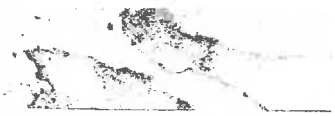

ENVIVA PELLETS **2012**
P/N 10121
HERTFORD COUNTY

Comprehensive Application Report for 4600107.12B

12/05/2012

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information:

Permit/Latest Revision: 10121/ R01

Permit code:	State
Application type:	Modification
Engineer/Rev. location:	Kevin Godwin/RCO
Regional Contact:	Yongcheng Chen
Facility location:	Washington Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	In progress

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
12/05/2012	01/19/2013	12/05/2012	03/05/2013

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd:
$867.00	12/05/2012	0.00		

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

Contact Information

Type	Name	Address	City State ZIP	Telephone
Technical/Permit	Joseph Harrell, EHS Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032
Authorized	Peter Najera, VP of Operations	7200 Wisconsin Ave. Suite 1100	Bethesda, MD 20814	(301) 357-5560

Acceptance Criteria

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

Completeness Criteria

Received?	Complete Item Description

DEC 10 12

Application Events

Event	Start	Due	Complete	Comments	Staff
TV - Acknowledgment/Complete	12/05/2012	12/15/2012	12/05/2012		kmhash

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor

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

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

December 5, 2012

Mr. Peter Najera
VP of Operations
Enviva Pellets Ahoskie, LLC
7200 Wisconsin Ave. Suite 1100
Bethesda, MD 20814

SUBJECT: Receipt of Permit Application
Modification of Permit No. 10121R01
Application No. 4600107.12B
Enviva Pellets Ahoskie, LLC
Facility ID: 4600107, Ahoskie, Hertford County

Dear Mr. Najera:

Your air permit application (4600107.12B) for Enviva Pellets Ahoskie, LLC, located in Hertford County, North Carolina was received by this Division on December 5, 2012.

This application submittal **did** contain all the required elements as indicated and has been accepted for processing. Your application will be considered complete as of December 5, 2012, unless informed otherwise by this office within 60 days.

Should you have any questions concerning this matter, please contact Kevin Godwin at (919) 707-8480.

Sincerely,

for

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

cc: Washington Regional Office Files

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

Comprehensive Application Report for 4600107.12A

11/14/2012

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information:	Permit/Latest Revision: 10121/ R01
Permit code:	TV-1st Time
Application type:	Modification
Engineer/Rev. location:	Kevin Godwin/RCO
Regional Contact:	Yongcheng Chen
Facility location:	Washington Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	In progress

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
11/13/2012	01/12/2013	11/13/2012	

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd:
$867.00	11/13/2012	0.00		

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

Contact Information

Type	Name	Address	City State ZIP	Telephone
Technical/Permit	Joseph Harrell, EHS Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032
Authorized	Peter Najera, VP of Operations	7200 Wisconsin Ave. Suite 1100	Bethsesda, MD 20814	(301) 357-5560

Acceptance Criteria

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

Completeness Criteria

Received?	Complete Item Description

Comprehensive Application Report for 4600107.12A

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

11/14/2012

Application Events

Event	Start	Due	Complete	Comments	Staff
TV - Acknowledgment/Complete	11/13/2012	11/23/2012	11/14/2012		kmhash

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor

NCDENR

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

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

November 14, 2012

Mr. Peter Najera
VP of Operations
Enviva Pellets Ahoskie, LLC
7200 Wisconsin Ave. Suite 1100
Bethsesda, MD 20814

SUBJECT: Receipt of Permit Application
Modification of Permit No. 10121R01
Application No. 4600107.12A
Enviva Pellets Ahoskie, LLC
Facility ID: 4600107, Ahoskie, Hertford County

Dear Mr. Najera:

Your air permit application (4600107.12A) for Enviva Pellets Ahoskie, LLC, located in Hertford County, North Carolina was received by this Division on November 13, 2012.

This application submittal **did** contain all the required elements as indicated and has been accepted for processing. Your application will be considered complete as of November 13, 2012, unless informed otherwise by this office within 60 days.

Should you have any questions concerning this matter, please contact Kevin Godwin at (919) 707-8480.

Sincerely,

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

cc: Washington Regional Office Files

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

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

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

May 29, 2012

Joe Harrell
Enviva Pellets, Ahoskie, LP
142 NC Route 561 E
Ahoskie, NC 27910

Subject: Protocol for Carbon Monoxide and Volatile Organic Compounds Testing on Wood-Fired Dryer
Enviva Pellets, Ahoskie, LP in Ahoskie, Hertford County, North Carolina
Air Permit No. 010121R01 Facility ID 07/46/00107
Proposed Test Date: June 7, 2012
Tracking No. 2012-094ST

Dear Mr. Harrell:

The protocol submittal form (PSF) prepared by Environmental Source Samplers, Inc. (ESS) has been reviewed for carbon monoxide (CO) and volatile organic compounds (VOC) emissions testing and deemed acceptable. The test is being conducted as required by permit condition 2.1.A.1 which states that "*under the provisions of NCGS 143-215.108, the Permittee shall verify the emission factors for total VOC and CO used in the application by testing the wood dryer (ID No. ES-DRYER).*" The test results may also be used for emission inventories.

The emission source is a direct heat, wood-fired dryer ID No. ES-DRYER. The control devices include one simple cyclone ID No. CD-DC in series with one wet electrostatic precipitator ID No. CD-WESP. In a phone conversation on May 24, 2012 with Joe Harrell of Enviva Pellets, Mr. Harrell indicated that the target process rate will be between 80% to 90% of the maximum process rate. The oven dry tons (ODT) will be recorded and reported in the final report. Production information to document normal maximum production rate should also be included in the report. This is acceptable. The source, control devices, pollutants, and methods are tabulated below:

Emission Sources	Control Devices	Pollutants	EPA Method
ES-DRYER	CD-DC and CD-WESP	Volumetric Flow Rates	1, 2, & 4
		Oxygen, Carbon Dioxide	3A
		Carbon Monoxide	10
		VOC	25A
		Calibration Gas Dilution	205

The proposed test methods are acceptable for the specified pollutants. Approval of the protocol does not exempt the tester in any way, from the minimum requirements of the applicable methods. Since no deviations from the applicable testing methodology were addressed in the test protocol, the testing should be conducted in strict accordance with the requirements of EPA Methods 1 through 4, 10, 25A and 205. If the Method 25A results are used for mass emission rates, response factors and molecular weights are required. Emission rate results should be reported "as VOC," not on an "as carbon" basis.

Any modifications to the applicable test methods remain subject to approval by the Division of Air Quality. Please insure all relevant process/operating data is included and summarized in the test report. If you have any questions, please feel free to contact me at David.B.Hughes@ncdenr.gov or (919) 707-8411.

Sincerely,

David B. Hughes
Environmental Engineer

Cc: Mark Looney, Environmental Source Samplers, Inc.
Robert Fisher – Washington Regional Office
Central Files – Hertford County

IBEAM Documents – 4600107 (06/07/12)

1641 Mail Service Center, Raleigh, North Carolina 27699-1641
2728 Capital Blvd., Raleigh, NC 27604
Phone: 919-733-3340 / FAX 919-715-7175 / Internet: www.ncair.org

CENTRAL FILES

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

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

January 3, 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. 10121R01
Facility ID: 4600107
Enviva Pellets, Ahoskie, LP
Ahoskie
Hertford 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 October 25, 2011, we are forwarding herewith Air Quality Permit No. 10121R01 to Enviva Pellets, LLC, 142 N.C. Rt 561 East, Ahoskie, 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-DWDS, ES-CHM-1, 2, 3, and 4, ES-HAF, ES-PMFS, ES-CLR-1, 2, 3, 4, and 5, ES-EG, and ES-FWP) 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

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

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.

The minor source baseline date has been triggered in Hertford County. For PSD increment tracking purposes, PM-10 emissions from this facility are 28.5 pounds per hour, SO_2 emissions are 3.1 pounds per hour, and NOx emissions are 37.7 pounds per hour.

This Air Quality Permit shall be effective from January 3, 2012 until November 30, 2015, 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: Robert Fisher, Supervisor, Washington Regional Office
Shannon Vogel, Stationary Source Compliance Branch
Connie Horne
✓ Central Files

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

Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
10121R01	10121R00	January 3, 2012	November 30, 2015

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

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

Permittee:	**Enviva Pellets, LLC**
Facility ID:	**4600107**
Facility Site Location:	**142 N.C. Rt 561 East**
City, County, State, Zip:	**Ahoskie, Hertford County, North Carolina, 27910**
Mailing Address:	**7200 Wisconsin Avenue**
City, State, Zip:	**Bethesda, Maryland, 20814**
Application Number:	**4600107.11A**
Complete Application Date:	**October 25, 2011**
Primary SIC Code:	**2499**
Division of Air Quality, Regional Office Address:	**Washington Regional Office 943 Washington Square Mall Washington, North Carolina, 27889**

Permit issued this the 3rd day of January, 2012

D. R. van der Vaart

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

ATTACHMENT to Permit No. 10121R01

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

Emission Source ID No.	Emission Source Description
IES-DWH	Dried wood handling
IES-PP	Pellet press system
IES-FPH	Finished product handling
IST-1 and IST-2	Two diesel storage tanks (2,500 gallon and 500 gallon capacity)
IES-CHP	Electric powered green wood chipper
IES-GWHS	Green wood handling and storage
IES-GWFB	Green wood fuel storage bin

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

Table Of Contents

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

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

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-DRYER	Direct heat, wood-fired dryer (125 million Btu per hour heat input)	CD-DC and CD-WESP	One simple cyclone (204 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)
ES-DWDS	Dried wood day silo	CD-DWDS-BV	Bin vent filter (377 square feet of filter area)
ES-CHM-1, 2, 3, and 4	Four coarse hammermills	CD-CHM-C1, C2, C3 and C4 and CD-CMH-FF1 and FF2	Four simple cyclones (57 inches in diameter each) in series with two fabric filters (6,667 square feet of filter area each)
ES-HAF	Hammermill area and Hammermill No. 5	CD-HAF-FF	One fabric filter (5,417 square feet of filter area)
ES-PMFS	Pellet feed mill silo	CD-PMFS-BV	One bin vent filter (377 square feet of filter area)
ES-CLR1, 2, 3, and 4	Pellet coolers	CD-CLR-C1 and C2	Two multicyclones (two, 43 inch diameter tubes each)
ES-CLR5	Pellet cooler No. 5	CD-CLR-5	One simple cyclone
ES-EG and ES-FWP **NSPS MACT**	One emergency use generator (350 brake horsepower) and one fire water pump (300 brake horsepower)	N/A	N/A

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), dried wood day silo (ID No. DWDS), four coarse Hammermills (ID Nos. ES-CHM-1, 2, 3, and 4), Hammermill area and Hammermill No. 5 (ID No. ES-HAF), pellet mill feed silo (ID No. ES-PMFS), and five pellet coolers (ID Nos. ES-CLR1, 2, 3, 4, and 5)

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

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

1. **Testing** [2Q .0508(f)]
Under the provisions of NCGS 143-215.108, the Permittee shall verify the emission factors for total VOC (1.051 lb/ODT) and CO (1.22 lb/ODT) used in the application (4600107.11A) 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 90 days of issuance of this permit *(by April 15, 2012)* unless an alternate date is approved by the DAQ.

2. **15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES**
   a. Emissions of particulate matter from this source shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 02D .0515(a)]

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

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

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

Monitoring/Recordkeeping [15A NCAC 02Q .0508(f)]

   b. 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 dried wood day silo (**ID No. ES-DWDS**) shall be controlled by one bin vent filter (**ID No. CD-DWDS-BV**). Particulate matter emissions from the

four coarse hammermills (**ID Nos. ES-CHM1, 2, 3, and 4**) shall be controlled by four simple cyclones (**ID Nos. CD-CHM-C1, 2, 3, and 4**) in series with two fabric filters (**ID Nos. CD-CHM-FF1 and FF2**). Particulate matter emissions from the hammermill area and hammermill No. 5 (**ID No. ES-HAF**) shall be controlled by one fabric filter (**ID No. CD-HAF-FF**). 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 four pellet coolers (**ID Nos. ES-CLR-1, 2, 3, and 4**) shall be controlled by two multicyclones (**ID Nos. CD-CLR-C1, and 2**). Particulate matter emissions from Pellet cooler No. 5 (**ID No. ES-CLR-5**) shall be controlled by a simple cyclone (**ID No. CD-CLR-5**). 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.

The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0515 if the ductwork and control devices are not inspected and maintained.

c. 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 [15A NCAC 02Q .0508(f)]

d. The Permittee shall submit the results of any maintenance performed on the bagfilters within 30 days of a written request by the DAQ.

3. 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]

Monitoring/Recordkeeping [15A NCAC 02Q .0508(f) and 15A NCAC 02D .2601]

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

4. 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)]

Monitoring [15A NCAC 02Q .0508(f)]

b. 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.4. a. above.

Recordkeeping [15A NCAC 02Q .0508(f)]

c. 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-EG) and Fire Water Pump (ID No. ES-FWP)

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
Visible emissions	20 percent opacity	15A NCAC 2D .0521
Toxic air pollutants	**State-enforceable only** See Section 2.2 A.1.	15A NCAC 2D .1100
Hazardous air pollutants (HAP)	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) No additional requirements per 63.6590(c)	15A NCAC 2D .1111 (40 CFR 63, Subpart ZZZZ)
NMHC and NOx, CO, PM	0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW for NOx + NMHC	15A NCAC 2D .0524 (40 CFR 60, Subpart IIII)

1. 15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

a. Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 2D .0516]

Monitoring/Recordkeeping/Reporting [15A NCAC 2Q .0508(f)]

b. 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)]

Monitoring [15A NCAC 2Q .0508(f)]

b. 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 Anormal≅ 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 [15A NCAC 2Q .0508(f)]

c. The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:
   i. the date and time of each recorded action;
   ii. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
   iii. the results of any corrective actions performed.

3. 15A NCAC 2D .0524 NEW SOURCE PERFORMANCE STANDARDS [40 CFR Subpart IIII]

a. The provisions of this subpart are applicable to manufacturer, owners, and operators of stationary compression ignition (CI), reciprocating internal combustion engines (RICE). The Permittee shall comply with all applicable provisions, including the requirements for emission standards, notification, testing, reporting, recordkeeping, and monitoring, contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards (NSPS)" as promulgated in 40 CFR Part 60 Subpart IIII, including Subpart A "General Provisions."

Emission Standards for Manufacturers:

Emergency Engines

b. Pursuant to 40 CFR §60.4202 (a), stationary RICE engine manufacturers must certify their 2007 model year and later emergency stationary RICE. For engines greater than or equal to 50 hp, the certification emission standards for new non-road CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

Fire Pump Engines

c. Pursuant to 40 CFR §60.4202(d), beginning with the model years in table 3 to this subpart, stationary RICE manufacturers must certify their fire pump RICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

d. Pursuant to 40 CFR §60.4210, RICE manufacturers must certify the engine using the certification procedures required in 40 CFR Part 89, subpart b, or 40 CFR Part 1039, subpart c as applicable.

e. Pursuant to 40 CFR §60.4203, RICE must meet the emission standards during the useful life of the engine.

Emission Standards for Owners and Operators:

Emergency and Fire Pump Engines

f. Pursuant to 40 CFR §60.4205, owners and operators must comply with the following emission standards:

0.20 g/kW for PM
3.5 g/kW for CO
4 g/kW for NOx + NMHC

g. Pursuant to 40 CFR §60.4206, owners and operators must operate and maintain the stationary RICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Fuel Requirements for Owners and Operators

h. Pursuant to 40 CFR §60.4207, owners and operators must use fuel with a maximum sulfur content of 15 ppmw and a cetane index of at least 40.

i. Pursuant to 40 CFR §60.4209(a), the owner or operator must install a non-resettable hour meter prior to start-up of the engines.

4. 15A NCAC 2D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR 63 Subpart ZZZZ)

a. Pursuant to §63.6580, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

b. Pursuant to §63.6590(c), a new stationary RICE located at an area source must meet the requirements of 40 CFR Part 60, Subpart IIII, for compression ignition engines. No further requirements apply for such engines under this part.

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

A. Facility-wide sources

STATE-ONLY REQUIREMENT:

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

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dryer system (**ID No. ES-DRYER**)	Acrolein Arsenic & compounds Benzene Benzo(a)pyrene Cadmium chlorine Formaldehyde Hexachlorodibenzo-p-dioxin Hydrogen chloride Phenol	0.989 lb/hr 2.674 lb/year 2864.52 lb/year 2.9 lb/yr 0.50 lb/year 2.37 lb/day 6.02 lb/hr 1.752 lb/year 0.24 lb/hr 1.204 lb/hr
Fire Water Pump (**ID No. ES-FWP**)	Acrolein Arsenic & compounds Benzene Benzo(a)pyrene Formaldehyde	1.94E-04 lb/hr 1.50E-03 lb/year 17.52 lb/year 2.30E-04 lb/year 2.48E-03 lb/hr
Emergency generator (**ID No. ES-EG**)	Acrolein Arsenic & compounds Benzene Benzo(a)pyrene Formaldehyde	2.27E-04 lb/hr 1.80E-03 lb/year 17.52 lb/year 1.97E-04 lb/year 2.893E-03 lb/hr

a. For compliance purposes, within 30 days after each calendar year quarter the Permittee shall report acrolein, benzene, formaldehyde, and phenol emissions associated with each of the respective averaging periods to the Regional Supervisor, DAQ.

STATE-ONLY REQUIREMENT:

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

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
1,3 Butadiene (106-99-0)	11			
Acetaldehyde (75-07-0)				6.8
Beryllium (7440-41-7)	0.28			
Carbon tetrachloride (56-23-5)	460			
Chlorobenzene (108-90-7)		46		
Chloroform (67-66-3)	290			
Di(2-ethylhexyl)phthalate (DEHP) (117-81-7		0.63		
Ethylene dichloride (1,2-dichloroethane) (107-06-2)	260			
Managanese & cmpds		0.63		
Mercury, vapor (7439-97-		0.013		

6)				
Methyl chloroform (1,1,1-trichloroethane) (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		78		
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Nickel metal (7440-02-0)		0.13		
Pentachlorophenol (87-86-5)		0.063	0.0064	
Perchloroethylene (tetrachloroethylene) (127-18-4)	13000			
Polychlorinated biphenyls (1336-36-3)	5.6			
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-p-dioxin (1746-01-6)	0.00020			
Trichloroethylene (79-01-6)	4000			
Toluene (108-88-3)		98		14.4
Trichlorofluoromethane (CFC 111) (75-01-4)			140	
Vinyl chloride (75-01-4)	26			
Xylene (1330-20-7)		57		16.4

SECTION 3 - GENERAL CONDITIONS

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

   Robert Fisher
   Regional Air Quality Supervisor
   North Carolina Division of Air Quality
   Washington Regional Office
   943 Washington Square Mall
   Washington, NC 27889
   (252) 946-6481

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 3rd day of January, 2012.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

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

ATTACHMENT

List of Acronyms

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

NORTH CAROLINA DIVISION OF
AIR QUALITY

Air Permit Review

Permit Issue Date: 3 January 2012

Region: Washington Regional Office
County: Hertford
NC Facility ID: 4600107
Inspector's Name: Yongcheng Chen
Date of Last Inspection: 09/29/2011
Compliance Code: 3 / Compliance - inspection

Facility Data	Permit Applicability (this application only)
Applicant (Facility's Name): Enviva Pellets Ahoskie, LLC **Facility Address:** Enviva Pellets Ahoskie, LLC 142 N.C. Rt 561 East Ahoskie, NC 27910 **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	**SIP:** 02D .0515, .0521 **NSPS:** **NESHAP:** **PSD:** **PSD Avoidance:** **NC Toxics:** modeled TAPs and new TAPs under 02Q .0711 levels **112(r):** **Other:**

Contact Data			Application Data
Facility Contact	**Authorized Contact**	**Technical Contact**	**Application Number:** 4600107.11A **Date Received:** 10/25/2011 **Application Type:** Modification **Application Schedule:** State
Glenn Gray Plant Manager (301) 657-5567 7200 Wisconsin Avenue Suite 1100 Bethesda, MD 20814	Norb Hintz Vice President, Engineering (301) 657-5567 7200 Wisconsin Ave. Suite 1100 Bethesda, MD 20814	Glenn Gray Plant Manager (301) 657-5567 7200 Wisconsin Avenue Suite 1100 Bethesda, MD 20814	**Existing Permit Data** **Existing Permit Number:** 10121/R00 **Existing Permit Issue Date:** 12/07/2010 **Existing Permit Expiration Date:** 11/30/2015

Review Engineer: Kevin Godwin **Review Engineer's Signature:** **Date:**	**Comments / Recommendations:** **Issue** 10121/R01 **Permit Issue Date:** 01/03/2012 **Permit Expiration Date:** 11/30/2015

I. Introduction and Purpose of Application

A. Enviva Pellets, LP (Enviva) is proposing to add dry wood handling equipment, modify control device specifications for dry wood handling equipment, and modify identification numbers for permitted equipment at an existing wood pellets manufacturing facility in the town of Ahoskie, NC. Enviva was issued a state construction permit under 15A NCAC 02Q .0300 on December 7, 2010. Enviva is permitted to process 418,533 tons of green wood per year (376,680 oven dried tons). This permit revision request is for the following changes:

1. Change control device configurations as follows;
   a. The coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4) will now have emissions routed to four simple cyclones (57 inches in diameter each, ID Nos. CD-CHM-C1, C2, C3 and C4) operating in series with two fabric filters (6,667 square feet of filter area each, ID Nos. CD-CHM-FF1 and FF2).
   b. The ground wood handling sources (originally ES-GWH) are being renamed as ES-HAF for the Hammermill Area Filter, which will control emissions from these sources. The original design called for two fabric filters, but now one large fabric filter will control PM for the entire area, plus a 5th hammermill.

c. The pellet mill feed silo bin vent filter size and air flow have decreased and therefore potential PM emissions have decreased for that source. Enviva requests that the source be named "pellet mill feed silo" instead of "pellet press silo" and be identified as ES-PFMS instead of ES-PPS.
d. The four pellet coolers (ID Nos. ES-CLR1, 2, 3, and 4) will vent to two multicyclones instead of four. The total air flow rate through the cyclones will be slightly higher than originally permitted.

2. Add 5th hammermill and dry wood processing equipment (ID No. ES-HAF) and associated fabric filter (5,417 square feet of filter area, ID No. CD-HAF-FF),
3. Add a 5th pellet cooler (ID No. ES-CLR5), and associated simple cyclone (ID No. CD-CLR5),
4. Revise TAP and HAP emissions estimates, and
5. Add an electric powered chipper (ID No. ES-CHIP) as an insignificant activity under 15A NCAC 02Q .0102(c)(2)(E).

The requested changes will result in minimal impact on previously estimated potential PM emissions. In order to verify emission factors used for calculating CO (1.22 lb/ODT) and total VOC (1.051 lb/ODT) emissions from the dryer, testing will be required. It should be noted that an exceedance of the emission factors used in the application is not a violation but depending on the outcome could require Enviva to revise their permit to incorporate additional monitoring. If the actual VOC and or CO emissions (emission factor) are substantially higher than those relied upon to estimate annual emissions, there could be NSR (PSD) enforcement issues.

B. Pursuant to 15A NCAC 02Q .0501(c)(2), Enviva is a new Title V facility that was issued a state construction permit under 15A NCAC 02Q .0300 with a requirement to submit a Title V permit application within 12 months after commencing operation.

II. 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:

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

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

According to the application, the most significant source of PM emissions is the dryer system operating at 57.9 tph. The allowable emission rate is calculated to be 46 lb/hr. Maximum PM emissions are provided by the dryer vendor. The maximum hourly emission rate is 5.6 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.

Control Device Monitoring
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.

Reporting is required.

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.

III. Regulatory Review – Multiple Emission Source Limitations

A. The following table, included in the application, provides a summary of potential criteria pollutant emissions.

Source Description	ID No.	CO (tpy)	NOx (tpy	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy	SO_2 (tpy)	VOC (tpy)
Dryer system	ES-DRYER	229.8	163.9	24.5	24.5	24.5	13.7	198
Emergency Generator	ES-EG	0.5	0.6	0.03	0.03	0.03	0	5.59E-04
Fire water Pump	ES-FWP	0.4	0.5	0.02	0.02	0.02	0	4.79E-04
Dried wood day silo	ES-DWDS	0	0	0.8	0.8	0.8	0	0
Coarse Hammermills	ES-CHM-1, 2, 3, and 4	0	0	30.0	30.0	30.0	0	0
Pellet mill feed silo	ES-PMFS	0	0	0.8	0.8	0.8	0	0
Hammermill area & Hammermill #5	ES-HAF	0	0	12.2	12.2	12.2	0	0
Pellet Coolers	ES-CLS1, 2, 3, and 4	0	0	56.8	56.8	56.8	0	0
Log debarking/chipping	ES-CHP-1	0	0	n/a	n/a	n/a	0	1.0
Diesel Storage tank	TK1 and TK2	0	0	0	0	0	0	3.79E-03
Total Project Emissions		230.7	164.9	125.2	125.2	125.2	13.7	198

As reported in the application, Enviva is an area source of HAP emissions with a facility-wide combined total of 15.1 tpy. No single HAP exceeds 10 tpy.

C. 15A NCAC 02D .1100 "Control of Toxic Air Pollutants" – This state-only section sets forth the rules for the control of facility-wide toxic air pollutants (TAP) to protect human health. According to the application, originally TAP and HAP emissions for the direct-fired wood chip dryer were estimated using AP-42 emission factors. During recent review, Enviva noticed a number of TAPs and HAPs included in Section 1.6 of AP-42 (wood combustion) were not present in EPA's emission factors for wood dryers. This application provides an update of dryer emissions including wood combustion.

Originally, four TAPs were evaluated using air dispersion modeling. Revised TAP emissions estimates indicate that six (6) additional pollutants are emitted above the respective permit exemption rate listed in 02Q .0711. The pollutants are; arsenic, benzo(a) pyrene, cadmium, chlorine, hexachlorodibenzo-p dioxin, and hydrogen chloride. Therefore, further evaluation using air dispersion modeling is required. Modeling, using AERMOD methodology, was included with the application. The modeling was reviewed by Mr. Jerry Freeman, Air Quality Analysis Branch (AQAB). According to Mr. Freeman's memo received on November 14, 2011, the modeling did demonstrate compliance on a source-by-source basis with North Carolina's Acceptable Ambient Levels (AAL) for the six TAPs. The modeled emission rates are placed in the permit as limits for each source. Because the values modeled were based on maximum production, no restrictions are necessary.

D. Prevention of Significant Deterioration (PSD) – This facility is classified in the 250 tpy major source threshold catagory. Calculations included in the application indicate facility-wide criteria pollutant emissions are less than the PSD major source threshold. CO_2e emission estimates are greater than the major source threshold; however, due to the biomass deferral rule effective December 23, 2011, these emissions are not considered for PSD applicability. Therefore, Enviva is minor with regards to PSD. The minor source PSD baseline date has been triggered in Hertford County. For PSD increment tracking purposes, PM-10 emissions from this facility are 28.5 pounds per hour, SO_2 emissions are 3.1 pounds per hour, and NOx emissions are 37.7 pounds per hour.

VI. Other Regulatory Requirements

- An application fee of $867.00 is required and was included with the application.
- The appropriate number of application copies was received on October 25, 2011.
- The application included the Reduction and Recycling Form (A4).
- A Professional Engineer's Seal was included in the application (ref. Joe Sullivan, P.E. Seal No. 023037).
- A zoning consistency determination was included with the application (ref. Keith Truman, Inspections and Planning).
- Public notice is not required for this state-only construction permit under 15A NCAC 02Q .0300.
- IBEAM Emission Source Module (ESM) update was verified on November 21, 2011.
- According to the application, the facility does not handle any of the substances subject to 112(r).
- The application was signed by Mr. Norb Hintz, Vice President Engineering, on October 16, 2011.

V. Recommendations

This permit application for a permit revision has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is expected to achieve compliance as specified in the permit with all applicable requirements. The applicant and Washington Regional Office (WaRO) were provided a draft permit and review on December 1, 2011.

Issue Permit No. 10121R01.

CENTRAL OFFICE PERMIT TRACKING SLIP

Facility Name: Enviva Pellets Ahoskie
County/Regional Office: Hertford / WARO
Facility/Application ID: 4600107.11A
Engineer: Kevin Godwin

Send Regional Office Copy of Application: ☒ Yes ☐ No

PART I - ACCEPTANCE CHECKLIST

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

Fee Information:

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

Initial Amount Received: 867.00
Additional Amount Due:

Acceptance Check List:

	Yes	No	NA
Appropriate Number of Apps Submitted (minimum of 2)	☑	☐	☐
Application Fee Submitted	☑	☐	☐
Zoning Addressed	☑	☐	☐
Source Recycling/Reduction Form Submitted	☑	☐	☐
Authorized Signature	☑	☐	☐
PE Seal	☑	☐	☐

PART II - IBEAM UPDATES

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

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

PART III - COMPLETENESS CHECKLIST

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

PART IV - GENERAL COMMENTS

Note.. Permittee wants Ahoskie permit worked on Prior to Northampton
→ copy of application sent to Jim Roller - [check RO and update IBEAM if necessary]

PART V - SUPERVISOR REVIEW CHECKLIST

TVEE Updated (by Engineer): KTG 11-21-11 TVEE Verified: JS 11/21/2011 Supervisor: _____ Chief _____

PART VI - CLOSEOUT INFORMATION

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

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

Permit Class Information

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

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

Dates Issue 1-3-12 Effective 1-3-12 Expiration 11-30-2015
IBEAM Closed Out By: KTG Permit Number: 10121 Revision Number: R01

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

Document Manager Updated by Engineer: _____ Date: _____

NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: 3 January 2012

Region: Washington Regional Office
County: Hertford
NC Facility ID: 4600107
Inspector's Name: Yongcheng Chen
Date of Last Inspection: 09/29/2011
Compliance Code: 3 / Compliance - inspection

Facility Data

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

Facility Address:
Enviva Pellets Ahoskie, LLC
142 N.C. Rt 561 East
Ahoskie, NC 27910

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

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

Permit Applicability (this application only)

SIP: 02D .0515, .0521
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics: modeled TAPs and new TAPs under 02Q .0711 levels
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Glenn Gray Plant Manager (301) 657-5567 7200 Wisconsin Avenue Suite 1100 Bethesda, MD 20814	Norb Hintz Vice President, Engineering (301) 657-5567 7200 Wisconsin Ave. Suite 1100 Bethesda, MD 20814	Glenn Gray Plant Manager (301) 657-5567 7200 Wisconsin Avenue Suite 1100 Bethesda, MD 20814

Application Data

Application Number: 4600107.11A
Date Received: 10/25/2011
Application Type: Modification
Application Schedule: State

Existing Permit Data
Existing Permit Number: 10121/R00
Existing Permit Issue Date: 12/07/2010
Existing Permit Expiration Date: 11/30/2015

Review Engineer: Kevin Godwin

Review Engineer's Signature: Kevin T. Godwin **Date:** 1-3-12

Comments / Recommendations:

Issue 10121/R01
Permit Issue Date: 01/03/2012
Permit Expiration Date: 11/30/2015

I. Introduction and Purpose of Application

A. Enviva Pellets, LP (Enviva) is proposing to add dry wood handling equipment, modify control device specifications for dry wood handling equipment, and modify identification numbers for permitted equipment at an existing wood pellets manufacturing facility in the town of Ahoskie, NC. Enviva was issued a state construction permit under 15A NCAC 02Q .0300 on December 7, 2010. Enviva is permitted to process 418,533 tons of green wood per year (376,680 oven dried tons). This permit revision request is for the following changes:

1. Change control device configurations as follows;
   a. The coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4) will now have emissions routed to four simple cyclones (57 inches in diameter each, ID Nos. CD-CHM-C1, C2, C3 and C4) operating in series with two fabric filters (6,667 square feet of filter area each, ID Nos. CD-CHM-FF1 and FF2).
   b. The ground wood handling sources (originally ES-GWH) are being renamed as ES-HAF for the Hammermill Area Filter, which will control emissions from these sources. The original design called for two fabric filters, but now one large fabric filter will control PM for the entire area, plus a 5th hammermill.

c. The pellet mill feed silo bin vent filter size and air flow have decreased and therefore potential PM emissions have decreased for that source. Enviva requests that the source be named "pellet mill feed silo" instead of "pellet press silo" and be identified as ES-PFMS instead of ES-PPS.
d. The four pellet coolers (ID Nos. ES-CLR1, 2, 3, and 4) will vent to two multicyclones instead of four. The total air flow rate through the cyclones will be slightly higher than originally permitted.

2. Add 5th hammermill and dry wood processing equipment (ID No. ES-HAF) and associated fabric filter (5,417 square feet of filter area, ID No. CD-HAF-FF),
3. Add a 5th pellet cooler (ID No. ES-CLR5), and associated simple cyclone (ID No. CD-CLR5),
4. Revise TAP and HAP emissions estimates, and
5. Add an electric powered chipper (ID No. ES-CHIP) as an insignificant activity under 15A NCAC 02Q .0102(c)(2)(E).

The requested changes will result in minimal impact on previously estimated potential PM emissions. In order to verify emission factors used for calculating CO (1.22 lb/ODT) and total VOC (1.051 lb/ODT) emissions from the dryer, testing will be required. It should be noted that an exceedance of the emission factors used in the application is not a violation but depending on the outcome could require Enviva to revise their permit to incorporate additional monitoring. If the actual VOC and or CO emissions (emission factor) are substantially higher than those relied upon to estimate annual emissions, there could be NSR (PSD) enforcement issues.

B. Pursuant to 15A NCAC 02Q .0501(c)(2), Enviva is a new Title V facility that was issued a state construction permit under 15A NCAC 02Q .0300 with a requirement to submit a Title V permit application within 12 months after commencing operation.

II. 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:

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

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

According to the application, the most significant source of PM emissions is the dryer system operating at 57.9 tph. The allowable emission rate is calculated to be 46 lb/hr. Maximum PM emissions are provided by the dryer vendor. The maximum hourly emission rate is 5.6 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.

Control Device Monitoring
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.

Reporting is required.

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.

III. Regulatory Review – Multiple Emission Source Limitations

A. The following table, included in the application, provides a summary of potential criteria pollutant emissions.

Source Description	ID No.	CO (tpy)	NOx (tpy	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy	SO_2 (tpy)	VOC (tpy)
Dryer system	ES-DRYER	229.8	163.9	24.5	24.5	24.5	13.7	198
Emergency Generator	ES-EG	0.5	0.6	0.03	0.03	0.03	0	5.59E-04
Fire water Pump	ES-FWP	0.4	0.5	0.02	0.02	0.02	0	4.79E-04
Dried wood day silo	ES-DWDS	0	0	0.8	0.8	0.8	0	0
Coarse Hammermills	ES-CHM-1, 2, 3, and 4	0	0	30.0	30.0	30.0	0	0
Pellet mill feed silo	ES-PMFS	0	0	0.8	0.8	0.8	0	0
Hammermill area & Hammermill #5	ES-HAF	0	0	12.2	12.2	12.2	0	0
Pellet Coolers	ES-CLS1, 2, 3, and 4	0	0	56.8	56.8	56.8	0	0
Log debarking/chipping	ES-CHP-1	0	0	n/a	n/a	n/a	0	1.0
Diesel Storage tank	TK1 and TK2	0	0	0	0	0	0	3.79E-03
Total Project Emissions		230.7	164.9	125.2	125.2	125.2	13.7	198

As reported in the application, Enviva is an area source of HAP emissions with a facility-wide combined total of 15.1 tpy. No single HAP exceeds 10 tpy.

C. 15A NCAC 02D .1100 "Control of Toxic Air Pollutants" – This state-only section sets forth the rules for the control of facility-wide toxic air pollutants (TAP) to protect human health. According to the application, originally TAP and HAP emissions for the direct-fired wood chip dryer were estimated using AP-42 emission factors. During recent review, Enviva noticed a number of TAPs and HAPs included in Section 1.6 of AP-42 (wood combustion) were not present in EPA's emission factors for wood dryers. This application provides an update of dryer emissions including wood combustion.

Originally, four TAPs were evaluated using air dispersion modeling. Revised TAP emissions estimates indicate that six (6) additional pollutants are emitted above the respective permit exemption rate listed in 02Q .0711. The pollutants are; arsenic, benzo(a) pyrene, cadmium, chlorine, hexachlorodibenzo-p dioxin, and hydrogen chloride. Therefore, further evaluation using air dispersion modeling is required. Modeling, using AERMOD methodology, was included with the application. The modeling was reviewed by Mr. Jerry Freeman, Air Quality Analysis Branch (AQAB). According to Mr. Freeman's memo received on November 14, 2011, the modeling did demonstrate compliance on a source-by-source basis with North Carolina's Acceptable Ambient Levels (AAL) for the six TAPs. The modeled emission rates are placed in the permit as limits for each source. Because the values modeled were based on maximum production, no restrictions are necessary.

D. Prevention of Significant Deterioration (PSD) – This facility is classified in the 250 tpy major source threshold catagory. Calculations included in the application indicate facility-wide criteria pollutant emissions are less than the PSD major source threshold. CO_2e emission estimates are greater than the major source threshold; however, due to the biomass deferral rule effective December 23, 2011, these emissions are not considered for PSD applicability. Therefore, Enviva is minor with regards to PSD. The minor source PSD baseline date has been triggered in Hertford County. For PSD increment tracking purposes, PM-10 emissions from this facility are 28.5 pounds per hour, SO_2 emissions are 3.1 pounds per hour, and NOx emissions are 37.7 pounds per hour.

VI. Other Regulatory Requirements

- An application fee of $867.00 is required and was included with the application.
- The appropriate number of application copies was received on October 25, 2011.
- The application included the Reduction and Recycling Form (A4).
- A Professional Engineer's Seal was included in the application (ref. Joe Sullivan, P.E. Seal No. 023037).
- A zoning consistency determination was included with the application (ref. Keith Truman, Inspections and Planning).
- Public notice is not required for this state-only construction permit under 15A NCAC 02Q .0300.
- IBEAM Emission Source Module (ESM) update was verified on November 21, 2011.
- According to the application, the facility does not handle any of the substances subject to 112(r).
- The application was signed by Mr. Norb Hintz, Vice President Engineering, on October 16, 2011.

V. Recommendations

This permit application for a permit revision has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is expected to achieve compliance as specified in the permit with all applicable requirements. The applicant and Washington Regional Office (WaRO) were provided a draft permit and review on December 1, 2011.

Issue Permit No. 10121R01.

Comprehensive Application Report for 4600107.11A

01/03/2012

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information: Permit/Latest Revision: 10121/ R01

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

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
10/25/2011	12/09/2011	10/25/2011	01/30/2012

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd:
$867.00	10/25/2011	0.00		

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

Contact Information

Type	Name	Address	City State ZIP	Telephone
Authorized	Glenn Gray, Plant Manager	1309 East Cary Street, Suite 200	Richmond, VA 23219	(804) 412-0227
Technical/Permit	Glenn Gray, Plant Manager	1309 East Cary Street, Suite 200	Richmond, VA 23219	(804) 412-0227

Acceptance Criteria

Received?	Acceptance Criteria Description
Yes	Application fee
Yes	Appropriate number of apps submitted
Yes	Zoning Addressed
Yes	Source recycling/reduction form
Yes	Authorized signature
Yes	PE Seal

Completeness Criteria

Received?	Complete Item Description

Application Events

Event	Start	Due	Complete	Comments	Staff
TV - Acknowledgment/Complete	10/25/2011	11/04/2011	10/25/2011		kmhash
Technical Add Info - for Compliance Info	12/01/2011	12/31/2011	12/07/2011		kgodwin
Draft to coordinator/supervisor for review	12/08/2011	12/29/2011	12/29/2011		kgodwin
Permit issued	01/03/2012		01/03/2012		kmhash

Comprehensive Application Report for 4600107.11A

01/03/2012

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Outcome Information

Class before: Title V Class after: Title V

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

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

PSD/NSR Avoid: No Prohibitory Small: No

PSD/NSR Status After: Minor General permit: No

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

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

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

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

RACT/LAER Added Fee: NO RACT Avoidance: NO

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

Permit/Revision: 10121/R01

Revision Issue Date: 01/03/2012

Accumulated process days (includes public notice periods): 63

Public notice/hearing/add info after 80 days:

Manager's discretion: Appealed? No

Current Permit Information:

Issue	Effective	Expiration	Revision #
01/03/2012	01/03/2012	11/30/2015	R01

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor

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

October 21, 2011

Mr. John Evans
North Carolina Division of Air Quality (NC DAQ)
2728 Capital Boulevard
Raleigh, NC 27604

RE: Permit Application to Update Control Device Information and Add Dry Wood Handling Equipment, Enviva Pellets Ahoskie, LLC Facility ID #4600107

Dear Mr. Evans:

Enviva Pellets Ahoskie, LLC (Enviva) was issued a construction and operating permit (DAQ Permit #10121R00) on December 7, 2010. Enviva is submitting this air quality permit application that addresses the following: 1) several changes to permitted source names/ID Nos., 2) minor revisions associated with several control devices, the addition of equipment that would allow the facility to receive pre-dried wood chips, 3) the addition of a 5th hammermill and pellet cooler and 4) revision of toxic air pollutant (TAP) emission rate calculations and corresponding air dispersion modeling. Enviva is also planning on adding an electric-powered chipper to provide the capability to chip whole logs for dryer fuel/production feedstock on-site. Enviva has determined the chipper to be an insignificant source in accordance with 15A NCAC 2Q .0102(c)(2)(E).

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.

The permit application processing fee ($867) is enclosed.

Changes to Control Device Information

The following changes to control device configurations are being requested in this application:

1) The coarse hammermills (ES-CHM-1, 2, 3 and 4) will now have emissions routed to four simple cyclones operating in series with two (2) fabric filters (two cyclones per fabric filter). The previous configuration only utilized four (4) fabric filters and did not utilize cyclones.

2) The ground-wood handling sources (originally ES-GWH) are being renamed as ES-HAF for the Hammermill Area Filter, which will control emissions from these emission sources. The original design called for two fabric filters, but now one large fabric filter will control particulate emissions for the entire area, plus a 5th hammermill that is discussed in the next section.

3) The pellet mill feed silo bin vent filter size and air flow have decreased and therefore potential PM emissions have decreased for that source. Enviva requests that the source be

named "pellet mill feed silo" instead of "pellet press silo" and be identified as ES-PFMS instead of ES-PPS.

4) The four pellet coolers originally permitted (ES-CLR1, 2, 3 & 4) will vent to two multiclones instead of the four originally permitted. The total air flow rate through the cyclones will be slightly higher than originally permitting. Enviva requests that the source be identified as ES-CLR rather than ES-CLR1, 2, 3, and 4.

Additional Dry Wood Processing Equipment

Enviva plans to construct and operate a dry wood handling system that would allow pre-dried wood chips to be brought to the site and introduced into the dry wood handling system downstream of the permitted rotary drying system and prior to the permitted pelletizing process. In short, the pre-dried wood would be purchased from independent regional vendor(s) that would transport the chips in trucks that would be pneumatically unloaded into a short term storage bin. Chips would then be pneumatically transported to wood handling equipment and emissions from the transfer would controlled by the Hammermill Area Filter, ES-HAF, discussed in the previous section.

Additional Hammermill and Cooler

During final design it was determined that a 5th hammermill and a 5th pellet cooler would be necessary to achieve the original desired production capacity.[1] Unlike the four existing hammermills, which vent to two fabric filters, emissions from the 5th hammermill will be routed to ES-HAF, which has been oversized to be able to handle the additional air flow. The 5th pellet cooler will be controlled by a high efficiency cyclone.

Revised Emissions Estimates

The requested changes discussed earlier will result in a minimal impact on potential particulate and VOC emissions. The chipper will emit insignificant quantities of methanol, a regulated hazardous air pollutant (HAP).

Originally, TAP and HAP emissions estimates for the direct-fired wood chip dryer were estimated using AP-42 emission factors for wood dryers that ostensibly should have included combustion by-products because the factors were identified as being applicable to direct contact, wood fired dryers. However during recent review of the calculations, we noticed that a number of TAPs and HAPs included in Section 1.6 of AP-42 (wood combustion) were not present in EPA's emission factors for wood dryers. Since it is reasonable to assume that these additional compounds would be present in the dryer exhaust, we have updated the emissions calculations for the dryer accordingly.

[1] The original capacity for the plant was based on a production rate of approximately 377,000 oven dried tons (ODT)/yr and the final mass balance for the facility is based on approximately 381,000 ODT/yr.

Revised emission estimates are provided in Attachment 1. It should be noted that facility-wide emissions remain well below the PSD and HAP major source thresholds.

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.

Air Dispersion Modeling

As presented in the updated emissions estimates in Attachment 1, the following TAPs were added to the calculations for the dryer and result in facility-wide emissions that exceed the TPERs: arsenic, benzo(a)pyrene, cadmium, chlorine, hexachlorodibenzo-p-dioxin, and hydrogen chloride.

AERMOD air dispersion modeling for TAPs exceeding the TPERs was conducted in accordance with NCDAQ modeling guidelines.

Arsenic and benzo(a)pyrene, because they result from combustion in the emergency generator, fire water pump, and the dryer, were modeled using each source's respective rate.[2] All other additional TAPs, since they only result from combustion in the dryer, were modeled with an emission rate of 1 g/s and the results were scaled using the emission rates of each pollutant.

Modeling results indicate ambient concentrations well below the AALs. Since all concentrations fall below 50 percent of the AAL, only a single year (1992) of meteorological data was used. A summary of modeling parameters, a summary of modeling results, and a completed copy of the air dispersion modeling checklist are 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.

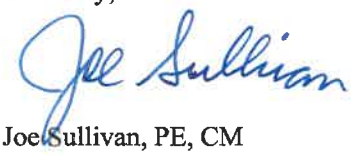
Closing

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.

---

[2] The arsenic emission rates modeled for the emergency generator and fire water pump were those that DAQ provided in Section 2.2 of the permit.

Sincerely,



Joe Sullivan, PE, CM
Managing Consultant

cc: Glenn Gray (Enviva)

Attachments

ATTACHMENT 1

UPDATED EMISSIONS CALCULATIONS

TABLE 1
PSD APPLICABILITY SUMMARY
ENVIVA PELLETS AHOSKIE, LP

Source Description	Unit ID	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)
Dryer System	ES-DRYER	229.77	163.86	24.48	24.48	24.48	13.69	197.95
Emergency Generator	ES-EG	0.50	0.58	0.03	0.03	0.03	0.00	5.59E-04
Fire Water Pump	ES-FWP	0.43	0.49	0.02	0.02	0.02	0.00	4.79E-04
Dried Wood Day Silo	ES-DWDS	0.00	0.00	0.82	0.82	0.82	0.00	0.00
Coarse Hammermills	ES-CHM-1, 2, 3 & 4	0.00	0.00	30.03	30.03	30.03	0.00	0.00
Pellet Mill Feed Silo	ES-PMFS	0.00	0.00	0.82	0.82	0.82	0.00	0.00
Hammermill Area & Hammermill #5	ES-HAF	0.00	0.00	12.20	12.20	12.20	0.00	0.00
Pellet Coolers	ES-CLR1, 2, 3, 4 & 5	0.00	0.00	56.78	56.78	56.78	0.00	0.00
Log Debarking/Chipping	ES-CHIP-1	0.00	0.00	N/A	N/A	N/A	0.00	1.04
Diesel Storage Tanks	TK1 & TK2	0.00	0.00	0.00	0.00	0.00	0.00	3.79E-03
Total Project Emission Increases		**230.71**	**164.92**	**125.19**	**125.19**	**125.19**	**13.69**	**197.95**
PSD Significant Emission Rates		**250**	**250**	**250**	**250**	**250**	**250**	**250**
PSD Review Required?		**No**	**No**	**No**	**No**	**No**	**No**	**No**

TABLE 2
FACILITYWIDE HAP EMISSIONS SUMMARY
ENVIVA PELLETS AHOSKIE, LLC

HAP Pollutant	Dryers (tpy)	CHIP (tpy)	EG-1 (tpy)	FWP-1 (tpy)	TOTAL (tpy)
1,3-Butadiene	--	--	2.39E-05	2.05E-05	4.45E-05
Acetaldehyde	2.29E+00	--	4.70E-04	4.03E-04	2.29E+00
Acetophenone	1.75E-06	--	--	--	1.75E-06
Acrolein	7.03E-01	--	5.67E-05	4.86E-05	7.03E-01
Antimony & Compounds	4.80E-04	--	--	--	4.80E-04
Arsenic & Compounds	1.34E-03	--	--	--	1.34E-03
Benzene	2.32E-01	--	5.71E-04	4.90E-04	2.33E-01
Beryllium metal (un-reacted) (Also include in BEC)	6.68E-05	--	--	--	6.68E-05
Cadmium Metal (elemental un-reacted) –(Add w/CDC)	2.49E-04	--	--	--	2.49E-04
Carbon tetrachloride	2.46E-02	--	--	--	2.46E-02
Chlorine	4.33E-01	--	--	--	4.33E-01
Chlorobenzene	1.81E-02	--	--	--	1.81E-02
Chromium–Other compds (add w/chrom acid to get CRC)	1.06E-03	--	--	--	1.06E-03
Cobalt compounds	3.95E-04	--	--	--	3.95E-04
Chloroform	3.05E-03	--	--	--	3.05E-03
Cumene	6.11E-02	--	--	--	6.11E-02
Dinitrophenol, 2,4-	9.86E-05	--	--	--	9.86E-05
Di(2-ethylhexyl)phthalate (DEHP)	2.57E-05	--	--	--	2.57E-05
Ethyl benzene	1.70E-02	--	--	--	1.70E-02
Ethylene dichloride (1,2-dichloroethane)	1.59E-02	--	--	--	1.59E-02
Formaldehyde	4.28E+00	--	7.23E-04	6.20E-04	4.28E+00
Hydrogen chloride (hydrochloric acid)	1.04E+00	--	--	--	1.04E+00
Lead and Lead compounds	2.92E-03	--	--	--	2.92E-03
m-,p-Xylene	1.47E-01	--	1.75E-04	1.50E-04	1.47E-01
Manganese & compounds	9.72E-02	--	--	--	9.72E-02
Mercury, vapor (Include in Mercury&Compds)	1.92E-03	--	--	--	1.92E-03
Methanol	3.36E+00	2.24E-01	--	--	3.58E+00
Methyl bromide (bromomethane)	8.21E-03	--	--	--	8.21E-03
Methyl chloride (chloromethane)	1.26E-02	--	--	--	1.26E-02
Methyl chloroform (1,1,1 trichloroethane)	1.70E-02	--	--	--	1.70E-02
Methyl isobutyl ketone	2.11E-01	--	--	--	2.11E-01
Methylene chloride	5.50E-02	--	--	--	5.50E-02
Nickel metal (Component of Nickel & Compounds)	1.81E-02	--	--	--	1.81E-02
o-Xylene	1.37E-02	--	--	--	1.37E-02
Pentachlorophenol	2.79E-05	--	--	--	2.79E-05
Perchloroethylene (tetrachloroethylene)	2.08E-02	--	--	--	2.08E-02
Phenol	8.55E-01	--	--	--	8.55E-01
Phosphorus Metal, Yellow or White	1.48E-02	--	--	--	1.48E-02
Polychlorinated biphenyls	4.46E-06	--	--	--	4.46E-06
Propionaldehyde	3.97E-01	--	--	--	3.97E-01
Propylene dichloride (1,2 dichloropropane)	1.81E-02	--	--	--	1.81E-02
Selenium compounds	1.53E-03	--	--	--	1.53E-03
Styrene	1.10E-02	--	--	--	1.10E-02
Toluene	3.97E-01	--	2.51E-04	2.15E-04	3.98E-01
Total PAH (POM)[1]	6.84E-02	--	1.03E-04	8.82E-05	6.86E-02
Trichloroethylene	1.64E-02	--	--	--	1.64E-02
Trichlorophenol, 2,4,6-	1.20E-05	--	--	--	1.20E-05
Vinyl chloride	9.86E-03	--	--	--	9.86E-03
TOTAL HAP	**14.87**	**2.24E-01**	**2.37E-03**	**2.03E-03**	**15.10**

[1] Polycyclic Organic Matter (POM) includes emissions of: benzo(a)pyrene, naphthalene, 4-nitrophenol, and tetrachlorodibenzo-p-dioxins

TABLE 3
DETERMINATION OF POLLUTANTS SUBJECT TO AIR TOXICS PERMITTING
ENVIVA PELLETS AHOSKIE, LLC

TAP Emissions

	Dryer(s)			Emergency Generator			Fire Water Pump			Total		
Pollutant	**(lb/hr)**	**(lb/day)**	**(lb/yr)**	**(lb/hr)**	**(lb/day)**	**(lb/yr)**	**(lb/hr)**	**(lb/day)**	**(lb/yr)**	**(lb/hr)**	**(lb/day)**	**(lb/yr)**
1,3-Butadiene						4.79E-02			4.11E-02			8.90E-02
Acetaldehyde	3.23E+00			1.88E-03			1.61E-03			3.23E+00		
Acrolein	9.89E-01			2.27E-04			1.94E-04			9.89E-01		
Arsenic			2.67E+00									2.67E+00
Benzene			4.64E+02			1.14E+00			9.80E-01			4.66E+02
Benzo(a)pyrene			2.85E+00			2.30E-04			1.97E-04			2.85E+00
Beryllium			1.34E-01									1.34E-01
Cadmium			4.98E-01									4.98E-01
Carbon Tetrachloride			4.93E+01									4.93E+01
Chlorine	9.88E-02	2.37E+00								9.88E-02	2.37E+00	
Chlorobenzene		9.90E-02									9.90E-02	
Chloroform			6.11E+00									6.11E+00
Di(2-ethylhexyl)phthalate (DEHP)		1.41E-04									1.41E-04	
Ethylene dichloride (1,2-dichloroethane)			3.18E+01									3.18E+01
Formaldehyde	6.02E+00			2.89E-03			2.48E-03			6.03E+00		
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8			1.75E+00									1.75E+00
Hydrogen chloride (hydrochloric acid)	2.38E-01									2.38E-01		
Manganese & compounds		5.33E-01									5.33E-01	
Mercury, vapor (Include in Mercury&Compds)		1.05E-02									1.05E-02	
Methyl chloroform (1,1,1 trichloroethane)	3.88E-03	9.30E-02								3.88E-03	9.30E-02	
Methyl ethyl ketone	6.75E-04	1.62E-02								6.75E-04	1.62E-02	
Methyl isobutyl ketone	2.97E-01	7.12E+00	4.22E+02							2.97E-01	7.12E+00	
Methylene chloride	7.74E-02	1.86E+00	1.10E+02							7.74E-02		1.10E+02
Nickel metal (Component of Nickel & Compounds)		9.90E-02									9.90E-02	
Pentachlorophenol	6.38E-06	1.53E-04								6.38E-06	1.53E-04	
Perchloroethylene (tetrachloroethylene)			4.16E+01									4.16E+01
Phenol	1.20E+00	2.89E+01								1.20E+00		
Polychlorinated biphenyls			8.92E-03									8.92E-03
Styrene	1.55E-02	3.72E-01								1.55E-02		
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-			9.42E-06									9.42E-06
Toluene		1.34E+01			2.40E-02			2.06E-02			1.35E+01	
Trichloroethylene			3.29E+01									3.29E+01
Trichlorofluoromethane (CFC 111)	5.13E-03									5.13E-03		
Vinyl chloride			1.97E+01									1.97E+01
Xylene	2.26E-01	5.42E+00	2.93E+02	6.98E-04	1.68E-02	3.49E-01	5.99E-04	1.44E-02	2.99E-01	2.27E-01	5.45E+00	2.94E+02
Total TAP	**1.33E+01**	**3.20E+02**	**2.18E+04**	**9.08E-03**	**2.18E-01**	**4.54E+00**	**7.78E-03**	**1.87E-01**	**3.89E+00**	**1.34E+01**	**3.21E+02**	**2.19E+04**

Electric-Powered Chipper (ES-CHIP) Emissions

Annual Throughput of Chipper	509,341	tons/year (wet wood, 47% moisture content)
	269,951	tons/year (dry wood)[1]
Short-term Throughput of Chipper	51.13	tons/hr (dry wood)[1]
Maximum Annual Operation	8,760	hours

Pollutant	Emission Factors (lb/dry wood tons)	Emissions[5]	
		(lb/hr)	(tpy)
THC as Carbon[2]	0.0041	2.096E-01	0.92
THC as alpha-Pinene[3]	0.0047	**2.379E-01**	**1.04**
PM[4]	N/A	**N/A**	**N/A**
Methanol[2]	0.0010	**5.113E-02**	**0.22**

[1] It is assumed that the wood received at the facility has a nominal water content of 50%. The annual throughput used for the chipper is 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 chippers in AP-42 Section 10.6.3, Table 7 and Section 10.6.4, Tables 7 and 9. Emission factors for THC and Methanol are the same across all three tables.

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

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

[5] Long term emissions were based upon the hourly throughput of the chipper (dry wood) multiplied by the total hours of operation. In actuality, this is an overestimation

Rotary Dryer - Criteria Pollutant Emissions

Dryer Inputs:

Dryer Production	418,533	tons/year
Annual Dried Wood Throughput of Dryer	376,680	ODT/year
Hourly Dried Wood Throughput of Dryer	43.0	ODT/hr
Burner Heat Input	125.0	MMBtu/hr
Percent Hardwood	90%	
Percent Softwood	10%	
Potential Operation	8,760	hr/yr

Criteria Pollutant Calculations:

Pollutant	Biomass Emission Factor (lb/ODT)	Units	Emission Factor Source	Total Potential Emissions	
				(lb/hr)	(tpy)
CO	1.22	lb/ODT	Vendor[1]	52.46	229.8
NO_X	0.87	lb/ODT	Vendor[1]	37.41	163.9
TSP	0.13	lb/ODT	Calculated from Guaranteed WESP Specifications[2]	5.59	24.5
Total PM_{10}	0.13	lb/ODT	Calculated from Guaranteed WESP Specifications[2]	5.59	24.5
Total $PM_{2.5}$	0.13	lb/ODT	Calculated from Guaranteed WESP Specifications[2]	5.59	24.5
SO_2	0.025	lb/MMBtu	AP-42, Section 1.6[3]	3.13	13.7
VOC	1.051	lb/ODT	Vendor[1]	45.19	197.9
Lead	0.00	N/A	N/A	0.00	0.0

Note:

1) CO, NO_x, and VOC emission factors were provided by the dryer system vendor.

2) WESP Outlet Air Flowrate 81,509 dSCFM
PM Grain Loading 0.008 gr/dSCF
Emissions: 652.07 gr/min
0.093 lb/min
5.59 lb/hr

3) No emission factor is provided in AP-42, Section 10.6.2 for SO_2 for rotary dryers. Enviva has conservatively calculated SO2 emissions based upon the heat input of the dryer burners using an emission factor for wood from AP-42, Section 1.6.

Rotary Dryer - Dryer Specific Federal Hazardous Air Pollutant (HAP) and North Carolina Toxic Air Pollutant (TAP) Emissions

Calculation Inputs:

Dryer Production (Ton/yr)	418,533
ODT/yr	376,680
ODT/hr	43.0
Hardwood Composition	90%
Softwood Composition	10%

HAP & TAP Emission Calculations:

HAP/TAP Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	Direct wood-fired, hardwood			Green, Direct wood-fired (inlet moisture content >50%, dry basis), softwood[1]			MAXIMUM TOTAL EMISSIONS	
				Emission Factor[2] (lb/ODT)	Emissions[3] (lb/hr)	Emissions[3] (tpy)	Emission Factor (lb/ODT)	Emissions[3] (lb/hr)	Emissions[3] (tpy)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Yes	Yes	3.83E-03	1.65E-01	7.21E-01	7.50E-02	3.23E+00	1.57E+00	3.23E+00	2.29E+00
Acrolein	107-02-8	Yes	Yes	1.17E-03	5.05E-02	2.21E-01	2.30E-02	9.89E-01	4.81E-01	9.89E-01	7.03E-01
Benzene	71-43-2	Yes	Yes	3.88E-04	1.67E-02	7.31E-02	7.60E-03	3.27E-01	1.59E-01	3.27E-01	2.32E-01
Chloroform	67-66-3	Yes	Yes	5.11E-06	2.20E-04	9.62E-04	1.00E-04	4.30E-03	2.09E-03	4.30E-03	3.05E-03
Cumene	98-82-8	Yes	No	1.02E-04	4.39E-03	1.92E-02	2.00E-03	8.60E-02	4.19E-02	8.60E-02	6.11E-02
Formaldehyde	50-00-0	Yes	Yes	7.15E-03	3.07E-01	1.35E+00	1.40E-01	6.02E+00	2.93E+00	6.02E+00	4.28E+00
m-,p-Xylene	1330-20-7	Yes	Yes	2.45E-04	1.05E-02	4.62E-02	4.80E-03	2.06E-01	1.00E-01	2.06E-01	1.47E-01
Methanol	67-56-1	Yes	No	5.62E-03	2.42E-01	1.06E+00	1.10E-01	4.73E+00	2.30E+00	4.73E+00	3.36E+00
Methyl isobutyl ketone	108-10-1	Yes	Yes	3.52E-04	1.52E-02	6.64E-02	6.90E-03	2.97E-01	1.44E-01	2.97E-01	2.11E-01
Methylene chloride	75-09-2	Yes	Yes	9.19E-05	3.95E-03	1.73E-02	1.80E-03	7.74E-02	3.77E-02	7.74E-02	5.50E-02
o-Xylene	95-47-6	Yes	No	2.30E-05	9.88E-04	4.33E-03	4.50E-04	1.94E-02	9.42E-03	1.94E-02	1.37E-02
Phenol	108-95-2	Yes	Yes	1.43E-03	6.15E-02	2.69E-01	2.80E-02	1.20E+00	5.86E-01	1.20E+00	8.55E-01
Propionaldehyde	123-38-6	Yes	No	6.64E-04	2.85E-02	1.25E-01	1.30E-02	5.59E-01	2.72E-01	5.59E-01	3.97E-01
Styrene	100-42-5	Yes	Yes	1.84E-05	7.90E-04	3.46E-03	3.60E-04	1.55E-02	7.53E-03	1.55E-02	1.10E-02
Toluene	108-88-3	Yes	Yes	6.64E-04	2.85E-02	1.25E-01	1.30E-02	5.59E-01	2.72E-01	5.59E-01	3.97E-01
									Total HAP	**1.83E+01**	**1.30E+01**

Note:

1) HAP & TAP emission factors for "green, direct wood-fired (inlet moisture content >50%, dry basis" softwood were obtained from AP-42, Section 10.6.2, Table 10.6.2-3.

2) To account for hardwood HAP & TAP emissions, factors were conservatively calculated by taking the AP-42 HAP factors for 100% softwood (green) and multipling by the ratio of the total listed VOC emission factors for hardwood and softwood (0.24 / 4.7).

3) Short-term HAP & TAP emissions were calculated based upon a worst-case scenario of 100% hardwood or softwood firing (in which case, softwood is always the overall worst case).

Rotary Dryer - Federal Hazardous Air Pollutant (HAP) and North Carolina Toxic Air Pollutant (TAP) Emissions from Combustion of Wood

Calculation Inputs:

Heat Input (MMBtu/hr)	125.00
Operating Schedule (hrs/yr)	8,760
Heat Input (MMBtu/yr)	1,095,000
WESP Metal HAP Control Efficiency[2]	88.90%
HCl Control Efficiency[2]	90.00%

HAP & TAP Emission Calculations:

Pollutant	Pollutant Type	Emission Factors			Emissions							
		Biomass			Biomass		Maximum Uncontrolled Total (per boiler)			Maximum Controlled Total (per boiler)		
		lb/mmBtu Uncontrolled	lb/mmBtu Controlled	Ref.	lb/hr Uncontrolled	lb/hr Controlled	lb/hr	lb/yr	tpy	lb/hr	lb/yr	tpy
Acetophenone	HAP	3.20E-09	3.20E-09	1	4.00E-07	4.00E-07	4.00E-07	3.50E-03	0.00	4.00E-07	3.50E-03	0.00
Antimony & Compounds	HAP	7.90E-06	8.77E-07	1, 2	9.88E-04	1.10E-04	9.88E-04	8.65E+00	0.00	1.10E-04	9.60E-01	0.00
Arsenic & Compounds	TAP/HAP	2.20E-05	2.44E-06	1, 2	2.75E-03	3.05E-04	2.75E-03	2.41E+01	0.01	3.05E-04	2.67E+00	0.00
Benzo(a)pyrene	TAP/HAP	2.60E-06	2.60E-06	1	3.25E-04	3.25E-04	3.25E-04	2.85E+00	0.00	3.25E-04	2.85E+00	0.00
Beryllium metal (un-reacted) (Also include in BEC)	TAP/HAP	1.10E-06	1.22E-07	1, 2	1.38E-04	1.53E-05	1.38E-04	1.20E+00	0.00	1.53E-05	1.34E-01	0.00
Cadmium Metal (elemental un-reacted) –(Add w/CDC)	TAP/HAP	4.10E-06	4.55E-07	1, 2	5.13E-04	5.69E-05	5.13E-04	4.49E+00	0.00	5.69E-05	4.98E-01	0.00
Carbon tetrachloride	TAP/HAP	4.50E-05	4.50E-05	1	5.63E-03	5.63E-03	5.63E-03	4.93E+01	0.02	5.63E-03	4.93E+01	0.02
Chlorine	TAP/HAP	7.90E-04	7.90E-04	1	9.88E-02	9.88E-02	9.88E-02	8.65E+02	0.43	9.88E-02	8.65E+02	0.43
Chlorobenzene	TAP/HAP	3.30E-05	3.30E-05	1	4.13E-03	4.13E-03	4.13E-03	3.61E+01	0.02	4.13E-03	3.61E+01	0.02
Chromium–Other compds (add w/chrom acid to get CRC)	HAP	1.75E-05	1.94E-06	1, 2	2.19E-03	2.43E-04	2.19E-03	1.92E+01	0.01	2.43E-04	2.13E+00	0.00
Cobalt compounds	HAP	6.50E-06	7.22E-07	1, 2	8.13E-04	9.02E-05	8.13E-04	7.12E+00	0.00	9.02E-05	7.90E-01	0.00
Dinitrophenol, 2,4-	HAP	1.80E-07	1.80E-07	1	2.25E-05	2.25E-05	2.25E-05	1.97E-01	0.00	2.25E-05	1.97E-01	0.00
Di(2-ethylhexyl)phthalate (DEHP)	TAP/HAP	4.70E-08	4.70E-08	1	5.88E-06	5.88E-06	5.88E-06	5.15E-02	0.00	5.88E-06	5.15E-02	0.00
Ethyl benzene	HAP	3.10E-05	3.10E-05	1	3.88E-03	3.88E-03	3.88E-03	3.39E+01	0.02	3.88E-03	3.39E+01	0.02
Ethylene dichloride (1,2-dichloroethane)	TAP/HAP	2.90E-05	2.90E-05	1	3.63E-03	3.63E-03	3.63E-03	3.18E+01	0.02	3.63E-03	3.18E+01	0.02
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8	TAP	1.60E-06	1.60E-06	1	2.00E-04	2.00E-04	2.00E-04	1.75E+00	0.00	2.00E-04	1.75E+00	0.00
Hydrogen chloride (hydrochloric acid)	TAP/HAP	1.90E-02	1.90E-03	1, 3	2.38E+00	2.38E-01	2.38E+00	2.08E+04	10.40	2.38E-01	2.08E+03	1.04
Lead and Lead compounds	HAP	4.80E-05	5.33E-06	1, 2	6.00E-03	6.66E-04	6.00E-03	5.26E+01	0.03	6.66E-04	5.83E+00	0.00
Manganese & compounds	TAP/HAP	1.60E-03	1.78E-04	1, 2	2.00E-01	2.22E-02	2.00E-01	1.75E+03	0.88	2.22E-02	1.94E+02	0.10
Mercury, vapor (Include in Mercury&Compds)	TAP/HAP	3.50E-06	3.89E-07	1, 2	4.38E-04	4.86E-05	4.38E-04	3.83E+00	0.00	4.38E-04	3.83E+00	0.00
Methyl bromide (bromomethane)	HAP	1.50E-05	1.50E-05	1	1.88E-03	1.88E-03	1.88E-03	1.64E+01	0.01	1.88E-03	1.64E+01	0.01
Methyl chloride (chloromethane)	HAP	2.30E-05	2.30E-05	1	2.88E-03	2.88E-03	2.88E-03	2.52E+01	0.01	2.88E-03	2.52E+01	0.01
Methyl chloroform (1,1,1 trichloroethane)	TAP/HAP	3.10E-05	3.10E-05	1	3.88E-03	3.88E-03	3.88E-03	3.39E+01	0.02	3.88E-03	3.39E+01	0.02
Methyl ethyl ketone	TAP	5.40E-06	5.40E-06	1	6.75E-04	6.75E-04	6.75E-04	5.91E+00	0.00	6.75E-04	5.91E+00	0.00
Naphthalene	HAP	9.70E-05	9.70E-05	1	1.21E-02	1.21E-02	1.21E-02	1.06E+02	0.05	1.21E-02	1.06E+02	0.05
Nickel metal (Component of Nickel & Compounds)	TAP/HAP	3.30E-05	3.66E-06	1, 2	4.13E-03	4.58E-04	4.13E-03	3.61E+01	0.02	4.13E-03	3.61E+01	0.02
Nitrophenol, 4-	HAP	1.10E-07	1.10E-07	1	1.38E-05	1.38E-05	1.38E-05	1.20E-01	0.00	1.38E-05	1.20E-01	0.00
Pentachlorophenol	TAP/HAP	5.10E-08	5.10E-08	1	6.38E-06	6.38E-06	6.38E-06	5.58E-02	0.00	6.38E-06	5.58E-02	0.00
Perchloroethylene (tetrachloroethylene)	TAP/HAP	3.80E-05	3.80E-05	1	4.75E-03	4.75E-03	4.75E-03	4.16E+01	0.02	4.75E-03	4.16E+01	0.02
Phosphorus Metal, Yellow or White	HAP	2.70E-05	3.00E-06	1, 2	3.38E-03	3.75E-04	3.38E-03	2.96E+01	0.01	3.38E-03	2.96E+01	0.01
Polychlorinated biphenyls	TAP/HAP	8.15E-09	8.15E-09	1	1.02E-06	1.02E-06	1.02E-06	8.92E-03	0.00	1.02E-06	8.92E-03	0.00
Polycyclic Organic Matter	HAP	1.25E-04	1.25E-04	1	1.56E-02	1.56E-02	1.56E-02	1.37E+02	0.07	1.56E-02	1.37E+02	0.07
Propylene dichloride (1,2 dichloropropane)	HAP	3.30E-05	3.30E-05	1	4.13E-03	4.13E-03	4.13E-03	3.61E+01	0.02	4.13E-03	3.61E+01	0.02
Selenium compounds	HAP	2.80E-06	3.11E-07	1, 2	3.50E-04	3.89E-05	3.50E-04	3.07E+00	0.00	3.50E-04	3.07E+00	0.00
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	TAP/HAP	8.60E-12	8.60E-12	1	1.08E-09	1.08E-09	1.08E-09	9.42E-06	0.00	1.08E-09	9.42E-06	0.00
Trichloroethylene	TAP/HAP	3.00E-05	3.00E-05	1	3.75E-03	3.75E-03	3.75E-03	3.29E+01	0.02	3.75E-03	3.29E+01	0.02
Trichlorofluoromethane (CFC 111)	TAP	4.10E-05	4.10E-05	1	5.13E-03	5.13E-03	5.13E-03	4.49E+01	0.02	5.13E-03	4.49E+01	0.02
Trichlorophenol, 2,4,6-	HAP	2.20E-08	2.20E-08	1	2.75E-06	2.75E-06	2.75E-06	2.41E-02	0.00	2.75E-06	2.41E-02	0.00
Vinyl chloride	TAP/HAP	1.80E-05	1.80E-05	1	2.25E-03	2.25E-03	2.25E-03	1.97E+01	0.01	2.25E-03	1.97E+01	0.01
* Highest HAP							2.38E+00	2.08E+04	10.4	2.38E-01	2.08E+03	1.0
* Total HAPs							2.76E+00	2.42E+04	12.1	4.37E-01	3.83E+03	1.9

[1] Uncontrolled and controlled emission factors (criteria and HAP/TAP) for wood combustion in a stoker boiler from NCDAQ Wood waste Combustion Spreadsheet/AP-42: Compilation of Air Pollutant Emission Factors Vol. I - Stationary Sources USEPA, 5th ed. Section 1.6, 9/03

[2] The control efficiency of the wet electrostatic precipitator (WESP) for filterable particulate matter (88.9%) is applied to all metal hazardous and toxic pollutants.

[3] The WESP employs a caustic solution in its operation in which hydrochloric acid will have high water solubility. This caustic solution will neutralize the acid and effectively control it by 90%, per conversation on 10/18/2011 with Steven A. Jaasund, P.E. of Lundberg Associates, a manufacturer of WESPs.

Emergency Generator Emissions (ES-EG)

Equipment and Fuel Characteristics		
Engine Output	0.26	MW
Engine Power	350	hp (brake)
Hours of Operation	500	hr/yr[1]
Heating Value of Diesel	19,300	Btu/lb
Power Conversion	2,545	Btu/hr/hp

Criteria Pollutant Emissions					
Pollutant	Category	Emission Factor	Units	Potential Emissions	
				lb/hr	tpy
TSP	PSD	4.41E-04	lb/kW-hr (2)	0.12	2.88E-02
PM_{10}	PSD	4.41E-04	lb/kW-hr (2)	0.12	2.88E-02
$PM_{2.5}$	PSD	4.41E-04	lb/kW-hr (2)	0.12	2.88E-02
NO_x	PSD	8.82E-03	lb/kW-hr (5)	2.30	5.75E-01
SO_2	PSD	15	ppmw (3)	1.38E-03	3.46E-04
CO	PSD	7.72E-03	lb/kW-hr (2)	2.01	5.03E-01
VOC (NMHC)	PSD	2.51E-03	lb/MMBtu (4)	2.24E-03	5.59E-04
Toxic/Hazardous Air Pollutant Emissions					
Acetaldehyde	HAP/TAP	5.37E-06	lb/hp-hr (4)	1.88E-03	4.70E-04
Acrolein	HAP/TAP	6.48E-07	lb/hp-hr (4)	2.27E-04	5.67E-05
Benzene	HAP/TAP	6.53E-06	lb/hp-hr (4)	2.29E-03	5.71E-04
Benzo(a)pyrene[6]	HAP/TAP	1.32E-09	lb/hp-hr (4)	4.61E-07	1.15E-07
1,3-Butadiene	HAP/TAP	2.74E-07	lb/hp-hr (4)	9.58E-05	2.39E-05
Formaldehyde	HAP/TAP	8.26E-06	lb/hp-hr (4)	2.89E-03	7.23E-04
Total PAH (POM)	HAP	1.18E-06	lb/hp-hr (4)	4.12E-04	1.03E-04
Toluene	HAP/TAP	2.86E-06	lb/hp-hr (4)	1.00E-03	2.51E-04
Xylene	HAP/TAP	2.00E-06	lb/hp-hr (4)	6.98E-04	1.75E-04
Highest HAP (Formaldehyde)		8.26E-06	lb/hp-hr (4)	2.89E-03	7.23E-04
Total HAPs				9.49E-03	2.37E-03

Note:

[1] NSPS allows for only 100 hrs/yr of non-emergency operation of these engines (not the 500 hours shown). The PTE for the emergency generator is based on 500 hr/yr, though, because the regs allow non-emergency operation and EPA guidance is 500 hr/yr for emergency generators.

[2] Emissions factors from NSPS Subpart IIII (or 40 CFR 89.112 where applicable) in compliance with post-2009 construction.

[3] Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(a) as required by NSPS Subpart IIII.

[4] Emission factor obtained from AP-42 Section 3.3, Tables 3.3-1 Table 3.3-2.

[5] Emission factor for NOx is listed as NOx and NMHC (Non-Methane Hydrocarbons or VOC) in Table 4 of NSPS Subpart IIII. Conservatively assumed entire limit attributable to NOx.

[6] Benzo(a)pyrene is included as a HAP in Total PAH.

Firewater Pump Emissions (ES-FWP)

Equipment and Fuel Characteristics		
Engine Output	0.22	MW
Engine Power	300.00	hp
Hours of Operation	500	hr/yr[1]
Heating Value of Diesel	19,300	Btu/lb
Power Conversion	2,545	Btu/hr/hp

Criteria Pollutant Emissions				Potential Emissions	
Pollutant	Category	Emission Factor	Units	lb/hr	tpy
TSP	PSD	4.41E-04	lb/kW-hr (2)	0.10	2.47E-02
PM_{10}	PSD	4.41E-04	lb/kW-hr (2)	0.10	2.47E-02
$PM_{2.5}$	PSD	4.41E-04	lb/kW-hr (2)	0.10	2.47E-02
NO_x	PSD	8.82E-03	lb/kW-hr (5)	1.97	4.93E-01
SO_2	PSD	15	ppmw (3)	1.19E-03	2.97E-04
CO	PSD	7.72E-03	lb/kW-hr (2)	1.73	4.32E-01
VOC (NMHC)	PSD	2.51E-03	lb/MMBtu (4)	1.92E-03	4.79E-04
Toxic/Hazardous Air Pollutant Emissions					
Acetaldehyde	HAP/TAP	5.37E-06	lb/hp-hr (4)	1.61E-03	4.03E-04
Acrolein	HAP/TAP	6.48E-07	lb/hp-hr (4)	1.94E-04	4.86E-05
Benzene	HAP/TAP	6.53E-06	lb/hp-hr (4)	1.96E-03	4.90E-04
Benzo(a)pyrene[6]	HAP/TAP	1.32E-09	lb/hp-hr (4)	3.95E-07	9.87E-08
1,3-Butadiene	HAP/TAP	2.74E-07	lb/hp-hr (4)	8.21E-05	2.05E-05
Formaldehyde	HAP/TAP	8.26E-06	lb/hp-hr (4)	2.48E-03	6.20E-04
Total PAH (POM)	HAP	1.18E-06	lb/hp-hr (4)	3.53E-04	8.82E-05
Toluene	HAP/TAP	2.86E-06	lb/hp-hr (4)	8.59E-04	2.15E-04
Xylene	HAP/TAP	2.00E-06	lb/hp-hr (4)	5.99E-04	1.50E-04
Highest HAP (Formaldehyde)		8.26E-06	lb/hp-hr (4)	2.48E-03	6.20E-04
Total HAPs				8.13E-03	2.03E-03

Note:

[1] NSPS allows for only 100 hrs/yr of non-emergency operation of these engines (not the 500 hours shown). The PTE for the emergency generator is based on 500 hr/yr, though, because the regs allow non-emergency operation and EPA guidance is 500 hr/yr for emergency generators.

[2] Emissions factors from NSPS Subpart IIII (or 40 CFR 89.112 where applicable) in compliance with post-2009 construction.

[3] Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(a) as required by NSPS Subpart IIII.

[4] Emission factor obtained from AP-42 Section 3.3, Tables 3.3-1 Table 3.3-2.

[5] Emission factor for NOx is listed as NOx and NMHC (Non-Methane Hydrocarbons or VOC) in Table 4 of NSPS Subpart IIII. Conservatively assumed entire limit attributable to NOx.

[6] Benzo(a)pyrene is included as a HAP in Total PAH.

Dust Control Systems PM Emissions

Emission Unit	Emission Source ID	Filter. Vent -or- Cyclone ID	Flowrate[1] (dscfm)	Pollutant Loading[2] (gr/dscf)	Annual Operation (hours)	% PM that is		Potential Emissions					
								PM		PM_{10}[3]		$PM_{2.5}$[3]	
						PM_{10}	$PM_{2.5}$	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Dried Wood Day Silo	ES-DWDS	CD-DWS-BV	2,186	0.01	8,760	100%	100%	0.19	0.82	0.19	0.82	0.19	0.82
Coarse Hammermills 1 & 2	ES-CHM	CD-CHM-FF1	40,000	0.01	8,760	100%	100%	3.43	15.02	3.43	15.02	3.43	15.02
Coarse Hammermills 3 & 4	ES-CHM	CD-CHM-FF2	40,000	0.01	8,760	100%	100%	3.43	15.02	3.43	15.02	3.43	15.02
Hammermill Area and Hammermill 5	ES-HAF	CD-HAF-FF	32,500	0.01	8,760	100%	100%	2.79	12.20	2.79	12.20	2.79	12.20
Pellet Mill Feed Silo Bin Vent Filter	ES-PMFS	CD-PMFS-BV	2,186	0.01	8,760	100%	100%	0.19	0.82	0.19	0.82	0.19	0.82
Pellet Coolers Cyclone 1 & 2	ES-CLR1 & 2	CD-CLR-C1	27,500	0.022	8,760	100%	100%	5.19	22.71	5.19	22.71	5.19	22.71
Pellet Coolers Cyclone 3 & 4	ES-CLR3 & 4	CD-CLR-C2	27,500	0.022	8,760	100%	100%	5.19	22.71	5.19	22.71	5.19	22.71
Pellet Coolers Cyclone 5	ES-CLR5	CD-CLR-C3	13,750	0.022	8,760	100%	100%	2.59	11.36	2.59	11.36	2.59	11.36
							TOTAL	**22.98**	**100.66**	**22.98**	**100.66**	**22.98**	**100.66**

Note:

1) Filter, Vent, and Cyclone inlet flow rate (cfm) provided by design engineering firm.
2) Unless otherwise specified, pollutant (PM) loading conservatively assumed to be 0.01 gr/dscf
3) It was conservatively assumed that PM_{10} and $PM_{2.5}$ equal PM emissions

Fugitive PM Emissions[1]

ID	Emission Source Group	Description	Control	Control Description	Throughput		Potential Uncontrolled Emissions for PM[3]		Potential Uncontrolled Emissions for PM_{10}[3]		Potential Uncontrolled Emissions for $PM_{2.5}$[3]	
					Max. Hourly[2]	Max. Annual						
					(tph)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
DP1	ES-DWH	Dryer Discharger to Dryer No. 1 Outfeed Conveyor	Enclosed	Reduction to 2 mph mean wind speed	29.31	209,266.67	2.2E-03	7.9E-03	1.0E-03	3.7E-03	1.6E-04	5.7E-04
DP2	ES-DWH	Dryer Discharger to Dryer No. 2 Outfeed Conveyor	Enclosed	Reduction to 2 mph mean wind speed	29.31	209,266.67	2.2E-03	7.9E-03	1.0E-03	3.7E-03	1.6E-04	5.7E-04
DP3	ES-DWH	Dryer Outfeed Conveyors to Silo Feed / Silo Bypass	Enclosed	Reduction to 2 mph mean wind speed	58.62	418,533.33	4.4E-03	1.6E-02	2.1E-03	7.5E-03	3.2E-04	1.1E-03
DP4	ES-DWH	Silo Bypass / Dryer Silo to Conveyor to Hammermill Surge Bin	Enclosed	Reduction to 2 mph mean wind speed	58.62	418,533.33	4.4E-03	1.6E-02	2.1E-03	7.5E-03	3.2E-04	1.1E-03
DP5	ES-DWH	Conveyor to Hammermill Surge Bin drop into HM Surge Bin	Enclosed	Reduction to 2 mph mean wind speed	61.70	440,509.00	4.7E-03	1.7E-02	2.2E-03	7.9E-03	3.3E-04	1.2E-03
DP6	ES-PP	Drop Emissions from Pellet Presses to Pellet Press Collection Conveyors	Enclosed	Reduction to 2 mph mean wind speed	61.70	440,509.00	4.7E-03	1.7E-02	2.2E-03	7.9E-03	3.3E-04	1.2E-03
						TOTAL	**2.3E-02**	**8.1E-02**	**1.1E-02**	**3.8E-02**	**1.6E-03**	**5.8E-03**
						ES-DWH	**1.8E-02**	**6.4E-02**	**8.5E-03**	**3.0E-02**	**1.3E-03**	**4.6E-03**
						ES-PP	**4.7E-03**	**1.7E-02**	**2.2E-03**	**7.9E-03**	**3.3E-04**	**1.2E-03**

Note:

1) Fugitive emissions are not included in facility-wide PTE because the Ahoskie Pellet Mill does not belong to one of the listed 28 source categories.
2) Maximum hourly throughput is based upon 8,760/yr.
3) Based emission factors calculated per AP-42 Section 13.2.4, September 2006.

$$E = k\,(0.0032)\,\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \quad \text{(lb/ton)}$$

where: E = emission factor (lb/ton)	
k = particle size multiplier (dimensionless) for PM	0.74
k = particle size multiplier (dimensionless) for PM_{10}	0.35
k = particle size multiplier (dimensionless) for $PM_{2.5}$	0.053
U = mean wind speed (mph)	2.00
M = material moisture content (%)	10
E for PM (lb/ton) =	7.6E-05
E for PM_{10} (lb/ton) =	3.6E-05
E for $PM_{2.5}$ (lb/ton) =	5.4E-06

Tank VOC Emissions

Tank ID	Tank Description	Volume[1] (gal)	Tank Dimensions		Orientation	Throughput (gal/yr)	Turnovers	TANKS 4.0 VOC Emissions	
			Diameter (ft)	Height/Length (ft)				(lb/yr)	(tpy)
TK01	Emergency Generator Fuel Oil Tank[2]	2,500	6	12	Vertical	12,000	4.80	0.37	3.57E-03
TK02	Fire Water Pump Fuel Oil Tank[2]	500	3	10	Horizontal	10,300	20.60	0.43	2.15E-04
							TOTAL	**0.80**	**3.79E-03**

Note:

1. Conservative design specifications.
2. Throughput based on fuel consumption and 500 hours of operation per year. Fuel consumption data provided by pump engine vendors.

ATTACHMENT 2

UPDATED FACILITY AND SOURCE FORMS

FORM A1

FACILITY (General Information)

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

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

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

Received
OCT 25 2011
Air Permits Section

GENERAL INFORMATION

Legal Corporate/Owner Name:	**Enviva Pellets, LLC**
Site Name:	**Enviva Pellets Ahoskie, LLC**
Site Address (911 Address) Line 1:	**142 N.C. Rt 561 East**
Site Address Line 2:	
City: **Ahoskie**	State: **North Carolina**
Zip Code: **27910**	County: **Hertford**

CONTACT INFORMATION

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

APPLICATION IS BEING MADE FOR

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

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

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

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s): **Facility ID No. : N/A (To be assigned)**

Wood pellet manufacturing facility

Primary SIC/NAICS Code:	**2499 (Wood Products, Not Elsewhere Classified)**	Current/Previous Air Permit No	**10121R00**	Expiration Date	**11/30/2015**
Facility Coordinates:	Latitude: **323,525.1 UTM E**	Longitude:	**4,015,554.4 UTM N**		
Does this application contain confidential data?	☐ YES	☑ NO			

PERSON OR FIRM THAT PREPARED APPLICATION

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

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed):	Norb Hintz	Title:	**Vice President, Engineering**
X Signature(Blue Ink):		Date:	10-16-11

Attach Additional Sheets As Necessary

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

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

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

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
Existing Permitted Equipment To Be MODIFIED By This Application			
ES-DWDS	Dried Wood Day Silo	CD-DWDS-BV	Bin vent filter (377 s.f. of surface area)
ES-CHM-1, 2, 3 & 4	Four Coarse Hammermills	CD-CHM-C1	Simple Cyclone
		CD-CHM-C2	Simple Cyclone
		CD-CHM-C3	Simple Cyclone
		CD-CHM-C4	Simple Cyclone
		CD-CHM-FF1	Fabric filter (6,667 s.f. of surface area)
		CD-CHM-FF2	Fabric filter (6,667 s.f. of surface area)
ES-HAF	Hammermill Area and 5th Hammermill	CD-HAF-FF	Fabric filter (5,417 s.f. of surface area)
(Originally called Ground Wood Handling [ES-GWH-1 and 2])			
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BV	Bin vent filter (377 s.f. of surface area)
(Originally called Pellet Press Silo [ES-PPS])			
ES-CLR1, 2, 3 & 4	Four Pellet Coolers	CD-CLR-C1	Dual High Efficiency Cyclone
		CD-CLR-C2	Dual High Efficiency Cyclone
ES-CLR5	Pellet Cooler #5	CD-CLR-C3	Single High Efficiency Cyclone
Equipment To Be DELETED By This Application			

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

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

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

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

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

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

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

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

Yes ☐ No ☐ If yes, please specify: _____

Attach Additional Sheets As Necessary

FORM A4

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

DATE:	Does facility have an environmental mangement system in place? ( ) YES (X) NO If so, is facility ISO 14000 Certified? ( ) YES (X) NO						
Facility Name:	Enviva Pellets Ahoskie, LLC			**Permit Number:**	10121R00		
Facility ID:	N/A (to be assigned)	**County:**	Hertford	**Environmental Contact:**	Glenn Gray / Plant Manager		
Mailing Address Line 1:	142 N.C. Rt 561 East			**Phone No. ( )**	(757) 274-8377	**Fax No. ( )**	(301) 657-5567
Mailing Address Line 2:				**Zip Code:**	27910	**County:**	Hertford
City:	Ahoskie	**State:**	North Carolina	**Email Address:**	0		

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

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

Comments:

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

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

Comments:

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

N.C. Division of Pollution Prevention and Environmental Assistance — Pollution Prevention Pays

REVISED 1/07 — **Attach Additional Sheets As Necessary**

FORM D1

FACILITY-WIDE EMISSIONS SUMMARY

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

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)
AIR POLLUTANT EMITTED	tons/yr	tons/yr	tons/yr
PARTICULATE MATTER (PM)	**See Table 1 in the accompanying application document**		
PARTICULATE MATTER < 10 MICRONS (PM_{10})			
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)			
SULFUR DIOXIDE (SO2)			
NITROGEN OXIDES (NOx)			
CARBON MONOXIDE (CO)			
VOLATILE ORGANIC COMPOUNDS (VOC)			
LEAD			
OTHER			

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

		EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)
HAZARDOUS AIR POLLUTANT EMITTED	CAS NO.	tons/yr	tons/yr	tons/yr
		See Table 2 in the accompanying application document		

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.

					Modeling Required ?	
TOXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Yes	No
		See Table 3 in the accompanying application document				

COMMENTS:

Attach Additional Sheets As Necessary

FORM D4

EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

REVISED: 12/01/ NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate **D4**

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

DESCRIPTION OF EMISSION SOURCE	SIZE OR PRODUCTION RATE	BASIS FOR EXEMPTION OR INSIGNIFICANT ACTIVITY
1. **Electric Powered Chipper ES-CHIP**	**509,341 tpy 51 tph**	**15A NCAC 02Q .0102(c)(2)(E)**
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

FORM D

TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

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

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

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

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

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

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

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

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

(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)

NAME: Joe W. Sullivan, P.E.
DATE: 10-21-11
COMPANY: Trinity Consultants of NC, PC
ADDRESS: One Copley Parkway, Suite 310 Morrisville, NC 27560
TELEPHONE: 919-462-9693
SIGNATURE: Joe W Sullivan
PAGES CERTIFIED: All control device application forms

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

PLACE NORTH CAROLINA SEAL HERE

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

EMISSION SOURCE DESCRIPTION: **Dried Wood Day Silo**	EMISSION SOURCE ID NO: **ES-DWDS**
	CONTROL DEVICE ID NO(S): **CD-DWDS-BV**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-DWDS**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Trucks pneumatically convey to a silo storing dried chipped wood.

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

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

START CONSTRUCTION DA **TBD**	OPERATION DATE: **TBD**	DATE MANUFACTURED: **TBD**	
MANUFACTURER / MODEL N **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 OPERATI **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **< 20** % OPACITY		

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

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

EMISSION SOURCE DESCRIPTION: **Dried Wood Day Silo**	EMISSION SOURCE ID NO: **ES-DWDS**
	CONTROL DEVICE ID NO(S): **CD-DWDS-BV**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): **EP-DWDS**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Trucks pneumatically convey to a silo storing dried chipped wood.

MATERIAL STORED:				DENSITY OF MATERIAL (LB/FT3): **40**		
CAPACITY	CUBIC FEET **4400**			TONS: **88**		
DIMENSIONS (FEET)	HEIGHT:	DIAMETER:	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:			MAXIMUM DESIGN CAPACITY:		

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

NO. FILL TUBES:

MAXIMUM ACFM: 2187

MATERIAL IS FILLED TO: **Transferred pneumatically to screen preceeding hammermills.**

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

Pneumatic

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): **8**

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): **8**

COMMENTS:

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

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

CONTROL DEVICE ID NO: CD-DWDS-BV	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-DWDS
EMISSION POINT (STACK) ID NO(S): EP-DWDS	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: Aircon Corp.	MODEL NO: BV25-10
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: TBD
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? (YES) NO

DESCRIBE CONTROL SYSTEM:

A bin vent filter collects dust from when dried wood is pneumatically conveyed into the silo during truck unloading.

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

PRESSURE DROP (IN. H_2O): MIN:	MAX: 4"	GAUGE? (YES) NO	WARNING ALARM? (YES) NO
BULK PARTICLE DENSITY (LB/FT^3): 1.43E-06		INLET TEMPERATURE (°F): Ambient	
POLLUTANT LOADING RATE: 0.01 LB/HR (GR/FT^3)		OUTLET TEMPERATURE (°F): Ambient	
INLET AIR FLOW RATE (ACFM) 2,186		FILTER MAX OPERATING TEMP. (°F): N/A	
NO. OF COMPARTMENTS: TBD[1]	NO. OF BAGS PER COMPARTMENT: TBD[1]	LENGTH OF BAG (IN.): TBD[1]	
DIAMETER OF BAG (IN.):	DRAFT: INDUCED/NEG. (FORCED/POS.)	FILTER SURFACE AREA (FT^2): 377	
AIR TO CLOTH RATIO: 5.8	FILTER MATERIAL: Polyester or equivalent	WOVEN FELTED	

DESCRIBE CLEANING PROCEDURES:

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

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles

PARTICLE SIZE DISTRIBUTION

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

METHOD FOR DETERMINING WHEN TO CLEAN:

(AUTOMATIC) TIMED MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

ALARM (INTERNAL INSPECTION) VISIBLE EMISSION OTHER

SPECIAL CONDITIONS: None

MOISTURE BLINDING CHEMICAL RESISTIVITY OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations 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

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

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

EMISSION SOURCE DESCRIPTION: **Four Coarse Hammermills**	EMISSION SOURCE ID NO: **ES-CHM-1, 2, 3 & 4**
	CONTROL DEVICE ID NO(S) **CD-CHM-C1, CD-CHM-C2, CD-CHM-C3, CD-CHM-C4, CD-CHM-FF1, & CD-CHM-FF2**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-CHM-1 & EP-CHM-2**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Dried materials are reduced to the appropriate size needed for pelletization using four coarse hammermills

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

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

START CONSTRUCTION DA TBD	OPERATION DATE: TBD	DATE MANUFACTURED: TBD
MANUFACTURER / MODEL NO.: TBD[1]	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 OPERATI(8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: < 20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

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

FORM B9

EMISSION SOURCE (OTHER)

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

EMISSION SOURCE DESCRIPTION: **Four Coarse Hammermills**	EMISSION SOURCE ID NO: **ES-CHM-1, 2, 3 & 4**
	CONTROL DEVICE ID NO(S): **CD-CHM-C1, CD-CHM-C2, CD-CHM-C3, CD-CHM-C4, CD-CHM-FF1, & CD-CHM-FF2**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-CHM-1 & EP-CHM-2**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Dried materials are reduced to the appropriate size needed for pelletization using four coarse hammermills

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	**Tons**	**47.78**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

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

CONTROL DEVICE ID NO: **CD-CHM-C1, CD-CHM-C2, CD-CHM-C3, & CD-CHM-C4**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-CHM-1, 2, 3 & 4**
EMISSION POINT (STACK) ID NO(S): **CD-CHM-FF1 & CD-CHM-FF2**	POSITION IN SERIES OF CONTROLS NO. 1 OF 2 UNITS
MANUFACTURER: **Aircon Corp.**	MODEL NO: **AC-120**
DATE MANUFACTURED: **TBD**	PROPOSED OPERATION DATE: **TBD**
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: **TBD**
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? (●) YES ( ) NO

DESCRIBE CONTROL SYSTEM :
Four identical simple cyclones are equipped to the pellet coolers to capture bulk PM emissions.
The parameters presented here are per each dual high efficiency cyclone.

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

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

INLET TEMPERATURE (°F): MIN MAX **Ambient**	OUTLET TEMPERATURE (°F): MIN MAX **Ambient**
INLET AIR FLOW RATE (ACFM): **20,000**	BULK PARTICLE DENSITY (LB/FT^3): **3E-06**
POLLUTANT LOADING RATE (GR/FT^3): **0.022**	

SETTLING CHAMBER	CYCLONE				MULTICYCLONE
LENGTH (INCHES):	INLET VELOCITY (FT/SEC):		( ) CIRCULAR ( ) RECTANGLE		NO. TUBES:
WIDTH (INCHES):	*DIMENSIONS (INCHES) See instructions*		*IF WET SPRAY UTILIZED*		DIAMETER OF TUBES:
HEIGHT (INCHES):	H: **48**	Dd: **24**	LIQUID USED:		HOPPER ASPIRATION SYSTEM?
VELOCITY (FT/SEC.):	W: **N/A**	Lb: **58**	FLOW RATE (GPM):		( ) YES ( ) NO
NO. TRAYS:	De: **57**	Lc: **191.31**	MAKE UP RATE (GPM):		LOUVERS?
NO. BAFFLES:	D: **120**	S: **66.75**			( ) YES ( ) NO
	TYPE OF CYCLONE: (●) CONVENTIONAL		( ) HIGH EFFICIENCY	( ) OTHER	

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

DESCRIBE INCOMING AIR STREAM:
Fine particulate emissions from cooling pellets

PARTICLE SIZE DISTRIBUTION

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

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

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

Attach Additional Sheets As Necessary

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

FORM C1

CONTROL DEVICE (FABRIC FILTER)

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

CONTROL DEVICE ID NO: CD-CHM-FF1 & CD-CHM-FF2	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-CHM-1, 2, 3 & 4
EMISSION POINT (STACK) ID NO(S): EP-CHM-1 & EP-CHM-2	POSITION IN SERIES OF CONTROLS NO. 2 OF 2 UNITS
MANUFACTURER: Aircon Corp.	MODEL NO: 16RA412-10
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: TBD
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ◉ YES ○ NO

DESCRIBE CONTROL SYSTEM:

Two (2) fabric filters equipped to the coarse hammermills. Each coarse hammermill has one cyclone vented to one of two fabric filters.

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

PRESSURE DROP (IN. H_2O): MIN: MAX: 8" GAUGE? ◉ YES ○ NO WARNING ALARM? ◉ YES ○ NO

BULK PARTICLE DENSITY (LB/FT^3): 53		INLET TEMPERATURE (°F): Ambient	
POLLUTANT LOADING RATE: 0.01 ○ LB/HR ◉ GR/FT^3		OUTLET TEMPERATURE (°F): Ambient	
INLET AIR FLOW RATE (ACFM): 40,000 each filter		FILTER MAX OPERATING TEMP. (°F): N/A	
NO. OF COMPARTMENTS: TBD[1]	NO. OF BAGS PER COMPARTMENT: TBD[1]	LENGTH OF BAG (IN.): TBD[1]	
DIAMETER OF BAG (IN.):	DRAFT: ◉ INDUCED/NEG ○ FORCED/POS.	FILTER SURFACE AREA (FT^2): 6,667 each	
AIR TO CLOTH RATIO 6	FILTER MATERIAL: Polyester or equivalent	○ WOVEN ○ FELTED	

DESCRIBE CLEANING PROCEDURES:

○ AIR PULSE ○ SONIC
◉ REVERSE FLOW ○ SIMPLE BAG COLLAPSE
○ MECHANICAL/SHAKER ○ RING BAG COLLAPSE
○ OTHER

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles

PARTICLE SIZE DISTRIBUTION

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

METHOD FOR DETERMINING WHEN TO CLEAN:

◉ AUTOMATIC ○ TIMED ○ MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

○ ALARM ◉ INTERNAL INSPECTION ○ VISIBLE EMISSION ○ OTHER

SPECIAL CONDITIONS: None

○ MOISTURE BLINDING ○ CHEMICAL RESISTIVITY ○ OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations 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

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

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

EMISSION SOURCE DESCRIPTION: **Hammermill Area and Hammermill 5**	EMISSION SOURCE ID NO: **ES-HAF**
	CONTROL DEVICE ID NO(S): **CD-HAF-FF**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-HAF**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):

One set of conveyors after the hammermills transports material to the pellet press silo. A second set of conveyors transports the material from the pellet press silo to the pellet presses. Particulate emissions are routed to one (1) area fabric filter. Drop points routed to common control include: coarse hammermills to "accepts conveyor", "accepts conveyor" to pellet press silo infeed conveyor, pellet press silo to pellet press feed conveyor, silo bypass to pellet press conveyor, & pellet press distribution conveyors. The plant's 5th hammermill is also routed to this filter, as is the pneumatic transfer line associated with dried wood transfer from the dried wood day silo.

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

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

START CONSTRUCTION DA **TBD**	OPERATION DATE: TBD	DATE MANUFACTURED: TBD
MANUFACTURER / MODEL NO.: **TBD**[1]	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 OPERATI **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **< 20** % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

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

FORM B9

EMISSION SOURCE (OTHER)

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

EMISSION SOURCE DESCRIPTION:	EMISSION SOURCE ID NO: **ES-HAF**
Hammermill Area and Hammermill 5	CONTROL DEVICE ID NO(S): **CD-HAF-FF**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-HAF**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

One set of conveyors after the hammermills transports material to the pellet press silo. A second set of conveyors transports the material from the pellet press silo to the pellet presses. Particulate emissions are routed to one (1) area fabric filter. Drop points routed to common control include: coarse hammermills to "accepts conveyor", "accepts conveyor" to pellet press silo infeed conveyor, pellet press silo to pellet press feed conveyor, silo bypass to pellet press conveyor, & pellet press distribution conveyors. The plant's 5th hammermill is also routed to this filter, as is the pneumatic transfer line associated with dried wood transfer from the dried wood day silo.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Ground Wood	**Tons**	**47.78**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

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

CONTROL DEVICE ID NO: CD-HAF-FF	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HAF
EMISSION POINT (STACK) ID NO(S): EP-HAF	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: Aircon Corp.	MODEL NO: 14RA296-12
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: TBD
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ◉ YES ○ NO

DESCRIBE CONTROL SYSTEM:

One (1) area fabric filters will be equipped to collect particulate emissions from the dried wood handling systems in the vicinity of the hammermills and 5th hammermill.

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

PRESSURE DROP (IN. H_2O): MIN:	MAX: 8"	GAUGE? ◉ YES ○ NO	WARNING ALARM? ◉ YES ○ NO
BULK PARTICLE DENSITY (LB/FT^3):	1.43E-06	INLET TEMPERATURE (°F):	Ambient
POLLUTANT LOADING RATE: 0.01	○ LB/HR ◉ GR/FT^3	OUTLET TEMPERATURE (°F):	Ambient
INLET AIR FLOW RATE (ACFM):	32500	FILTER MAX OPERATING TEMP. (°F):	N/A
NO. OF COMPARTMENTS:	TBD[1]	NO. OF BAGS PER COMPARTMENT:	TBD[1]
LENGTH OF BAG (IN.):	TBD[1]		
DIAMETER OF BAG (IN.):	DRAFT: ◉ INDUCED/NEG ○ FORCED/POS.	FILTER SURFACE AREA (FT^2):	5,417
AIR TO CLOTH RATIO 6.00	FILTER MATERIAL: Polyester or equivalent	○ WOVEN ○ FELTED	

DESCRIBE CLEANING PROCEDURES:

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

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles

PARTICLE SIZE DISTRIBUTION

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

METHOD FOR DETERMINING WHEN TO CLEAN:
◉ AUTOMATIC ○ TIMED ○ MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:
○ ALARM ◉ INTERNAL INSPECTION ○ VISIBLE EMISSION ○ OTHER

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

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations 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

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

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

EMISSION SOURCE DESCRIPTION: **Pellet Mill Feed Silo**	EMISSION SOURCE ID NO: **ES-PMFS**
OPERATING SCENARIO 1 OF 1	CONTROL DEVICE ID NO(S): **CD-PMFS-BV**
	EMISSION POINT (STACK) ID NO(S): **EP-PMFS**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
A pellet press silo stores dried ground wood prior to transport to the pellet presses.

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

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

START CONSTRUCTION DA **TBD**	OPERATION DATE: **TBD**	DATE MANUFACTURED: **TBD**	
MANUFACTURER / MODEL N **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 OPERATI **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **< 20** % OPACITY		

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

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

EMISSION SOURCE DESCRIPTION: **Pellet Mill Feed Silo**	EMISSION SOURCE ID NO: **ES-PMFS**
	CONTROL DEVICE ID NO(S): **CD-PMFS-BV**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): **EP-PMFS**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

A pellet press silo stores dried ground wood prior to transport to the pellet presses.

MATERIAL STORED:				DENSITY OF MATERIAL (LB/FT3): **40**		
CAPACITY	CUBIC FEET **4778**			TONS: **95.6**		
DIMENSIONS (FEET)	HEIGHT:	DIAMETER:	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:			MAXIMUM DESIGN CAPACITY:		

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

NO. FILL TUBES:

MAXIMUM ACFM:

MATERIAL IS FILLED TO: **Ground wood handling conveyors on way to pellet press**

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

Gravity with wood to dropping to conveyor. Conveyor part of ES-GWH (controlled by dust collection system

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): **47.78**

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): **47.78**

COMMENTS:

Silo sized to provide 2 hours of hold up capacity in the event of dryer downtime (47.78 tph * 2 hours)

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

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

CONTROL DEVICE ID NO: CD-PMFS-BV	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-PMFS
EMISSION POINT (STACK) ID NO(S): EP-PMFS	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: Aircon Corp.	MODEL NO: BV25-10
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: TBD
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ◉ YES ○ NO

DESCRIBE CONTROL SYSTEM:

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

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

PRESSURE DROP (IN. H_20): MIN:	MAX: 4"	GAUGE? ◉ YES ○ NO	WARNING ALARM? ◉ YES ○ NO
BULK PARTICLE DENSITY (LB/FT^3): 1.43E-06		INLET TEMPERATURE (°F): Ambient	
POLLUTANT LOADING RATE: 0.01 ○ LB/HR ◉ GR/FT^3		OUTLET TEMPERATURE (°F): Ambient	
INLET AIR FLOW RATE (ACFM): 2,186		FILTER MAX OPERATING TEMP. (°F): N/A	
NO. OF COMPARTMENTS: TBD[1]	NO. OF BAGS PER COMPARTMENT: TBD[1]	LENGTH OF BAG (IN.): TBD[1]	
DIAMETER OF BAG (IN.):	DRAFT: ○ INDUCED/NEG. ◉ FORCED/POS	FILTER SURFACE AREA (FT^2): 377	
AIR TO CLOTH RATIO: 5.8	FILTER MATERIAL: Polyester or equivalent	○ WOVEN ○ FELTED	

DESCRIBE CLEANING PROCEDURES:

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

DESCRIBE INCOMING AIR STREAM:

The air stream will contain wood dust particles

PARTICLE SIZE DISTRIBUTION

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

METHOD FOR DETERMINING WHEN TO CLEAN:

◉ AUTOMATIC ○ TIMED ○ MANUAL

METHOD FOR DETERMINING WHEN TO REPLACE THE BAGS:

○ ALARM ◉ INTERNAL INSPECTION ○ VISIBLE EMISSION ○ OTHER

SPECIAL CONDITIONS: None

○ MOISTURE BLINDING ○ CHEMICAL RESISTIVITY ○ OTHER

EXPLAIN:

DESCRIBE MAINTENANCE PROCEDURES: Per manufacturer recommendations 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

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

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

EMISSION SOURCE DESCRIPTION: **Four Pellet Coolers**	EMISSION SOURCE ID NO **ES-CLR1, 2, 3 & 4**
	CONTROL DEVICE ID NO(**CD-CLR-C1 and CD-CLR-2**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-CLR-1, EP-CLR-2**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Four pellet coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. ES-CLR1 and ES-CLR2 exhaust to CD-CLR-1 and ES-CLR3 and ES-CLR4 exhaust to CD-CLR2.

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

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

START CONSTRUCTION DA **TBD**	OPERATION DATE: TBD	DATE MANUFACTURED: TBD
MANUFACTURER / MODEL NO.: **TBD**[1]	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 OPERATI **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **< 20** % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

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

FORM B9

EMISSION SOURCE (OTHER)

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

EMISSION SOURCE DESCRIPTION: **Four Pellet Coolers**	EMISSION SOURCE ID NO: **ES-CLR1, 2, 3 & 4**
	CONTROL DEVICE ID NO(S): **CD-CLR-C1 and CD-CLR-2**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-CLR-1, EP-CLR-2**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Four pellet coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. ES-CLR1 and ES-CLR2 exhaust to CD-CLR-1 and ES-CLR3 and ES-CLR4 exhaust to CD-CLR2.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Wood Pellets	**Tons**	**47.78**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

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

CONTROL DEVICE ID NO: **CD-CLR-C1 and CD-CLR-2**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID **ES-CLR1, 2, 3 & 4**
EMISSION POINT (STACK) ID NO(S): **EP-CLR-1, EP-CLR-2**	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: **TBD**[1]	MODEL NO:
DATE MANUFACTURED: **TBD**	PROPOSED OPERATION DATE: **TBD**
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: **TBD**
1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ○ YES ○ NO

DESCRIBE CONTROL SYSTEM :

Two identical dual high efficiency cyclones are equipped to the pellet coolers to capture bulk PM emissions. ES-CLR1 and ES-CLR2 exhaust to CD-CLR-1 and ES-CLR3 and ES-CLR4 exhaust to CD-CLR2. The parameters presented here are per each dual high efficiency cyclone.

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

PRESSURE DROP (IN. H_2O): MIN	MAX **6.0"**	WARNING ALARM? ○ YES ● NO	
INLET TEMPERATURE (°F): MIN	MAX **Ambient**	OUTLET TEMPERATURE (°F): MIN	MAX **Ambient**
INLET AIR FLOW RATE (ACFM):	**27,500**	BULK PARTICLE DENSITY (LB/FT^3):	**3E-06**
POLLUTANT LOADING RATE (GR/FT^3):	**0.022**		

SETTLING CHAMBER	CYCLONE			MULTICYCLONE
LENGTH (INCHES):	INLET VELOCITY (FT/SEC):		○ CIRCULAR ○ RECTANGLE	NO. TUBES: **2**
WIDTH (INCHES):	*DIMENSIONS (INCHES) See instructions*		*IF WET SPRAY UTILIZED*	DIAMETER OF TUBES: **43"**
HEIGHT (INCHES):	H:	Dd:	LIQUID USED:	HOPPER ASPIRATION SYSTEM?
VELOCITY (FT/SEC.):	W:	Lb:	FLOW RATE (GPM):	○ YES ● NO
NO. TRAYS:	De:	Lc:	MAKE UP RATE (GPM):	LOUVERS?
NO. BAFFLES:	D:	S:		○ YES ● NO
	TYPE OF CYCLONE:	○ CONVENTIONAL	● HIGH EFFICIENCY	○ OTHER

DESCRIBE MAINTENANCE PROCEDURES:

Periodic inspection of mechanical integrity during plant outages as specified by manufacturer or common industry practices

DESCRIBE INCOMING AIR STREAM:

Fine particulate emissions from cooling pellets

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC:

None

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

Attach Additional Sheets As Necessary

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

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

EMISSION SOURCE DESCRIPTION: **Pellet Cooler #5**	EMISSION SOURCE ID NO **ES-CLR-5**
	CONTROL DEVICE ID NO(S): **CD-CLR-C3**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-CLR3**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Fifth pellet cooler follows the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. Cooler exhausts to a dedicated high efficiency cyclone.

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

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

START CONSTRUCTION DA **TBD**	OPERATION DATE: TBD	DATE MANUFACTURED: TBD
MANUFACTURER / MODEL NO.: **TBD**[1]	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 OPERATI **8,760**	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: **< 20** % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

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

FORM B9

EMISSION SOURCE (OTHER)

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

EMISSION SOURCE DESCRIPTION: **Pellet Cooler #5**	EMISSION SOURCE ID NO: **ES-CLR5**
	CONTROL DEVICE ID NO(S) **CD-CLR-5**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-CLR-3**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Fifth pellet cooler follows the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. Cooler exhausts to a dedicated high efficiency cyclone.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Wood Pellets	**Tons**	**16.65**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

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

CONTROL DEVICE ID NO: CD-CLR-C3	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID IES-CLR5
EMISSION POINT (STACK) ID NO(S): EP-CLR-3	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
MANUFACTURER: TBD[1]	MODEL NO:
DATE MANUFACTURED: TBD	PROPOSED OPERATION DATE: TBD
OPERATING SCENARIO:	PROPOSED START CONSTRUCTION DATE: TBD
___1___ OF ___1___	P.E. SEAL REQUIRED (PER 2Q .0112)? ○ YES ○ NO

DESCRIBE CONTROL SYSTEM :

Two identical dual high efficiency cyclones are equipped to the pellet coolers to capture bulk PM emissions. ES-CLR1 and ES-CLR2 exhaust to CD-CLR-1 and ES-CLR3 and ES-CLR4 exhaust to CD-CLR2. The parameters presented here are per each dual high efficiency cyclone.

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

PRESSURE DROP (IN. H_2O): MIN	MAX 6.0"	WARNING ALARM? ○ YES ○ NO	
INLET TEMPERATURE (°F): MIN	MAX Ambient	OUTLET TEMPERATURE (°F): MIN	MAX Ambient
INLET AIR FLOW RATE (ACFM):	13,750	BULK PARTICLE DENSITY (LB/FT^3):	3E-06
POLLUTANT LOADING RATE (GR/FT^3):	0.022		

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

DESCRIBE MAINTENANCE PROCEDURES:

Periodic inspection of mechanical integrity during plant outages as specified by manufacturer or common industry practices

DESCRIBE INCOMING AIR STREAM:

Fine particulate emissions from cooling pellets

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE ANY MONITORING DEVICES, GAUGES, TEST PORTS, ETC:

None

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

Attach Additional Sheets As Necessary

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

ATTACHMENT 5

REDLINE COPY OF THE EXISTING PERMIT

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

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

~~December 7, 2010~~[New Date]

Mr. Glenn Gray
Plant Manager
Enviva Pellets, LP
1309 East Cary Street, Suite 200
Richmond, Virginia 23219

Dear Mr. Gray:

SUBJECT: Air Quality Permit No. 10121R0~~0~~1
Facility ID: 4600107
Enviva Pellets, Ahoskie, LP
Ahoskie
Hertford 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 ~~October 1, 2010~~[new date], we are forwarding herewith Air Quality Permit No. 10121R0~~0~~1 to Enviva Pellets, LLC, 142 N.C. Rt 561 East, Ahoskie, 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-DWDS; ES-CHM-1, 2, 3, and 4~~,~~; ES-~~GWH-1 and 2~~HAF~~,~~; ES-PM~~F~~PS~~,~~; ES-CLR-1, 2, 3, ~~and~~ 4, and 5; ES-EG, and ES-FWP) 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

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

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

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

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

This Air Quality Permit shall be effective from ~~December 7, 2010~~[new date] until November 30, 2015, 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) 715-6255 (kevin.godwin@ncdenr.gov).

Sincerely yours,

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

Enclosure

c: Robert Fisher, Supervisor, Washington Regional Office
Central Files

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

Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
10121R0~~0~~1	~~N/A~~10121R00	~~December 7, 2010~~New Date	November 30, 2015

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

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

Permittee:	**Enviva Pellets, LLC**
Facility ID:	**4600107**
Facility Site Location:	**142 N.C. Rt 561 East**
City, County, State, Zip:	**Ahoskie, Hertford County, North Carolina, 27910**
Mailing Address:	**1309 East Cary Street, Suite 200**
City, State, Zip:	**Richmond, Virginia, 23219**
Application Number:	**4600107.10A**
Complete Application Date:	**October 1, 2010**
Primary SIC Code:	**2499**
Division of Air Quality, Regional Office Address:	**Washington Regional Office 943 Washington Square Mall Washington, North Carolina, 27889**

Permit issued this the ~~7th day of December, 2010~~New date

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

ATTACHMENT to Permit No. 10121R00

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

Emission Source ID No.	Emission Source Description
IES-DWH	Dried wood handling
IES-PP	Pellet press system
IES-FPH	Finished product handling
IST-1 and IST-2	Two diesel storage tanks (2,500 gallon and 500 gallon capacity)
ES-CHP	Electric powered green wood chipper
IES-GWHS	Green wood handling and storage
IES-GWFB	Green wood fuel storage bin

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/~~

Comment [J1]: Please delete. This comment is superfluous and could be confusing to site personnel.

Table Of Contents

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

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

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-DRYER	Direct heat, wood-fired dryer (125 million Btu per hour heat input)	CD-DC and CD-WESP	One simple cyclone (204 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)
ES-DWDS	Dried wood day silo	CD-DWDW-BV	Bin vent filter (377 square feet of filter area)
ES-CHM-1, 2, 3, and 4	Four coarse hammermills	CD-CHM-C1, C2, C3 and C4 and CD-CHM-FF1 and FF2~~BV1, BV2, BV3, and BV4~~	~~Four bin vent filters (1,560 square feet of filter area each),~~ Four cyclones (57 inches in tube diameter) in series with two fabric filters (6,667 square feet of surface area each)
ES-HAF~~GWH-1 and 2~~	~~Ground wood handling~~Hammermill Area and Hammermill No. 5	CD-HAF-FF~~GWH-BF1 and BF2~~	One fabric filter ~~Two bin vent filters~~ (5,417 square feet of filter area ~~each~~)
ES-PMFPS	Pellet press silo	CD-PMFPS-BV	One bin vent filter (3772,500 square feet of filter area)
ES-CLR1, 2, 3, and 4	Four pellet coolers	CD-CLR-C1 ~~and~~, C2~~, C3, and C4~~	~~Two Four~~ multicyclones (two, 43 inch diameter tubes each)
ES-CLR-5	Pellet Cooler No. 5	CD-CLR-5	One simple cyclone (XX in tube diameter)
ES-EG and ES-FWP **NSPS MACT**	One emergency use generator (350 brake horsepower) and one fire water pump (300 brake horsepower)	N/A	N/A

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CS 20, 21, 22, 23 LINKED

CS24 LINKED

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CS 15 + 16 LINKED

CS 25 LINKED

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), dried wood day silo (ID Nos ES-DWDS), four coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4), Hammermill Area and Hammermill No. 5 (ID No. ES-HAF), ~~ground wood handling (ID No. ES-GWH-1 and 2)~~, pellet mill feed~~press~~ silo (ID No. ES-PMF~~PS~~), and ~~four~~five pellet coolers (ID Nos. ES-CLR1, 2, 3, ~~and 4~~, and 5)

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

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

1. **15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES**
   a. Emissions of particulate matter from this source shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 02D .0515(a)]

      $E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph

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

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

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

      Testing [15A NCAC 02D .2601]

   b. If emissions testing is required, the testing shall be performed in accordance with General Condition JJ. If the results of this test are above the limit given in Section 2.1 A. 1. a. above, the Permittee

shall be deemed in noncompliance with 15A NCAC 02D .0515.

Monitoring/Recordkeeping [15A NCAC 02Q .0508(f)]

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 dried wood day silo (ID No. ES-DWDS) shall be controlled by one bin vent filter (**ID No. CD-DWDS-BV**). Particulate matter emissions from the four coarse hammermills (**ID Nos. ES-CHM1, 2, 3, and 4**) shall be controlled by four simple cyclones (ID Nos. **CD-CHM-C1, 2, 3 and 4**) in series with two fabric ~~bin vent~~ filters (**ID Nos. CD-CHM-FF1 and 2~~BV1, 2, 3, and 4~~**). Particulate matter emissions from the Hammermill Area and Hammermill No. 5~~ground wood handling system~~ (**ID No. ES-HAF~~GWH-1 and 2~~**) shall be controlled by one fabric ~~two bin vent~~ filters (**ID No. CD-HAF-FF~~GWH-BV1 and 2~~**). Particulate matter emissions from the pellet mill feed~~press~~ silo (**ID No. ES-PMF~~PS~~**) shall be controlled by a bin vent filter (**ID No. CD-PMF~~PS~~-BV**). Particulate matter emissions from the four pellet coolers (**ID Nos. ES-CLR-1, 2, 3, and 4**) shall be controlled by two~~four~~ multicyclones (**ID Nos. CD-CLR-C1 and~~, 2, 3, and 4~~**). Particulate matter emissions from Pellet Cooler No. 5 (**ID No. ES-CLR-5**) shall be controlled by a simple cyclone (**ID No. CD-CLR-5**). 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.

   The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0515 if the ductwork and control devices are not inspected and maintained.

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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.

   The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0515 if these records are not maintained.

Reporting [15A NCAC 02Q .0508(f)]

e. The Permittee shall submit the results of any maintenance performed on the 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 [15A NCAC 02D .2601]

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601 and General Condition JJ found in Section 3. If the results of this test are above the limit given

in Section 2.1 A.2.a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0516.

Monitoring/Recordkeeping [15A NCAC 02Q .0508(f) and 15A NCAC 02D .2601]

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 [15A NCAC 02D .2601]

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601 and General Condition JJ. If the results of this test are above the limit given in Section 2.1 A. 3. a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0521.

Monitoring [15A NCAC 02Q .0508(f)]

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.

   If the above-normal emissions are not corrected per (i) above or if the demonstration in (ii) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 02D .0521.

Recordkeeping [15A NCAC 02Q .0508(f)]

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.

   The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0521 if these records are not maintained.

B. Emergency Generator (ID No. ES-EG) and Fire Water Pump (ID No. ES-FWP)

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

Regulated Pollutant	Limits/Standards	Applicable Regulation

Regulated Pollutant	Limits/Standards	Applicable Regulation
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
Visible emissions	20 percent opacity	15A NCAC 2D .0521
Toxic air pollutants	**State-enforceable only** See Section 2.2 A.1.	15A NCAC 2D .1100
Hazardous air pollutants (HAP)	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) No additional requirements per 63.6590(c)	15A NCAC 2D .1111 (40 CFR 63, Subpart ZZZZ)
NMHC and NOx, CO, PM	0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW for NOx + NMHC	15A NCAC 2D .0524 (40 CFR 60, Subpart IIII)

1. **15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES**
   a. Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard. [15A NCAC 2D .0516]

   Testing [15A NCAC 2D .0501(c)(4)]
   b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(4) and General Condition JJ. If the results of this test are above the limit given in Section 2.1 F.1.a above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0516.

   Monitoring/Recordkeeping/Reporting [15A NCAC 2Q .0508(f)]
   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 [15A NCAC 2D .0501(c)(8)]
   b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(8) and General Condition JJ. If the results of this test are above the limit given in Section 2.1 F.2.a above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521.

   Monitoring [15A NCAC 2Q .0508(f)]
   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 Abnormal for the sources in the first 30 days following operation. If visible emissions from theise 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.

If the above-normal emissions are not corrected per (i) above or if the demonstration in (ii) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 02D .0521.

Recordkeeping [15A NCAC 2Q .0508(f)]

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.

   The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521 if these records are not maintained.

3. 15A NCAC 2D .0524 NEW SOURCE PERFORMANCE STANDARDS [40 CFR Subpart IIII]

a. The provisions of this subpart are applicable to manufacturer, owners, and operators of stationary compression ignition (CI), reciprocating internal combustion engines (RICE). The Permittee shall comply with all applicable provisions, including the requirements for emission standards, notification, testing, reporting, recordkeeping, and monitoring, contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards (NSPS)" as promulgated in 40 CFR Part 60 Subpart IIII, including Subpart A "General Provisions."

Emission Standards for Manufacturers:

Emergency Engines

b. Pursuant to 40 CFR §60.4202 (a), stationary RICE engine manufacturers must certify their 2007 model year and later emergency stationary RICE. For engines greater than or equal to 50 hp, the certification emission standards for new non-road CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

Fire Pump Engines

c. Pursuant to 40 CFR §60.4202(d), beginning with the model years in table 3 to this subpart, stationary RICE manufacturers must certify their fire pump RICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

d. Pursuant to 40 CFR §60.4210, RICE manufacturers must certify the engine using the certification procedures required in 40 CFR Part 89, subpart b, or 40 CFR Part 1039, subpart c as applicable.

e. Pursuant to 40 CFR §60.4203, RICE must meet the emission standards during the useful life of the engine.

Emission Standards for Owners and Operators:

Emergency and Fire Pump Engines

f. Pursuant to 40 CFR §60.4205, owners and operators must comply with the following emission standards:

0.20 g/kW for PM

3.5 g/kW for CO
4 g/kW for NOx + NMHC

g. Pursuant to 40 CFR §60.4206, owners and operators must operate and maintain the stationary RICE according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Fuel Requirements for Owners and Operators

h. Pursuant to 40 CFR §60.4207, owners and operators must use fuel with a maximum sulfur content of 15 ppmw and a cetane index of at least 40.

i. Pursuant to 40 CFR §60.4209(a), the owner or operator must install a non-resettable hour meter prior to start-up of the engines.

4. 15A NCAC 2D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR 63 Subpart ZZZZ)

a. Pursuant to §63.6580, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

b. Pursuant to §63.6590(c), a new stationary RICE located at an area source must meet the requirements of 40 CFR Part 60, Subpart IIII, for compression ignition engines. No further requirements apply for such engines under this part.

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

A. Facility-wide sources

STATE-ONLY REQUIREMENT:

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

EMISSION SOURCE(S)	TOXIC AIR POLLUTANT(S)	EMISSION LIMIT(S)
Dryer system (**ID No. ES-DRYER**)	Acrolein	0.989 lb/hr
	Arsenic & compounds	~~1.095~~2.674 lb/year
	Benzene	2864.52 lb/year
	Benzo(a)pyrene	2.9 lb/year
	Cadmium	0.50 lb/year
	Chlorine	2.37 lb/day
	Formaldehyde	6.02 lb/hr
	Hexachlorodibenzo-p-dioxin	1.752 lb/year
	Hydrogen chloride	0.24 lb/hr
	Phenol	1.204 lb/hr

Fire Water Pump (**ID No. ES-FWP**)	Acrolein Arsenic & compounds Benzene Benzo(a)pyrene Formaldehyde	1.94E-04 lb/hr 1.50E-03 lb/year 17.52 lb/year 2.30E-04 lb/year 2.48E-03 lb/hr
Emergency generator (**ID No. ES-EG**)	Acrolein Arsenic & compounds Benzene Benzo(a)pyrene Formaldehyde	2.27E-04 lb/hr 1.80E-03 lb/year 17.52 lb/year 1.97E-04 lb/year 2.893E-03 lb/hr

a. For compliance purposes, within 30 days after each calendar year quarter the Permittee shall report acrolein, benzene, formaldehyde, and phenol emissions associated with each of the respective averaging periods to the Regional Supervisor, DAQ.

STATE-ONLY REQUIREMENT:

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

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
1,3 Butadiene (106-99-0)	11			
Acetaldehyde (75-07-0)				6.8
~~Benzo(a)pyrene (50-32-8)~~	~~2.2~~			
Beryllium (7440-41-7)	0.28			
Carbon tetrachloride (56-23-5)	460			
Chlorobenzene (108-90-7)		46		
Chloroform (67-66-3)	290			
Di(2-ethylhexyl)phthalate (DEHP) (117-81-7)		0.63		
Ethylene dichloride (1,2-dichloroethane) (107-06-2)	260			
~~Xylene (1330-20-7)~~		~~57~~		~~16.4~~
Manganese & cmpds		0.63		
Mercury, vapor (7439-97-6		0.013		
Methyl chloroform (1,1,1-trichloroethane) (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		78		
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Nickel metal (7440-02-0)		0.13		
Pentachlorophenol (87-		0.063	0.0064	

86-5)				
Perchloroethylene (tetrachloroethylene) (127-18-4)	13000			
Polychlorinated biphenyls (1336-36-3)	5.6			
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-p-dioxin (1746-01-6)	0.00020			
Toluene (108-88-3)		98		14.4
Trichloroethylene (79-01-6)	4000			
Trichlorofluoromethane (CFC 111) (75-69-4)			140	
Vinyl chloride (75-01-4)	26			
Xylene (1330-20-7)		57		16.4

SECTION 3 - GENERAL CONDITIONS

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

   Robert Fisher
   Regional Air Quality Supervisor
   North Carolina Division of Air Quality
   Washington Regional Office
   943 Washington Square Mall
   Washington, NC 27889
   (252) 946-6481

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 XXth day of , 2011.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

_____

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

ATTACHMENT

List of Acronyms

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

ATTACHMENT 3

LOCAL ZONING CONSISTENCY DETERMINATION

Trinity Consultants

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

October 24, 2011

Mr. Keith Truman
Inspections and Planning
201 West Main Street
Ahoskie, NC 27910

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

Dear Mr. Truman:

This letter is a request for a determination of whether a slight modification to the Enviva Ahoskie Pellets site 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.

As we discussed, all that is needed for our application to be deemed complete is a stamped copy of this cover letter with your agency's stamp, your signature and date. Please faxed the signed copy of this letter to me at (919) 462-9694. If the NC Division of Air Quality (NCDAQ) does not receive a signed copy of the attached zoning consistency form within 15 days, the NCDAQ will deemed the proposed construction consistent with local zoning ordinances. 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 Ahoskie, LLC
Facility Street Address	142 N.C. Rt. 561 East
Facility City	Ahoskie, NC
Description of Process	Plant will produce pelletized wood
SIC/NAICS Code	2499 (Wood Products, Not Elsewhere Classified)
Facility Contact	Glenn Gray
Phone Number	(757) 274-8377
Mailing Address	7200 Wisconsin Avenue, Suite 1100
Mailing City, State Zip	Bethesda, MD 20814

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 ordinances for this facility at this time
- ☐ The proposed operation IS consistent with applicable zoning ordinances
- ☐ The proposed operation IS NOT consistent with applicable zoning ordinances (please include a copy of the rules in the package sent to the air quality office)
- ☐ The determination is pending further information and can not be made at this time
- ☐ Other: _____

Agency	
Name of Designated Official	
Title of Designated Official	
Signature	
Date	

Please forward to the facility 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 Environmental Assistance Program
toll free at 1-877-623-6748 or on the web at www.envhelp.org/sb

ATTACHMENT 4

AIR DISPERSION MODELING

North Carolina Modeling Protocol Checklist

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

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

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

FACILITY INFORMATION	
Name: Enviva Pellets Ahoskie, LLC **Facility ID:** New Facility - TBD **Address:** 142 N.C. Rt 561 East Ahoskie N.C. 27910	**Consultant (if applicable):** Trinity Consultants One Copley Parkway Suite 310 Morrisville, NC 27560
Contact Name: Glenn Gray	**Contact Name:** Chris Aberg / Joe Sullivan
Phone Number: (804) 412-0227 **Email:** Glenn.Gray@intrinergy.com	**Phone Number:** (919) 462-9693 **Email:** caberg@trinityconsultants.com

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

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

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

REFINED LEVEL MODELING	
Model: The latest version of AERMOD should be used, and may be found at http://www.epa.gov/scram001/dispersion_prefrec.htm. The use of other refined models must be approved by NCDAQ prior to submitting the modeling report.	X
Source / Source emission parameters: Provide a table listing the sources modeled and the applicable source emission parameters. *See NC Form 3 - Appendix A.*	X
GEP Analysis: Use BPIP-Prime with AERMOD.	X
Cavity Impact Analysis: No separate cavity analysis is required when using AERMOD as long as receptors are placed in cavity susceptible areas. *See Section 4.2 and 5.2.*	N/A
Terrain: Use digital elevation data from the USGS NED database (http://seamless.usgs.gov/index.php). Use of other sources of terrain elevations or the non-regulatory Flat Terrain option will require prior approval from DAQ AQAB.	X
Receptors: The receptor grid should be of sufficient size and resolution to identify the maximum pollutant impact. *See Section 5.3.*	X
Meteorology: Indicate the AQAB, pre-processed, 5-year data set used in the modeling demonstration: *(See Section 5.5 and Appendix B)* AERMOD 1988-1992 Norfolk/Wallops Island 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).	X
Modeling Results: For each affected pollutant and averaging period, modeling results should be summarized and presented in tabular format indicating compliance status with the applicable AAL, SIL or NAAQS. *See NC Form R5 - Appendix A.*	X
Modeling Files: Submit input and output files for AERMOD. Also include BPIP-Prime files, AERMAP files, DEM files, and any AERMET input and output files, including raw meteorological data.	X

MODELING INPUTS

AERMOD ID	Stack Ht. (m)	Stack Temp. (K)	Stack Vel. (m/s)	Stack Diam. (m)
DRYER	27.43	350.37	8.22	3.05
FWPSTACK	9.14	727.59	24.24	0.20
EMERGEN	9.14	727.59	28.28	0.20

Pollutant	Dryer Emission Rate (g/s)	EG Emission Rate (g/s)	FWP Emission Rate (g/s)
Arsenic	3.846E-05	2.589E-08	2.158E-08
Benzo(a)pyrene	4.095E-05	5.804E-08	4.974E-08

Pollutant	Dryer Emission Rate (g/s)
Cadmium	7.168E-06
Chlorine	1.244E-02
Hexachlorodibenzo-p-dioxin	2.520E-05
Hydrogen Chloride	2.993E-02

NORMALIZED (1 G/S) MODELING RESULTS

Averaging Period	Modeled Concentrations ($\mu g/m^3$) 1992	MAX
1-Hour	14.852	14.852
24-Hour	5.737	5.737
Annual	0.429	0.429

FINAL MODELING RESULTS

Pollutant	Averaging Period	Max. Modeled Impact ($\mu g/m^3$)	Date/Time of Impact (YYMMDDHH)	Location of Maximum UTM-E (m)	Location of Maximum UTM-N (m)	AAL ($\mu g/m^3$)	% of AAL (%)
Acrolein	1-Hour	3.60	92121011	323,379.4	4,015,633.1	80	4.50%
Arsenic	Annual	2.00E-05	1992	323,300.0	4,015,300.0	2.30E-04	8.70%
Benzene	Annual	2.83E-02	1992	323,300.0	4,015,300.0	1.20E-01	23.54%
Benzo(a)pyrene	Annual	2.00E-05	1992	323,300.0	4,015,300.0	3.30E-02	0.06%
Cadmium[1]	Annual	3.08E-06	1992	323,300.0	4,015,300.0	5.50E-03	0.06%
Chlorine[1]	24-Hour	7.14E-02	92051624	323,300.0	4,015,300.0	37.5	0.19%
Formaldehyde	1-Hour	2.19E+01	92121011	323,379.4	4,015,633.1	150.0	14.61%
Hexachlorodibenzo-p-dioxin[1]	Annual	1.08E-05	1992	323,300.0	4,015,300.0	7.60E-05	14.24%
Hydrogen Chloride[1]	1-Hour	4.44E-01	92111223	323,681.6	4,015,802.4	700	0.06%
Phenol	1-Hour	4.38E+00	92121011	323,379.4	4,015,633.1	950	0.46%

[1] Max. Modeled Impact calculated by scaling the 1 g/s results by the TAP emission rate

Bagfilter Evaluation - Enviva, Ahoskie (ID No. CD-DWDS-BV)

↓ CD-PMFS-BV

User Input

User must supply information in blue (double outline).

Optional user information is single outlined.

Particulate Material: Wood

Estimated Efficiency (%): 99

Actual Air Flow Rate (acfm): 2,186

Cloth Area (sq ft): 377

Maximum Operating Temperature (F): 250

Proposed Cloth Material: Polyethylene

Pulse Jet?: yes

Uncontrolled Particulate Rate (lb/hr):

Process Rate (lb/hr):

Maximum Pressure Drop (in H2O): 4

No. of compartments: 1

Gas Stream Moisture (%): 23.00

Felted?: no

Time Between Cleanings (min): 0.17

Cleaning Time (min): ?

Particle Size Distribution

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

Information Source(s)

4600107.11A

Program Output

Filtering Velocity Analysis

Typical Filtering Velocity (fpm): 12.0

Applicant Filtering Velocity (fpm): 5.8

Typical filtering velocity not exceeded.

Fabric Durability Analysis

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

Particulate Emissions Analysis

Controlled Particulate Rate (lb/hr): 0.000

Gas Stream Particulate Loadings (gr/dscf)

Uncontrolled: 0.00

Controlled: 0.0000

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

The estimated collection efficiency is reasonable.

Allowable Emissions per 2D .0515 (lb/hr): 0.00

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

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

Efficiency Calculations

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

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

Bagfilter Evaluation - Enviva, Ahoskie (ID No. CD-HAF-FF)

User Input

User must supply information in blue (double outline).

Optional user information is single outlined.

Particulate Material: Wood

Estimated Efficiency (%): 99

Actual Air Flow Rate (acfm): 32,500

Cloth Area (sq ft): 5,417

Maximum Operating Temperature (F): 250

Proposed Cloth Material: Polyethylene

Pulse Jet?: yes

Uncontrolled Particulate Rate (lb/hr):

Process Rate (lb/hr):

Maximum Pressure Drop (in H2O): 8

No. of compartments: 1

Gas Stream Moisture (%): 23.00

Felted?: no

Time Between Cleanings (min): 0.17

Cleaning Time (min): ?

Particle Size Distribution

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

Information Source(s)

4600107.11A

Program Output

Filtering Velocity Analysis

Typical Filtering Velocity (fpm): 12.0

Applicant Filtering Velocity (fpm): 6.0

Typical filtering velocity not exceeded.

Fabric Durability Analysis

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

Particulate Emissions Analysis

Controlled Particulate Rate (lb/hr): 0.000

Gas Stream Particulate Loadings (gr/dscf)

Uncontrolled: 0.00

Controlled: 0.0000

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

The estimated collection efficiency is reasonable.

Allowable Emissions per 2D .0515 (lb/hr): 0.00

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

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

Efficiency Calculations

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

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

Bagfilter Evaluation - Enviva, Ahoskie (ID No. CD-CHM-FF1&FF2)

User Input

User must supply information in blue (double outline).

Optional user information is single outlined.

Particulate Material: Wood

Estimated Efficiency (%): 99

Actual Air Flow Rate (acfm): 40,000

Cloth Area (sq ft): 6,667

Maximum Operating Temperature (F): 250

Proposed Cloth Material: Polyethylene

Pulse Jet?: yes

Uncontrolled Particulate Rate (lb/hr):

Process Rate (lb/hr):

Maximum Pressure Drop (in H2O): 8

No. of compartments: 1

Gas Stream Moisture (%): 23.00

Felted?: no

Time Between Cleanings (min): 0.17

Cleaning Time (min): ?

Particle Size Distribution

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

Information Source(s): 4600107.11A

Program Output

Filtering Velocity Analysis

Typical Filtering Velocity (fpm): 12.0

Applicant Filtering Velocity (fpm): 6.0

Typical filtering velocity not exceeded.

Fabric Durability Analysis

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

Particulate Emissions Analysis

Controlled Particulate Rate (lb/hr): 0.000

Gas Stream Particulate Loadings (gr/dscf)

Uncontrolled: 0.00

Controlled: 0.0000

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

The estimated collection efficiency is reasonable.

Allowable Emissions per 2D .0515 (lb/hr): 0.00

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

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

Efficiency Calculations

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

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

Cyclone Design and Evaluation **Version 2.5.2**

by D. R. van der Vaart and William D. Willets

User must supply information in blue (double outline). Units must be as specified.

The user may wish to overwrite data that is solid outlined.

Calculated information appears in black.

Facility Name:	**Enviva, Ahoskie**
Cyclone ID:	**CD-CHM-C1, C2, C3, C4**

Cyclone Parameters

Diameter of exit (De)	4.8	ft	1.45	m
Diameter (D)	10.0	ft	3.05	m
# Body Height (Lb)	4.8	ft	1.46	m
# Cone Height (Lc)	15.9	ft	4.85	m
# Inlet Height (Dia.) (H)	4.0	ft	1.22	m
# Inlet Width (W)	0.75	ft	0.23	m
Inlet Type (C[irc.] or R[ect.])	R		R	
Exit throat length (S)	5.5	ft	1.68	m
Collected solids exit diameter (Dd)	2	ft	0.61	m
# Flow Rate (ACFM)	20,000	acfm	566.3	m3/min
Gas Temperature	80	F	299.7	K
Pressure	1	atm	101.3	kPa
# Particle Density	40	lb/ft3	642	kg/m3

Molecular Wt. of gas (default is air)	28.8	lb/lb-mol	28.8	g/mol	Properties of air:	
# Gas Density (default is air)	0.0732	lb/ft3	1.17	kg/m3	Density (lb/ft3)	0.0732
# Gas Viscosity (default is air)	0.0448	lb/hr-ft	1.85E-05	kg/m-s	Viscosity (cp)	0.0185
Estimated Pressure Drop	6.0	in H2O	1433	Pa		

Particle Size Distribution

Size Ranges (µm)	Size Range (µm)	Average Diameter (µm)	Density Function (%wt)	Cumulative Mass (% < size)
0 - 1	0.00	0.5	3	3
1 - 10	1.00	5.5	17	20
10 - 25	10.00	17.5	20	40
25 - 50	25.00	37.5	30	70
50 - 100	50.00	75.0	20	90
> 100	100.00	100.0	10	100

Performance Analyses

Facility:	Enviva, Ahoskie
Cyclone:	CD-CHM-C1, C2, C3, C4

Method of Lapple

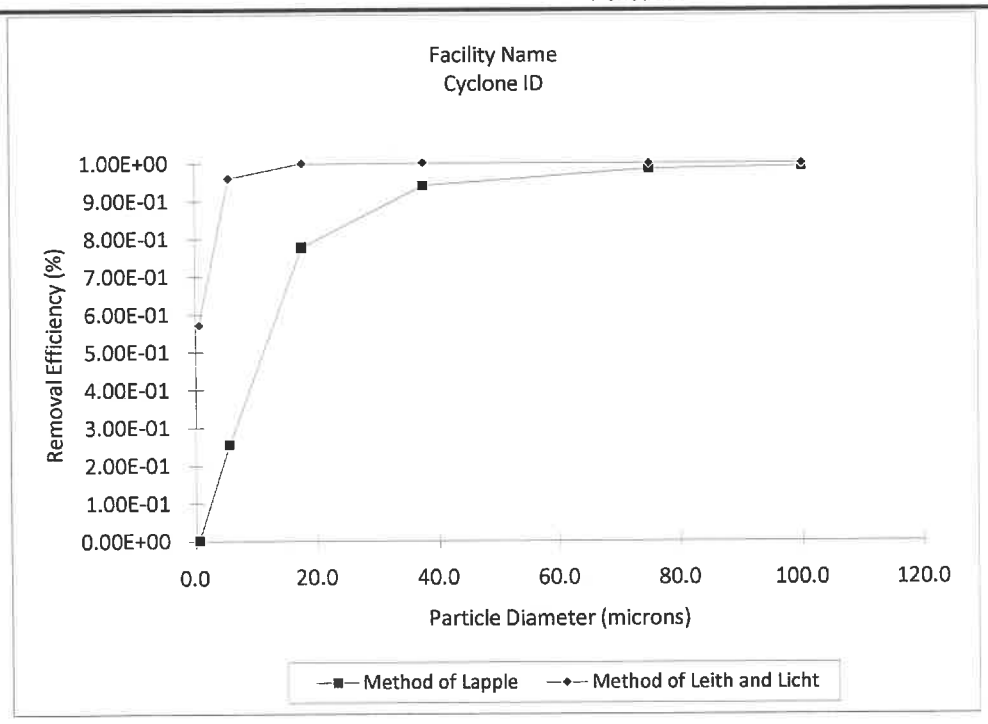
Inlet Area	3.00	ft2	0.28	m2	
Inlet Velocity	6667	ft/min	33.9	m/sec	111.1 fps
Effective Turns	3.2		3.2		
Particle Cut Diameter	9.4	µm	9.4	µm	

Size Ranges (µm)	Density Function (µm)	Mass in Fraction (%)	eta	etam
0 - 1	0.5	3	2.84E-03	0.009
1 - 10	5.5	17	2.57E-01	4.361
10 - 25	17.5	20	7.77E-01	15.55
25 - 50	37.5	30	9.41E-01	28.24
50 - 100	75.0	20	9.85E-01	19.69
> 100	100.0	10	9.91E-01	9.91
		Overall efficiency =		77.8 %
		Penetration =		22.24 %

Method of Leith-Licht

n=	0.78
l [=] natural length	10.72
This is Lc + Lb - S	4.63
Vs =	6.03
d =	-2.45
Kc =	0.31
C =	82.34

Size Ranges (µm)	Avg. Size (m)	Psi	Mass in Range (%)	eta	etam (%)	New Mass in Range (%)
0 - 1	5.00E-07	0.00057	3	0.5714	1.71	64.97
1 - 10	5.50E-06	0.06911	17	0.9616	16.35	32.97
10 - 25	1.75E-05	0.69963	20	0.9981	19.96	1.96
25 - 50	3.75E-05	3.21	30	0.9999	30.00	1.04E-01
50 - 100	7.50E-05	12.85	20	1.0000	20.00	7.19E-04
> 100	1.00E-04	22.85	10	1.0000	10.00	3.00E-05
			Overall efficiency =		98.02 %	
			Penetration =		1.98 %	



Zoning Consistency Determination

Facility Name	Enviva Pellets Ahoskie, LLC
Facility Street Address	142 N.C. Rt. 561 East
Facility City	Ahoskie, NC
Description of Process	Plant will produce pelletized wood
SIC/NAICS Code	2499 (Wood Products, Not Elsewhere Classified)
Facility Contact	Glenn Gray
Phone Number	(757) 274-8377
Mailing Address	7200 Wisconsin Avenue, Suite 1100
Mailing City, State Zip	Bethesda, MD 20814

Based on the information given above:

- [x] I have received a copy of the air permit application (draft or final) AND...
- [ ] There are no applicable zoning ordinances for this facility at this time
- [x] The proposed operation IS consistent with applicable zoning ordinances
- [ ] The proposed operation IS NOT consistent with applicable zoning 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	TOWN OF AHOSKIE
Name of Designated Official	KEITH TRUMAN 252-287-5632
Title of Designated Official	CHIEF CODE ENFORCEMENT OFFICER
Signature	Keith R. Truman
Date	10-25-11

Please forward to the facility 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 Environmental Assistance Program
toll free at 1-877-623-6748 or on the web at www.envhelp.org/sb

Division of Air Quality
November 10, 2011

MEMORANDUM

TO: Kevin Godwin, Permit Engineer, Raleigh Central Office
Permit Coordinator, Washington Regional Office

THROUGH: Jim Roller, Supervisor, Air Quality Analysis Branch

FROM: Jerry Freeman, Meteorologist II, Air Quality Analysis Branch

SUBJECT: Dispersion Modeling Review for Enviva Pellets, LLC
Ahoskie, Bertie County, Facility ID: 4600107

I reviewed the dispersion modeling, received in this office on October 26, 2011, for the Enviva Pellets facility in Ahoskie. The modeling was submitted to support permit modifications such as adding a hammermill/pellet cooler, adding equipment to allow the use of pre-dried wood chips, and revisions to some control devices. Six pollutants from three emission points were modeled with the rates and parameters shown in Attachment 1. All rates were modeled as occurring continuously (i.e. 24 hr/day and 8,760 hr/yr). Enviva's table of results include other pollutants that were not included in the modeling for this submission. The assumption of this review is that there are no changes for these pollutants from earlier approved modeling. I have included in Attachment 1, and the results table below, only the pollutants actually "modeled" in this submission. Attachment 2 is a map of the facility's modeled layout. The analysis demonstrated compliance on a source-by-source basis with the NC Acceptable Ambient Levels (AAL).

Enviva used AERMOD with one year of meteorology (1992 Norfolk) which was appropriate since final impacts were below 50% of the AAL. Two pollutants, arsenic and benzo(a)pyrene, were modeled with actual emission rates for the three sources. The remaining pollutants were only emitted from WESP, and thus impacts were calculated from a unity run with 1 g/s. Impacts occurred on the property lines and reached the values noted in the table below. This review assumes the accuracy of the emission information provided.

Pollutant / Eval Period	Modeled Impact (ug/m3)	AAL / NAAQS (ug/m3)	Percent Standard %
Arsenic / annual	2E-5	2.3E-4	9
Benzo(a)pyrene / annual	2E-5	3.3E-2	<1
Cadmium / annual	3.08E-6	5.5E-3	<1
Chlorine / 24hr *	7.14E-2	37.5	<1
Hexa-p-diox / annual	1.08E-5	7.6E-5	14
HCl / 1hr	4.44E-1	700	<1

** chlorine was not evaluated for a 1hr period, but at erate given it would be <1%*

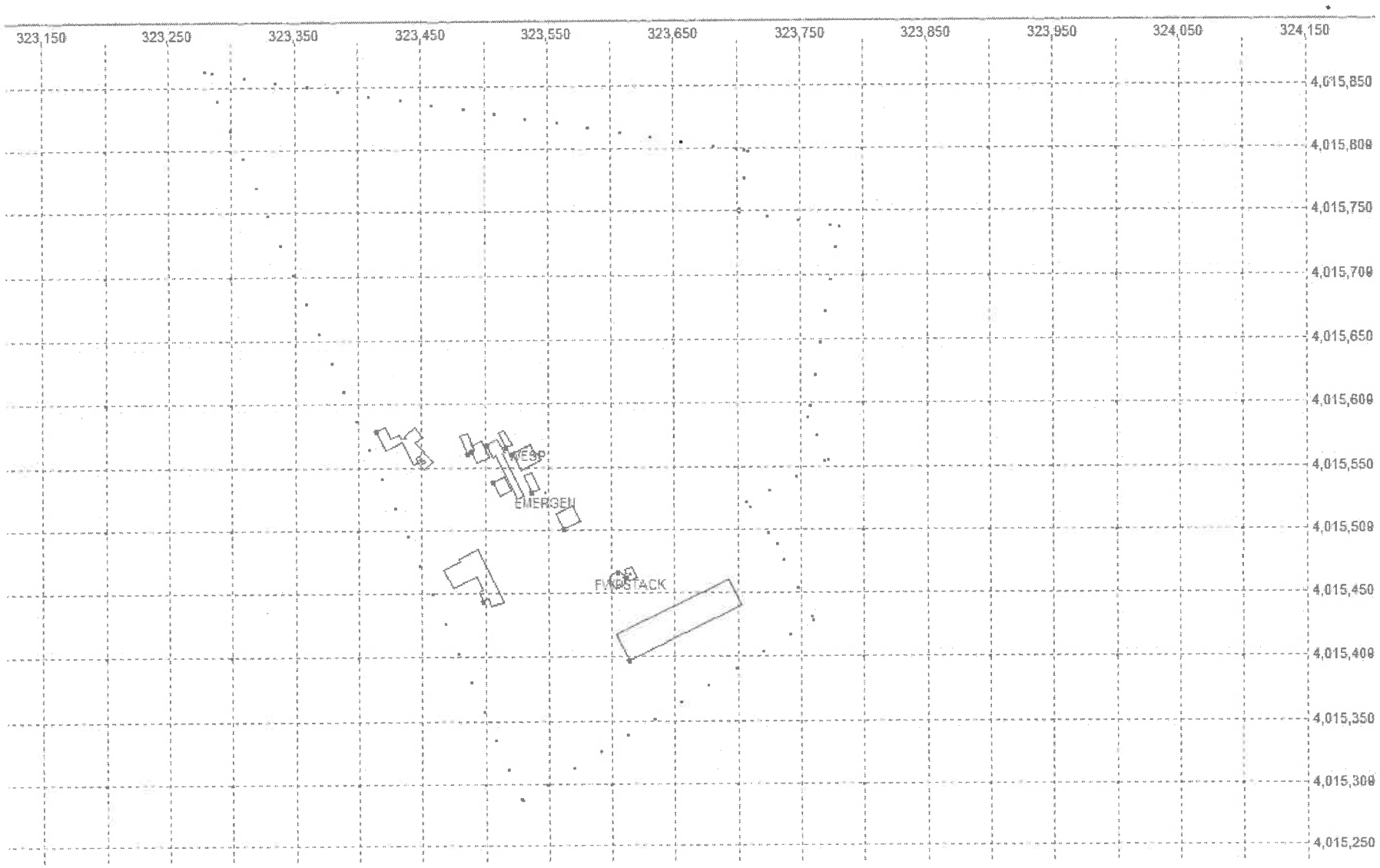
2 Atch: *1) Source parameters and emission rates (1 page)*
2) Modeled site layout (1 page)

cc: *Jim Roller, RCO*
Lori Cherry, RCO
Jerry Freeman, RCO

Source ID	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	ARSENIC (lb/hr)	BENZO(A) (lb/hr)	cadmium (lb/hr)	chlorine (lb/hr)	Hexa-p-dioxine (lb/hr)	HCl (lb/hr)
FWPSTACK	9.144	727.594	24.239	0.203	1.71E-07	3.95E-07	0	0	0	0
EMERGEN	9.144	727.594	28.279	0.203	2.05E-07	4.61E-07	0	0	0	0
WESP	27.432	350.372	8.221	3.048	3.05E-04	3.25E-04	5.69E-05	9.87E-02	2.00E-04	2.38

Attch 1

UTM grid in meters



Attch 2

NCDENR

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

Beverly Eaves Perdue
Governor

Sheila C. Holman
Director

Dee Freeman
Secretary

October 27, 2011

Mr. Glenn Gray
Plant Manager
Enviva Pellets Ahoskie, LLC
1309 east Cary Street, Suite 200
Richmond, VA 23219

SUBJECT: Receipt of Permit Application
Modification of Permit No. 10121R00
Application No. 4600107.11A
Enviva Pellets Ahoskie, LLC
Facility ID: 4600107, Ahoskie, Hertford County

Dear Mr. Gray:

Your air permit application (4600107.11A) for Enviva Pellets Ahoskie, LLC, located in Hertford County, North Carolina was received by this Division on October 25, 2011.

This application submittal **did** contain all the required elements as indicated and has been accepted for processing. Your application will be considered complete as of October 25, 2011, unless informed otherwise by this office within 60 days.

Should you have any questions concerning this matter, please contact Kevin Godwin at (919) 707-8480.

Sincerely,

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

cc: Washington Regional Office Files

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

Comprehensive Application Report for 4600107.11A 10/28/2011

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Application Events

Event	Start	Due	Complete	Comments	Staff
TV - Acknowledgment/Complete	10/25/2011	11/04/2011	10/25/2011		kmhash

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor

Enviva Pellets Ahoskie
7200 Wisconsin Ave
Suite 1100
Bethesda, MD 20814
USA

Wachovia Bank
1021 E Cary St
Richmond VA 23219

No. 0000000559

CHECK DATE
10/18/2011

PAY THIS AMOUNT
**********867.00

Details on Back.

Security Features Included

PAY Eight hundred sixty-seven and xx / 100 Dollars

TO THE ORDER OF
NCDENR
,
USA

AUTHORIZED SIGNATURE

⑈0000000559⑈ ⑆051400549⑆ 2000048297611⑈

VENDOR: NCDENR Enviva Pellets Ahoskie
REMIT TO: NCDENR

CHECK: 0000000559
COMMENT:

DATE: 10/18/2011

INVOICE	DATE	VOUCHER	COMMENT	AMOUNT	DISCOUNT	NET AMOUNT
OCT182011	10/18/2011	0000001187	EXPANSION PERMIT	867.00	0.00	867.00
			TOTALS:	867.00	0.00	867.00