Pat McCrory  
Governor  

September 9, 2013  

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

Dear Mr. Najera:  

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.
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

<table>
<thead>
<tr>
<th>Permit No.</th>
<th>Replaces Permit No.</th>
<th>Effective Date</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10203R02</td>
<td>10203R01</td>
<td>September 9, 2013</td>
<td>February 28, 2017</td>
</tr>
</tbody>
</table>

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:
Facility ID:

Facility Site Location:
City, County, State, Zip:

Mailing Address:
City, State, Zip:

Application Number:
Complete Application Date:

Primary SIC Code:
Division of Air Quality,
Regional Office Address:

Enviva Pellets Northampton, LLC
4600107

874 Lebanon Church Road
Garysburg, Northampton County, North Carolina, 27831

7200 Wisconsin Avenue
Bethesda, Maryland, 20814

6600167.13B
September 6, 2013

2499
Raleigh Regional Office
3800 Barrett Drive
Raleigh, North Carolina, 27609
# Insignificant Activities under 15A NCAC 2Q .0503(8)

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

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/](http://daq.state.nc.us/permits/insig/)
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    (Including specific requirements, testing, monitoring, recordkeeping, and reporting requirements)

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    List of Acronyms
## 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:

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

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

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)]

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

   Where \( E = \) allowable emission rate in pounds per hour<br>\( P = \) 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 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 bag filters 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-ND, ES-PMFS, ES-PF, 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:

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

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:

<table>
<thead>
<tr>
<th>Pollutant (CAS Number)</th>
<th>Carcinogens (lb/yr)</th>
<th>Chronic Toxicants (lb/day)</th>
<th>Acute Systemic Toxicants (lb/hr)</th>
<th>Acute Irritants (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3-Butadiene (106-99-0)</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetaldehyde (75-07-0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beryllium (7440-41-7)</td>
<td>0.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon tetrachloride (56-23-5)</td>
<td>460</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorobenzene (108-90-7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloroform (67-66-3)</td>
<td>290</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di(2-ethylhexyl)phthalate (117-81-7)</td>
<td></td>
<td></td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>Ethylene dichloride (107-06-2)</td>
<td>260</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese &amp; compounds</td>
<td></td>
<td></td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>Methyl chloroform (71-55-6)</td>
<td></td>
<td></td>
<td>250</td>
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<tr>
<td>Methyl ethyl ketone (78-93-3)</td>
<td></td>
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<td>Pollutant (CAS Number)</td>
<td>Carcinogens (lb/yr)</td>
<td>Chronic Toxicants (lb/day)</td>
<td>Acute Systemic Toxicants (lb/hr)</td>
<td>Acute Irritants (lb/hr)</td>
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<td>Xylene (1330-20-7)</td>
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</table>
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;
   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

[Signature]

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

Air Permit No. 10203R02
## List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>AOS</td>
<td>Alternate Operating Scenario</td>
</tr>
<tr>
<td>BACT</td>
<td>Best Available Control Technology</td>
</tr>
<tr>
<td>Btu</td>
<td>British thermal unit</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CAIR</td>
<td>Clean Air Interstate Rule</td>
</tr>
<tr>
<td>CEM</td>
<td>Continuous Emission Monitor</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>DAQ</td>
<td>Division of Air Quality</td>
</tr>
<tr>
<td>DENR</td>
<td>Department of Environment and Natural Resources</td>
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<tr>
<td>EMC</td>
<td>Environmental Management Commission</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<tr>
<td>FR</td>
<td>Federal Register</td>
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<td>GACT</td>
<td>Generally Available Control Technology</td>
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<tr>
<td>HAP</td>
<td>Hazardous Air Pollutant</td>
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<tr>
<td>MACT</td>
<td>Maximum Achievable Control Technology</td>
</tr>
<tr>
<td>NAA</td>
<td>Non-Attainment Area</td>
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<td>NCAC</td>
<td>North Carolina Administrative Code</td>
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<td>NCGS</td>
<td>North Carolina General Statutes</td>
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<td>NESHAPS</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
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<td>NOX</td>
<td>Nitrogen Oxides</td>
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<td>NSPS</td>
<td>New Source Performance Standard</td>
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<td>OAH</td>
<td>Office of Administrative Hearings</td>
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<tr>
<td>PM</td>
<td>Particulate Matter</td>
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<tr>
<td>PM_{10}</td>
<td>Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less</td>
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<td>POS</td>
<td>Primary Operating Scenario</td>
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<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
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<tr>
<td>RACT</td>
<td>Reasonably Available Control Technology</td>
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<td>SIC</td>
<td>Standard Industrial Classification</td>
</tr>
<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
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<tr>
<td>SO_{2}</td>
<td>Sulfur Dioxide</td>
</tr>
<tr>
<td>tpy</td>
<td>Tons per Year</td>
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<tr>
<td>VOC</td>
<td>Volatile Organic Compound</td>
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</table>
NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: September 9, 2013

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

Contact Data

Facility Contact
Roland Burnett
Plant Manager
(910) 318-2743
874 Lebanon Church Rd
Garysburg, NC 27831

Authorized Contact
Pete Najera
VP of Operations
(703) 380-9957
7200 Wisconsin Avenue,
Suite 1000
Bethesda, MD 20814

Technical Contact
Joe Harrell
EHS Manager
(252) 209-6032
142 NC Route 561 East
Ahoskie, NC 27910

Review Engineer: Jenny Kelvington

Review Engineer’s Signature: Date:

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

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:

<table>
<thead>
<tr>
<th>Source ID No.</th>
<th>Emission Source Description</th>
<th>Control ID No.</th>
<th>Control Device Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-PFB-1</td>
<td>Pellet fines bin</td>
<td>CD-PFB-BV-1</td>
<td>One bin vent filter (780 square feet of filter area)</td>
</tr>
</tbody>
</table>
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:

\[
E = 4.10 \times P^{0.67} \quad \text{for } P < 30 \text{ tph}
\]

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:

<table>
<thead>
<tr>
<th>Source Description</th>
<th>CO (tpy)</th>
<th>NOx (tpy)</th>
<th>TSP (tpy)</th>
<th>PM$_{10}$ (tpy)</th>
<th>PM$_{2.5}$ (tpy)</th>
<th>SO2 (tpy)</th>
<th>VOC (tpy)</th>
<th>CO$_2$e (tpy)</th>
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<tr>
<td>Dryer System (ES-DRYER)</td>
<td>193.09</td>
<td>124.74</td>
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<td>27.77</td>
<td>27.77</td>
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<td>183.05</td>
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<td>Emergency Generator (ES-EG)</td>
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<td>0.58</td>
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<td>79.75</td>
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<td>Hammermills/Nuisance Dust System (ES-HM-1 to ES-HM-7 and ES-NDS)</td>
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<td>Pellet Mill Feed Silo (ES-PMFS)</td>
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<td>Pellet Mill Fines Bin (ES-PFB-1)</td>
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<td>0.12</td>
<td>0.12</td>
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<td>Pellet Coolers (ES-CLR1 to ES-CLR6)</td>
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<td>Load-out Bins (ES-PB1 to ES-PB12)</td>
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<td>3.79E-03</td>
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<td><strong>Facility Wide Total</strong></td>
<td><strong>194.0</strong></td>
<td><strong>125.8</strong></td>
<td><strong>84.5</strong></td>
<td><strong>80.7</strong></td>
<td><strong>65.4</strong></td>
<td><strong>19.1</strong></td>
<td><strong>185.9</strong></td>
<td><strong>233.6</strong></td>
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</table>

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 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
- Wash
- Estimated Efficiency (%): 90%

#### Actual Air Flow Rate (acfm)
- 3,600

#### Maximum Operating Temperature (F)
- 100

#### Maximum Pressure Drop (In H2O)
- No. of compartments: 6

#### Gas Stream Moisture (%)
- Felted?: no
- Process Rate (lb/hr): 12,000

#### Time Between Cleanings (min)
- Cleaning Time (min): ?

### Program Output

#### Filtering Velocity Analysis
- **Typical Filtering Velocity (fpm)**
  - 3.5
- **Applicant Filtering Velocity (fpm)**
  - 4.8

#### Typical filtering velocity exceeded by:
- 31.9%

#### Fabric Durability Analysis
- Chemical Resistance
  - Acid: Fair
  - Alkali: Fair
  - Organics: Fair

#### Particulate Emissions Analysis
- **Controlled Particulate Rate (lb/hr)**
  - Gas Stream Particulate Loadings (gridsft)
    - Uncontrolled: 0.141
    - 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 (grs/ft²)**
  - 0.0

#### Efficiency Calculations

<table>
<thead>
<tr>
<th>Mass in Range (%)</th>
<th>Control Efficiency (%)</th>
<th>eta-m (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.8</td>
<td>98.00</td>
<td>5.88</td>
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<td>10.7</td>
<td>99.90</td>
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<td>23.6</td>
<td>99.90</td>
<td>23.78</td>
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<td>11.3</td>
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<td>11.30</td>
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<td>5.4</td>
<td>99.99</td>
<td>5.40</td>
</tr>
<tr>
<td>43.0</td>
<td>99.99</td>
<td>43.00</td>
</tr>
</tbody>
</table>

#### Overall Control Efficiency = 99.84 %

#### 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
**Comprehensive Application Report for 6600167.13C**
Enviva Pellets Northampton, LLC - Gaston (6600167)
Northampton County

<table>
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<tr>
<th>General Information</th>
<th>Application Dates</th>
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<td>10203/ R02</td>
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<td>Modification</td>
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<td>Engineer/Rev. location:</td>
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<tr>
<td>Jenny Kelvington/RCO</td>
<td>09/03/2013</td>
<td>12/02/2013</td>
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<td>Regional Contact:</td>
<td></td>
<td></td>
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<tr>
<td>Charles McEachern</td>
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<td>Raleigh Regional Office</td>
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<td>Application is COMPLETE</td>
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<td>Status is:</td>
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<td>Add. Amt Rcv'd:</td>
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<tbody>
<tr>
<td>Type</td>
<td>Name</td>
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</tr>
<tr>
<td>Technical/Permit</td>
<td>Glenn Gray, Plant Manager</td>
<td>Bethesda, MD 20814</td>
</tr>
<tr>
<td>Authorized</td>
<td>Norb Hintz, Vice President Engineering</td>
<td>Bethesda, MD 20814</td>
</tr>
<tr>
<td></td>
<td>7200 Wisconsin Avenue</td>
<td>(301) 657-5567</td>
</tr>
<tr>
<td></td>
<td>7200 Wisconsin Avenue</td>
<td>(301) 657-5567</td>
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**Acceptance Criteria**

**Received?**

<table>
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<tr>
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<tr>
<td>N/A</td>
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<tr>
<td>Yes</td>
<td>Source recycling/reduction form</td>
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<td>Yes</td>
<td>Authorized signature</td>
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<tr>
<td>N/A</td>
<td>PE Seal</td>
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**Completeness Criteria**

**Received?**

| Yes | 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 |
## Outcome Information

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<thead>
<tr>
<th>Class before: Title V</th>
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<tr>
<td>2Q .0711: No</td>
<td>2D .1100: No</td>
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<tr>
<td>NSPS: No</td>
<td>NESHAPS/MACT: No</td>
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<td>PSD/NSR: No</td>
<td>Prohibitory Small: No</td>
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<td>PSD/NSR Avoid: No</td>
<td>General permit: No</td>
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<td>Multi-site permit: No</td>
<td>Multi. permits at facility: No</td>
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<td>Quarry permit: No</td>
<td>HAP Major (10/25 tpy): Minor</td>
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<td>RACT/LAER Added Fee: NO</td>
<td>RACT Avoidance: NO</td>
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<td>2Q .0702 (a)(18) - Toxics/Combustion Source(s) After 07/10/10: NO</td>
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### Regulations Pertaining to this Permit

<table>
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<tr>
<th>Reference Rule</th>
<th>Regulation Description</th>
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<tr>
<td>2Q</td>
<td>Avoidance Conditions</td>
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<td>Part 60 - NSPS</td>
<td>Standards of Performance for Stationary Compression Ignition Internal Combustion Engines</td>
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<td>2D</td>
<td>Particulates Miscellaneous Industrial Processes</td>
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<tr>
<td>2D</td>
<td>Sulfur Dioxide Emissions Combustion Sources</td>
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<tr>
<td>2D</td>
<td>Control of Visible Emissions</td>
</tr>
<tr>
<td>2D</td>
<td>New Source Performance Standards</td>
</tr>
<tr>
<td>2D</td>
<td>Control of Toxic Air Pollutants</td>
</tr>
<tr>
<td>Part 63 - NESHAP/MACT</td>
<td>Maximum Achievable Control Technology</td>
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<tr>
<td>Avoidance</td>
<td>Reciprocating Internal Combustion Engines</td>
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<td></td>
<td>Prevention of Significant Deterioration</td>
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</table>

### Current Permit Information:

<table>
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<th>Effective</th>
<th>Expiration</th>
<th>Revision #</th>
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<tr>
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<td>09/09/2013</td>
<td>02/28/2017</td>
<td>R02</td>
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</table>

Accumulated process days (includes public notice periods): 6
Public notice/hearing/add info after 80 days: No
Manager's discretion: Appealed? No
FORM A1
FACILITY (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

Pernell/Technical Contact: Facility/Inspection Contact:
Name/Title: Joe Harrell  Name/Title: Roland Burnett
Mailing Address Line 1: 142 N.C. Route 581 East  Mailing Address Line 1: Same as Site Address
Mailing Address Line 2:  
City: Ahoskie  State: NC  Zip Code: 27910  City:  
Phone No. (area code)  (252) 209-6032  Fax No. (area code)  
Email Address: Joe.Harrell@envivabiomass.com  

Responsible Official/Authorized 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  State: MD  Zip Code: 20814  City:  
Phone No. (area code)  (703) 380-9657  Fax No. (area code)  
Email Address: Pete.Najera@envivabiomass.com  

APPLICATION IS BEING MADE FOR

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

☐ General  ☐ Ema  ☐ Prohibitory Small  ☐ Synthetics Minor  ☐ Title V

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

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: 2449 (Wood Products, Not Elsewhere Classified)
Current/Previous Air Permit No.: 10203R01  Expiration Date: 2/28/2017
Facility Coordinates: Latitude: 258.5076 UTN E  Longitude: 4.0429890 UTN 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) 462-9633  Fax No. (919) 462-9694  Email Address: Jsullivan@trinityconsultants.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Pete Najera  Title: Vice President of Operations  Date: 8/30/13

Attach Additional Sheets As Necessary

Received:
Air Permit Section
File/Application forms 8-30-13
Sheet A1

Enviva Pellets Ahoskie, LLC
A-1
| Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement) |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| ES-PFB                          | Pellet Fines Bin                | CD-PFB-BV                       | Bin Vent Filter                 |

<table>
<thead>
<tr>
<th>Existing Permitted Equipment To Be MODIFIED By This Application</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Equipment To BE DELETED By This Application</th>
</tr>
</thead>
</table>

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### 112(r) APPLICABILITY INFORMATION

<table>
<thead>
<tr>
<th>Is your facility subject to 40 CFR Part 68 &quot;Prevention of Accidental Releases&quot; - Section 112(r) of the Federal Clean Air Act?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

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 68.100?
   - Yes ❌ No ✔ Specified 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
**SURVEY OF AIR EMISSIONS AND FACILITY - WIDE REDUCTION & RECYCLING ACTIVITIES**

**DATE:**
Does facility have an environmental management system in place? ( ) YES ( ) NO. If so, is facility ISO 14001 Certified? ( ) YES ( ) NO

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th>Enviro Pollets Northampton, LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility ID:</td>
<td>N/A (to be assigned)</td>
</tr>
<tr>
<td>Permit Number:</td>
<td>0</td>
</tr>
<tr>
<td>Environmental Contact:</td>
<td>Joe Harrell</td>
</tr>
<tr>
<td>Facility Address Line 1:</td>
<td>874 Lebanon Church Road</td>
</tr>
<tr>
<td>Phone No.:</td>
<td>(252) 290-6832</td>
</tr>
<tr>
<td>Fax No.:</td>
<td>27866</td>
</tr>
<tr>
<td>City:</td>
<td>Garaburg</td>
</tr>
<tr>
<td>State:</td>
<td>North Carolina</td>
</tr>
<tr>
<td>Zip Code:</td>
<td>27866</td>
</tr>
<tr>
<td>County:</td>
<td>Northampton</td>
</tr>
<tr>
<td>Email Address:</td>
<td><a href="mailto:Joe.Harrell@enviroplotts.com">Joe.Harrell@enviroplotts.com</a></td>
</tr>
</tbody>
</table>

**AIR EMISSIONS SOURCE REDUCTIONS**
Any Air Emissions Source Reductions in the past year? ( ) YES ( ) NO

| Source Description and ID | Air Pollutant | Enter Code for Emission Reduction | Date Reduction | 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? (molyr) | Addition detail about source |
|---------------------------|---------------|----------------------------------|----------------|-----------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------|
| N/A                       |               |                                  |                |                                                     |                                                     |                                                                                |

Comments:

---

**FACILITY - WIDE REDUCTIONS & RECYCLING ACTIVITIES**
Any Reductions or Recycling Activities in the past year? ( ) YES ( ) NO

| Source Description or Activity | Pollutant | Enter Code for Emission Reduction | Date Reduction | Quantity Emitted from prior annual report | Quantity Emitted from current annual report | Has reduction activity been discontinued? if so, when was it discontinued? (molyr) | Addition detail about source |
|-------------------------------|-----------|----------------------------------|----------------|------------------------------------------|------------------------------------------|--------------------------------------------------------------------------------|                          |
| N/A                           |           |                                  |                |                                          |                                          |                                                                                |                          |

Comments:

---

The requested information above shall be used for fulfilling the requirements of North Carolina General Statutes 143-215.16(s). 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 this 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.

REvised 1/01

Attach Additional Sheets As Necessary

---

Enviro Pollets Inc.

A-3

19841.002
File Application Form 9/20-13
Sheet 14
FORM B
SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

EMISSION SOURCE DESCRIPTION: Pellet Fines Bin

OPERATING SCENARIO 1 OF 1

DESCRIPTION OF THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet material 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, or 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)
- Other (Form B9)

START CONSTRUCTION DATE: 9/11/2013
OPERATION DATE: 9/12/2013
DATE MANUFACTURED: 2013

MANUFACTURER / MODEL NO.: Aircon

EXPECTED OPER. SCHEDULE:
- 24 HR/DAY
- 7 D/E/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

<table>
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<tr>
<th>AIR POLLUTANT EMITTED</th>
<th>SOURCE OF EMISSION FACTOR</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITS)</th>
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<tbody>
<tr>
<td></td>
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<td>lb/hr, tons/yr</td>
<td>lb/hr, tons/yr</td>
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<tr>
<td>PARTICULATE MATTER (PM)</td>
<td></td>
<td>See attached calculations</td>
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</tr>
<tr>
<td>PARTICULATE MATTER&lt;10 MICRONS (PM10)</td>
<td></td>
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<tr>
<td>PARTICULATE MATTER&gt;2.5 MICRONS (PM2.5)</td>
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<td>SULFUR DIOXIDE (SO2)</td>
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<tr>
<td>NITROGEN OXIDES (NOx)</td>
<td></td>
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<td>CARBON MONOXIDE (CO)</td>
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<td>VOLATILE ORGANIC COMPOUNDS (VOC)</td>
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<tr>
<td>OTHER</td>
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HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

<table>
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<th>HAZARDOUS AIR POLLUTANT AND CAS NO.</th>
<th>SOURCE OF EMISSION FACTOR</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)</th>
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TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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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)

EMISSION SOURCE DESCRIPTION: Pellet Fines Bin

OPERATING SCENARIO: 1 OF 1

EMISSION SOURCE ID NO: ES-PFB
CONTROL DEVICE ID NO(S): CD-PFB-BV
EMISSION POINT(STACK) ID NO(S): EP-12

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet material 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

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:

PEANUTICALLY FILLED

MECHANICALLY FILLED

FILLED FROM

☑ BLOWER
☑ COMPRESSOR
☑ OTHER:

☑ SCREW CONVEYOR
☑ BELT CONVEYOR
☑ BUCKET ELEVATOR
☑ OTHER:

Motor HP: RAILCAR
❑ TRUCK
❑ STORAGE PILE
☒ 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 conveyer 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:
FORM C1
CONTROL DEVICE (FABRIC FILTER)

REVISED 12/21/01
NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate

CONTROL DEVICE ID NO.: CD-PFB-8V
EMISSION POINT (STACK) ID NO(S): EP-PPS
MANUFACTURER: Aircon
MODEL NO: CARB-8

DATE MANUFACTURED: 2013
OPERATING SCENARIO: 1 OF 1
DESCRIPTION OF CONTROL SYSTEM: A bin vent filter collects dust from fines loading.

POLLUTANT(S) COLLECTED:
PM
PM10
PM2.5

BEFORE CONTROL EMISSION RATE (LB/HR):
CAPTURE EFFICIENCY:
CONTROL DEVICE EFFICIENCY:
CORRESPONDING OVERALL EFFICIENCY:

EFFICIENCY DETERMINATION CODE:

TOTAL EMISSION RATE (LB/HR):

POLLUTANT LOADING RATE: 0.033 LBS/HR
INLET AIR FLOW RATE (ACF/M): 3,600 CFM

INLET TEMPERATURE (°F): Slightly above ambient
OUTLET TEMPERATURE (°F): Slightly above ambient
FILTER MAX OPERATING TEMP. (°F):

NO. OF COMPARTMENTS: 1
NO. OF BAGS PER COMPARTMENT: 65
LENGTH OF BAG (IN): 96"
FILTER SURFACE AREA (FT²): 780

AIR TO CLOTH RATIO: 4.62
FILTER MATERIAL: Polyester or equivalent

DESCRIBE CLEANING PROCEDURES:
- Air Pulse
- Sonic
- Reverse Flow
- Mechanical/Shaker
- Other

Cleaning procedure dependent on final design

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:
- Moisture Binding
- Chemical Resistivity
- Other

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations or common industry practices

PARTICLE SIZE DISTRIBUTION (PM2.5):

<table>
<thead>
<tr>
<th>SIZE (MICRONS)</th>
<th>WEIGHT % OF TOTAL</th>
<th>CUMULATIVE</th>
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<tr>
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<tr>
<td>10-25</td>
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<td>25-50</td>
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<tr>
<td>50-100</td>
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<td></td>
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<tr>
<td>&gt;100</td>
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<td></td>
</tr>
<tr>
<td>TOTAL = 100</td>
<td></td>
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</tr>
</tbody>
</table>

ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCES

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

**CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE**

<table>
<thead>
<tr>
<th>AIR POLLUTANT EMITTED</th>
<th>EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTICULATE MATTER (PM)</td>
<td>tonyr</td>
<td>tonyr</td>
<td>tonyr</td>
</tr>
<tr>
<td>PARTICULATE MATTER &lt; 10 MICRONS (PM_{10})</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PARTICULATE MATTER &lt; 2.5 MICRONS (PM_{2.5})</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SULFUR DIOXIDE (SO₂)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NITROGEN OXIDES (NOx)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CARBON MONOXIDE (CO)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOLATILE ORGANIC COMPOUNDS (VOC)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LEAD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE**

<table>
<thead>
<tr>
<th>HAZARDOUS AIR POLLUTANT EMITTED</th>
<th>CAS NO.</th>
<th>EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>tonyr</td>
<td>tonyr</td>
<td>tonyr</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>TOXIC AIR POLLUTANT EMITTED</th>
<th>CAS NO.</th>
<th>lb/hr</th>
<th>lb/day</th>
<th>lb/year</th>
<th>Modeling Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

**COMMENTS:**

Attach Additional Sheets As Necessary
<table>
<thead>
<tr>
<th>Source Description</th>
<th>Unit ID</th>
<th>CO (tpy)</th>
<th>NOx (tpy)</th>
<th>TSP (tpy)</th>
<th>PM-10 (tpy)</th>
<th>PM-2.5 (tpy)</th>
<th>SO2 (tpy)</th>
<th>VOC (tpy)</th>
<th>CO2e (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryer System</td>
<td>ES-DRYER</td>
<td>193.09</td>
<td>124.74</td>
<td>27.77</td>
<td>27.77</td>
<td>27.77</td>
<td>19.05</td>
<td>183.05</td>
<td>60.82</td>
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<tr>
<td>Emergency Generator</td>
<td>ES-EG</td>
<td>0.50</td>
<td>0.58</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td>93.04</td>
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<tr>
<td>Fire Water Pump</td>
<td>ES-FWP</td>
<td>0.43</td>
<td>0.49</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.00</td>
<td>0.00</td>
<td>79.75</td>
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<tr>
<td>Hammermills/ Nuisance Dust System</td>
<td>ES-HM-1 thru 7/ES-NDS</td>
<td>-</td>
<td>-</td>
<td>13.52</td>
<td>13.52</td>
<td>13.52</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Pellet Mill Feed Silo</td>
<td>ES-PMFS</td>
<td>-</td>
<td>-</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Pellet Mill Fines Bin</td>
<td>ES-PFB</td>
<td>-</td>
<td>-</td>
<td>0.41</td>
<td>0.41</td>
<td>0.41</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pellet Coolers</td>
<td>ES-CLR1 thru -6</td>
<td>-</td>
<td>-</td>
<td>38.52</td>
<td>35.05</td>
<td>21.19</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Log Debarking/Chipping</td>
<td>ES-CHIP-1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rechipping</td>
<td>ES-RCHP-1,-2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.44</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finished Product Handling/ Pellet</td>
<td>ES-FPH/ES-PL1 &amp; 2/ES-PB-1 thru 12</td>
<td>-</td>
<td>-</td>
<td>4.00</td>
<td>3.64</td>
<td>2.20</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>Loadout Bins/ Pellet Loadout Areas</td>
<td>TK1 &amp; TK2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3.79E-03</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Diesel Storage Tanks</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Total Project Emission Increases</strong></td>
<td><strong>194.02</strong></td>
<td><strong>125.80</strong></td>
<td><strong>84.54</strong></td>
<td><strong>80.71</strong></td>
<td><strong>65.41</strong></td>
<td><strong>19.05</strong></td>
<td><strong>185.94</strong></td>
<td><strong>233.62</strong></td>
<td><strong>-</strong></td>
</tr>
<tr>
<td>PSD Major Source Threshold</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>100,000</td>
</tr>
<tr>
<td>PSD Review Required?</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
### TABLE 2
BAGFILTER AND CYCLONE EMISSIONS
ENVIVA PELLETS NORTHAMPTON, LLC

<table>
<thead>
<tr>
<th>Emission Unit</th>
<th>Emission Source ID</th>
<th>Filter. Vent-or-Cyclone ID</th>
<th>Flowrate $^1$ (cfm)</th>
<th>Pollutant Loading $^2$ (gr/cf)</th>
<th>Annual Operation (hours)</th>
<th>% PM that is PM$_{10}$</th>
<th>PM$_{10}$ $^3$ (lb/hr)</th>
<th>PM$_{10}$ $^3$ (tpy)</th>
<th>PM$_{2.5}$ $^3$ (lb/hr)</th>
<th>PM$_{2.5}$ $^3$ (tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hammermills Bagfilter 1</td>
<td>ES-HM-1 through 3</td>
<td>CD-HM-BF1</td>
<td>45,000</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>1.16</td>
<td>5.07</td>
<td>1.16</td>
</tr>
<tr>
<td>Hammermills Bagfilter 2</td>
<td>ES-HM-4 through 6</td>
<td>CD-HM-BF2</td>
<td>45,000</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>1.16</td>
<td>5.07</td>
<td>1.16</td>
</tr>
<tr>
<td>Hammermills Bagfilter 3</td>
<td>ES-HM-7, ES-NDS</td>
<td>CD-HM-BF3</td>
<td>30,000</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>0.77</td>
<td>3.38</td>
<td>0.77</td>
</tr>
<tr>
<td>Pellet Mill Feed Silo Bin Vent Filter</td>
<td>ES-PMFS</td>
<td>CD-PMFS-BV</td>
<td>2,500</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>0.06</td>
<td>0.28</td>
<td>0.06</td>
</tr>
<tr>
<td>Pellet Mill Fines Bin Bin Vent Filter</td>
<td>ES-PFB</td>
<td>CD-PFB-BV</td>
<td>3,600</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>0.09</td>
<td>0.41</td>
<td>0.09</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 1</td>
<td>ES-CLR-1</td>
<td>CD-CLR-1</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
<td>1.33</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 2</td>
<td>ES-CLR-2</td>
<td>CD-CLR-2</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
<td>1.33</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 3</td>
<td>ES-CLR-3</td>
<td>CD-CLR-3</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
<td>1.33</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 4</td>
<td>ES-CLR-4</td>
<td>CD-CLR-4</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
<td>1.33</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 5</td>
<td>ES-CLR-5</td>
<td>CD-CLR-5</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
<td>1.33</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 6</td>
<td>ES-CLR-6</td>
<td>CD-CLR-6</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
<td>1.33</td>
</tr>
<tr>
<td>Finished Product Handling Bagfilter</td>
<td>ES-FFH, ES-PL1 &amp; 2, ES-PB-1 thru 12</td>
<td>CD-FFH-BF</td>
<td>35,500</td>
<td>0.003</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>0.91</td>
<td>4.00</td>
<td>0.83</td>
</tr>
</tbody>
</table>

**TOTAL**  12.95  | 56.72  | 12.06  | 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 flow rate was conservatively assumed to be the same as the inlet flow rate.

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

3 Pellet cooler cyclone specification based on AP-42 factors for wet wood combustion (Section 1.6) controlled by 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 specification.
<table>
<thead>
<tr>
<th>EMISSION SOURCE ID NO.</th>
<th>EMISSION SOURCE DESCRIPTION</th>
<th>OPERATING SCENARIO</th>
<th>POLLUTANT</th>
<th>APPLICABLE REGULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-PFB</td>
<td>Pellet Fines Silo</td>
<td>N/A</td>
<td>PM</td>
<td>2D .0515, E=4.10 * P.42</td>
</tr>
<tr>
<td>ES-PFB</td>
<td>Pellet Fines Silo</td>
<td>N/A</td>
<td>Opacity</td>
<td>2D .0521, Opacity &lt; 20%</td>
</tr>
</tbody>
</table>
From: Joe Harrell [joe.harrell@enivabiomass.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/acf @ 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
CONFIDENTIALITY NOTICE:
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EMISSION SOURCE (STORAGE SILO/BINS)

EMISSION SOURCE ID NO: ES-PFB
CONTROL DEVICE ID NO(S): CD-PFB-BV
EMISSION POINT(STACK) ID NO(S): EP-12

OPERATING SCENARIO: 1 OF 1

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Fine pellet material 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
CUBIC FEET: 2200
TONS:

DIMENSIONS (FEET)
HEIGHT: 20.4
DIAMETER: 12
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 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 conveyer 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)**

**REVISION 12/01/01**

**EMISSION SOURCE DESCRIPTION:** Pellet Fines Bin

**OPERATING SCENARIO**

**DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):**

Fine pellet material 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)
- Woodworking (Form B4)
- Int. combustion engine/diagram (Form B2)
- Coating/finishing/printing (Form B5)
- Incineration (Form B8)
- Liquid storage tanks (Form B3)
- Storage silos/blinds (Form B6)
- Other (Form B9)

**START CONSTRUCTION DATE:** 9/11/2013 **OPERATION DATE:** 9/12/2013 **DATE MANUFACTURED:** 2013

**MANUFACTURER / MODEL NO.:** Aircon

**EXPECTED OPER. 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

**CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

<table>
<thead>
<tr>
<th>AIR POLLUTANT Emitted</th>
<th>SOURCE OF EMISSION FACTOR</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>lb/hr, tons/yr</td>
<td>lb/hr, tons/yr</td>
</tr>
</tbody>
</table>

**HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

<table>
<thead>
<tr>
<th>HAZARDOUS AIR POLLUTANT AND CAS NO.</th>
<th>SOURCE OF EMISSION FACTOR</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>lb/hr, tons/yr</td>
<td>lb/hr, tons/yr</td>
</tr>
</tbody>
</table>

**TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

<table>
<thead>
<tr>
<th>TOXIC AIR POLLUTANT AND CAS NO.</th>
<th>EF SOURCE</th>
<th>lb/hr</th>
<th>lb/day</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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
County/Regional Office: Northampton / Raleigh Regional Office
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/NAAR $13,837
□ PSD and NSR/NAAR $26,913
□ TV Greenfield $ 9,140
□ TV $ 89
□ Ownership Change $60, $50, $25
□ Renewal/Name Change – NA

Initial Amount Received: $ 0
Additional Amount Due: $ 899 (received 9/6/13)

Acceptance Check List:

□ 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

□ Appeal
□ Expedited State □ Director Administrative Amendment
□ PSD

PERMIT APPLICATION SCHEDULE:

□ TV - 502(b)(10)
□ TV - 502(b)(10) Only
□ TV - Expedited
□ TV - Greenfield
□ TV - Renewal
□ TV - Reciprocal for Cause
□ TV - Significant (2Q.0501(c)(2))
□ TV - Administrative
□ TV - Ownership Change
□ TV - 1st Time

PART III - COMPLETENESS CHECKLIST

□ Required Application Forms Submitted and Completed
□ Supporting Materials & Calculations Received
□ PE Seal (if 15A NCCAC 2Q.0112)
□ Modeling Protocol Acceptance
□ Confirmation of Pollutants Modeled
□ ES Form (Significant Modifications)

PART IV - GENERAL COMMENTS


PART V - SUPERVISOR REVIEW CHECKLIST

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

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*
□ Toxics/Combustion Sources After 7/10/10
□ SIP Regulations (list all new):

HAP Major Status (after):
□ Major □ Minor
□ Not Determined

PSD or NSR Status (after):
□ Major □ Minor
□ Not Determined

Miscellaneous:
□ Multiple Permits at Facility □ Multi-Site Permit □ Recycled Oil Condition
□ Public Notice Published NA □ Public Notice Affidavit (if not noticed via DAQ Website) NA

Permit Class Information
Before After Title V
□ Small
□ Sym. Minor
□ Mins.
□ Prob. Small
□ General

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

IBEAM Closed Out By: 10203 Permit Number:

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

Document Manager Updated by Engineer:

Tracking Slip v41 - 8/9/17/23

9/9 4/7/23
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 condensable) 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) applies. 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 VOC”. The

1641 Mail Service Center, Raleigh, North Carolina 27699-1641  
217 West Jones Street, Raleigh, North Carolina 27603  
Phone: 919-707-8401 / Fax: 919-715-0718  
Internet: www.ncair.org  
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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.

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

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 volatiles 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

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.
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:

<table>
<thead>
<tr>
<th>Source ID No.</th>
<th>Emission Source Description</th>
<th>Control Device ID No.</th>
<th>Control Device Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-PFB1</td>
<td>Pellet fines bin</td>
<td>CD-PFB-BV1</td>
<td>One bin vent filter (780 square feet of filter area)</td>
</tr>
</tbody>
</table>

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

Sincerely yours,

[Signature]

Jennifer Kelvington, P.E.
Environmental Engineer III

Enclosure

c: Patrick Butler, Supervisor, Raleigh Regional Office

✓ Central Files
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 upcoming change involving the replacement of No. ES-PFB) and associated bin vent filter (ID No. CD-PFB-BV1; 325 square feet of filtering area). The letter specified the replacement of the original bin vent filter and an associated bin vent as specified below:

<table>
<thead>
<tr>
<th>Source ID No.</th>
<th>Emission Source Description</th>
<th>Control Device ID No.</th>
<th>Control Device Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-PFB</td>
<td>Pellet fines bin</td>
<td>CD-PFB-BV1</td>
<td>One bin vent filter with 325 square feet of filter area</td>
</tr>
</tbody>
</table>

After mailing the letter, it was determined that NC General Statutes do not allow Title V permittees to make significant modifications without notification. Mr. Joe Harrell of your staff has been informed that an air quality permit is required for the installation of a new bin vent filter and associated filter. After the initial Title V permit is issued, Enviva will proceed with the notification process for qualifying the changes. Should you have any questions, please contact me at (919) 707-8481.

Sincerely yours,

[Signature]
Jennifer Kelvington, P.E.
Environmental Engineer III

cc: Patrick Butler, Supervisor, Raleigh Regional Office
    Central Files
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.
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,

[Signature]

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  

<table>
<thead>
<tr>
<th>Permit No.</th>
<th>Replaces Permit No.(s)</th>
<th>Effective Date</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10203R01</td>
<td>10203R00</td>
<td>February 26, 2013</td>
<td>February 28, 2017</td>
</tr>
</tbody>
</table>

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**  
4600107  

**Facility ID:**  

| 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:  
Complete Application Date: |
|--------------------------|
| 6600167.13B  
December 19, 2012 |

| Primary SIC Code:  
Division of Air Quality,  
Regional Office Address: |
|-------------------------|
| 2499  
Raleigh Regional Office  
3800 Barrett Drive  
Raleigh, North Carolina, 27609 |
**Insignificant Activities under 15A NCAC 2Q .0503(8)**

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

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/](http://daq.state.nc.us/permits/insig/)
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   (Including specific requirements, testing, monitoring, recordkeeping, and reporting requirements)

2.2- Multiple Emission Source(s) Specific Limitations and Conditions
   (Including specific requirements, testing, monitoring, recordkeeping, and reporting requirements)

SECTION 3: GENERAL PERMIT CONDITIONS

ATTACHMENT
   List of Acronyms
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:

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

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-ND1), 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:

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate matter</td>
<td>$E = 4.10 \times P^{0.67}$ for process weight rate $&lt; 30$ tph $E = 55 \times P^{0.11} - 40$ for process weight rate $\geq 30$ tph</td>
<td>15A NCAC 02D.0515</td>
</tr>
<tr>
<td></td>
<td>$P =$ allowable emission rate (lb/hr)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Where $E =$ allowable emission rate (lb/hr)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$P =$ process weight rate (tph)</td>
<td></td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>2.3 pounds per million Btu heat input</td>
<td>15A NCAC 02D.0516</td>
</tr>
<tr>
<td>Visible emissions</td>
<td>20 percent opacity when averaged over a six minute period</td>
<td>15A NCAC 02D.0521</td>
</tr>
<tr>
<td>Toxic air pollutants</td>
<td>See Section 2.2 A.</td>
<td>15A NCAC 02D.1100</td>
</tr>
</tbody>
</table>
| 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 $\geq 30$ 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 NCGRS 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 bag filters 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:

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

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:

<table>
<thead>
<tr>
<th>Pollutant (CAS Number)</th>
<th>Carcinogens (lb/yr)</th>
<th>Chronic Toxicants (lb/day)</th>
<th>Acute Systemic Toxicants (lb/hr)</th>
<th>Acute Irritants (lb/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,3 Butadiene (106-99-0)</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetaldehyde (75-07-0)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beryllium (7440-41-7)</td>
<td>0.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon tetrachloride (56-23-5)</td>
<td>460</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorobenzene (108-90-7)</td>
<td></td>
<td></td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Chloroform (67-66-3)</td>
<td>290</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance</td>
<td>Category</td>
<td>Amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Di(2-ethylhexyl)phthalate (DEHP) (117-81-7)</td>
<td></td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethylene dichloride (1,2-dichloroethane) (107-06-2)</td>
<td></td>
<td>260</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managanese &amp; cmpds</td>
<td></td>
<td>0.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl chloroform (1,1,1-trichloroethane) (71-55-6)</td>
<td></td>
<td>250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl ethyl ketone (78-93-3)</td>
<td></td>
<td>78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl isobutyl ketone (108-10-1)</td>
<td></td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylene chloride (75-09-2)</td>
<td></td>
<td>1600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentachlorophenol (87-86-5)</td>
<td></td>
<td>0.063</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perchloroethylene (tetrachloroethylene) (127-18-4)</td>
<td></td>
<td>13000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polychlorinated biphenyls (1336-36-3)</td>
<td></td>
<td>5.6</td>
<td></td>
<td></td>
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<tr>
<td>Styrene (100-42-5)</td>
<td></td>
<td>2.7</td>
<td></td>
<td></td>
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<tr>
<td>Tetrachlorodibenzo-p-dioxin (1746-01-6)</td>
<td></td>
<td>0.00020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichloroethylene (79-01-6)</td>
<td></td>
<td>4000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toluene (108-88-3)</td>
<td></td>
<td>98</td>
<td></td>
<td></td>
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<tr>
<td>Trichlorofluoromethane (CFC 111) (75-01-4)</td>
<td></td>
<td>140</td>
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<td></td>
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<tr>
<td>Xylene (1330-20-7)</td>
<td></td>
<td>57</td>
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<td></td>
</tr>
</tbody>
</table>

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

[Signature]
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. 10203R01
### List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOS</td>
<td>Alternate Operating Scenario</td>
</tr>
<tr>
<td>BACT</td>
<td>Best Available Control Technology</td>
</tr>
<tr>
<td>Btu</td>
<td>British thermal unit</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CAIR</td>
<td>Clean Air Interstate Rule</td>
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<tr>
<td>CEM</td>
<td>Continuous Emission Monitor</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>DAQ</td>
<td>Division of Air Quality</td>
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<td>DENR</td>
<td>Department of Environment and Natural Resources</td>
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<td>EMC</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>FR</td>
<td>Federal Register</td>
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<td>Generally Available Control Technology</td>
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<td>Hazardous Air Pollutant</td>
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<td>MACT</td>
<td>Maximum Achievable Control Technology</td>
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<td>Non-Attainment Area</td>
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<td>NCGS</td>
<td>North Carolina General Statutes</td>
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<td>NESHAPS</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
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<td>NOX</td>
<td>Nitrogen Oxides</td>
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<tr>
<td>NSPS</td>
<td>New Source Performance Standard</td>
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<tr>
<td>OAH</td>
<td>Office of Administrative Hearings</td>
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<tr>
<td>PM</td>
<td>Particulate Matter</td>
</tr>
<tr>
<td>PM10</td>
<td>Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less</td>
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<td>POS</td>
<td>Primary Operating Scenario</td>
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<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
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<td>RACT</td>
<td>Reasonably Available Control Technology</td>
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<td>SIC</td>
<td>Standard Industrial Classification</td>
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<td>SIP</td>
<td>State Implementation Plan</td>
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<tr>
<td>SO2</td>
<td>Sulfur Dioxide</td>
</tr>
<tr>
<td>tpy</td>
<td>Tons Per Year</td>
</tr>
<tr>
<td>VOC</td>
<td>Volatile Organic Compound</td>
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</table>
Facility Name: Enviva Pellets Northampton Co
County/Regional Office: Northampton/ED
Send Regional Office Copy of Application: Yes □ No

Acknowledgement Letter: □ Already Sent
Initial Event(s): □ TV-Ack/Complete
□ TV-Ack/Incomplete add info

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: $67,00
Additional Amount Received: $67,00

PART I - ACCEPTANCE CHECKLIST
Please Send
□ State Ack. Letter due
□ State App. not accepted – add info request

Acceptance Check List:
□ 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
□ Modification
□ Name Change
□ New Permit
□ Ownership Change
□ Renewal
□ Renewal w/Modification

 Permit Application Schedule:
□ Appeal
□ Expedited State
□ Director Administrative Amendment
□ PSD

PART III - COMPLETENESS CHECKLIST
□ Required Application Forms Submitted and Completed
□ Supporting Materials & Calculations Received
□ PE Seal (IF 13A NCAC 2Q .0112)
□ Modeling Protocol Acceptance
□ Confirmation of Pollutants Modeled
□ ES Form (Significant Modifications)

PART IV - GENERAL COMMENTS

PART V - SUPERVISOR REVIEW CHECKLIST

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/LAE
□ New Source RACT/LAE
□ RACT Avoidance
□ RACT/LAE Added Fee

(Let Connie Home know)

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

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

Document Manager Updated by Engineer: K16
Date: 2-26-13

Tracking Slip v38 - mjo

Scan 2-25-13 to K. Hosh.
L. Kuchnia
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),
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.

<table>
<thead>
<tr>
<th>Source Description</th>
<th>ID No.</th>
<th>CO   (tpy)</th>
<th>NOx  (tpy)</th>
<th>TSP  (tpy)</th>
<th>PM-10 (tpy)</th>
<th>PM-2.5 (tpy)</th>
<th>SO2  (tpy)</th>
<th>VOC  (tpy)</th>
<th>CO2e (tpy)</th>
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<tbody>
<tr>
<td>Dryer system</td>
<td>ES-DRYER</td>
<td>193.09</td>
<td>124.74</td>
<td>27.77</td>
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<tr>
<td>Emergency generator</td>
<td>ES-EG</td>
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<tr>
<td>Source Description</td>
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<td>NOx</td>
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</tr>
<tr>
<td>Fire water pump</td>
<td>ES-FWP</td>
<td>0.43</td>
<td>0.49</td>
<td>0.02</td>
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<td>ES-HM-1 thru 7/ES-NDS</td>
<td>-</td>
<td>-</td>
<td>13.52</td>
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<td>-</td>
<td>-</td>
<td>0.28</td>
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<td>Pellet Coolers</td>
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</table>

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

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02/26/2013
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### Permit/Revision Information
- 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

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- Avoidance Conditions
- Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- Particulates Miscellaneous Industrial Processes
- Sulfur Dioxide Emissions Combustion Sources
- Control of Visible Emissions
- New Source Performance Standards
- Control of Toxic Air Pollutants
- Maximum Achievable Control Technology
- Reciprocating Internal Combustion Engines
- Prevention of Significant Deterioration
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<td>New Value</td>
<td>Comment</td>
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</tbody>
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Audit Information Pertaining to this Application
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  
__________________________

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
Date: December 21, 2012
To: Mark Cuilla
Company: NCDAQ
Fax Number: 919-715-0717
From: Joe Sullivan

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

IMPORTANT: The accompanying message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying or other use of this communication is strictly prohibited. If you have received this telexcopy in error, please notify us by telephone immediately so that we can arrange for the retrieval of the original documents at no cost to you. Thank you.

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
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
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 hammermills, 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 screen 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 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.
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, PE, CM
Managing Consultant

cc: Glenn Gray - Enviva

Attachments
ATTACHMENT 1

UPDATED EMISSIONS CALCULATIONS
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<tr>
<td>Pellet Mill Fines Bin</td>
<td>ES-PFB</td>
<td>-</td>
<td>-</td>
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<td>0.12</td>
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<td>35.05</td>
<td>21.19</td>
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<td>Log Debarking/Chipping</td>
<td>ES-CHIP-1</td>
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<td>Rechipping</td>
<td>ES-RCHP-1, -2</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>1.44</td>
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<td>Finished Product Handling/ Pellet</td>
<td>ES-FPH/ ES-PL1 &amp; 2/ ES-</td>
<td>-</td>
<td>-</td>
<td>4.00</td>
<td>3.64</td>
<td>2.20</td>
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<td>Loadout Bins/ Pellet Loadout Areas</td>
<td>PB-1 thru 12</td>
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<td>Diesel Storage Tanks</td>
<td>TK1 &amp; TK2</td>
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<td>194.02</td>
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<td>No</td>
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<td>No</td>
<td>No</td>
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<tr>
<td>Emission Unit</td>
<td>Emission Source ID</td>
<td>Filter, Vent-or-Cyclone ID</td>
<td>Flowrate&lt;sup&gt;1&lt;/sup&gt; (cfm)</td>
<td>Pollutant Loading&lt;sup&gt;2&lt;/sup&gt; (gr/cf)</td>
<td>Annual Operation (hours)</td>
<td>% PM that is PM&lt;sub&gt;10&lt;/sub&gt;</td>
<td>PM&lt;sub&gt;2.5&lt;/sub&gt;</td>
<td>Potential Emissions</td>
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<td>---------------</td>
<td>-------------------</td>
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<td>---------------------------</td>
<td>--------------------------</td>
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</tr>
<tr>
<td>Hammermill Bagfilter 1</td>
<td>ES-HM-1 through 3</td>
<td>CD-HM-BF1</td>
<td>45,000</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>1.16</td>
<td>3.07</td>
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<tr>
<td>Hammermill Bagfilter 2</td>
<td>ES-HM-4 through 6</td>
<td>CD-HM-BF2</td>
<td>45,000</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>1.16</td>
<td>3.07</td>
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<tr>
<td>Hammermills Bagfilter 3</td>
<td>ES-HM-7; ES-NDS</td>
<td>CD-HM-BF3</td>
<td>30,000</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>0.77</td>
<td>3.38</td>
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<tr>
<td>Pellet Mill Feed Silo Bin Vent</td>
<td>ES-PMFS</td>
<td>CD-PMFS-BV</td>
<td>2,500</td>
<td>0.003</td>
<td>8,760</td>
<td>100%</td>
<td>100%</td>
<td>0.06</td>
<td>0.28</td>
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<tr>
<td>Pellet Mill Fines Bin Bin Vent Filter</td>
<td>ES-PFB</td>
<td>CD-PFB-BV</td>
<td>3,600</td>
<td>0.003</td>
<td>2,500</td>
<td>100%</td>
<td>100%</td>
<td>0.09</td>
<td>0.12</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 1</td>
<td>ES-CLR-1</td>
<td>CD-CLR-1</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 2</td>
<td>ES-CLR-2</td>
<td>CD-CLR-2</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 3</td>
<td>ES-CLR-3</td>
<td>CD-CLR-3</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 4</td>
<td>ES-CLR-4</td>
<td>CD-CLR-4</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 5</td>
<td>ES-CLR-5</td>
<td>CD-CLR-5</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
</tr>
<tr>
<td>Pellet Coolers Cyclone 6</td>
<td>ES-CLR-6</td>
<td>CD-CLR-6</td>
<td>17,100</td>
<td>0.01</td>
<td>8,760</td>
<td>91%</td>
<td>55%</td>
<td>1.47</td>
<td>6.42</td>
</tr>
<tr>
<td>Finished Product Handling Bagfilter</td>
<td>ES-FPH, ES-PL1 &amp; 2, ES PB-1 thru 12</td>
<td>CD-FPH-BF</td>
<td>35,500</td>
<td>0.003</td>
<td>8,760</td>
<td>91%</td>
<td>0.55</td>
<td>0.91</td>
<td>4.00</td>
</tr>
</tbody>
</table>

**Note:**

<sup>1</sup> 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.

<sup>2</sup> Pollutant Loading (gr/cf) provided by Aircon.

<sup>3</sup> 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.

**TOTAL:**

<table>
<thead>
<tr>
<th>PM&lt;sub&gt;2.5&lt;/sub&gt;</th>
<th>PM&lt;sub&gt;10&lt;/sub&gt;</th>
<th>PM&lt;sub&gt;10&lt;/sub&gt;</th>
<th>PM&lt;sub&gt;2.5&lt;/sub&gt;</th>
<th>PM&lt;sub&gt;2.5&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.95</td>
<td>56.43</td>
<td>12.08</td>
<td>52.60</td>
<td>8.58</td>
</tr>
</tbody>
</table>
### TABLE 3

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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Factors (lb/dry wood tons)</th>
<th>Emissions (lb/hr)</th>
<th>(tpy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>THC as Carbon²</td>
<td>0.0041</td>
<td>2.904E-01</td>
<td>1.27</td>
</tr>
<tr>
<td>THC as alpha-Pinene³</td>
<td>0.0047</td>
<td>3.296E-01</td>
<td>1.44</td>
</tr>
<tr>
<td>PM⁴</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Methanol⁵</td>
<td>0.0010</td>
<td>7.083E-02</td>
<td>0.31</td>
</tr>
</tbody>
</table>

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 (CₙHₙ),[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:
\[ \text{lb VOC/ODT} = \text{lb C/ODT} \times (136.2 \text{ lb/mol AP} / 12 \text{ lb/mol C}) \times (1 \text{ mol AP} / 10 \text{ mol C}) \]

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

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
Zip Code: 27666 State: North Carolina
County: Northampton

CONTACT INFORMATION

Permit/Technical Contact:
Name/Title: Glenn Gray / Plant Manager
Mailing Address Line 1: 7200 Wisconsin Avenue
Mailing Address Line 2: Suite 1100
City: Bethesda State: Maryland Zip Code: 20814
Phone No. (area code): (757) 274-8377 Fax No. (area code): (301) 657-5567
Email Address: Glenn.Gray@envivabiomass.com

Facility/Inspection Contact:
Name/Title: same as permit/technical contact
Mailing Address Line 1:
Mailing Address Line 2: City: State: Zip Code:
Phone No. (area code): Fax No. (area code):
Email Address:

Respnsible Official/Authorized Contact:
Name/Title: Norb Hintz
Mailing Address Line 1: 7200 Wisconsin Avenue
Mailing Address Line 2: Suite 1100
City: Bethesda State: Maryland Zip Code: 20814
Phone No. (area code): (301) 657-5567 Fax No. (area code): (301) 657-5567
Email Address: Norb.Hintz@envivabiomass.com

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 ☐ Probihitory Small ☐ Synthetic Minor ☐ Title V

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s): Facility ID No.:
Wood pellet manufacturing facility 6600167.11A
Primary SIC/NAICS Code: 2409 (Wood Products, Not Elsewhere Classified) Current/Previous Air Permit No. 10203R00
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
City: Morrisville State: North Carolina Zip Code: 27560
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
Date: 12/14/12

Attach Additional Sheets As Necessary
# FORMs A2, A3
EMISSION SOURCE LISTING FOR THIS APPLICATION - A2
112r APPLICABILITY INFORMATION - A3

<table>
<thead>
<tr>
<th>EMISSION SOURCE ID NO.</th>
<th>EMISSION SOURCE DESCRIPTION</th>
<th>CONTROL DEVICE ID NO.</th>
<th>CONTROL DEVICE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-HM-5, -6, -7</td>
<td>Three (3) Hammermills</td>
<td>CD-HM-CYC-5 through -7</td>
<td>Three (3) simple cyclones</td>
</tr>
<tr>
<td>ES-PFB</td>
<td>Pellet Fines Bin</td>
<td>CD-HM-BF-2 and -3</td>
<td>Two (2) Bagfilters</td>
</tr>
<tr>
<td>ES-FPH</td>
<td>Finished Product Handling</td>
<td>CD-PFB-BF</td>
<td>Bin Vent Filter</td>
</tr>
<tr>
<td>ES-PB-1 through 12</td>
<td>Twelve (12) Pellet Loadout Bins</td>
<td>CD-FPH-BF</td>
<td>Finished Product Handling Bagfilter</td>
</tr>
<tr>
<td>ES-PL-1, -2</td>
<td>Pellet Mill Loadout 1 and 2</td>
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<td></td>
</tr>
<tr>
<td>ES-NDS</td>
<td>Nuisance Dust System</td>
<td>CD-HM-BF-3</td>
<td>Bagfilter</td>
</tr>
</tbody>
</table>

Existing Permitted Equipment To Be MODIFIED By This Application

<table>
<thead>
<tr>
<th>EMISSION SOURCE ID NO.</th>
<th>EMISSION SOURCE DESCRIPTION</th>
<th>CONTROL DEVICE ID NO.</th>
<th>CONTROL DEVICE DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-HM-1,2,3,4</td>
<td>Four (4) Hammermills</td>
<td>CD-HM-CYC-1 through -4</td>
<td>Four (4) simple cyclones</td>
</tr>
<tr>
<td>ES-CLR1 through CLR6</td>
<td>Six (6) Pellet Coolers</td>
<td>CD-CLR1 through 3</td>
<td>Three (3) permitted simple cyclones</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CD-CLR4 through 6</td>
<td>Three (3) NEW simple cyclones</td>
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</tbody>
</table>

Equipment To Be DELETED By This Application

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<th>EMISSION SOURCE DESCRIPTION</th>
<th>CONTROL DEVICE ID NO.</th>
<th>CONTROL DEVICE DESCRIPTION</th>
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<tr>
<td>ES-HMA</td>
<td>Hammermill Area</td>
<td>CD-HMA-BF</td>
<td>One (1) Bagfilter</td>
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</tbody>
</table>

## 112(r) APPLICABILITY INFORMATION

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 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 68.1507?  
Yes / No  
Specify required 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

Trinity Consultants  
Page 2 of 24  
File: Enviva Northampton Forms (2012-12-17)  
Sheet A2 and A3
| Facility Name: Enviva Pellets Northampton, LLC | Permit Number: N/A |
| Facility ID: 860000169.71A | County: Northampton |
| Mailing Address Line 1: 874 Lebanon Church Road | Phone No.: (512) 206-6032 |
| Mailing Address Line 2: | Fax No.: |
| City: Gaston | Zip Code: 27916 |
| State: North Carolina | County: Hertford |
| Email Address: Joe.Harrell@EnvivaBiomass.com |

**AIR EMISSIONS SOURCE REDUCTIONS**

<table>
<thead>
<tr>
<th>Source Description and ID</th>
<th>Air Pollutant</th>
<th>Enter Code for Emission Reduction</th>
<th>Date Reduction</th>
<th>Quantity Emitted from prior annual report to DAQ (lb/yr)</th>
<th>Quantity Emitted from current annual report to DAQ (lb/yr)</th>
<th>Has reduction activity been discontinued? If so, when</th>
<th>Addition detail about source</th>
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</thead>
<tbody>
<tr>
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<td></td>
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</tr>
</tbody>
</table>

**COMMENTS:**

The narrative information above shall be used for fulfilling the requirements of North Carolina General Statute 143-215.10(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 the appropriate 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.
### FORM D1
FACILITY-WIDE EMISSIONS SUMMARY

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

#### CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY WIDE

<table>
<thead>
<tr>
<th>AIR POLLUTANT Emitted</th>
<th>EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
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</thead>
<tbody>
<tr>
<td>PARTICULATE MATTER (PM)</td>
<td>tons/yr</td>
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<td>tons/yr</td>
</tr>
<tr>
<td>PARTICULATE MATTER &lt; 10 MICRONS (PM$_{10}$)</td>
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<td>See Emission Calculations in Appendix B</td>
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<tr>
<td>PARTICULATE MATTER &lt; 2.5 MICRONS (PM$_{2.5}$)</td>
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<tr>
<td>SULFUR DIOXIDE (SO$_2$)</td>
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<tr>
<td>NITRGEN OXIDES (NOx)</td>
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<tr>
<td>CARBON MONOXIDE (CO)</td>
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<tr>
<td>VOLATILE ORGANIC COMPOUNDS (VOC)</td>
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<td>LEAD</td>
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<tr>
<td>OTHER</td>
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</tbody>
</table>

#### HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY WIDE

<table>
<thead>
<tr>
<th>HAZARDOUS AIR POLLUTANT Emitted</th>
<th>CAS NO.</th>
<th>EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>tons/yr</td>
<td></td>
<td>tons/yr</td>
<td></td>
</tr>
</tbody>
</table>

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 20 .0711 MAY REQUIRE AIR DISPERSION MODELING. USE NETTING FORM D2 IF NECESSARY.

<table>
<thead>
<tr>
<th>TOXIC AIR POLLUTANT Emitted</th>
<th>CAS NO.</th>
<th>lb/hr</th>
<th>lb/day</th>
<th>lb/year</th>
<th>Modeling Required ?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No increase associated with this change</td>
</tr>
</tbody>
</table>

COMMENTS:

Attach Additional Sheets As Necessary
<table>
<thead>
<tr>
<th>DESCRIPTION OF EMISSION SOURCE</th>
<th>SIZE OR PRODUCTION RATE</th>
<th>BASIS FOR EXEMPTION OR INSIGNIFICANT ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two (2) Electric Powered Wood Rechippers IES-RCHP-1 and 2</td>
<td>119.4 tph combined (70.83 tph dry basis)</td>
<td>15A NCAC 02Q.0102 (c)(2)(E) - low emissions, see Appendix B</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td></td>
<td></td>
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<tr>
<td>5.</td>
<td></td>
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<tr>
<td>6.</td>
<td></td>
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<tr>
<td>7.</td>
<td></td>
<td></td>
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<tr>
<td>8.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Attach Additional Sheets As Necessary
FORM D
TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION
NCDEQ/Division of Air Quality · Application for Air Permit to Construct/Operate

REvised: 12/01/01

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 E 2 - 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 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 E 3 - 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 APPLICABLE. 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 02 Q. 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, ____________________________, attest that this application for ____________________________, has been reviewed by me and is accurate, complete and consistent with the information supplied to 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)

(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: A chapter device application forms ("C Forms")

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

PLACE NORTH CAROLINA SEAL HERE

NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
02303

Attach Additional Sheets As Necessary

Trinity Consultants

Page 6 of 24

File: Enviva Northampton Form (2012-12-14)
Sheet 05
**FORM B**

**SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)**

<table>
<thead>
<tr>
<th>EMISSION SOURCE DESCRIPTION: Seven (7) Hammermills</th>
<th>EMISSION SOURCE ID NO: ES-HM-1 thru 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL DEVICE ID NO(S): CD-HM-CYC-1 through 7</td>
<td>CD-HM-BF1 through 3</td>
</tr>
</tbody>
</table>

**OPERATING SCENARIO**

| 1 OF 1 | EMISION POINT (STACK) ID NO(S): EP-2 through 4 |

**DESCRIBE IN DETAIL THE 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):**

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

<table>
<thead>
<tr>
<th>START CONSTRUCTION DATE: TBD</th>
<th>OPERATION DATE: 3/1/2013</th>
<th>DATE MANUFACTURED: TBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURER / MODEL NO: TBD</td>
<td>EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR</td>
<td></td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>AIR POLLUTANT EMITTED</th>
<th>SOURCE OF EMISSION</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS/LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS/LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FACTOR</td>
<td>lb/hr</td>
<td>tonyr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lb/hr</td>
<td>tonyr</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARTICULATE MATTER (PM)</th>
<th>See Emission Calculations in Appendix B</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTICULATE MATTER&lt;10 MICRONS (PM10)</td>
<td></td>
</tr>
<tr>
<td>PARTICULATE MATTER&gt;2.5 MICRONS (PM&gt;2.5)</td>
<td></td>
</tr>
<tr>
<td>SULFUR DIOXIDE (SO2)</td>
<td></td>
</tr>
<tr>
<td>NITROGEN OXIDES (NOx)</td>
<td></td>
</tr>
<tr>
<td>CARBON MONOXIDE (CO)</td>
<td></td>
</tr>
<tr>
<td>VOLATILE ORGANIC COMPOUNDS (VOC)</td>
<td></td>
</tr>
<tr>
<td>LEAD</td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
</tr>
</tbody>
</table>

**HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

<table>
<thead>
<tr>
<th>HAZARDOUS AIR POLLUTANT AND CAS NO.</th>
<th>SOURCE OF EMISSION</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS/LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS/LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FACTOR</td>
<td>lb/hr</td>
<td>tonyr</td>
</tr>
<tr>
<td></td>
<td></td>
<td>lb/hr</td>
<td>tonyr</td>
</tr>
</tbody>
</table>

N/A

**HAZARDOUS AIR POLLUTANT AND CAS NO.**

<table>
<thead>
<tr>
<th>SOURCE OF EMISSION</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS/LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS/LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACTOR</td>
<td>lb/hr</td>
<td>tonyr</td>
</tr>
<tr>
<td></td>
<td>lb/hr</td>
<td>tonyr</td>
</tr>
</tbody>
</table>

N/A

**TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

<table>
<thead>
<tr>
<th>TOXIC AIR POLLUTANT AND CAS NO.</th>
<th>EF SOURCE</th>
<th>lb/hr</th>
<th>lb/day</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS/LIMITATIONS**

Attachments: (1) Emissions calculations and supporting documentation; (2) Identify 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 ATTACH APPROPRIATE B1 THROUGH B9 FORMS FOR EACH SOURCE**

Attach Additional Sheets As Necessary
**FORM B9**

**EMISSION SOURCE (OTHER)**

**REVISED:** 12/01/01

**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

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/HR)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/HR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried Wood</td>
<td>Tons</td>
<td>13 tons per hour each</td>
<td></td>
</tr>
</tbody>
</table>

### MATERIALS ENTERING PROCESS - BATCH OPERATION

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/BATCH)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/BATCH)</th>
</tr>
</thead>
</table>

**MAXIMUM DESIGN (BATCHES / HOUR):**

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

**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*
CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISION 12/01/01

CONTROL DEVICE ID NO: CD-HM-CYC-1 thru-7

EMISSION POINT (STACK) ID NO(S): EP-2 and 3

MANUFACTURER: Aircon

MODEL NO: AC-06

DATE MANUFACTURED: TBD

PROPOSED OPERATION DATE: 3/1/2013

OPERATING SCENARIO:

1 OF 1

P.E. SEAL REQUIRED (PER 2Q 2011)?

YES

NO

DESCRIPTION OF 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 bag filters.

POUTANT(S) COLLECTED:

PM

PM

PM

See calculations in Appendix B

CAPTURE EFFICIENCY:

98.0% %

98.0% %

95.0% %

CONTROL DEVICE EFFICIENCY:

%  

%  

%  

CORRESPONDING OVERALL EFFICIENCY:

%  

%  

%  

EFFICIENCY DETERMINATION CODE:


TOTAL EMISSION RATE (LB/Hr):

See calculations in Appendix B

PRESSURE DROP (IN. H2O): MIN 6.0 MAX

WARNING ALARM?

YES

NO

INLET TEMPERATURE (°F): MIN Ambient

OUTLET TEMPERATURE (°F): MIN Ambient

INLET AIR FLOW RATE (ACFM): 15,000 each cyclone

BULK PARTICLE DENSITY (LB/FT3): 3.146-06

POLLUTANT LOADING RATE (GR/FT3): 0.022

CYCLONE

MULTICYCLONE

LENGTH (INCHES):

WIDTH (INCHES):

HEIGHT (INCHES):

VELOCITY (FT/SEC):

NO. TRAYS:

NO. BAFFLES:

CIRCULAR

RECTANGLE

DIMENSIONS (INCHES) See instructions

IF WET SPRAY UTILIZED

LIQUID USED:

HOPPER ASPIRATION SYSTEM?

FLOW RATE (GPM):

MAKE UP RATE (GPM):

LOUVERS?

DIA. TUBES:

DIAMETER OF TUBES:

TYPE OF CYCLONE:

CONVENTIONAL

HIGH EFFICIENCY

OTHER

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)

WEIGHT %

OF TOTAL

CUMULATIVE %

0.1

Unknown

1-10

10-25

25-50

50-100

>100

TOTAL = 100

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 discharged to atmosphere via a discharge stack common to all filters in this area.

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

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

Trinity Consultants
CONTROL DEVICE (FABRIC FILTER)

CONTROL DEVICE ID NO: CD-HM-BF-1 and 2
EMISSION POINT (STACK) ID NO(S): EP-2 and 3
DATE MANUFACTURED: TBD
MODEL NO: 16 RAB 412-10
PROPOSED OPERATION DATE: 3/1/2013
PROPOSED START CONSTRUCTION DATE: TBD
OPERATING SCENARIO: 1 OF 1
P.E. SEAL REQUIRED (PER 2Q. 0112)? ☑ YES ☑ NO

DESCRIPTION OF CONTROL SYSTEM:
Four (4) bag filters 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.

<table>
<thead>
<tr>
<th>POLLUTANT(S) COLLECTED:</th>
<th>PM</th>
<th>PM-10</th>
<th>PM-2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEFORE CONTROL EMISSION RATE (LB/H):</td>
<td>See calculations in Appendix B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPTURE EFFICIENCY:</td>
<td>-99.9%</td>
<td>-99.9%</td>
<td>-99.9%</td>
</tr>
<tr>
<td>CONTROL DEVICE EFFICIENCY:</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>CORRESPONDING OVERALL EFFICIENCY:</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>EFFICIENCY DETERMINATION CODE:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL EMISSION RATE (LB/H):</td>
<td>See calculations in Appendix B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRESSURE DROP (IN. HG):</td>
<td>MAX: 6&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BULK PARTICLE DENSITY (LB/FT³):</td>
<td>1.43E-06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLLUTANTLOADING RATE:</td>
<td>0.01 d LB/H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INLET AIR FLOW RATE (ACFM):</td>
<td>45,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INLET TEMPERATURE (°F):</td>
<td>129</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTLET TEMPERATURE (°F):</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO. OF COMPARTMENTS:</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO. OF BAGS PER COMPARTMENT:</td>
<td>412</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIAMETER OF BAG (IN.):</td>
<td>5.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRAFT:</td>
<td>INDUCED/NEG.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILTER MATERIAL:</td>
<td>Polyester or equivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILTER SURFACE AREA (FT²):</td>
<td>5,250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARTICLE SIZE DISTRIBUTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE (MICRONS)</td>
<td>WEIGHT % OF TOTAL</td>
<td>CUMULATIVE %</td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100+</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL = 100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 BINDING ☑ CHEMICAL RESISTIVITY ☑ OTHER

EXPLAIN:

DESCRIPTION OF MAINTENANCE PROCEDURES: Per manufacturer recommendations

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

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**  
**C1**

**CONTROL DEVICE ID NO:** CD-HM-BF-3  
**EMISSION POINT (STACK) ID NO(S):** EP-4  
**MODEL NO:** 16 RAB 412-10  
**POSITION IN SERIES OF CONTROLS:** NO. 2 OF 2 UNITS

**MANUFACTURER:** Alcren  
**DATE MANUFACTURED:** TBD  
**OPERATING SCENARIO:** TBD  
**PROPOSED OPERATION DATE:** 3/1/2013  
**PROPOSED START CONSTRUCTION DATE:** TBD

**DESCRIPTION OF CONTROL SYSTEM:**  
Four (4) bag filters 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 to an individual baghouse.

<table>
<thead>
<tr>
<th>POLLUTANT(S) COLLECTED:</th>
<th>PM</th>
<th>PM-10</th>
<th>PM-2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>See calculations in Appendix B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BEFORE CONTROL EMISSION RATE (LB/M):</th>
<th>MIN.</th>
<th>MAX.</th>
<th>GAUGE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULK PARTICLE DENSITY (LB/FT³):</td>
<td>1.43E-06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLLUTANT LOADING RATE:</td>
<td>0.01</td>
<td>LB/M</td>
<td></td>
</tr>
<tr>
<td>INLET AIR FLOW RATE (ACFM):</td>
<td>30,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO. OF BAGS PER COMPARTMENT:</td>
<td>412</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIA. OF BAG (IN.):</td>
<td>5.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIR TO CLOTH RATIO:</td>
<td>4.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILTER MATERIAL:</td>
<td>Polyester or equivalent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION OF CLEANING PROCEDURES:**  
- Air Pulse  
- Reverse Flow  
- Sonic  
- Mechanical/Shaker  
- Simple Bag Collapse  
- Ring Bag Collapse  
- Other

**PARTICLE SIZE DISTRIBUTION**  

<table>
<thead>
<tr>
<th>SIZE (MICRONS)</th>
<th>WEIGHT % OF TOTAL</th>
<th>CUMULATIVE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Unknown</td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL = 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION OF 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:**  
- Internal Inspection  
- Visible Emission  
- Other

**SPECIAL CONDITIONS:**  
- None

**EXPLAIN:**

**DESCRIPTION OF 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

---

*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

EMISSION SOURCE DESCRIPTION:
Nuisance Dust System

OPERATING SCENARIO:
1 OF 1

EMISSION SOURCE ID NO:
ES-NDS

CONTROL DEVICE ID NO(S):
CD-HM-BF-3

EMISSION POINT (STACK) ID NO(S):
EP-4

DESCRIPTION OF THE 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)
- Woodworking (Form B4)
- Int. combustion engine/generator (Form B2)
- Coating/finishing/printing (Form B5)
- Liquid storage tanks (Form B3)
- Incineration (Form B8)
- Other (Form B6)

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-APR 25%
JUN-AUG 25%
SEP-NOV 25%

EXPECTED ANNUAL HOURS OF OPERATION:
8,760

VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION:
<20

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

<table>
<thead>
<tr>
<th>AIR POLLUTANT Emitted (PM)</th>
<th>SOURCE OF EMISSION FACTOR</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTICULATE MATTER (PM)</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
<tr>
<td>PARTICULATE MATTER&lt;10 MICRONS (PM&lt;10)</td>
<td>See Emission Calculations in Appendix B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARTICULATE MATTER&lt;2.5 MICRONS (PM&lt;2.5)</td>
<td>See Emission Calculations in Appendix B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SULFUR DIOXIDE (SO2)</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
<tr>
<td>NITROGEN OXIDES (NOx)</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
<tr>
<td>CARBON MONOXIDE (CO)</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
<tr>
<td>VOLATILE ORGANIC COMPOUNDS (VOC)</td>
<td>See Emission Calculations in Appendix B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAD</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
</tbody>
</table>

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

<table>
<thead>
<tr>
<th>HAZARDOUS AIR POLLUTANT AND CAS NO.</th>
<th>SOURCE OF EMISSION FACTOR</th>
<th>EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)</th>
<th>POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td>lb/hr</td>
<td>tona/yr</td>
</tr>
</tbody>
</table>

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

<table>
<thead>
<tr>
<th>TOXIC AIR POLLUTANT AND CAS NO.</th>
<th>EF SOURCE</th>
<th>lb/hr</th>
<th>lb/day</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

EMISSION SOURCE DESCRIPTION:
Nuisance Dust System

OPERATING SCENARIO: 1 OF 1

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

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (CFM)</th>
<th>REQUESTED CAPACITY LIMITATION(UNIT/HR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Flow</td>
<td>CFM</td>
<td>15,000</td>
<td></td>
</tr>
</tbody>
</table>

MATERIALS ENTERING PROCESS - BATCH OPERATION

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/BATCH)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/BATCH)</th>
</tr>
</thead>
</table>

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)

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

DESCRIPT IN DETAIL THE 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)
☐ Int. combustion engine/generator (Form B2)
☐ Liquid storage tanks (Form B3)
☐ Woodworking (Form B4)
☐ Coating/finishing/printing (Form B5)
☐ Storage silos/blins (Form B6)
☐ Other (Form B9)

START CONSTRUCTION DATE: TBD
OPERATION DATE: 3/1/2013
DATE MANUFACTURED: TBD
EXP. SCHEDULE: 24 HR/DAY 7 DAY/ WK 52 W/yr

IS THIS SOURCE SUBJECT TO NSPS (SUBPART?):
NESHAP (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 25%

EXPECTED ANNUAL HOURS OF OPERATION 8,760

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

AIR POLLUTANT EMITTED

PARTICULATE MATTER (PM)
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

SOURCE OF EMISSION
FACTOR
EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)
lb/yr tons/yr
POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITS)
lb/yr tons/yr

HAZARDOUS AIR POLLUTANT EMITTED

HAZARDOUS AIR POLLUTANT AND CAS NO.
N/A

SOURCE OF EMISSION
FACTOR
EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)
lb/yr tons/yr
POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITS)
lb/yr tons/yr

TOXIC AIR POLLUTANT EMITTED

TOXIC AIR POLLUTANT AND CAS NO.
N/A

SOURCE OF EMISSION
FACTOR
EXPECTED ACTUAL (AFTER CONTROLS / LIMITS)
lb/yr
POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITS)
lb/yr

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

Attatch Additional Sheets As Necessary

Trinity Consultants

File: Enviva Northampton Forms (2012-12-17)
Sheet:B (ES-CLR-1 through -6)
EMISSION SOURCE (OTHER)

EMISSION SOURCE ID NO: ES-CLR1 through 6
CONTROL DEVICE ID NO(S): CD-CLR-1 through 6
EMISSION POINT (STACK) ID NO(S): EP-06 through 11

OPERATING SCENARIO: 1 OF 1

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/HR)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/HR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried Wood</td>
<td>Tons</td>
<td>72.8</td>
<td></td>
</tr>
</tbody>
</table>

MATERIALS ENTERING PROCESS - BATCH OPERATION

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/BATCH)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/BATCH)</th>
</tr>
</thead>
</table>

MAXIMUM DESIGN (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

DESCRIPTION OF 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.

Attach Additional Sheets as Necessary
FORM C4
CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

CONTROL DEVICE ID NO: CD-CLR-1 through 6
EMISSION POINT (STACK) ID NO(S): EP-06 through 11
MANUFACTURER: TBD
MANUFACTURER: TBD
DATE MANUFACTURED: TBD
PREPROPOSED OPERATION DATE: 3/1/2013
OPERATING SCENARIO: TBD
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.

POLUTANT(S) COLLECTED:
PM PM 10 PM 2.5
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 (LBHR):
See Emissions Calculations in Appendix B

PRESSURE DROP (IN. H₂O): MIN MAX 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):

WIDTH (INCHES):

HEIGHT (INCHES):

VELOCITY (FT/SEC):

NO. TRAYS:

NO. BAFFLES:

TYPE OF CYCLONE:

CIRCULAR RECTANGLE NO. TUBES:

IF WET SPRAY UTILIZED

LIQUID USED:

FLOW RATE (GPM):

MAKE UP RATE (GPM):

LOUVERS:

DIAMETER OF TUBES:

HOPPER ASPIRATION SYSTEM?

YES NO

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

DESIGN 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.

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

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)**

<table>
<thead>
<tr>
<th>EMISSION SOURCE DESCRIPTION:</th>
<th>EMISSION SOURCE ID NO:</th>
<th>CONTROL DEVICE ID NO(S):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pellet Fines Bin</td>
<td>ES-PFB</td>
<td>CD-PFB-BV</td>
</tr>
</tbody>
</table>

**OPERATING SCENARIO**

| 1 OF 1 |

**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/paints (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 OPER. SCHEDULE:** 24 HR/DAY  7 DAY/WK  52 WK/YR

**IS THIS SOURCE SUBJECT TO NSPS (SUBPART?):** N  
**NEHSAP (SUBPART?):** N

**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**

<table>
<thead>
<tr>
<th>AIR POLLUTANT Emitted</th>
<th>SOURCE OF EMISSION</th>
<th>POTENTIAL EMISSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM&lt;10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM&lt;2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SO2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS/LIMITS):**

- [ ] lb/hr
- [ ] tons/yr

**EXPECTED ACTUAL EMISSIONS (BEFORE CONTROLS/LIMITS):**

- [ ] lb/hr
- [ ] tons/yr

See Emission Calculations in Appendix B

---

**HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

<table>
<thead>
<tr>
<th>HAZARDOUS AIR POLLUTANT AND CAS NO.</th>
<th>SOURCE OF EMISSION</th>
<th>POTENTIAL EMISSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS/LIMITS):**

- [ ] lb/hr
- [ ] tons/yr

**EXPECTED ACTUAL EMISSIONS (BEFORE CONTROLS/LIMITS):**

- [ ] lb/hr
- [ ] tons/yr

---

**TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE**

**INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS/LIMITATIONS**

<table>
<thead>
<tr>
<th>TOXIC AIR POLLUTANT AND CAS NO.</th>
<th>EF SOURCE</th>
<th>lb/hr</th>
<th>lb/day</th>
<th>lb/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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)

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

DESCRIPT 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.

<table>
<thead>
<tr>
<th>MATERIAL STORED:</th>
<th>Fine pellet material</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPACITY</td>
<td>CUBIC FEET: 2200</td>
</tr>
<tr>
<td>DENSITY OF MATERIAL (LB/FT3):</td>
<td>40</td>
</tr>
<tr>
<td>DIMENSIONS (FEET)</td>
<td>HEIGHT:</td>
</tr>
<tr>
<td></td>
<td>DIAMETER: 12 (OR)</td>
</tr>
<tr>
<td>ANNUAL PRODUCT THROUGHPUT (TONS)</td>
<td>ACTUAL:</td>
</tr>
<tr>
<td></td>
<td>MAXIMUM DESIGN CAPACITY:</td>
</tr>
<tr>
<td>PNEUMATICALLY FILLED</td>
<td>MECHANICALLY FILLED</td>
</tr>
<tr>
<td>BLOWER</td>
<td>SCREW CONVEYOR</td>
</tr>
<tr>
<td>COMPRESSOR</td>
<td>BELT CONVEYOR</td>
</tr>
<tr>
<td>OTHER:</td>
<td>MOTOR HP:</td>
</tr>
<tr>
<td></td>
<td>RAILCAR</td>
</tr>
<tr>
<td></td>
<td>TRUCK</td>
</tr>
<tr>
<td></td>
<td>STORAGE PILE</td>
</tr>
<tr>
<td></td>
<td>OTHER:</td>
</tr>
<tr>
<td>NO. FILL TUBES:</td>
<td>MAXIMUM ACFM:</td>
</tr>
<tr>
<td>MATERIAL IS FILLED TO:</td>
<td></td>
</tr>
</tbody>
</table>

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 12/1/01**

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

**CONTROL DEVICE ID NO:** CD-PFB-BV

**EMISSION POINT (STACK) ID NO(S):** EP-12

**MANUFACTURER:** Arcon

**DATE MANUFACTURED:** TBD

**OPERATING SCENARIO:** 1 OF 1

**DATE PROPOSED OPERATION DATE:** 3/1/2013

**OPERATING SCENARIO:** 1 OF 1

**P.E. SEAL REQUIRED (PER 2Q .0112)?** Yes

**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}

See calculations in Appendix B

**BEFORE CONTROL EMISSION RATE (LB/HR):**

-99 %

-99 %

-99 %

**CAPTURE EFFICIENCY:**

-99 %

-99 %

-99 %

**CONTROL DEVICE EFFICIENCY:**

-99 %

-99 %

-99 %

**CORRESPONDING OVERALL EFFICIENCY:**

-99 %

-99 %

-99 %

**EFFICIENCY DETERMINATION CODE:**

See calculations in Appendix B

**TOTAL EMISSION RATE (LB/HR):**

**PRESSURE DROP (IN. H2O):**

- MIN: TBD
- MAX: TBD

**GAUGE:**

- YES
- NO

**WARNING ALARM:**

- YES
- NO

**BULK PARTICLE DENSITY (LB/FT³):** 3.14E-06

**INLET TEMPERATURE (°F):** Ambient

**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.):** TBD

**DRAFT:** Woven

**FORCED DPOS.:** Woven

**FILTER MATERIAL:**

**AIR TO CLOTH RATIO:** 11.08

**FILTER SIZE DISTRIBUTION:**

- PARTICLE SIZE DISTRIBUTION:

<table>
<thead>
<tr>
<th>SIZE (MICRONS)</th>
<th>WEIGHT % OF TOTAL</th>
<th>CUMULATIVE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL = 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 BINDING
- CHEMICAL RESISTIVITY
- OTHER

**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)

EMISSION SOURCE DESCRIPTION:
Finished Product Handling/ Pellet Loadout Bins / Pellet Loadout

OPERATING SCENARIO 1 OF 1

EMISSION SOURCE ID NO: ES-FPH, ES-P91 thru 12, ES-PL1 and 2
CONTROL DEVICE ID NO(S): CD-FPH-BF
EMISSION POINT (STACK) ID NO(S): EP-13

DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
- ES-FPH: Collection of transfer points, pellet screening operations, and pellet conveying.
- ES-P91 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-PL1 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)
- Int. combustion engine/generator (Form B2)
- Coating/finishing/printing (Form B5)
- Incineration (Form B8)
- Liquid storage tanks (Form B3)
- Other (Form B9)

START CONSTRUCTION DATE: TBD
OPERATION DATE: 3/1/2013
DATE MANUFACTURED:
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
VISIBEL STACK EMISSIONS UNDER NORMAL OPERATION: % OPACY

AIR POLLUTANT EMITTED

POTENTIAL EMISSIONS

SOURCE OF EMISION FACTOR

POTENTIAL ACTUAL ( AFTER CONTROLS / LIMITS)

POTENTIAL ACTUAL ( BEFORE CONTROLS / LIMITS)

lb/hr tons/yr lb/hr tons/yr lb/hr tons/yr

OTHER

PARTICULATE MATTER (PM)

See Emission Calculations in Appendix B

PARTICULATE MATTER<10 MICRONS (PM10)

PARTICULATE MATTER>2.5 MICRONS (PM2.5)

SULFUR DIOXIDE (SO2)

NITROGEN OXIDES (NOx)

CARBON MONOXIDE (CO)

VOLATILE ORGANIC COMPOUNDS (VOC)

LEAD

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.

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

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

Attach Additional Sheets As Necessary

Trinity Consultants

Page 20 of 24

File:Envira Northampton Forms (2012-12-17)
Sheet:B (ES-FPH)
**FORM B9**  
EMISSION SOURCE (OTHER)

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

**OPERATING SCENARIO:** 1 OF 1

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

---

### MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/HR)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/HR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried Wood</td>
<td>Tons</td>
<td>70.25 tons per hour</td>
<td></td>
</tr>
</tbody>
</table>

---

### MATERIALS ENTERING PROCESS - BATCH OPERATION

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/BATCH)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/BATCH)</th>
</tr>
</thead>
</table>

---

**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)

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

<table>
<thead>
<tr>
<th>MATERIAL STORED</th>
<th>CAPACITY</th>
<th>DENSITY OF MATERIAL (LB/FT³):</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pellet Product</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIMENSIONS (FEET)</th>
<th>CUBIC FEET:</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEIGHT: 12 (OR)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANNUAL PRODUCT THROUGHPUT (TONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTUAL:</td>
</tr>
<tr>
<td>MAXIMUM DESIGN CAPACITY:</td>
</tr>
<tr>
<td>70.65 tph</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Filled From</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOTOR HP:</td>
</tr>
<tr>
<td>TRUCK:</td>
</tr>
<tr>
<td>STORAGE PILE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Filled From</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. FILL TUBES:</th>
<th>MAXIMUM ACFM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>750 each</td>
<td></td>
</tr>
</tbody>
</table>

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)**

**EMISSION SOURCE DESCRIPTION:** Pellet Loadout 1 and 2

**EMISSION SOURCE ID NO:** ES-PL-1 and PL-2

**OPERATING SCENARIO:** 1 OF 1

**CONTROL DEVICE ID NO(S):** CD-FPH-BF

**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

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (CFM)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/HR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dried Wood</td>
<td>CFM</td>
<td>35,500</td>
<td></td>
</tr>
</tbody>
</table>

---

### MATERIALS ENTERING PROCESS - BATCH OPERATION

<table>
<thead>
<tr>
<th>TYPE</th>
<th>UNITS</th>
<th>MAX. DESIGN CAPACITY (UNIT/BATCH)</th>
<th>REQUESTED CAPACITY LIMITATION (UNIT/BATCH)</th>
</tr>
</thead>
</table>

---

**MAXIMUM DESIGN (BATCHES / HOUR):**

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

**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

CONTROL DEVICE ID NO: CD-FBH-BF
EMISSION POINT (STACK) ID NO(S): EP-13
CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-FPH, ES-PB-1 through 12, ES-PL1 and 2

MANUFACTURER: Airon
DATE MANUFACTURED: TBD
OPERATING SCENARIO: TBD
PROPOSED OPERATION DATE: 3/1/2013
PROPOSED START CONSTRUCTION DATE: TBD
P.E. SEAL REQUIRED (PER 20-01127)? ☑ YES ☑ NO

DESCRIBE CONTROL SYSTEM:

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

POLLUTANT(S) COLLECTED:

BEFORE CONTROL EMISSION RATE (LB/HR):

PM - 99.9%
PM-10 - 99.9%
PM-2.5 - 99.9%

See calculations in Appendix B

CAPTURE EFFICIENCY:

CONTROL DEVICE EFFICIENCY:

CORRESPONDING OVERALL EFFICIENCY:

EFFICIENCY DETERMINATION CODE:

TOTAL EMISSION RATE (LB/HR):

See calculations in Appendix B

PRESSURE DROP (IN. H2O): MIN: MAX:

INLET TEMPERATURE (°F): 120
OUTLET TEMPERATURE (°F): 100

INLET AIR FLOW RATE (ACFM): 33,500
FILTER MAX OPERATING TEMP. (°F): N/A

NO. OF COMPARTMENTS: 1
NO. OF BAGS PER COMPARTMENT: 1
LENGTH OF BAG (IN.): 144

DIAMETER OF BAG (IN.): 5.75
DRAFT: INDUCED/DIFFUSION
FILTER SURFACE AREA (FT²): 4,842

AIR TO CLOTH RATIO: 7.30
FILTER MATERIAL: Polyester or equivalent

FILTER MATERIAL:

SONIC
SIMPLE BAG COLLAPSE
RING BAG COLLAPSE

FILTER MATERIAL:

REVERSE FLOW
MECHANICAL/Shaker
OTHER

DESCRIPTION OF CLEANING PROCEDURES:

SONIC
REVERSE FLOW
SIMPLE BAG COLLAPSE
RING BAG COLLAPSE

SONIC
SIMPLE BAG COLLAPSE
RING BAG COLLAPSE

SONIC
SIMPLE BAG COLLAPSE
RING BAG COLLAPSE

SONIC
SIMPLE BAG COLLAPSE
RING BAG COLLAPSE

SONIC
SIMPLE BAG COLLAPSE
RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

SIZE (MICRONS)
0-1
1-10
10-25
25-50
50-100
>100
TOTAL = 100

WEIGHT % OF TOTAL
CUMULATIVE

0-1
Unknown
1-10
25-50
50-100
>100
TOTAL = 100

METHOD FOR DETERMINING WHEN TO CLEAN:

AUTOMATIC
TIMED
MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

INTERNAL INSPECTION
VISIBLE EMISSION
OTHER

SPECIAL CONDITIONS:

MOISTURE BINDING
CHEMICAL RESISTIVITY
OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES:

Per manufacturer recommendations

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
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 cannot 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

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

- 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

Courtesy of the Small Business Assistance Program
toll free at 1-877-623-6748 or on the web at www.envhelp.org/sb
ATTACHMENT 4

AIR DISPERSION MODELING
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
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APPENDIX A - MODELING PROTOCOL CHECKLIST

APPENDIX B - ELECTRONIC MODELING FILES
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 NO₂ 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.
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\textsubscript{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\textsubscript{x} 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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.

\textsuperscript{2} Earth Tech, Inc., Addendum to the ISC3 User’s Guide, The PRIME Plume Rise and Building Downwash Model, Concord, MA.
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>
<thead>
<tr>
<th>Model ID</th>
<th>Description</th>
<th>UTM-E (m)</th>
<th>UTM-N (m)</th>
<th>Elevation (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP1</td>
<td>Dryer WESP Stack</td>
<td>266,018.9</td>
<td>4,042,780.6</td>
<td>48.9</td>
</tr>
<tr>
<td>EP9</td>
<td>Emergency Generator</td>
<td>266,062.1</td>
<td>4,042,782.0</td>
<td>48.7</td>
</tr>
<tr>
<td>EP10</td>
<td>Firewater Pump</td>
<td>266,044.9</td>
<td>4,043,088.4</td>
<td>46.9</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Model ID</th>
<th>Stack Height (m)</th>
<th>Stack Temperature (K)</th>
<th>Exit Velocity (m/s)</th>
<th>Stack Diameter (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EP1</td>
<td>28.65</td>
<td>396.48</td>
<td>15.94</td>
<td>2.44</td>
</tr>
<tr>
<td>EP9</td>
<td>4.57</td>
<td>920.00</td>
<td>78.30</td>
<td>0.10</td>
</tr>
<tr>
<td>EP10</td>
<td>4.57</td>
<td>954.00</td>
<td>109.18</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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.
Table 2-3. Modeled Emission Rates

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Dryer EP1 (g/s)</th>
<th>EG EP9 (g/s)</th>
<th>FP EP10 (g/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein</td>
<td>1.782E-01</td>
<td>2.855E-05</td>
<td>2.448E-05</td>
</tr>
<tr>
<td>Arsenic</td>
<td>3.497E-05</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Benzene</td>
<td>5.889E-02</td>
<td>2.880E-04</td>
<td>2.469E-04</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>5.700E-05</td>
<td>5.804E-08</td>
<td>4.974E-08</td>
</tr>
<tr>
<td>Cadmium</td>
<td>6.517E-06</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chlorine</td>
<td>1.732E-02</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>1.085E+00</td>
<td>3.643E-04</td>
<td>3.122E-04</td>
</tr>
<tr>
<td>Hexachlorodibenzo-p-dioxin</td>
<td>3.508E-05</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>4.166E-02</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mercury, vapor</td>
<td>7.673E-05</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nickel metal</td>
<td>7.235E-04</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Phenol</td>
<td>2.170E-01</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vinyl chloride</td>
<td>3.946E-04</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NOx</td>
<td>4.070E+00</td>
<td>2.900E-01</td>
<td>2.486E-01</td>
</tr>
</tbody>
</table>

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.

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.

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)
2.7. 1-HOUR NO₂ 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 NO₂ 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 NO₂ 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 NO₂. If the concentration exceeds the NAAQS and/or PSD Increments for NO₂ 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

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>Max. Modeled Impact (µg/m³)</th>
<th>Date/Time of Impact (YMMDDHH)</th>
<th>Location of Maximum UTM-E (m)</th>
<th>Location of Maximum UTM-N (m)</th>
<th>AAL (µg/m³)</th>
<th>% of AAL (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein</td>
<td>1-Hour</td>
<td>1.07E+00</td>
<td>92031107</td>
<td>266,300.0</td>
<td>4,042,800.0</td>
<td>8.00E+01</td>
<td>1.33%</td>
</tr>
<tr>
<td>Arsenic</td>
<td>Annual</td>
<td>1.00E-05</td>
<td>1992</td>
<td>266,300.0</td>
<td>4,043,000.0</td>
<td>2.30E-04</td>
<td>4.35%</td>
</tr>
<tr>
<td>Benzene</td>
<td>Annual</td>
<td>1.57E-02</td>
<td>1992</td>
<td>266,300.0</td>
<td>4,043,000.0</td>
<td>1.20E-01</td>
<td>13.12%</td>
</tr>
<tr>
<td>Benz(a)pyrene</td>
<td>Annual</td>
<td>1.00E-05</td>
<td>1992</td>
<td>266,300.0</td>
<td>4,043,000.0</td>
<td>3.30E-02</td>
<td>0.03%</td>
</tr>
<tr>
<td>Cadmium</td>
<td>Annual</td>
<td>1.56E-06</td>
<td>1992</td>
<td>266,300.0</td>
<td>4,043,000.0</td>
<td>5.50E-03</td>
<td>0.03%</td>
</tr>
<tr>
<td>Chlorine</td>
<td>1-Hour</td>
<td>1.04E+01</td>
<td>92031107</td>
<td>266,300.0</td>
<td>4,042,800.0</td>
<td>9.00E+02</td>
<td>0.01%</td>
</tr>
<tr>
<td></td>
<td>24-Hour</td>
<td>5.43E-02</td>
<td>92050724</td>
<td>265,840.5</td>
<td>4,042,512.0</td>
<td>3.75E+01</td>
<td>0.14%</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>1-Hour</td>
<td>6.50E+00</td>
<td>92031107</td>
<td>266,300.0</td>
<td>4,042,800.0</td>
<td>1.50E+02</td>
<td>4.33%</td>
</tr>
<tr>
<td>Hexachlorobenzene-p-dioxin</td>
<td>Annual</td>
<td>1.00E-05</td>
<td>1992</td>
<td>266,300.0</td>
<td>4,043,000.0</td>
<td>7.60E-05</td>
<td>13.16%</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>1-Hour</td>
<td>2.49E+01</td>
<td>92031107</td>
<td>266,300.0</td>
<td>4,042,800.0</td>
<td>7.00E+02</td>
<td>0.04%</td>
</tr>
<tr>
<td>Mercury, vapor</td>
<td>24-Hour</td>
<td>2.40E-04</td>
<td>92050724</td>
<td>265,840.5</td>
<td>4,042,512.0</td>
<td>6.00E-01</td>
<td>0.04%</td>
</tr>
<tr>
<td>Nickel metal</td>
<td>24-Hour</td>
<td>2.27E-03</td>
<td>92050724</td>
<td>265,840.5</td>
<td>4,042,512.0</td>
<td>6.00E+00</td>
<td>0.04%</td>
</tr>
<tr>
<td>Phenol</td>
<td>1-Hour</td>
<td>1.30E+00</td>
<td>92031107</td>
<td>266,300.0</td>
<td>4,042,800.0</td>
<td>9.50E+02</td>
<td>0.14%</td>
</tr>
<tr>
<td>Vinyl chloride</td>
<td>Annual</td>
<td>9.00E-05</td>
<td>1992</td>
<td>266,300.0</td>
<td>4,043,000.0</td>
<td>3.80E-01</td>
<td>0.02%</td>
</tr>
</tbody>
</table>

1 The maximum modeled impacts are based on the 1992 meteorological 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 NO₂ MODELING RESULTS

Table 3-2 presents the modeling results from the 1-hour NO₂ NAAQS modeling analysis. As shown, the modeled impact (including background) is below the NAAQS.
Table 3-2. NAAQS Modeling Results

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>UTM-E (m)</th>
<th>UTM-N (m)</th>
<th>Date/Time</th>
<th>Modeled Concentration (µg/m³)</th>
<th>Background Concentration¹ (µg/m³)</th>
<th>Total Concentration (µg/m³)</th>
<th>NAAQS (µg/m³)</th>
<th>Exceeds NAAQS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
<td>1-Hour</td>
<td>266,092.9</td>
<td>4,042,747.0</td>
<td>1988-1992</td>
<td>95.07</td>
<td>35.80</td>
<td>130.87</td>
<td>188</td>
<td>No</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name: Enviva Pellets Northampton, LLC</th>
<th>Consultant (if applicable): Trinity Consultants One Copley Parkway Suite 310 Morrisville, NC 27560</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility ID: 4600107</td>
<td>Contact Name: Glenn Gray Contact Name: Jonathan Hill</td>
</tr>
<tr>
<td>Address: 874 Lebanon Church Rd.</td>
<td>Phone Number: 757-274-8377 Email: <a href="mailto:glenn.gray@envivabiomass.com">glenn.gray@envivabiomass.com</a> Phone Number: 919-462-9693 Email: <a href="mailto:jhill@trinityconsultants.com">jhill@trinityconsultants.com</a></td>
</tr>
<tr>
<td>Garysburg, NC 27866</td>
<td></td>
</tr>
</tbody>
</table>

## 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 SCRENN3, 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: \_ \_ \_

**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

<table>
<thead>
<tr>
<th>Model: The latest version of AERMOD should be used, and may be found at <a href="http://www.epa.gov/scram001/dispersion_prefrec.htm">http://www.epa.gov/scram001/dispersion_prefrec.htm</a>. The use of other refined models must be approved by NCDAQ prior to submitting the modeling report.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source / Source emission parameters: Provide a table listing the sources modeled and the applicable source emission parameters. <em>See NC Form 3 - Appendix A.</em></td>
</tr>
<tr>
<td>GEP Analysis: Use BPII-Prime with AERMOD.</td>
</tr>
<tr>
<td>Cavity Impact Analysis: No separate cavity analysis is required when using AERMOD as long as receptors are placed in cavity susceptible areas. <em>See Section 4.2 and 5.2.</em></td>
</tr>
<tr>
<td>Terrain: Use digital elevation data from the USGS NED database (<a href="http://seamless.usgs.gov/index.php">http://seamless.usgs.gov/index.php</a>). Use of other sources of terrain elevations or the non-regulatory Flat Terrain option will require prior approval from DAQ AQAB.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Receptors: The receptor grid should be of sufficient size and resolution to identify the maximum pollutant impact. <em>See Section 5.3.</em></td>
</tr>
</tbody>
</table>
| 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  
AERMOD1988-1992  
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.* |
| Modeling Files: Submit input and output files for AERMOD. Also include BPII-Prime files, AERMAP files, DEM files, and any AERMET input and output files, including raw meteorological data. |
ATTACHMENT 5

REDLINE COPY OF THE EXISTING PERMIT
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: 66000167.11A
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.

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...
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  

<table>
<thead>
<tr>
<th>Permit No.</th>
<th>Replaces Permit No.(s)</th>
<th>Effective Date</th>
<th>Expiration Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>10203R00</td>
<td>N/A</td>
<td>March 9, 2012</td>
<td>February 28, 2017</td>
</tr>
</tbody>
</table>

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:**  
Facility ID:  

Facility Site Location:  
City, County, State, Zip:  

Mailing Address:  
City, State, Zip:  

Application Number:  
Complete Application Date:  

Primary SIC Code:  
Division of Air Quality,  
Regional Office Address:  

**Enviva Pellets, LLC**  
4600107  

874 Lebanon Church Road  
Garysburg, Northampton County, North Carolina, 27831  

7200 Wisconsin Avenue  
Bethesda, Maryland, 20814  

6600167.11A  
August 26, 2011  

2499  
Raleigh Regional Office  
3800 Barrett Drive  
Raleigh, North Carolina, 27609
Insignificant Activities under 15A NCAC 2Q .0503(8)

<table>
<thead>
<tr>
<th>Emission Source ID No.</th>
<th>Emission Source Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES-DWH</td>
<td>Dried wood handling</td>
</tr>
<tr>
<td>IES-PP</td>
<td>Pellet press system</td>
</tr>
<tr>
<td>IES-FPH</td>
<td>Finished product handling</td>
</tr>
<tr>
<td>IS-TK1 and IS-TK2</td>
<td>Two diesel storage tanks (2,500 gallon and 500 gallon capacity)</td>
</tr>
<tr>
<td>IES-EPWC</td>
<td>Electric powered green wood chipper</td>
</tr>
<tr>
<td>IES-RCHP-1 and IES-RCHP-2</td>
<td>Two (2) Electric Powered Wood Rechippers</td>
</tr>
<tr>
<td>IES-GWHS</td>
<td>Green wood handling and storage</td>
</tr>
<tr>
<td>IES-GWFB</td>
<td>Green wood fuel storage bin</td>
</tr>
<tr>
<td>ES-GN and ES-FWP</td>
<td>One emergency use generator (350 brake horsepower) and one fire water pump (300 brake horsepower)</td>
</tr>
</tbody>
</table>

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/
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2.2- Multiple Emission Source(s) Specific Limitations and Conditions (Including specific requirements, testing, monitoring, recordkeeping, and reporting requirements)

SECTION 3: GENERAL PERMIT CONDITIONS

ATTACHMENT
  List of Acronyms
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:

<table>
<thead>
<tr>
<th>Emission Source ID No.</th>
<th>Emission Source Description</th>
<th>Control Device ID No.</th>
<th>Control Device Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES-DRYER</td>
<td>Direct heat, wood-fired dryer (174 million Btu per hour heat input)</td>
<td>CD-DC and CD-WESP</td>
<td>One simple cyclone (149 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)</td>
</tr>
<tr>
<td>ES-HM-1, HM-2, HM-3, HM-4, HM-5, HM-6, and HM-7</td>
<td>Seven hammermills</td>
<td>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,</td>
<td>Seven simple cyclones (120 inches in diameter each) in series with three fabric filters (6,250 square feet of filter area each)</td>
</tr>
<tr>
<td>ES-NDS</td>
<td>Nuisance Dust System</td>
<td>CD-HM-BF-3</td>
<td>One fabric filter (6,250 square feet of filter area)</td>
</tr>
<tr>
<td>ES-PMFS</td>
<td>Pellet feed mill silo</td>
<td>CD-PMFS-BV</td>
<td>One bin vent filter (377 square feet of filter area)</td>
</tr>
<tr>
<td>ES-PFB</td>
<td>Pellet Fines Bin</td>
<td>CD-PFB-BV</td>
<td>One bin vent filter (325 square feet of filter area)</td>
</tr>
<tr>
<td>ES-CLR1, CLR2, CLR3, CLR4, CLR5, and CLR6</td>
<td>Pellet coolers</td>
<td>CD-CLR-1, CLR-2, CLR-3, CLR-4, CLR-5, and CLR-6</td>
<td>Six simple cyclones (54 inches in diameter each)</td>
</tr>
<tr>
<td>ES-FPH</td>
<td>Finished Product Handling</td>
<td>CD-FPH-BF</td>
<td>Finished Product Handling Bagfilter (4,842 square feet of filter area)</td>
</tr>
<tr>
<td>ES-PB-1, PB-2, PB-3, PB-4, PB-5, PB-6, PB-7, PB-8, and PB-9</td>
<td>Twelve (12) Pellet Loadout Bins</td>
<td>CD-FPH-BF</td>
<td>Finished Product Handling Bagfilter (4,842 square feet of filter area)</td>
</tr>
</tbody>
</table>
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-PLB-1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12), and Pellet Mill Loadout (ES-PL-1 and 2).

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

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate matter</td>
<td>E = 4.10 x 10^(-0.01) for process weight rate &lt; 30 tph E = 55 x 10^(-0.11) - 40 for process weigh rate ≥ 30 tph Where, E = allowable emission rate (lb/hr) P = process weight rate (tph)</td>
<td>15A NCAC 02D .0515</td>
</tr>
<tr>
<td>Sulfur dioxide</td>
<td>2.3 pounds per million Btu heat input</td>
<td>15A NCAC 02D .0516</td>
</tr>
<tr>
<td>Visible emissions</td>
<td>20 percent opacity when averaged over a six minute period</td>
<td>15A NCAC 02D .0521</td>
</tr>
<tr>
<td>Toxic air pollutants</td>
<td>See Section 2.2 A.</td>
<td>15A NCAC 02D .1100</td>
</tr>
<tr>
<td>Volatile organic compounds</td>
<td>Less than 250 tons per consecutive 12 month period, See Section 2.2 B.</td>
<td>15A NCAC 02Q .0317 for avoidance of 15A NCAC 02D .0530</td>
</tr>
</tbody>
</table>

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)]

\[
E = 4.10 \times P^{0.67} \quad \text{for process weight rate} < 30 \text{ tph}
\]

\[
E = 55 \times P^{0.11} - 40 \quad \text{for process weight rate} \geq 30 \text{ tph}
\]

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 fabric filters (ID Nos. CD-HM-BF1, BF2, and BF3). Particulate matter emissions from the nuisance dust system (ID No. ES-NDLS) shall be controlled by one fabric filter (ID No. CD-JM-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, 6) and three simple cyclones (ID Nos. CD-PEPB-1, 2, 3, 4, 5, 7, 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-FPB-BF). For bag filters 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 bag filters’ 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

c. 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.

<table>
<thead>
<tr>
<th>Regulated Pollutant</th>
<th>Limits/Standards</th>
<th>Applicable Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur dioxide</td>
<td>2.3 pounds per million Btu heat input</td>
<td>15A NCAC 2D.0516</td>
</tr>
<tr>
<td>Visible emissions</td>
<td>20 percent opacity</td>
<td>15A NCAC 2D.0521</td>
</tr>
<tr>
<td>Toxic air pollutants</td>
<td>State-enforceable only</td>
<td>15A NCAC 2D.1100</td>
</tr>
<tr>
<td></td>
<td>See Section 2.2 A.1.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No additional requirements per 63.6590(c)</td>
<td></td>
</tr>
<tr>
<td>NMHC and NOx, CO, PM</td>
<td>0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW for NOx + NMHC</td>
<td>15A NCAC 2D.0524 (40 CFR 60, Subpart III)</td>
</tr>
</tbody>
</table>

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 III]
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 III, 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 III, 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:

<table>
<thead>
<tr>
<th>EMISSION SOURCE(S)</th>
<th>TOXIC AIR POLLUTANT(S)</th>
<th>EMISSION LIMIT(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollutant (CAS Number)</td>
<td>Carcinogens (lb/yr)</td>
<td>Chronic Toxicants (lb/day)</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>1,3-Butadiene (106-99-0)</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Acetaldehyde (75-07-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beryllium (7440-41-7)</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>Carbon tetrachloride (56-23-5)</td>
<td>460</td>
<td></td>
</tr>
<tr>
<td>Chlorobenzene (108-90-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloroform (67-66-3)</td>
<td>290</td>
<td></td>
</tr>
<tr>
<td>Di(2-ethylhexyl)phthalate (DEHP)</td>
<td>(117-81-7)</td>
<td></td>
</tr>
<tr>
<td>Ethylene dichloride (1,2-dichloroethane)</td>
<td>(107-06-2)</td>
<td></td>
</tr>
<tr>
<td>Manganese &amp; cmpds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl chloroform (1,1,1-trichloroethane) (71-55-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl ethyl ketone (78-93-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methyl isobutyl ketone (108-10-1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylene chloride (75-09-2)</td>
<td>1600</td>
<td></td>
</tr>
<tr>
<td>Pentachlorophenol (87-86-5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perchloroethylene (tetrachloroethylene)</td>
<td>(127-18-4)</td>
<td></td>
</tr>
</tbody>
</table>

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:
### 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(h)(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

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. 10203R00
**List of Acronyms**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOS</td>
<td>Alternate Operating Scenario</td>
</tr>
<tr>
<td>BACT</td>
<td>Best Available Control Technology</td>
</tr>
<tr>
<td>Btu</td>
<td>British thermal unit</td>
</tr>
<tr>
<td>CAA</td>
<td>Clean Air Act</td>
</tr>
<tr>
<td>CAIR</td>
<td>Clean Air Interstate Rule</td>
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<tr>
<td>CEM</td>
<td>Continuous Emission Monitor</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>DAQ</td>
<td>Division of Air Quality</td>
</tr>
<tr>
<td>DENR</td>
<td>Department of Environment and Natural Resources</td>
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<td>EMC</td>
<td>Environmental Management Commission</td>
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<td>EPA</td>
<td>Environmental Protection Agency</td>
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<td>FR</td>
<td>Federal Register</td>
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<tr>
<td>GACT</td>
<td>Generally Available Control Technology</td>
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<td>HAP</td>
<td>Hazardous Air Pollutant</td>
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<td>MACT</td>
<td>Maximum Achievable Control Technology</td>
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<td>NAA</td>
<td>Non-Attainment Area</td>
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<td>NCAC</td>
<td>North Carolina Administrative Code</td>
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<td>NCGS</td>
<td>North Carolina General Statutes</td>
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<td>NESHAPS</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
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<td>NOx</td>
<td>Nitrogen Oxides</td>
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<td>NSPS</td>
<td>New Source Performance Standard</td>
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<td>OAH</td>
<td>Office of Administrative Hearings</td>
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<td>PM</td>
<td>Particulate Matter</td>
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<tr>
<td>PM10</td>
<td>Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less</td>
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<td>POS</td>
<td>Primary Operating Scenario</td>
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<tr>
<td>PSD</td>
<td>Prevention of Significant Deterioration</td>
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<tr>
<td>RACT</td>
<td>Reasonably Available Control Technology</td>
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<td>SIC</td>
<td>Standard Industrial Classification</td>
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<td>SIP</td>
<td>State Implementation Plan</td>
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<tr>
<td>SO2</td>
<td>Sulfur Dioxide</td>
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<tr>
<td>tpy</td>
<td>Tons Per Year</td>
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<tr>
<td>VOC</td>
<td>Volatile Organic Compound</td>
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<tr>
<td>ES-HMA</td>
<td>CD-HMA-BF</td>
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<td>Formaldehyde</td>
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<td></td>
<td>Benzo(a)pyrene</td>
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<td></td>
<td>Formaldehyde</td>
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