET AIR FLOW RATE (ACFM):	30,000	FILTER MAX OPERATING TEMP. (°F):	N/A
NO. OF COMPARTMENTS:	1	NO. OF BAGS PER COMPARTMENT:	412
DIAMETER OF BAG (IN.):	5.75	DRAFT: INDUCED/NEG. (FORCED/POS.)	LENGTH OF BAG (IN.): 144
AIR TO CLOTH RATIO:	4.80	FILTER MATERIAL: Polyester or equivalent	FILTER SURFACE AREA (FT^2): 6,250
			WOVEN (FELTED)

DESCRIBE CLEANING PROCEDURES:

- AIR PULSE
- (REVERSE FLOW)
- MECHANICAL/SHAKER
- OTHER
- SONIC
- SIMPLE BAG COLLAPSE
- RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1	Unknown	
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles. Larger particles will have been removed by the upstream cyclone. The filters will discharge to a common stack. This stack will also accept the discharge air flow from a third bag filter (CD-HMA-BF) (located in this area.)

METHOD FOR DETERMINING WHEN TO CLEAN:

(AUTOMATIC) TIMED MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

ALARM (INTERNAL INSPECTION) VISIBLE EMISSION OTHER

SPECIAL CONDITIONS: None

MOISTURE BLINDING CHEMICAL RESISTIVITY OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations

ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary

[1]Final equipment selection has not yet occurred but will be similar in design to specifications shown.

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Nuisance Dust System**	EMISSION SOURCE ID NO: **ES-NDS**
OPERATING SCENARIO 1 OF 1	CONTROL DEVICE ID NO(S): **CD-HM-BF-3**
	EMISSION POINT (STACK) ID NO(S): **EP-4**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
The nuisance dust system controls dust from the hammermill building and screening area and vents it to the Hammermill bagfilter No. 3 (CD-HM-BF-3).

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

- ☐ Coal,wood,oil, gas, other burner (Form B1)
- ☐ Int.combustion engine/generator (Form B2)
- ☐ Liquid storage tanks (Form B3)
- ☐ Woodworking (Form B4)
- ☐ Coating/finishing/printing (Form B5)
- ☐ Storage silos/bins (Form B6)
- ☐ Manufact. of chemicals/coatings/inks (Form B7)
- ☐ Incineration (Form B8)
- ■ Other (Form B9)

START CONSTRUCTION DATE: **TBD**	OPERATION DATE: **3/1/2013**	DATE MANUFACTURED: **TBD**	
MANUFACTURER / MODEL NO.: **TBD**		EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):		NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%**	MAR-MAY **25%**	JUN-AUG **25%**	SEP-NOV **25%**
EXPECTED ANNUAL HOURS OF OPERATION: **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **<20** % OPACITY		

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	See Emission Calculations in Appendix B						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
N/A							

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
N/A				

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED: 12/01/01 | NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate | **B9**

EMISSION SOURCE DESCRIPTION: **Nuisance Dust System**	EMISSION SOURCE ID NO: **ES-NDS**
OPERATING SCENARIO: 1 OF 1	CONTROL DEVICE ID NO(S): **CD-HMA-BF**
	EMISSION POINT (STACK) ID NO(S): **EP-4**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

The nuisance dust system controls dust from the hammermill building and screening area and vents it to the Hammermill bagfilter No. 3 (CD-HM-BF-3).

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (CFM)	LIMITATION(UNIT/HR)
Air Flow	**CFM**	**15,000**	

MATERIALS ENTERING PROCESS - BATCH OPERATION		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (UNIT/BATCH)

MAXIMUM DESIGN (BATCHES / HOUR):	
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/YR):
FUEL USED: **N/A**	TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**
MAX. CAPACITY HOURLY FUEL USE: **N/A**	REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Pellet Coolers**	EMISSION SOURCE ID NO: **ES-CLR1 through 6**
OPERATING SCENARIO **1** OF **1**	CONTROL DEVICE ID NO(S): **CD-CLR-1 through 6**
	EMISSION POINT (STACK) ID NO(S): **EP-06 through 11**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

- ☐ Coal,wood,oil, gas, other burner (Form B1)
- ☐ Woodworking (Form B4)
- ☐ Manufact. of chemicals/coatings/inks (Form B7)
- ☐ Int.combustion engine/generator (Form B2)
- ☐ Coating/finishing/printing (Form B5)
- ☐ Incineration (Form B8)
- ☐ Liquid storage tanks (Form B3)
- ☐ Storage silos/bins (Form B6)
- ■ Other (Form B9)

START CONSTRUCTION DATE: **TBD**	OPERATION DATE: **3/1/2013**	DATE MANUFACTURED: **TBD**	
MANUFACTURER / MODEL NO.: **TBD**	EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR		
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):	
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%**	MAR-MAY **25%**	JUN-AUG **25%**	SEP-NOV **25%**
EXPECTED ANNUAL HOURS OF OPERATION **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **<20** % OPACITY		

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	**See Emission Calculations in Attachement 1**						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
N/A							

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
N/A				

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED: 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B9**

EMISSION SOURCE DESCRIPTION: **Pellet Coolers**	EMISSION SOURCE ID NO: **ES-CLR1 through 6**
OPERATING SCENARIO: 1 OF 1	CONTROL DEVICE ID NO(S): **CD-CLR-1 through 6**
	EMISSION POINT (STACK) ID NO(S): **EP-06 through 11**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION(UNIT/HR)
TYPE	UNITS		
Dried Wood	**Tons**	**72.8**	

MATERIALS ENTERING PROCESS - BATCH OPERATION		MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)
TYPE	UNITS		

MAXIMUM DESIGN (BATCHES / HOUR):	
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/YR):
FUEL USED: **N/A**	TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**
MAX. CAPACITY HOURLY FUEL USE: **N/A**	REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C4

CONTROL DEVICE ID NO: CD-CLR-1 through 6	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-CLR1 through 6
EMISSION POINT (STACK) ID NO(S): EP-06 through 11	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: TBD[1]	MODEL NO:
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ☉ YES ○ NO

DESCRIBE CONTROL SYSTEM:
Three identical dual high efficiency cyclones are to be used to capture bulk PM emissions from six (6) pellet coolers. Two coolers vent to each of the three cyclones. The cyclones will operate under negative pressure. The parameters presented here are per each dual high efficiency cyclone.

	PM	PM_{10}	$PM_{2.5}$	
POLLUTANT(S) COLLECTED:				
BEFORE CONTROL EMISSION RATE (LB/HR):	See Emissions Calculations in Appendix B			
CAPTURE EFFICIENCY:	98-99 %	98-99 %	98-99 %	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See Emissions Calculations in Appendix B			

PRESSURE DROP (IN. H_2O): MIN MAX 6.0" WARNING ALARM? ○ YES ○ NO

INLET TEMPERATURE (°F): MIN MAX Ambient	OUTLET TEMPERATURE (°F): MIN MAX Ambient
INLET AIR FLOW RATE (ACFM): 17,100	BULK PARTICLE DENSITY (LB/FT³): 3.14E-06
POLLUTANT LOADING RATE (GR/FT³): 0.022	

SETTLING CHAMBER	CYCLONE				MULTICYCLONE
LENGTH (INCHES):	INLET VELOCITY (FT/SEC): 94.75		○ CIRCULAR ○ RECTANGLE		NO. TUBES:
WIDTH (INCHES):	*DIMENSIONS (INCHES) See instructions*		*IF WET SPRAY UTILIZED*		DIAMETER OF TUBES:
HEIGHT (INCHES):	H: 38	Dd: 22	LIQUID USED:		HOPPER ASPIRATION SYSTEM?
VELOCITY (FT/SEC.):	W: 25	Lb: 74.25	FLOW RATE (GPM):		○ YES ○ NO
NO. TRAYS:	De: 32	Lc: 84.5	MAKE UP RATE (GPM):		LOUVERS?
NO. BAFFLES:	D: 54	S: 44.38			○ YES ○ NO
	TYPE OF CYCLONE:	○ CONVENTIONAL	☉ HIGH EFFICIENCY	○ OTHER	

DESCRIBE MAINTENANCE PROCEDURES:
Periodic inspection of mechanical integrity during plant outages as specified by manufacturer

DESCRIBE INCOMING AIR STREAM:
The cyclones used for particulate capture the pellet coolers will be ducted to a discharge stack. The stack will be common to all cooler aspiration systems.

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1	Unknown	
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC:
None

ON A SEPARATE PAGE, ATTACH A DIAGRAM OF THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary

[1]Final equipment selection has not yet occurred but will be similar in design to specifications shown.

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Pellet Fines Bin**	EMISSION SOURCE ID NO: **ES-PFB**
OPERATING SCENARIO 1 OF 1	CONTROL DEVICE ID NO(S): **CD-PFB-BV**
	EMISSION POINT (STACK) ID NO(S): **EP-12**

DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet material from hammermill pollution control system and screening operation is collected in the pellet fines bin which is controlled by a bin vent filter.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

- ☐ Coal,wood,oil, gas, other burner (Form B1)
- ☐ Woodworking (Form B4)
- ☐ Manufact. of chemicals/coatings/inks (Form B7)
- ☐ Int.combustion engine/generator (Form B2)
- ☐ Coating/finishing/printing (Form B5)
- ☐ Incineration (Form B8)
- ☐ Liquid storage tanks (Form B3)
- ■ Storage silos/bins (Form B6)
- ☐ Other (Form B9)

START CONSTRUCTION DATE: **TBD**	OPERATION DATE: **3/1/2013**	DATE MANUFACTURED: **TBD**	
MANUFACTURER / MODEL NO.: **TBD**	EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR		
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):	
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%**	MAR-MAY **25%**	JUN-AUG **25%**	SEP-NOV **25%**
EXPECTED ANNUAL HOURS OF OPERATION **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **<20** % OPACITY		

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	See Emission Calculations in Appendix B						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
N/A							

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
N/A				

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B6**

EMISSION SOURCE DESCRIPTION: **Pellet Fines Bin**	EMISSION SOURCE ID NO: **ES-PFB**
	CONTROL DEVICE ID NO(S): **CD-PFB-BV**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): **EP-12**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Fine pellet material from hammermill pollution control system and screening operation is collected in the pellet fines bin which is controlled by a bin vent filter.

MATERIAL STORED: **Fine pellet material**				DENSITY OF MATERIAL (LB/FT3): **40**		
CAPACITY	CUBIC FEET: **2200**			TONS:		
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: **12**	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:			MAXIMUM DESIGN CAPACITY:		

PNEUMATICALLY FILLED	MECHANICALLY FILLED		FILLED FROM
☐ BLOWER	☐ SCREW CONVEYOR		☐ RAILCAR
☐ COMPRESSOR	☐ BELT CONVEYOR	MOTOR HP:	☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR		☐ STORAGE PILE
	☐ OTHER:		☐ OTHER: **Conveyor**

NO. FILL TUBES:

MAXIMUM ACFM:

MATERIAL IS FILLED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR):

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR):

COMMENTS:

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C1

CONTROL DEVICE ID NO: CD-PFB-BV	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-PFB
EMISSION POINT (STACK) ID NO(S): EP-12	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: Aircon	MODEL NO: 36-6
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO: 1 OF 1	PROPOSED START CONSTRUCTION DATE: TBD
	P.E. SEAL REQUIRED (PER 2Q .0112)? (YES) ∂ NO

DESCRIBE CONTROL SYSTEM:

A bin vent filter collects dust from when wood enters or exits the silo and displaces air.

POLLUTANT(S) COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculations in Appendix B			
CAPTURE EFFICIENCY:	~99 %	~99 %	~99 %	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See calculations in Appendix B			

PRESSURE DROP (IN. H_2O): MIN: TBD MAX: TBD GAUGE? (YES) ∂ NO	WARNING ALARM? (YES) ∂ NO
BULK PARTICLE DENSITY (LB/FT^3): 3.14E-06	INLET TEMPERATURE (°F): Ambient
POLLUTANT LOADING RATE: 0.022 ∂ LB/HR (∂ GR/FT^3)	OUTLET TEMPERATURE (°F): Ambient
INLET AIR FLOW RATE (ACFM): 3,600	FILTER MAX OPERATING TEMP. (°F): N/A

NO. OF COMPARTMENT: TBD	NO. OF BAGS PER COMPARTMENT: TBD	LENGTH OF BAG (IN.): TBD
DIAMETER OF BAG (IN.):	DRAFT: (∂ INDUCED/NEG.) ∂ FORCED/POS.	FILTER SURFACE AREA (FT^2): 325
AIR TO CLOTH RATIO: 11.08	FILTER MATERIAL:	∂ WOVEN ∂ FELTED

DESCRIBE CLEANING PROCEDURES:

∂ AIR PULSE ∂ SONIC
∂ REVERSE FLOW ∂ SIMPLE BAG COLLAPSE
∂ MECHANICAL/SHAKER ∂ RING BAG COLLAPSE
(∂ OTHER)

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1		
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

METHOD FOR DETERMINING WHEN TO CLEAN:

(∂ AUTOMATIC) ∂ TIMED ∂ MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

∂ ALARM (∂ INTERNAL INSPECTION) ∂ VISIBLE EMISSION ∂ OTHER

SPECIAL CONDITIONS:

∂ MOISTURE BLINDING ∂ CHEMICAL RESISTIVITY ∂ OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES:

Per manufacturer recommendations or common industry practices.

ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Finished Product Handling/ Pellet Loadout Bins / Pellet Loadout**	EMISSION SOURCE ID NO: **ES-FPH, ES-PB1 thru 12, ES-PL1 and 2**
OPERATING SCENARIO **1** OF **1**	CONTROL DEVICE ID NO(S): **CD-FPH-BF**
	EMISSION POINT (STACK) ID NO(S): **EP-13**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
ES- FPH: Collection of transfer points, pellet screening operations, and pellet conveying.
ES-PB-1 thru 12: Pellet loadout bins are used to store pellets for shipping. Pellets are then loaded from the bins directly into trucks in either of the two pellet loadout areas.
ES-PL-1 and 2: Final product is loaded into trucks in either of the two (2) pellet loadouts. The trucks are filled directly from the pellet loadout bins.

TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES):

☐ Coal,wood,oil, gas, other burner (Form B1) ☐ Woodworking (Form B4) ☐ Manufact. of chemicals/coatings/inks (Form B7)
☐ Int.combustion engine/generator (Form B2) ☐ Coating/finishing/printing (Form B5) ☐ Incineration (Form B8)
☐ Liquid storage tanks (Form B3) ■ Storage silos/bins (Form B6) ■ Other (Form B9)

START CONSTRUCTION DATE: **TBD**	OPERATION DATE: **3/1/2013**	DATE MANUFACTURED: **TBD**
MANUFACTURER / MODEL NO.: **TBD**	EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%**	MAR-MAY **25%**	JUN-AUG **25%** SEP-NOV **25%**
EXPECTED ANNUAL HOURS OF OPERATION: **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **<20** % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)	**See Emission Calculations in Appendix B**						
PARTICULATE MATTER<10 MICRONS (PM_{10})							
PARTICULATE MATTER<2.5 MICRONS ($PM_{2.5}$)							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
N/A							

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
N/A				

Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED: 12/01/01 | NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate | **B9**

EMISSION SOURCE DESCRIPTION: **Finished Product Handling**	EMISSION SOURCE ID NO: **ES-FPH**
	CONTROL DEVICE ID NO(S): **CD-FPH-BF**
OPERATING SCENARIO: **1** OF **1**	EMISSION POINT (STACK) ID NO(S): **EP-13**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Collection of transfer points, pellet screening operations, and pellet conveying.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS			
TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION(UNIT/HR)
Dried Wood	**Tons**	**70.25 tons per hour**	

MATERIALS ENTERING PROCESS - BATCH OPERATION			
TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)

MAXIMUM DESIGN (BATCHES / HOUR):

REQUESTED LIMITATION (BATCHES / HOUR): (BATCHES/YR):

FUEL USED: **N/A**	TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**
MAX. CAPACITY HOURLY FUEL USE: **N/A**	REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **B6**

EMISSION SOURCE DESCRIPTION: **Twelve (12) Pellet Loadout Bins**	EMISSION SOURCE ID NO: **ES-PB1 through 12**
	CONTROL DEVICE ID NO(S): **CD-FPH-BF**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): **EP-13**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Pellet loadout bins are used to store pellets for shipping. Pellets are then loaded from the bins directly into trucks in either of the two pellet loadout areas.

MATERIAL STORED: **Pellet Product**				DENSITY OF MATERIAL (LB/FT3): **40**		
CAPACITY	CUBIC FEET:			TONS:		
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: **12**	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:			MAXIMUM DESIGN CAPACITY: **70.65 tph**		

PNEUMATICALLY FILLED	MECHANICALLY FILLED		FILLED FROM
☐ BLOWER	☐ SCREW CONVEYOR	MOTOR HP:	☐ RAILCAR
☐ COMPRESSOR	☑ BELT CONVEYOR		☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR		☐ STORAGE PILE
	☐ OTHER:		☑ OTHER: **Conveyor**

NO. FILL TUBES:

MAXIMUM ACFM: **750 each**

MATERIAL IS FILLED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR):

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR):

COMMENTS:

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED: 12/01/01 | **NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate** | **B9**

EMISSION SOURCE DESCRIPTION: **Pellet Loadout 1 and 2**	EMISSION SOURCE ID NO: **ES-PL-1 and PL-2**
	CONTROL DEVICE ID NO(S): **CD-FPH-BF**
OPERATING SCENARIO: **1** OF **1**	EMISSION POINT (STACK) ID NO(S): **EP-13**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Final product is loaded into trucks in either of the two (2) pellet loadouts. The trucks are filled directly from the pellet loadout bins.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (CFM)	LIMITATION(UNIT/HR)
Dried Wood	**CFM**	**35,500**	

MATERIALS ENTERING PROCESS - BATCH OPERATION		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (UNIT/BATCH)

MAXIMUM DESIGN (BATCHES / HOUR):	
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/YR):
FUEL USED: **N/A**	TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **N/A**
MAX. CAPACITY HOURLY FUEL USE: **N/A**	REQUESTED CAPACITY ANNUAL FUEL USE: **N/A**

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — C1

CONTROL DEVICE ID NO: CD-FBH-BF	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-FPH, ES-PB-1 through 12, ES-PL1 and 2
EMISSION POINT (STACK) ID NO(S): EP-13	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: Aircon	MODEL NO: 13.5 RAW 268-10
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO: 1 OF 1	PROPOSED START CONSTRUCTION DATE: TBD
	P.E. SEAL REQUIRED (PER 2Q .0112)? (•) YES ( ) NO

DESCRIBE CONTROL SYSTEM:

This bagfilter will be utilized to control particulate form the finished product handling pellet conveyers and screens as well as the pellet load out operation consisting of loading finished product from the bins into the trucks.

POLLUTANT(S) COLLECTED:	PM	PM-10	PM-2.5	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculations in Appendix B			
CAPTURE EFFICIENCY:	~99.9 %	~99.9 %	~99.9 %	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL EMISSION RATE (LB/HR):	See calculations in Appendix B			

PRESSURE DROP (IN. H_2O): MIN:	MAX: 6"	GAUGE? (•) YES ( ) NO	WARNING ALARM? (•) YES ( ) NO
BULK PARTICLE DENSITY (LB/FT^3):	1.43E-06	INLET TEMPERATURE (°F):	120
POLLUTANT LOADING RATE:	0.01 ( ) LB/HR (•) GR/FT^3	OUTLET TEMPERATURE (°F):	100
INLET AIR FLOW RATE (ACFM):	35,500	FILTER MAX OPERATING TEMP. (°F):	N/A
NO. OF COMPARTMENTS:	1	NO. OF BAGS PER COMPARTMENT:	LENGTH OF BAG (IN.): 144
DIAMETER OF BAG (IN.):	5.75	DRAFT: ( ) INDUCED/NEG. (•) FORCED/POS.	FILTER SURFACE AREA (FT^2): 4,842
AIR TO CLOTH RATIO:	7.30	FILTER MATERIAL: Polyester or equivalent	( ) WOVEN (•) FELTED

DESCRIBE CLEANING PROCEDURES:

( ) AIR PULSE
(•) REVERSE FLOW
( ) MECHANICAL/SHAKER
( ) OTHER
( ) SONIC
( ) SIMPLE BAG COLLAPSE
( ) RING BAG COLLAPSE

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles.

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %
0-1	Unknown	
1-10		
10-25		
25-50		
50-100		
>100		
	TOTAL = 100	

METHOD FOR DETERMINING WHEN TO CLEAN:
(•) AUTOMATIC ( ) TIMED ( ) MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:
( ) ALARM (•) INTERNAL INSPECTION ( ) VISIBLE EMISSION ( ) OTHER

SPECIAL CONDITIONS: None
( ) MOISTURE BLINDING ( ) CHEMICAL RESISTIVITY ( ) OTHER
EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations

ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

Attach Additional Sheets As Necessary

[1]Final equipment selection has not yet occurred but will be similar in design to specifications shown.

ATTACHMENT 3

LOCAL ZONING CONSISTENCY DETERMINATION

Trinity Consultants

One Copley Parkway, Suite 310, Morrisville, North Carolina 27560 U.S.A. ■ (919) 462-9693 ■ Fax (919) 462-9694

December 17, 2012

William Flynn
Planning and Zoning Director
Northampton County Planning and Zoning
102 West Jefferson Street
Jackson, NC 27845

Subject: Air Permit Application Zoning Consistency Determination Request
Enviva Pellets Northampton, LLC

Dear Mr. William Flynn,

This letter is a request for a determination of whether planned construction project of a wood pellet manufacturing facility located at Lebanon Church Road in Gaston, NC is consistent with current local zoning requirements. A copy of the air permit application being submitted to the North Carolina Division of Air Quality (NCDAQ) is attached.

Your confirmation of zoning consistency is needed by the NCDAQ prior to issuance of the air quality construction permit. Please complete the attached form and send to the address shown on the form as soon as possible. In the interim, we would appreciate it if you would stamp this cover letter with your department's seal, sign and date next to your seal and return the sealed cover letter via FAX to my attention at (919) 462-9694. This stamp is needed to be considered administratively complete by the NC Division of Air Quality. Should you require additional information to complete your review, please do not hesitate to contact me at (919) 462-9693.

Sincerely,

Joe W. Sullivan

Joe Sullivan, PE, CM
Managing Consultant

Attachment

Zoning Consistency Determination

Facility Name: Enviva Pellets Northampton, LLC

Facility Street Address: Lebanon Church Road (Street Number TBD)

Facility City: Gaston

Description of Process: Wood pellet manufacturing facility

SIC Code/NAICS: SIC – 2499 ; NAICS - 321999

Facility Contact: Glenn Gray

Phone Number: (804) 412-0227

Mailing Address: 1309 East Cary Street, Suite 200

Mailing City, State Zip: Richmond, Virginia 23219

Based on the information given above:

- ☐ I have received a copy of the air permit application (draft or final) AND...
- ☐ There are no applicable zoning and subdivision ordinances for this facility at this time
- ☐ The proposed operation IS consistent with applicable zoning and subdivision ordinances
- ☐ The proposed operation IS NOT consistent with applicable zoning and subdivision ordinances (please include a copy of the rules in the package sent to the air quality office)
- ☐ The determination is pending further information and can not be made at this time
- ☐ Other: _____

Agency _____

Name of Designated Official _____

Title of Designated Official _____

Signature _____

Date _____

Please forward to the mailing address listed above and the air quality office at the appropriate address as checked on the back of this form.

Courtesy of the Small Business Assistance Program
toll free at 1-877-623-6748 or on the web at www.envhelp.org/sb

All PSD and Title V Applications

X Attn: Dr. Donald van der Vaart, PE
DAQ – Permitting Section
1641 Mail Service Center
Raleigh, NC 27699-1641

Local Programs

☐ Attn: David Brigman
Western NC Regional Air Quality Agency
49 Mount Carmel Road
Asheville, NC 28806
(828) 250-6777

☐ Attn: Donald R. Willard
Mecklenburg County Air Quality
700 N. Tryon Street, Suite 205
Charlotte, NC 28202-2236
(704) 336-5500

☐ Attn: Robert R. Fulp
Forsyth County
Environmental Affairs Department
537 N. Spruce Street
Winston-Salem, NC 27101-1362
(336) 703-2440

Division of Air Quality Regional Offices

☐ Attn: Paul Muller
Asheville Regional Office
2090 U.S. Highway 70
Swannanoa, NC 28778
(828) 296-4500

☐ Attn: Steven Vozzo
Fayetteville Regional Office
225 Green Street Suite 714
Fayetteville, NC 28301
(910) 433-3300

☐ Attn: Ron Slack
Mooresville Regional Office
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

☐ Attn: Patrick Butler, PE
Raleigh Regional Office
1628 Mail Service Center
Raleigh, NC 27699-1628
(919) 791-4200

☐ Attn: Robert Fisher
Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

☐ Attn: Wayne Cook
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

☐ Attn: Margaret Love, PE
Winston-Salem Regional Office
585 Waughtown Street
Winston-Salem, NC 27107
(336) 771-5000

ATTACHMENT 4

AIR DISPERSION MODELING

Enviva Pellets Northampton, LLC •
Gaston, North Carolina

Revised Air Dispersion Modeling Analysis

Prepared By:

Jonathan Hill – Managing Consultant

TRINITY CONSULTANTS
One Copley Parkway
Suite 310
Morrisville, North Carolina 27560
(919) 462-9693

December 2012

Project 113401.0047

Trinity Consultants

Environmental solutions delivered uncommonly well

TABLE OF CONTENTS

1. INTRODUCTION

Enviva Pellets Northampton, LLC (Enviva) was issued a construction and operating permit (DAQ Permit #10203R00) on March 9, 2012. Enviva is submitting the attached air quality permit application which addresses several design and site layout changes which also impacted the January 2012 modeling analysis. The remainder of this section summarizes the changes that were incorporated into the previously submitted and approved dispersion modeling analysis.

1.1. SITE LAYOUT REVISIONS

During the final design process it was determined that the layout of the Enviva Northampton site needed to be reconfigured to better manage overall production. Although the Toxic Air Pollutant (TAP) emissions are identical to the previously modeled and permitted rates, the relocation of emission sources and downwash structures necessitated revised air dispersion modeling to demonstrated continued compliance with all state air regulations.

1.2. AIR DISPERSION MODELING

As presented in the emissions estimates in the revised application, the site changes did not result in the emissions of any additional TAP in excess of their respective TPER limit, and therefore no new pollutants were modeled. As such, the remainder of this report confirms the previously approved modeling methodology and provides the updated site layout, stack location and parameter tables, and revised modeling results.

2. DISPERSION MODELING ANALYSIS

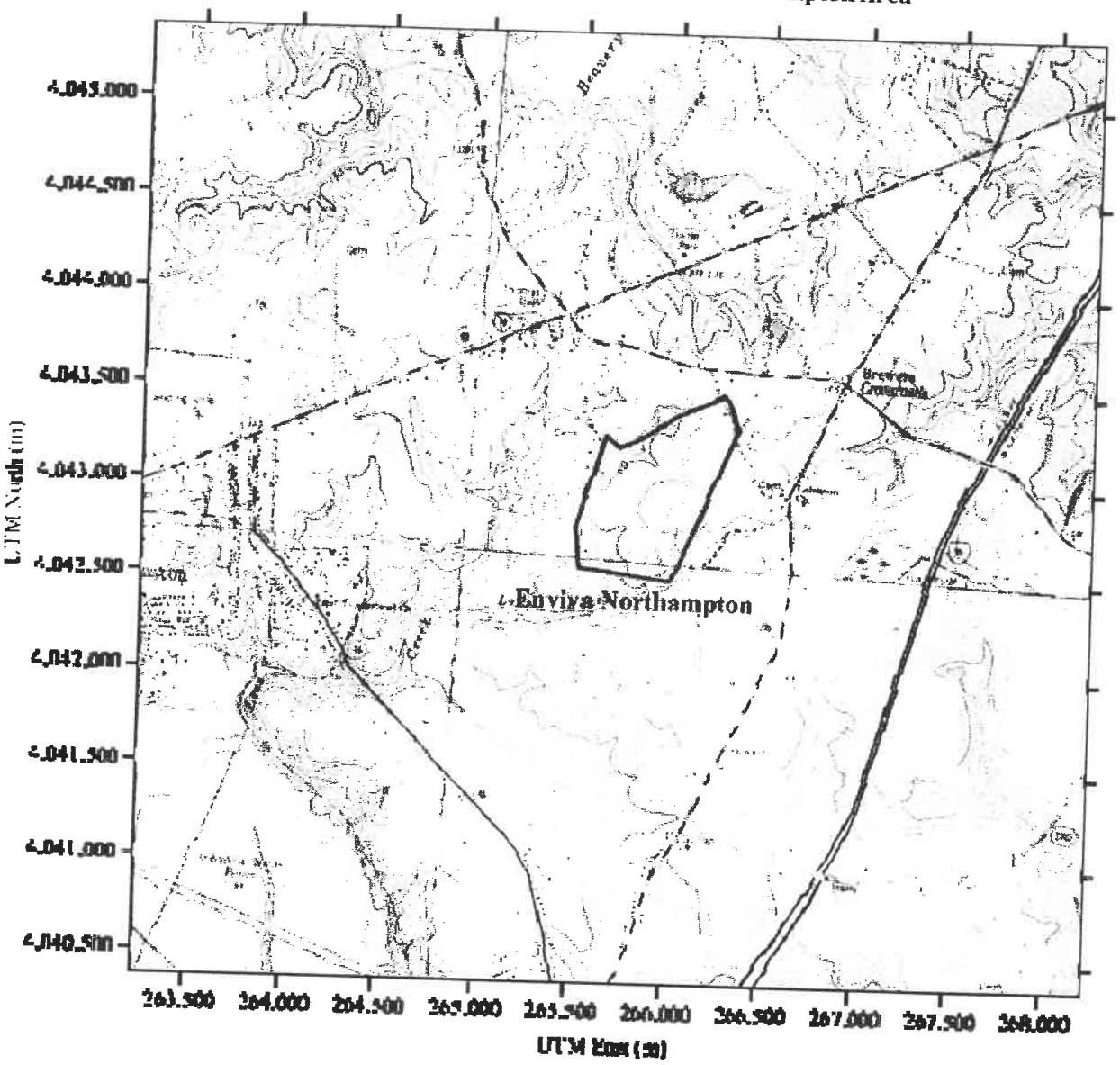
This section presents the methodology and results of the air quality dispersion modeling conducted for the proposed Enviva Wood Pellet Plant to be located near Gaston, NC (Northampton Plant). The modeling methodology used to demonstrate compliance with the NC air toxics acceptable ambient levels (AAL) conforms to the *Guidelines for Evaluating the Air Quality Impacts of Toxic Pollutants in North Carolina* (December 2009). Enviva has also performed a National Ambient Air Quality Standard (NAAQS) compliance demonstration for the new, 1-hour NO_2 standard. The NAAQS modeling methodology generally conforms to both the NC *Guidelines* and U.S. EPA *Guideline on Air Quality Models.* In lieu of a modeling protocol a protocol checklist is provided in Appendix A.

2.1. FACILITY AND PROJECT DESCRIPTION

Enviva plans to construct and operate a greenfield wood pellets manufacturing plant in Northampton County, near Gaston, NC. The Northampton plant will consist of a wood drying system along with various material handling and emergency equipment. The emission sources of regulated pollutants at the Northampton plant included in the modeling are summarized in Table 2-1.

Figure 2-1 provides a map of the area surrounding the Northampton property. The approximate central Universal Transverse Mercator (UTM) coordinates of the facility are 265.7 kilometers (km) east and 4,042.9 km north in Zone 18 (NAD 83). A signed survey of the property is included in Appendix C.

Figure 2-1. Topographic Map of the Enviva Northampton Area



For modeling purposes, the appropriate urban/rural land use classification for the area was determined using the Auer technique, which is recommended in the *Guideline on Air Quality Models.* In accordance with this technique, the area within a 3-km radius of the facility was identified on US Geological Survey (USGS) topographic maps (and was delineated by land use type. More than 50 percent of the surrounding land use can be classified as undeveloped rural (i.e., Auer's A4 classification), therefore the area is classified as rural.

As previously described, the project will result in air quality emissions below levels triggering the Prevention of Significant Deterioration (PSD) preconstruction permit

program and the Plywood and Composite Wood Products (PCWP) National Emissions Standards for Hazardous Air Pollutants (NESHAP). Potential emissions of several compounds regulated under 15A NCAC 2Q .0700 (NC Air Toxics) exceed de minimis values requiring permitting and this air dispersion modeling evaluation has been conducted to demonstrate compliance with the AAL.

In addition, since the project will result in NO_x emissions above the PSD significant emission rate (SER) of 40 tpy, a NAAQS analysis was voluntarily conducted in order to demonstrate compliance with the recently promulgated, more stringent 1-hour NO_2 standard. This type of 1-hour NAAQS analysis was consistent with recent DAQ guidance for projects permitted after the promulgation of those more stringent standards.

2.2. MODEL SELECTION

The latest version (12060) of the AERMOD modeling system was used to estimate maximum ground-level concentrations in all Class II Area analyses conducted for this application. AERMOD is a refined, steady-state, multiple source, Gaussian dispersion model and was promulgated in December 2005 as the preferred model for use by industrial sources in this type of air quality analysis.[1] The AERMOD model has the Plume Rise Modeling Enhancements (PRIME) incorporated in the regulatory version, so the direction-specific building downwash dimensions used as inputs are determined by the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274.[2] BPIP PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents, while incorporating the PRIME enhancements to improve prediction of ambient impacts in building cavities and wake regions.[3]

The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the control module and modeling processor. AERMAP is the terrain pre-processor that is used to import terrain elevations for selected model objects and to generate the receptor hill height scale data that are used by AERMOD to drive advanced terrain processing algorithms. National Elevation Dataset (NED) data available from the United States Geological Survey (USGS) were utilized to interpolate surveyed elevations onto user specified receptor grids and buildings and sources in the absence of more accurate site-specific (i.e., site surveys, GPS analyses, etc.) elevation data.

---

[1] 40 CFR Part 51, Appendix W–*Guideline on Air Quality Models,* Appendix A.1– AMS/EPA Regulatory Model (AERMOD).

[2] Earth Tech, Inc., *Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model,* Concord, MA.

[3] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised),* Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

AERMET generates a separate surface file and vertical profile file to pass meteorological observations and turbulence parameters to AERMOD. AERMET meteorological data are refined for a particular analysis based on the choice of micrometeorological parameters that are linked to the land use and land cover (LULC) around the meteorological site shown to be representative of the application site.

Enviva used the most recent versions of AERMOD and AERMAP (version 11103) to estimate ambient impacts from the modeled sources in the Class II area. Per NCDAQ guidelines, AERMOD was run using all regulatory default options.

2.3. SOURCE DESCRIPTION

Table 2-1 presents a table of the modeled sources and their locations at the Northampton plant. All locations are expressed in UTM Zone 18 (NAD83) coordinates.

Table 2-1. Modeled Source Locations

Model ID[1]	Description	UTM-E (m)	UTM-N (m)	Elevation (m)
EP1	Dryer WESP Stack	266,018.9	4,042,780.6	48.9
EP9	Emergency Generator	266,062.1	4,042,782.0	48.7
EP10	Firewater Pump	266,044.9	4,043,088.4	46.9

[1] Note that in the most recent permit application update, the Emergency Generator Emission ID has been changed to EP14 and the Firewater Pump Emission ID has been changed to EP15.

Tables 2-2 and 2-3 present the stack parameters and emission rates input to the model for each of the sources.

Table 2-2. Modeled Source Parameters

Model ID[1]	Stack Height (m)	Stack Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
EP1	28.65	396.48	15.94	2.44
EP9	4.57	920.00	78.30	0.10
EP10	4.57	954.00	109.18	0.08

[1] Note that in the most recent permit application update, the Emergency Generator Emission ID has been changed to EP14 and the Firewater Pump Emission ID has been changed to EP15.

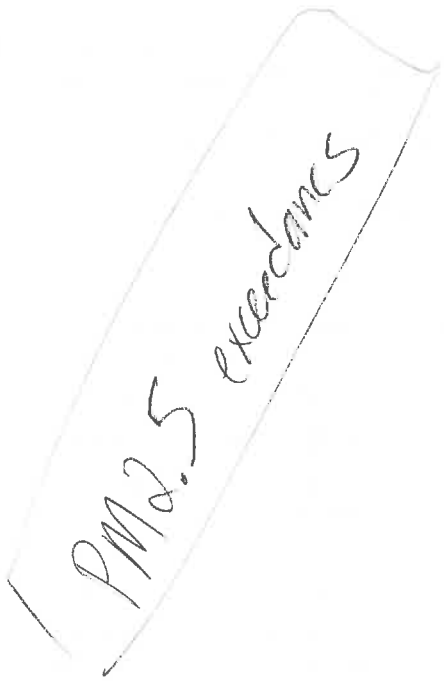

PM2.5 exceedances

Table 2-3. Modeled Emission rates

Pollutant	Modeled Emission Rates Dryer EP1 (g/s)	EG EP9 (g/s)	FP EP10 (g/s)
Acrolein	1.782E-01	2.855E-05	2.448E-05
Arsenic	3.497E-05	-	-
Benzene	5.889E-02	2.880E-04	2.469E-04
Benzo(a)pyrene	5.700E-05	5.804E-08	4.974E-08
Cadmium	6.517E-06	-	-
Chlorine	1.732E-02	-	-
Formaldehyde	1.085E+00	3.643E-04	3.122E-04
Hexachlorodibenzo-p-dioxin	3.508E-05	-	-
Hydrogen chloride	4.166E-02	-	-
Mercury, vapor	7.673E-05	-	-
Nickel metal	7.235E-04	-	-
Phenol	2.170E-01	-	-
Vinyl chloride	3.946E-04	2.3-	-
NO_x 32 lb/hr	4.070E+00	2.900E-01	2.486E-01

2.4. METEOROLOGICAL DATA

The AERMOD modeling results were based on sequential hourly surface observations from Raleigh/Durham, NC and upper air data from Greensboro, NC. These stations are recommended by NCDAQ for modeling facilities located in Northampton County. The base elevation for the surface station is 126.8 m.[4]

The five (5) most recent, model-ready years (1988-1992) were downloaded from the NCDAQ website.[5] As shown in Section 3.1, the TAP model impacts were all less than 50% of the AAL, so only the most recent year (1992) was input to AERMOD. For the 1-hour NO_2 NAAQS analysis, all 5 years were modeled in a concatenated file.

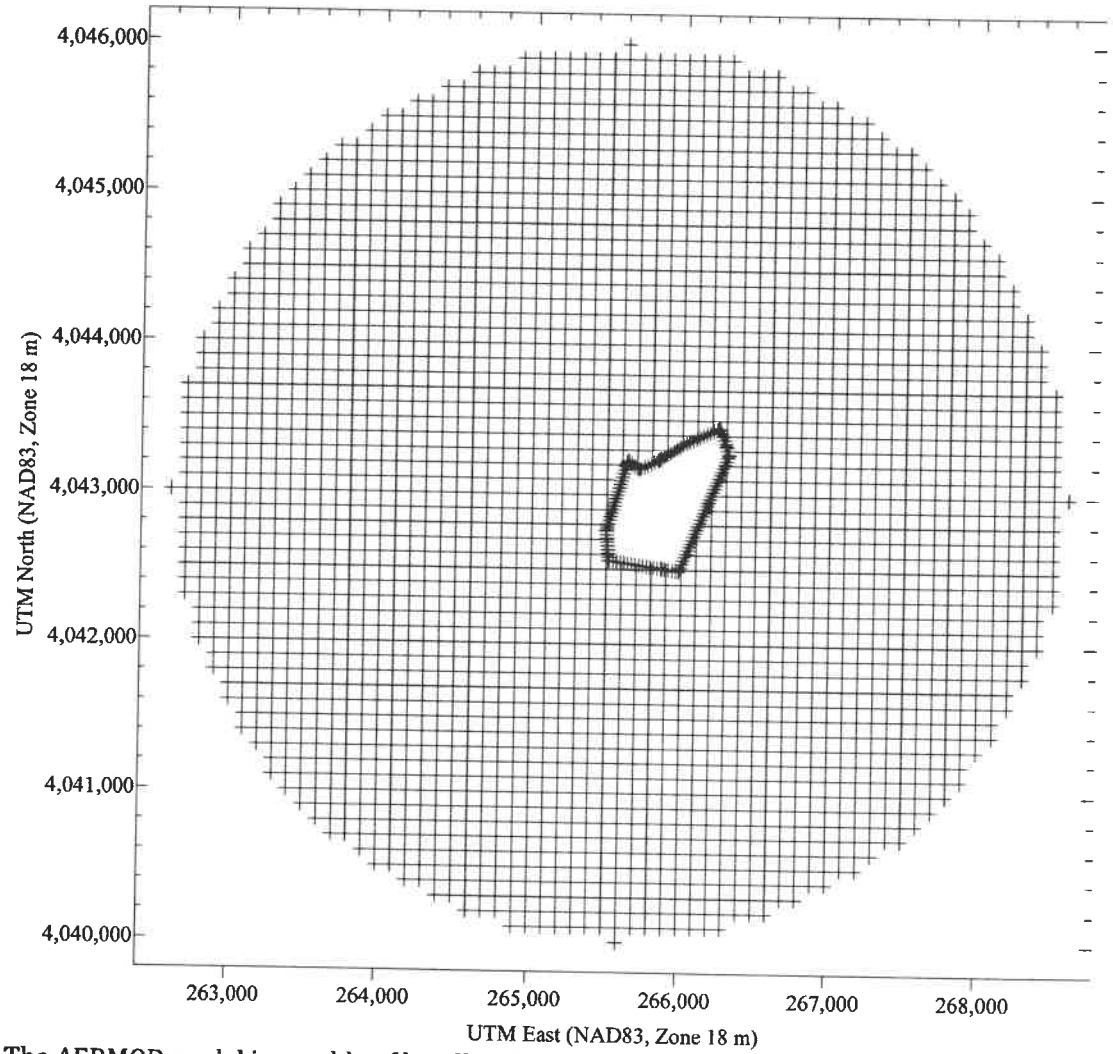
2.5. MODELED RECEPTORS

The receptors included in the modeling analysis consisted of property line receptors, spaced 25 meters (m) apart, and Cartesian receptor points spaced every 100 m, extending out 3 kilometers (km) from the facility. There are no public right-of-ways (e.g. roads, railways) traversing the property line, so the same receptor grid was modeled for the one-hour (1-hr) and annual TAP analyses, as well as for the 1-hour NO_2 NAAQS modeling. The

[4] http://www.ncair.org/permits/mets/ProfileBaseElevations.pdf
[5] http://www.ncair.org/permits/mets/metdata.shtml

impacts were reviewed to ensure that the maximum impacts were captured within the 100 m spaced grid. Figure 2-2 shows the receptors included in the modeling analysis.

Figure 2-2. Modeled Receptor Grid



The AERMOD model is capable of handling both simple and complex terrain. Through the use of the AERMOD terrain preprocessor (AERMAP), AERMOD incorporates not only the receptor heights, but also an effective height (hill height scale) that represents the significant terrain features surrounding a given receptor that could lead to plume recirculation and other terrain interaction.[6]

Receptor terrain elevations input to the model were interpolated from National Elevation Database (NED) data obtained from the USGS. NED data consist of arrays of regularly spaced elevations. The array elevations are at a resolution of 1 arcsecond (approximately

6 US EPA, *Users Guide for the AERMOD Terrain Preprocessor (AERMAP)*, EPA-454/B-03-003, Research Triangle Park, NC.

30 m intervals) and were interpolated using the latest version of AERMAP (version 11103) to determine elevations at the defined receptor intervals. The data obtained from the NED files were checked for completeness and spot-checked for accuracy against elevations on corresponding USGS 1:24,000 scale topographical quadrangle maps. AERMAP was also used to establish the base elevation of all Enviva structures and emission sources.

2.6. BUILDING DOWNWASH

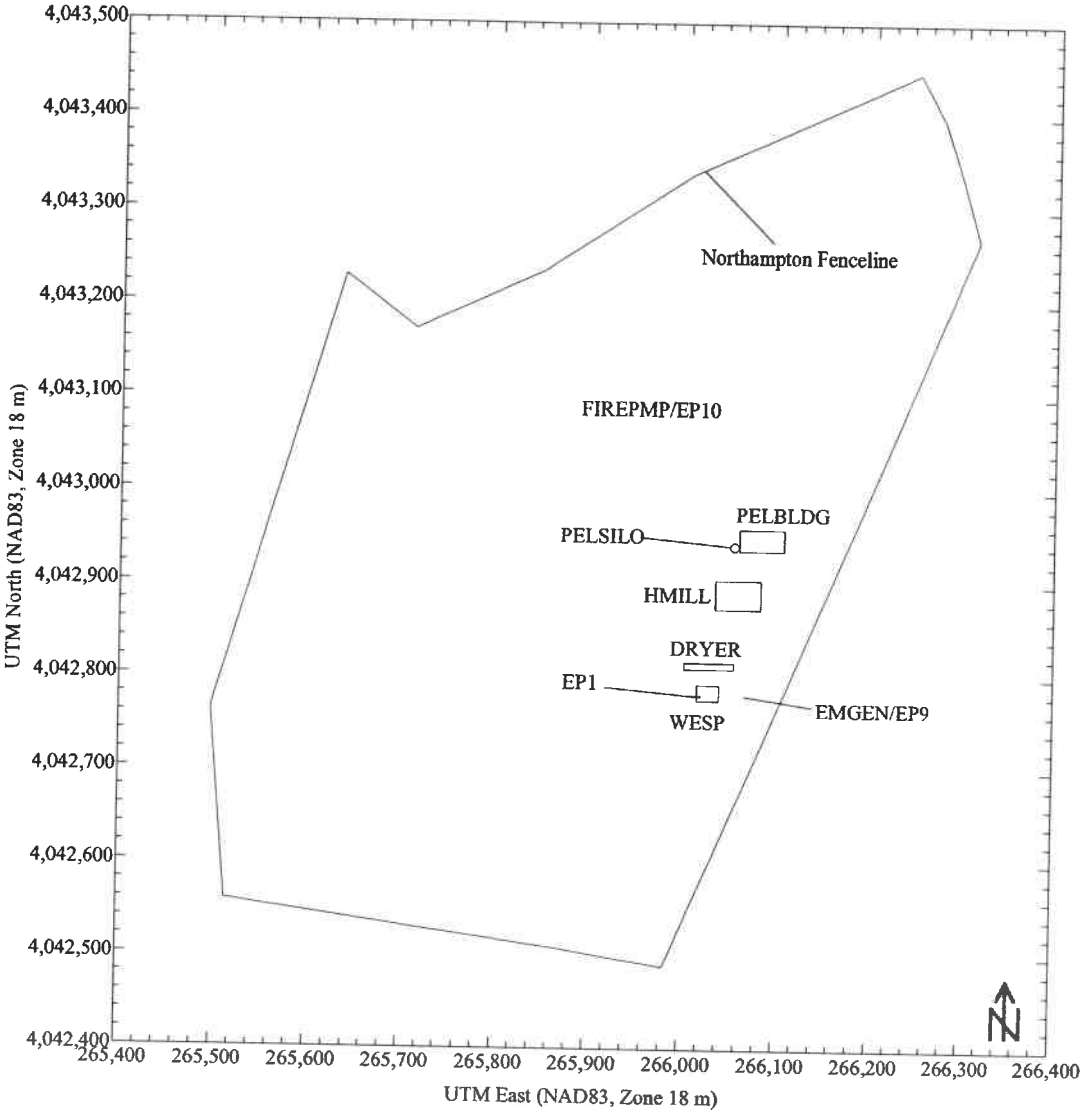
AERMOD incorporates the Plume Rise Model Enhancements (PRIME) downwash algorithms. Direction specific building parameters required by AERMOD are calculated using the BPIP-PRIME preprocessor (version 04274).

The wind direction-specific downwash dimensions and the dominant downwash structures used in this analysis were determined using BPIP-PRIME. In general, the lowest GEP stack height for any source is 65 meters by default.[7] None of the proposed emission units at the Northampton will exceed GEP height.

Figure 2-3 presents a site layout for the facility that shows the source and building arrangement as modeled.

[7] 40 CFR §51.100(ii)

Figure 2-3. Enviva Northampton Modeled Site Layout



2.7. 1-HOUR NO_2 NAAQS MODELING APPROACH

EPA's *Guideline on Air Quality Models (Guideline)*, in 40 CFR Part 51, Appendix W, recommends a tiered approach for modeling annual average NO_2 from point sources. The tiers are described in Section 6.2.3 of EPA's the *Guideline*:

a) *A tiered screening approach is recommended to obtain annual average estimates of NO_2 from point sources for New Source Review analysis, including PSD... For Tier 1 ... use an appropriate Gaussian model to estimate the maximum annual average concentration and assume a total conversion of NO to NO_2. If the concentration exceeds the NAAQS and/or PSD Increments for NO_2, proceed to the 2nd level screen.*

b) *For Tier 2 (2nd level) screening analysis, multiply the Tier 1 estimate(s) by an empirically derived NO_2/NO_X value of 0.75 (annual national default).*

c) *For Tier 3 (3rd level) analyses, a detailed screening method may be selected on a case-by-case basis. For point source modeling, detailed screening techniques such as the Ozone Limiting Method may also be considered.*

Enviva utilized the Ambient Ratio Method (ARM), or Tier 2 approach, which has evolved from previous representations of the oxidation of nitric oxide (NO) by ambient ozone and other photochemical oxidants to form nitrogen dioxide (NO_2 – the regulated ambient pollutant). EPA issued a memo on March 1, 2011 providing additional clarifications regarding application of Appendix W modeling guidance for the 1-hr NO_2 NAAQS.[8] Per the memo, EPA recommends the use of 0.80 as a default ambient ratio for the 1-hour NO_2 standard under the Tier 2 approach. Based on this updated EPA guidance, Enviva utilized 0.80 as the ambient NO_2:NO_X ratio NAAQS modeling analysis.

[8] U.S. EPA, Region 4, Memorandum from Mr. Tyler Fox to Regional Air Division Directors. Research Triangle Park, North Carolina. March 1, 2011.

3. MODELING RESULTS

This section presents the results for the modeling analyses conducted in support of Enviva Northampton's proposed wood pellet mill. As shown, the proposed facility will be in compliance with all applicable state TAP and NAAQS. The electronic modeling files used in the analysis are included on the CD-ROM in Appendix B.

3.1. TAP MODELING RESULTS

Table 3-1 presents the results for the NC TAP modeling analysis. As shown the impacts for all modeled TAP are below their respective AAL.

Table 3-1. TAP Modeling Results

Pollutant	Averaging Period	Max. Modeled[1] Impact ($\mu g/m^3$)	Date/Time of Impact (YYMMDDHH)	Location of Maximum UTM-E (m)	Location of Maximum UTM-N (m)	AAL ($\mu g/m^3$)	% of AAL (%)
Acrolein	1-Hour	1.07E+00	92031107	266,300.0	4,042,800.0	8.00E+01	1.33%
Arsenic	Annual	1.00E-05	1992	266,300.0	4,043,000.0	2.30E-04	4.35%
Benzene	Annual	1.57E-02	1992	266,300.0	4,043,000.0	1.20E-01	13.12%
Benzo(a)pyrene	Annual	1.00E-05	1992	266,300.0	4,043,000.0	3.30E-02	0.03%
Cadmium[2]	Annual	1.56E-06	1992	266,300.0	4,043,000.0	5.50E-03	0.03%
Chlorine	1-Hour	1.04E-01	92031107	266,300.0	4,042,800.0	9.00E+02	0.01%
	24-Hour	5.43E-02	92050724	265,840.5	4,042,512.0	3.75E+01	0.14%
Formaldehyde	1-Hour	6.50E+00	92031107	266,300.0	4,042,800.0	1.50E+02	4.33%
Hexachlorodibenzo-p-dioxin	Annual	1.00E-05	1992	266,300.0	4,043,000.0	7.60E-05	13.16%
Hydrogen chloride	1-Hour	2.49E-01	92031107	266,300.0	4,042,800.0	7.00E+02	0.04%
Mercury, vapor	24-Hour	2.40E-04	92050724	265,840.5	4,042,512.0	6.00E-01	0.04%
Nickel metal	24-Hour	2.27E-03	92050724	265,840.5	4,042,512.0	6.00E+00	0.04%
Phenol	1-Hour	1.30E+00	92031107	266,300.0	4,042,800.0	9.50E+02	0.14%
Vinyl chloride	Annual	9.00E-05	1992	266,300.0	4,043,000.0	3.80E-01	0.02%

[1] The maximum modeled impacts are based on the 1992 meterological data year only as impacts for all modeled TAP were less than 50% of their respective AAL.

[2] The cadmium model output file contains impacts in nanograms per cubic meter to capture the model concentration with more precision.

3.2. 1-HOUR NO_2 MODELING RESULTS

Table 3-2 presents the modeling results from the 1-hour NO_2 NAAQS modeling analysis. As shown, the modeled impact (including background) is below the NAAQS.

Table 3-2. NAAQS Modeling Results

Pollutant	Averaging Period	UTM-E (m)	UTM-N (m)	Date/Time	Modeled Concentration ($\mu g/m^3$)	Background Concentration[1] ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Exceeds NAAQS? (Yes/No)
NO_2	1-Hour	266,092.9	4,042,747.0	1988-1992	95.07	35.80	130.87	188	No

[1] Background Concentration provided in email from Charles Buckler (NCDAQ) to Jon Hill (Trinity) on August 1, 2011

APPENDIX A - MODELING PROTOCOL CHECKLIST

A.1

North Carolina Modeling Protocol Checklist

The North Carolina Modeling Protocol Checklist may be used in lieu of developing the traditional written modeling plan for North Carolina toxics and criteria pollutant modeling. The protocol checklist is designed to provide the same level of information as requested in a modeling protocol as discussed in Chapter 2 of the ***Guideline for Evaluating the Air Quality Impacts of Toxic Pollutants in North Carolina.*** The modeling protocol checklist is submitted with the modeling analysis.

Although most of the information requested in the modeling protocol checklist is self explanatory, additional comments are provided, where applicable, and are discussed in greater detail in the toxics modeling guidelines referenced above. References to sections, tables, figures, appendices, etc., in the protocol checklist are found in the toxics modeling guidelines.

INSTRUCTIONS: The modeling report supporting the compliance demonstration should include most of the information listed below. As appropriate, answer the following questions or indicate by check mark the information provided or action taken is reflected in your report.

FACILITY INFORMATION	
Name: Enviva Pellets Northampton, LLC **Facility ID:** 4600107 **Address:** 874 Lebanon Church Rd. Garysburg, NC 27866	**Consultant (if applicable):** Trinity Consultants One Copley Parkway Suite 310 Morrisville, NC 27560
Contact Name: Glenn Gray	**Contact Name:** Jonathan Hill
Phone Number: 757-274-8377 **Email:** glenn.gray@envivabiomass.com	**Phone Number:** 919-462-9693 **Email:** jhill@trinityconsultants.com

GENERAL	
Description of New Source or Source / Process Modification: provide a short description of the new or modified source(s) and a brief discussion of how this change affects facility production or process operation.	x
Source / Pollutant Identification: provide a table of the affected pollutants, by source, which identifies the source type (point, area, or volume), maximum pollutant emission rates over the applicable averaging period(s), and, for point sources, indicate if the stack is capped or non-vertical (C/N).	x
Pollutant Emission Rate Calculations: indicate how the pollutant emission rates were derived (e.g., AP-42, mass balance, etc.) and where applicable, provide the calculations.	x
Site / Facility Diagram: provide a diagram or drawing showing the location of all existing and proposed emission sources, buildings or structures, public right-of-ways, and the facility property (toxics) / fence line (criteria pollutants) boundaries. The diagram should also include a scale, true north indicator, and the UTM or latitude/longitude of at least one point.	x
Certified Plat or Signed Survey: a certified plat (map) from the County Register of Deeds or a signed survey must be submitted to validate property boundaries modeled.	x
Topographic Map: A topographic map covering approximately 5km around the facility must be submitted. The facility boundaries should be annotated on the map as accurately as possible.	x
Cavity Impact Analysis: If using SCREEN3, a cavity impact analysis must be conducted for all structures with a region of influence extending to one or more sources modeled to determine if cavity regions extend off property (toxics) or beyond the fence line (criteria pollutants). No separate cavity analysis is required if using AERMOD. *See Section 4.2*	AERMOD

GENERAL (continued)	
Background Concentrations (criteria pollutant analyses only): Background concentrations must be determined for each pollutant for each averaging period evaluated. The averaged background value used (e.g., high, high-second-high, high-third-high, etc.) is based on the pollutant and averaging period evaluated. The background concentrations are added to the modeled concentrations, which are then compared to the applicable air quality standard to determine compliance.	N/A
Offsite Source Inventories (criteria pollutant analyses only): Offsite source inventories must be developed and modeled for all pollutants for which onsite sources emissions are modeled in excess of the specific pollutant significant impact levels (SILs) as defined in the PSD New Source Review Workshop Manual. The DAQ AQAB must approve the inventories. An initial working inventory can be requested from the AQAB.	N/A

SCREEN LEVEL MODELING	
Model: The latest version of the SCREEN3 model must be used until AERSCREEN is developed and approved. The use of other screening models should be approved by NCDAQ prior to submitting the modeling report.	N/A
Source / Source emission parameters: Provide a table listing the sources modeled and the applicable source emission parameters. *See NC Form 3 – Appendix A.*	N/A
Merged Sources: Identify merged sources and show all appropriate calculations. *See Section 3.3*	N/A
GEP Analysis: SCREEN3 – for each source modeled, show all calculations identifying the critical structure used in the model run. *See section 3.2 and NC Form 1 - Appendix A.*	N/A
Cavity Impact Analysis: A cavity impact analysis using SCREEN3 must be conducted for all structures with a region of influence extending to one or more sources modeled to determine if cavity regions extend off property (toxics) or beyond the fence line (criteria pollutants). *See Section 4.2*	N/A
Terrain: Indicate the terrain modeled: simple *(Section 4.4)*, and complex *(Section 4.5 and NC Form 4 – Appendix A)*. If complex terrain is within 5 kilometers of the facility, complex terrain must be evaluated. Simple terrain must include terrain elevations if any terrain is greater than the stack base of any source modeled. Simple: _____ Complex: _____	N/A
Meteorology: In SCREEN3, select full meteorology.	N/A
Receptors: SCREEN3 – use shortest distance to property boundary for each source modeled and use sufficient range to find maximum (*See Section 4.1 (i) and (j)*). Terrain above stack base must be evaluated.	N/A
Modeling Results: For each affected pollutant, modeling results should be summarized, converted to the applicable averaging period *(See Table 3)*, and presented in tabular format indicating compliance status with the applicable AAL, SIL or NAAQS. *See NC Form S5 – Appendix A.*	N/A
Modeling Files: Either electronic or hard copies of SCREEN3 output must be submitted.	N/A

REFINED LEVEL MODELING	
Model: The latest version of AERMOD should be used, and may be found at http://www.epa.gov/scram001/dispersion_prefrec.htm. The use of other refined models must be approved by NCDAQ prior to submitting the modeling report.	x
Source / Source emission parameters: Provide a table listing the sources modeled and the applicable source emission parameters. *See NC Form 3 - Appendix A.*	x
GEP Analysis: Use BPIP-Prime with AERMOD.	x
Cavity Impact Analysis: No separate cavity analysis is required when using AERMOD as long as receptors are placed in cavity susceptible areas. *See Section 4.2 and 5.2.*	x
Terrain: Use digital elevation data from the USGS NED database (http://seamless.usgs.gov/index.php). Use of other sources of terrain elevations or the non-regulatory Flat Terrain option will require prior approval from DAQ AQAB.	x
Coordinate System: Specify the coordinate system used (e.g., NAD27, NAD83, etc.) to identify the source, building, and receptor locations. Note: Be sure to specify in the AERMAP input file the correct base datum (NADA) to be used for identifying source input data locations. Clearly note in both the protocol checklist and the modeling report which datum was used.	NAD83
Receptors: The receptor grid should be of sufficient size and resolution to identify the maximum pollutant impact. *See Section 5.3.*	x
Meteorology: Indicate the AQAB, pre-processed, 5-year data set used in the modeling demonstration: *(See Section 5.5 and Appendix B)* Norfolk/Wallops Island AERMOD 1988-1992 If processing your own raw meteorology, then pre-approval from AQAB is required. Additional documentation files (e.g. AERMET stage processing files) will also be necessary. For NC toxics, the modeling demonstration requires only the last year of the standard 5 year data set (e.g., 2005) provided the maximum impacts are less than 50% of the applicable AAL(s).	
Modeling Results: For each affected pollutant and averaging period, modeling results should be summarized and presented in tabular format indicating compliance status with the applicable AAL, SIL or NAAQS. *See NC Form R5 - Appendix A.*	x
Modeling Files: Submit input and output files for AERMOD. Also include BPIP-Prime files, AERMAP files, DEM files, and any AERMET input and output files, including raw meteorological data.	x

APPENDIX B - ELECTRONIC MODELING FILES

ATTACHMENT 5

REDLINE COPY OF THE EXISTING PERMIT

North Carolina Department of Environment and Natural Resources
Division of Air Quality

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

March 9, 2012

Mr. Norb Hintz
Vice President, Engineering
Enviva Pellets, LLC
7200 Wisconsin Avenue, Suite 1100
Bethesda, Maryland 20814

Dear Mr. Hintz:

SUBJECT: Air Quality Permit No. 10203R00
Facility ID: 6600167.11A
Enviva Pellets, Northampton, LLC
Gaston, North Carolina
Northampton County
Fee Class: Title V

In accordance with your completed Air Quality Permit Application for a state-only construction and operating permit under 15A NCAC 02Q .0300 received August 26, 2011, we are forwarding herewith Air Quality Permit No. 10203R00 to Enviva Pellets, LLC, Lebanon Church Road, Gaston, North Carolina authorizing the construction and operation, of the emission source(s) and associated air pollution control device(s) specified herein. Additionally, any emissions activities determined from your Air Quality Permit Application as being insignificant per 15A North Carolina Administrative Code 2Q .0503(8) have been listed for informational purposes as an "ATTACHMENT." Please note the requirements for the annual compliance certification are contained in General Condition P in Section 3. The current owner is responsible for submitting a compliance certification for the entire year regardless of who owned the facility during the year.

The Permittee shall file a Title V Air Quality Permit Application pursuant to 15A NCAC 02Q .0504 for those air emission sources (ID Nos. ES-DRYER, ES-GN, ES-FWP, ES-HM-1 through ES-HM-7, ES-NDS, ES-PPS, and ES-CLR-1 through ES-CLR-6) on or before 12 months after commencing operation of the first unit.

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As the designated responsible official it is your responsibility to review, understand, and abide by all of the terms and conditions of the attached permit. It is also your responsibility to ensure that any person who operates any emission source and associated air pollution control device subject to any term or condition of the attached permit reviews, understands, and abides by the condition(s) of the attached permit that are applicable to that particular emission source.

If any parts, requirements, or limitations contained in this Air Quality Permit are unacceptable to you, you

Permitting Section
1641 Mail Service Center, Raleigh, North Carolina 27699-1641
2728 Capital Blvd., Raleigh, North Carolina 27604
Phone: 919-715-6235 / FAX 919-733-5317 / Internet: www.ncair.org

have the right to request a formal adjudicatory hearing within 30 days following receipt of this permit, identifying the specific issues to be contested. This hearing request must be in the form of a written petition, conforming to NCGS (North Carolina General Statutes) 150B-23, and filed with both the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, North Carolina 27699-6714 and the Division of Air Quality, Permitting Section, 1641 Mail Service Center, Raleigh, North Carolina 27699-1641. The form for requesting a formal adjudicatory hearing may be obtained upon request from the Office of Administrative Hearings. Please note that this permit will be stayed in its entirety upon receipt of the request for a hearing Unless a request for a hearing is made pursuant to NCGS 150B-23, this Air Quality Permit shall be final and binding 30 days after issuance.

You may request modification of your Air Quality Permit through informal means pursuant to NCGS 150B-22. This request must be submitted in writing to the Director and must identify the specific provisions or issues for which the modification is sought. Please note that this Air Quality Permit will become final and binding regardless of a request for informal modification unless a request for a hearing is also made under NCGS 150B-23.

The construction of new air pollution emission source(s) and associated air pollution control device(s), or modifications to the emission source(s) and air pollution control device(s) described in this permit must be covered under an Air Quality Permit issued by the Division of Air Quality prior to construction unless the Permittee has fulfilled the requirements of GS 143-215-108A(b) and received written approval from the Director of the Division of Air Quality to commence construction. Failure to receive an Air Quality Permit or written approval prior to commencing construction is a violation of GS 143-215.108A and may subject the Permittee to civil or criminal penalties as described in GS 143-215.114A and 143-215.114B.

This Air Quality Permit shall be effective from March 9, 2012 until February 28, 2017, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein. Should you have any questions concerning this matter, please contact Kevin Godwin at (919) 707-8480.

Sincerely yours,

Donald R. van der Vaart, Ph.D., P.E., J.D.
Chief

Enclosure

c: Patrick Butler, Supervisor, Raleigh Regional Office
Shannon Vogel, Stationary Source Compliance Branch
Central Files

State of North Carolina,
Department of Environment,
and Natural Resources

Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
10203R00	N/A	March 9, 2012	February 28, 2017

Until such time as this permit expires or is modified or revoked, the below named Permittee is permitted to construct and operate the emission source(s) and associated air pollution control device(s) specified herein, in accordance with the terms, conditions, and limitations within this permit. This permit is issued under the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and Title 15A North Carolina Administrative Codes (15A NCAC), Subchapters 2D and 2Q, and other applicable Laws.

Pursuant to Title 15A NCAC, Subchapter 2Q, the Permittee shall not construct, operate, or modify any emission source(s) or air pollution control device(s) without having first submitted a complete Air Quality Permit Application to the permitting authority and received an Air Quality Permit, except as provided in this permit.

Permittee: **Enviva Pellets, LLC**
Facility ID: **4600107**

Facility Site Location: **874 Lebanon Church Road**
City, County, State, Zip: **Garysburg, Northampton County, North Carolina, 27831**

Mailing Address: **7200 Wisconsin Avenue**
City, State, Zip: **Bethesda, Maryland, 20814**

Application Number: **6600167.11A**
Complete Application Date: **August 26, 2011**

Primary SIC Code: **2499**
Division of Air Quality, **Raleigh Regional Office**
Regional Office Address: **3800 Barrett Drive**
Raleigh, North Carolina, 27609

ATTACHMENT to Permit No. 10203R00

Insignificant Activities under 15A NCAC 2Q .0503(8)

Emission Source ID No.	Emission Source Description
IES-DWH	Dried wood handling
IES-PP	Pellet press system
IES-FPH	Finished product handling
IS-TK1 and IS-TK2	Two diesel storage tanks (2,500 gallon and 500 gallon capacity)
IES-EPWC	Electric powered green wood chipper
IES-RCHP-1 and IES-RCHP-2	Two (2) Electric Powered Wood Rechippers
IES-GWHS	Green wood handling and storage
IES-GWFB	Green wood fuel storage bin
ES-GN and ES-FWP **NSPS** **MACT**	One emergency use generator (350 brake horsepower) and one fire water pump (300 brake horsepower)

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1. Because an activity is insignificant does not mean that the activity is exempted from an applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.
2. When applicable, emissions from stationary source activities identified above shall be included in determining compliance with the permit requirements for toxic air pollutants under 15A NCAC 2D .1100 "Control of Toxic Air Pollutants" or 2Q .0711 "Emission Rates Requiring a Permit".
3. For additional information regarding the applicability of GACT see the DAQ page titled "The Regulatory Guide for Insignificant Activities/Permits Exempt Activities". The link to this site is as follows: http://daq.state.nc.us/permits/insig/

Table Of Contents

SECTION 1- PERMITTED EMISSION SOURCE (S) AND ASSOCIATED AIR POLLUTION CONTROL DEVICE (S) AND APPURTENANCES

The following table contains a summary of all permitted emission sources and associated air pollution control devices and appurtenances:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-DRYER	Direct heat, wood-fired dryer (174 million Btu per hour heat input)	CD-DC and CD-WESP	One simple cyclone (149 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)
ES-HM-1, HM-2, HM-3, HM-4, HM-5, HM-6, and HM-7	Seven hammermills	CD-CHM-CYC-1, CYC-2, CYC-3, CYC-4, CYC-5, CYC-6, and CYC-7, and CD-HM-BF-1, BF-2, and BF-3,	Seven simple cyclones (120 inches in diameter each) in series with three fabric filters (6,250 square feet of filter area each)
ES-NDS	Nuisance Dust System	CD-HM-BF-3	One fabric filter (6,250 square feet of filter area)
ES-PMFS	Pellet feed mill silo	CD-PMFS-BV	One bin vent filter (377 square feet of filter area)
ES-PFB	Pellet Fines Bin	CD-PFB-BV	One bin vent filter (325 square feet of filter area)
ES-CLR1, CLR-2, CLR-3, CLR-4, CLR-5, and CLR-6	Pellet coolers	CD-CLR-1, CLR-2, CLR-3; CLR-4; CLR-5; andCLR-6	Six simple cyclones (54 inches in diameter each)
ES-FPH	Finished Product Handling	CD-FPH-BF	Finished Product Handling Bagfilter (4,842 square feet of filter area)
ES-PB-1, PB-2, PB-3, PB-3, PB-4, PB-5, PB-6, PB-7, PB-8, PB-9,	Twelve (12) Pellet Loadout Bins	CD-FPH-BF	Finished Product Handling Bagfilter (4,842 square feet of filter area)

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PB-10, PB-11, AND PB-12			
ES-PL1 and PL2	Pellet Mill Loadout 1 and 2	CD-FPH-BF	Finished Product Handling Bagfilter (4,842 square feet of filter area)

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NSPS¶
MACT

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SECTION 2 - SPECIFIC LIMITATIONS AND CONDITIONS

2.1- Emission Source(s) and Control Devices(s) Specific Limitations and Conditions

The emission source(s) and associated air pollution control device(s) and appurtenances listed below are subject to the following specific terms, conditions, and limitations, including the testing, monitoring, recordkeeping, and reporting requirements as specified herein:

A. Wood-fired dryer system (ID No. ES-DRYER), Hammermills (ID Nos. ES-HM-1, 2, 3, 4, 5, 6, and 7), Nuisance Dust System (ES-NDS), Pellet mill feed silo (ID No. ES-PMFS), Pellet fines bin (ID No. ES-PFB), Pellet coolers (ID Nos. ES-CLR1, 2, 3, 4, 5, and 6), Finished product handling (ES-FPH), Pellet Loadout Bins (ID Nos. ES-PB-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12), and Pellet Mill Loadout (ES-PL1 and 2).

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The following table provides a summary of limits and standards for the emission source(s) described above:

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate matter	$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph $E = 55 \times P^{0.11} - 40$ for process weigh rate ≥ 30 tph Where, E = allowable emission rate (lb/hr) P = process weight rate (tph)	15A NCAC 02D .0515
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 02D .0516
Visible emissions	20 percent opacity when averaged over a six minute period	15A NCAC 02D .0521
Toxic air pollutants	See Section 2.2 A.	15A NCAC 02D .1100
Volatile organic compounds	Less than 250 tons per consecutive 12 month period, See Section 2.2 B.	15A NCAC 02Q .0317 for avoidance of 15A NCAC 02D .0530

1. 15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL

PROCESSES

a. Emissions of particulate matter from this source shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 02D .0515(a)]

$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph
$E = 55 \times P^{0.11} - 40$ for process weight rate ≥ 30 tph

Where E = allowable emission rate in pounds per hour
P = process weight in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

Testing

b. Under the provisions of NCGS 143-215.108, the Permittee shall test the wet electrostatic precipitator **(ID No. CD-WESP)** for total suspended particulate (TSP) control efficiency in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of operation unless an alternate date is approved by the DAQ.

Monitoring/Recordkeeping

c. Particulate matter emissions from the wood dryer system **(ID No. ES-DRYER)** shall be controlled by a simple cyclone **(ID No. CD-DC)** in series with a wet electrostatic precipitator **(ID No. CD-WESP)**. Particulate matter emissions from the seven hammermills **(ID Nos. ES-HM-1, 2, 3, 4, 5, 6, and 7)** shall be controlled by seven simple cyclones **(ID Nos. CD-HM-CYC-1, 2, 3, 4, 5, 6, and 7)** in series with three fabric filters **(ID Nos. CD-HM-BF1, BF2, and BF3)**. Particulate matter emissions from the nuisance dust system **(ID No. ES-NDS)** shall be controlled by one fabric filter **(ID No. CD-HM-BF3)**. Particulate matter emissions from the pellet mill feed silo **(ID No. ES-PMFS)** shall be controlled by a bin vent filter **(ID No. CD-PMFS-BV)**. Particulate matter emissions from the pellet fines bin **(ID No. ES-PFB)** shall be controlled by a bin vent filter **(ID No. CD-PFB-BV)**. Particulate matter emissions from the pellet coolers **(ID Nos. ES-CLR-1, 2, 3, 4, 5 and 6)** shall be controlled by six simple cyclones **(ID Nos. CD-CLR-C1, 2, 3, 4, 5, and 6)**. Particulate matter emissions from the finished product handling (ID No. ES-FPH), pellet loadout bins (ID Nos. ES-PB-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12), and pellet mill loadout (ID Nos. ES-PL1 and 2) shall be controlled by one fabric filter (ID No. CD-FPH-BF).

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For bagfilters and cyclones:

To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

i. a monthly visual inspection of the system ductwork and material collection unit for leaks.
ii. an annual (for each 12 month period following the initial inspection) internal inspection of the bagfilters' structural integrity.

For WESP:

To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

The Permittee shall establish the minimum primary voltage and minimum current within the first 30 days following operation of the dryer. To assure compliance and effective operation of the wet electrostatic precipitator, the Permittee shall monitor and record the primary voltage and current through the precipitator daily. The daily observation must be made for each day of the calendar year period. The Permittee shall be allowed three (3) days of absent observations per semi-annual period.

d. The results of inspection and maintenance shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:

i. the date and time of each recorded action;
ii. the results of each inspection;
iii. the results of any maintenance performed; and
iv. any variance from manufacturer's recommendations, if any, and corrections made.

Reporting

e. The Permittee shall submit the results of any maintenance performed on the WESP, cyclones and bagfilters within 30 days of a written request by the DAQ.

2. **15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES**

a. Emissions of sulfur dioxide from this source **(ID No. ES-DRYER)** shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 02D .0516]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601.

Monitoring/Recordkeeping

c. No monitoring/recordkeeping is required for sulfur dioxide emissions from firing wood for these sources.

3. **15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS**

a. Visible emissions from these sources shall not be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. [15A NCAC 02D .0521 (d)]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601.

Monitoring

c. To assure compliance, once a month the Permittee shall observe the emission points of this source for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either:

i. take appropriate action to correct the above-normal emissions as soon as practicable and

within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or

ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2601 (Method 9) for 12 minutes is below the limit given in Section 2.1 A.3. a. above.

Recordkeeping

d. The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:

i. the date and time of each recorded action;

ii. 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

iii. the results of any corrective actions performed.

B. Emergency Generator (ID No. ES-GN) and Fire Water Pump (ID No. ES-FWP)

The following table provides a summary of limits and/or standards for the emission source(s) described above.

Regulated Pollutant	Limits/Standards	Applicable Regulation
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
Visible emissions	20 percent opacity	15A NCAC 2D .0521
Toxic air pollutants	**State-enforceable only** See Section 2.2 A.1.	15A NCAC 2D .1100
Hazardous air pollutants (HAP)	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) No additional requirements per 63.6590(c)	15A NCAC 2D .1111 (40 CFR 63, Subpart ZZZZ)
NMHC and NOx, CO, PM	0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW for NOx + NMHC	15A NCAC 2D .0524 (40 CFR 60, Subpart IIII)

1. 15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

a. Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 2D .0516]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(4).

Monitoring/Recordkeeping/Reporting

c. No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of diesel fuel in these sources.

2. 15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS

a. Visible emissions from these sources shall not be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. [15A NCAC 2D .0521(d)]

Testing

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(8).

Monitoring

c. To assure compliance, once a month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. The Permittee shall establish 'normal' for the sources in the first 30 days following operation. If visible emissions from these sources are observed to be above normal, the Permittee shall either:
   i. take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or
   ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2601 (Method 9) for 12 minutes is below the limit given in Section 2.1 F.2. a. above.

Recordkeeping

d. The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:
   i. the date and time of each recorded action;
   ii. 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
   iii. the results of any corrective actions performed.

3. **15A NCAC 2D .0524 NEW SOURCE PERFORMANCE STANDARDS [40 CFR Subpart IIII]**

a. The provisions of this subpart are applicable to manufacturer, owners, and operators of stationary compression ignition (CI), reciprocating internal combustion engines (RICE). The Permittee shall comply with all applicable provisions, including the requirements for emission standards, notification, testing, reporting, recordkeeping, and monitoring, contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards (NSPS)" as promulgated in 40 CFR Part 60 Subpart IIII, including Subpart A "General Provisions."

Emission Standards for Manufacturers:

Emergency Engines

b. Pursuant to 40 CFR §60.4202 (a), stationary RICE engine manufacturers must certify their 2007 model year and later emergency stationary RICE. For engines greater than or equal to 50 hp, the certification emission standards for new non-road CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

Fire Pump Engines

c. Pursuant to 40 CFR §60.4202(d), beginning with the model years in table 3 to this subpart, stationary RICE manufacturers must certify their fire pump RICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

d. Pursuant to 40 CFR §60.4210, RICE manufacturers must certify the engine using the certification procedures required in 40 CFR Part 89, subpart b, or 40 CFR Part 1039, subpart c as applicable.

e. Pursuant to 40 CFR §60.4203, RICE must meet the emission standards during the useful life of the engine.

Emission Standards for Owners and Operators:

Emergency and Fire Pump Engines

f. Pursuant to 40 CFR §60.4205, owners and operators must comply with the following emission standards:

0.20 g/kW for PM
3.5 g/kW for CO
4 g/kW for NOx + NMHC

g. Pursuant to 40 CFR §60.4206, owners and operators must operate and maintain the stationary RICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Fuel Requirements for Owners and Operators

h. Pursuant to 40 CFR §60.4207, owners and operators must use fuel with a maximum sulfur content of 15 ppmw and a cetane index of at least 40.

i. Pursuant to 40 CFR §60.4209(a), the owner or operator must install a non-resettable hour meter prior to start-up of the engines.

4. 15A NCAC 2D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR 63 Subpart ZZZZ)

a. Pursuant to §63.6580, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

b. Pursuant to §63.6590(c), a new stationary RICE located at an area source must meet the requirements of 40 CFR Part 60, Subpart IIII, for compression ignition engines. No further requirements apply for such engines under this part.

2.2- Multiple Emission Source(s) Specific Limitations and Conditions

A. Facility-wide sources

STATE-ONLY REQUIREMENT:

1. TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REQUIREMENT - Pursuant to 15A NCAC 02D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limit shall not be exceeded:

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)

Dryer system **(ID No. ES-DRYER)**	Acrolein	1.41 lb/hr
	Arsenic & compounds	2.43 lb/year
	Benzene	4,094.25 lb/year
	Benzo(a)pyrene	3.96 lb/year
	Cadmium	0.453 lb/year
	Chlorine	3.29 lb/day
	Formaldehyde	8.61 lb/hr
	Hexachlorodibenzo-p-dioxin	2.43 lb/year
	Hydrogen chloride	0.331 lb/hr
	Phenol	1.72 lb/hr
	Mercury	0.0146 lb/day
	Nickel	0.138 lb/day
	Vinyl chloride	27.43 lb/year

a. No reporting is required.

Deleted: Fire Water Pump (ID No. ES-FW ... [2]

STATE-ONLY REQUIREMENT:

2. **TOXIC AIR POLLUTANT EMISSION RATES REQUIRING A PERMIT** – Pursuant to 15A NCAC 02Q .0711, a permit to emit toxic air pollutants is required for any facility whose actual rate of emissions from all sources are greater than any one of the following rates:

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
1,3 Butadiene (106-99-0)	11			
Acetaldehyde (75-07-0)				6.8
Beryllium (7440-41-7)	0.28			
Carbon tetrachloride (56-23-5)	460			
Chlorobenzene (108-90-7)		46		
Chloroform (67-66-3)	290			
Di(2-ethylhexyl)phthalate (DEHP) (117-81-7		0.63		
Ethylene dichloride (1,2-dichloroethane) (107-06-2)	260			
Managanese & cmpds		0.63		
Methyl chloroform (1,1,1-trichloroethane) (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		78		
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Pentachlorophenol (87-86-5)		0.063	0.0064	
Perchloroethylene (tetrachloroethylene) (127-18-4)	13000			

Polychlorinated biphenyls (1336-36-3)	5.6			
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-p-dioxin (1746-01-6)	0.00020			
Trichloroethylene (79-01-6)	4000			
Toluene (108-88-3)		98		14.4
Trichlorofluoromethane (CFC 111) (75-01-4)			140	
Xylene (1330-20-7)		57		16.4

B. 15A NCAC 2Q. 0317: AVOIDANCE CONDITIONS
15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION

1. In order to avoid applicability of this regulation, the pellet dryer **(ID No. ES-DRYER)** shall discharge into the atmosphere less than 250 tons of VOCs and CO each per consecutive 12-month period. [15A NCAC 2D .0530]

Testing

2. Under the provisions of NCGS 143-215.108, the Permittee shall establish emission factors for calculating total VOC and CO used in compliance calculations under requirement 3. below by testing the wood dryer **(ID No. ES-DRYER)** in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of commencement of operation unless an alternate date is approved by the DAQ.

Monitoring/Recordkeeping

3. Calculations of VOC and CO emissions per month shall be made at the end of each month. VOC and CO emissions shall be determined by multiplying the approved VOC and CO emission factor by the plant process rate.
4. The Permittee shall not process more than 10% softwood on an annual basis. The hardwood/softwood mix shall be recorded in a monthly log.
5. The product moisture content shall not be less than 13%. The Permittee shall monitor and record average moisture content on a 30 day rolling average. Calculations and the total amount of VOC and CO emissions shall be recorded monthly in a log (written or electronic format).

Reporting

6. The Permittee shall submit a semi-annual summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:

a. The monthly hardwood/softwood mix for the previous 17 months.
b. The 30 day rolling average product moisture content.
c. The monthly VOC and CO emissions for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months.

SECTION 3 - GENERAL CONDITIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to:

   Patrick Butler
   Regional Air Quality Supervisor
   North Carolina Division of Air Quality
   Raleigh Regional Office
   3800 Barrett Drive
   Raleigh, NC 27609
   (919) 791-4200

2. PERMIT RENEWAL REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, DAQ.

3. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.

4. ANNUAL EMISSION INVENTORY REQUIREMENTS – The Permittee shall report by June 30 of each year the actual emissions of each air pollutant listed in 15A NCAC 02Q .0207(a) from each emission source within the facility during the previous calendar year. The report shall be in or on such form as may be established by the Director. The accuracy of the report shall be certified by the responsible official of the facility.

5. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.

6. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

7. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:

a. changes in the information submitted in the application regarding facility emissions;
b. changes that modify equipment or processes of existing permitted facilities; or
c. changes in the quantity or quality of materials processed.

If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

8. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.

9. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.

10. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

11. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

12. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.

13. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.

14. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

15. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.

16. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

17. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a

general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. This condition is federally-enforceable only.

Permit issued this the 9th day of March, 2012.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

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Donald R. van der Vaart, PhD., P.E., J.D., Chief, Air Permits Section
Division of Air Quality
By Authority of the Environmental Management Commission

ATTACHMENT

List of Acronyms

AOS	Alternate Operating Scenario
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CEM	Continuous Emission Monitor
CFR	Code of Federal Regulations
DAQ	Division of Air Quality
DENR	Department of Environment and Natural Resources
EMC	Environmental Management Commission
EPA	Environmental Protection Agency
FR	Federal Register
GACT	Generally Available Control Technology
HAP	Hazardous Air Pollutant
MACT	Maximum Achievable Control Technology
NAA	Non-Attainment Area
NCAC	North Carolina Administrative Code
NCGS	North Carolina General Statutes
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standard
OAH	Office of Administrative Hearings
PM	Particulate Matter
PM_{10}	Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less
POS	Primary Operating Scenario
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
tpy	Tons Per Year
VOC	Volatile Organic Compound

Page 3: [1] Deleted **Gina Hicks** **12/17/2012 12:53:00 PM**

ES-HMA		CD-HMA-BF	One fabric filter (7,442 square feet of filter area)

Page 10: [2] Deleted **Gina Hicks** **12/17/2012 1:00:00 PM**

Fire Water Pump (**ID No. ES-FWP**)	Acrolein Benzene Benzo(a)pyrene Formaldehyde	1.94E-04 lb/hr 17.16 lb/year 3.46E-03 lb/year 2.48E-03 lb/hr
Emergency generator (**ID No. ES-GN**)	Acrolein Benzene Benzo(a)pyrene Formaldehyde	2.27E-04 lb/hr 20.02 lb/year 4.04E-03 lb/year 2.89E-03 lb/hr