Comprehensive Application Report for 4600107.12B Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Permit/Latest Revision: 10121/R01 General Information:

Modification Application type: Permit code:

Kevin Godwin/RCO Engineer/Rev. location:

Washington Regional Office Yongcheng Chen Regional Contact: Facility location:

Title V Facility classification:

Application is COMPLETE In progress Clock is ON Status is:

Contact Information

Clock Start 12/05/2012 Completeness Due 01/19/2013

12/05/2012 Received

Application Dates

Calculated Issue Due

03/05/2013

Add. Amt Rcv'd: Date Rcv'd:

Date received: Amount Due: Fee Information

Initial amount:

0.00 Deposit Slip #: 12/05/2012

Location rec'd:

Location deposited:

2333

Fund type: \$867.00

City State ZIP

Bethesda, MD 20814 Ahoskie, NC 27910 7200 Wisconsin Ave. Suite 1100

142 NC Route 561 East

Address

(252) 209-6032 (301) 357-5560 Telephone

Acceptance Criteria

Peter Najera, VP of Operations

Joseph Harrell, EHS Manager

Technical/Permit

Type

Authorized

Name

Acceptance Criteria Description Received?

Appropriate number of apps submitted Application fee Yes Yes

Source recycling/reduction form Zoning Addressed

> N/A Yes

Yes

Authorized signature PE Seal Application contains toxic modification(s)

N/A

Yes

Completeness Criteria

Complete Item Description Received?

Comprehensive Application Report for 4600107.12B Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Application Events

Event

TV - Acknowledgment/Complete

12/05/2012 12/15/2012 12/05/2012 Complete Due

Start

Comments

Staff

kmhash

Regulations Pertaining to this Permit

Particulates Miscellaneous Industrial Processes Regulation Description .0515 Reference Rule 2D

.0516

2D 2D

Sulfur Dioxide Emissions Combustion Sources .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 <u>did</u> 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,_

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

Chief, Permits Section

cc: Washington Regional Office Files



11/14/2012

Comprehensive Application Report for 4600107.12A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

				100		
General Information:	Permit/Latest Revision: 10121/ R01		Applie	Application Dates	2/ 0	
Permit code:	TV-1st Time	Received	Completeness Due	Clock Start	Calculated Issue Due	
Application type:	Modification	11/13/2012	01/12/2013	11/13/2012		
Engineer/Rev. location:	Kevin Godwin/RCO		Fee Information	mation		
Regional Contact:	Yongcheng Chen	Initial amount:	Date received: Amount Due:		Add. Amt Rcv'd: Date Rcv'd:	
Facility location:	Washington Regional Office	\$867.00	11/13/2012	0.00		
Facility classification:	Title V	Fund type:	Deposit Slip #:	Location rec'd:	Location deposited:	
Clock is ON	Application is COMPLETE	2333				
Status is:	In progress					

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

Acceptance Criteria Received? Accepta N/A Applica Yes Approp N/A Zoning N/A Source Yes Authori N/A PE Seal N/A Applica		Acceptance Criteria Description	Application fee	Appropriate number of apps submitted	Zoning Addressed	Source recycling/reduction form	Authorized signature		Application contains toxic modification(s)
Accep Received N/A Yes N/A N/A N/A Yes N/A Yes N/A N/A	tance Criteria	7	Applica	Approp	Zoning	Source	Authori	PE Seal	Applica
	Accep	Received	N/A	Yes	N/A	N/A	Yes	N/A	N/A

Complete Item Description Completeness Criteria Received?

Comprehensive Application Report for 4600107.12A

11/14/2012

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Application Events

Event

TV - Acknowledgment/Complete

11/13/2012 11/23/2012 11/14/2012 Complete Due

Comments

kmhash Staff

Regulations Pertaining to this Permit

Particulates Miscellaneous Industrial Processes Regulation Description .0515 Reference Rule 2D

Sulfur Dioxide Emissions Combustion Sources

.0516 .0521

2D 2D

Control of Visible Emissions

Audit Information Pertaining to this Application

Old Value Column Name Date Changed

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

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 <u>did</u> 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



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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	Volumetric Flow Rates	1, 2, & 4
	CD-WESP	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 of David.B.Hughes@ncdenr.gov or (919) 707-8411.

David B. Hughes Environmental Engineer

Cc:

Mark Looney, Environmental Source Samplers, Inc.

Robert Fisher - Washington Regional Office

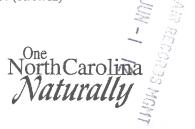
Central Files - Hertford County

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

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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-PWFS, 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

North Carolina *Naturally*

Mr. Norb Hintz January 3, 2012 Page 2

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, SO₂ 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: City, State, Zip:

7200 Wisconsin Avenue Bethesda, Maryland, 20814

Application Number:

Primary SIC Code:

4600107.11A

Complete Application Date:

October 25, 2011

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

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

SECTION 2:

SPECIFIC LIMITATIONS AND CONDITIONS

2.1- Emission Source(s) Specific Limitations and Conditions

(Including specific requirements, testing, monitoring, recordkeeping, and

reporting requirements)

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

(Including specific requirements, testing, monitoring, recordkeeping, and

reporting requirements)

SECTION 3:

GENERAL PERMIT CONDITIONS

ATTACHMENT

List of Acronyms

Permit No. 10121R01

Page 3

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	15A NCAC 02D .0515
	Where, E = allowable emission rate (lb/hr) P = process weight rate (tph)	1
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. <u>Testing</u> [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 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

Page 6.

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	Limits/Standards	Applicable Regulation
Pollutant		
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	State-enforceable only	15A NCAC 2D .1100
pollutants	See Section 2.2 A.1.	
Hazardous air	National Emission Standards for Hazardous Air	15A NCAC 2D .1111
pollutants (HAP)	Pollutants for Stationary Reciprocating Internal	(40 CFR 63, Subpart
,	Combustion Engines (RICE)	ZZZZ)
	No additional requirements per 63.6590(c)	
NMHC and NOx,	0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW	15A NCAC 2D .0524
CO, PM	for NOx + NMHC	(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.

Permit No. 10121R01 Page 8

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-	Acrolein	0.989 lb/hr
DRYER)	Arsenic & compounds	2.674 lb/year
	Benzene	2864.52 lb/year
	Benzo(a)pyrene	2.9 lb/yr
	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-	Acrolein	1.94E-04 lb/hr
FWP)	Arsenic & compounds	1.50E-03 lb/year
	Benzene	17.52 lb/year
	Benzo(a)pyrene	2.30E-04 lb/year
	Formaldehyde	2.48E-03 lb/hr
Emergency generator (ID No.	Acrolein	2.27E-04 lb/hr
ES-EG)	Arsenic & compounds	1.80E-03 lb/year
	Benzene	17.52 lb/year
	Benzo(a)pyrene	1.97E-04 lb/year
	Formaldehyde	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 (lb/day)	Toxicants	Acute Toxicants	Systemic (lb/hr)	Acute Irritants (lb/hr)
1,3 Butadiene (106-99-0)	11	(10/day)		TOXICALIC	s (IU/III)	(10/111)
Acetaldehyde (75-07-0)	1, 1-1					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		4			
Managanese & cmpds		0.63				
Mercury, vapor (7439-97-		0.013				

Page 10

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)	2		140	
Vinyl chloride (75-01-4)	26			
Xylene (1330-20-7)		57		16.4

SECTION 3 - GENERAL CONDITIONS

1. <u>REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL</u> 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. <u>PERMIT RENEWAL REQUIREMENT</u> - 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. <u>ANNUAL FEE PAYMENT</u> 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. <u>ANNUAL EMISSION INVENTORY REQUIREMENTS</u> 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. <u>EQUIPMENT RELOCATION</u> 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. <u>REPORTING REQUIREMENT</u> 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.

Permit No. 10121R01 Page 12

- 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. <u>PERMIT RETENTION REQUIREMENT</u> 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. <u>CLEAN AIR ACT SECTION 112(r) REQUIREMENTS</u> 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

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

PM₁₀ 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

SO₂ 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

Permit Applicability (this application only)

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

SIP: 02D .0515, .0521

NSPS: **NESHAP:** PSD:

PSD Avoidance:

NC Toxics: modeled TAPs and new TAPs under

02Q .0711 levels

112(r): Other:

Fee Classification: Before: Title V After: Title V

Contact Data

Authorized Contact

Norb Hintz Glenn Gray Vice President, Plant Manager Engineering (301) 657-5567

7200 Wisconsin Avenue

Suite 1100 Bethesda, MD 20814

Facility Contact

(301) 657-5567 7200 Wisconsin Ave. **Suite 1100**

Bethesda, MD 20814

Technical Contact

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:

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;

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

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:

$$\begin{split} E &= 4.10 \text{ x P}^{0.67} & \text{for P} < 30 \text{ tph} \\ E &= 55 \text{ x P}^{0.11} - 40 & \text{for P} \ge 30 \text{ tph} \end{split}$$

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. <u>15A NCAC 02D .0521 "Control of Visible Emissions"</u> – 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.

emissions. Source	ID No.	CO	NOx	TSP	PM-10	PM-2.5	SO ₂	VOC
Description	25 1101	(tpy)	(tpy	(tpy)	(tpy)	(tpy	(tpy)	(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	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	TK1 and TK2	0	0	0	0	0	0	3.79E-03
Total Project Emissi	ions	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. CO₂e 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, SO₂ 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.

	CENTR	AL OFFICE PERMIT TRAC	KING SLIP	
Phylia	Pellets Ahoskie		Facility/Application ID:	4600107.11A
acility Name:County/Regional Office:	Pellets Ahoskie Hertford/WARD		Engineer:	VIN Gadwin
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end Regional Office Copy of	Application: XYes □ N	10		
	PART	I - ACCEPTANCE CHECK	LIST	
Acknowledgement Letter:	□ Already Sent	A Please Send		
Initial Event(s):	□ TV-Ack./Complete	✓ State Ack. Letter due		
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Fee Informati	ion		Acceptance Check Li	st:
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	PART II - IBEAM UPDAT	res	PART III - CO	MPLETENESS CHECKLIST
Application Type:	Permit Ap ☐ Appeal	pplication Schedule:	nent Required Applica	tion Forms Submitted and Completed
☐ Additional Permit ☐ Administrative Amendment		&State	☐ Supporting Mater	ials & Calculations Received
□ Appeal	□PSD		☐ PE Seal (If 15A N	
☐ Greenfield Facility			☐ Modeling Protoco	
☐ Last GACT/Toxics	☐ TV — State Only	□ TV - 502(b)(10)	☐ E5 Form (Signific	
☐ Last MACT/Toxics ☑ Modification	☐ TV — State Only	□ TV – Minor		
□ Name Change	☐ TV — Greenfield	□ TV - Renewal		
□ New Permit	☐ TV - Reopen for Cause	☐ TV — Significant (2Q .0501(c)(2))	
☐ Ownership Change	☐ TV — Administrative ☐ TV — Ownership Change	☐ TV - Significant ☐ TV 1 st Time		
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1 1 11.	DADTV	- SUPERVISOR REVIEW C	HECKLIST	
TVEE Updated (by Engineer):	KT 11-21-11 TVEE Ve	rified: 3 11 21 2011 Sup	pervisor:	Chief
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Danul	PART VI - CLUSE ations Applicable to This Apr	OUT INFORMATION blication (indicate all new regu	lations):	Permit Class Information
□ NESHAPS/MACT	□ PSD/NSR	☐ Toxics/Con	bustion Sources After 7/10/10	Before After
□ NESHAPS/GACT	□ PSD/NSR Avoidance		tions (list all new):	□ Small
□ NSPS	☐ Existing Source RACT	/LAER		□ Syn Minor Title V
□ 2D .1100	□ New Source RACT/LA	AER		☐ Proh Small
<u>1</u>	□ RACT/LAER Added F	Fee		☐ General
☐ 2Q .0705 Last MACT/Toxic	s RACT Avoidance	-		☐ Transportation
				-
HAP Major Status (after)	□ Major	□ Not Determined		
PSD or NSR Status (after)	□ Major	_	1.107.0 127	
Miscellaneous	iple Permits at Facility	Multi-Site Permit □ Red	cycled Oil Condition	
Dates Issue 1-	3/A Eff	fective 1-3-12	Expiration	11-30-2015 Number: ROI
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IBEAM Closed Out By:	Per	rmit Number: 10121	Revision N	lumber: Not
☐ Public Notice Published	☐ Public Notice Affic	davit (if not noticed via DAQ We	ebsite)	
Document Manager Updated b	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

Permit Applicability (this application only)

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

Facility Contact

7200 Wisconsin Avenue

Bethesda, MD 20814

Glenn Gray

Suite 1100

Plant Manager

(301) 657-5567

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

02O .0711 levels

112(r): Other:

Contact Data

Authorized Contact

Norb Hintz Vice President. Engineering (301) 657-5567

7200 Wisconsin Ave. Suite 1100

Bethesda, MD 20814

Technical Contact

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: 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
 - 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:

$$E = 4.10 \text{ x P}^{0.67}$$
 for $P < 30 \text{ tph}$
 $E = 55 \text{ x P}^{0.11} - 40$ for $P \ge 30 \text{ tph}$

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. <u>15A NCAC 02D .0521 "Control of Visible Emissions"</u> – 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	ID No.	CO	NOx	TSP	PM-10	PM-2.5	SO ₂	VOC
Description		(tpy)	(tpy	(tpy)	(tpy)	(tpy	· (tpy)	(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 Emissi	ons	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. CO₂e 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, SO₂ 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 Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Location deposited: Calculated Issue Due Add. Amt Rcv'd: Date Rcv'd: 01/30/2012 Location rec'd: Clock Start 10/25/2011 Application Dates Date received: Amount Due: Fee Information 0.00 Completeness Due 12/09/2011 Deposit Slip #: 10/25/2011 10/25/2011 Received Initial amount: Fund type: \$867.00 2333 Permit/Latest Revision: 10121/R01 Washington Regional Office Application is COMPLETE Kevin Godwin/RCO Yongcheng Chen Modification Title V Issued State Engineer/Rev. location: Facility classification: General Information: Regional Contact: Application type: Facility location: Permit code: Clock is ON Status is:

	City State ZIP Telephone (804) 412-0227 (804) 412-0227 (804) 412-0227
	<u>Address</u> 1309 East Cary Street, Suite 200 1309 East Cary Street, Suite 200
Contact Information	Name Glenn Gray, Plant Manager Glenn Gray, Plant Manager
Cont	<u>Type</u> Authorized Technical/Permit

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

Acceptance Criteria

Yes Yes Yes Yes

Complete Item Description Completeness Criteria

Comprehensive Application Report for 4600107.11A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Application Events						e e
Event	Start	Due	Complete	Comments	Staff	
TV - Acknowledgment/Complete	10/25/2011 11/04/2011 10/25/2011	1/04/2011	10/25/2011		kmhash	
Technical Add Info - for Compliance Info	12/01/2011 12/31/2011 12/07/2011	2/31/2011	12/07/2011		kgodwin	
Draft to coordinator/supervisor for review	12/08/2011 12/29/2011 12/29/2011	2/29/2011	12/29/2011		kgodwin	
Permit issued	01/03/2012		01/03/2012		kmhash	

Comprehensive Application Report for 4600107.11A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Outcome Information					
Class before: Title V	Class after: Title V	Perm	Permit/Revision:	10121/R01	
2Q.0711: Yes 2D.1100: No	: No	Revi	Revision Issue Date: 01/03/2012)1/03/2012	
NSPS: No NESHAPS/MACT: No	No PSD/NSR:	No	Accumulated proces	Accumulated process days (includes public notice periods): 63): 63
PSD/NSR Avoid: No	Prohibitory Small:	No	ublic notice/hearin	Public notice/hearing/add info after 80 days:	
PSD/NSR Status After: Minor	General permit:	No	Manager's discretion:	: Appealed? No	
Multi-site permit: No	Multi, permits at facility:	No	Current Permit Information:		
Quarry permit: No	HAP Major (10/25 tpy):	Minor	Fffective	Fyniration Revision #	
2Q .0705 Last MACT/Toxics: NO	NESHAPS/GACT:	0/10 ON	,2012	11/30/2015	
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:	Source(s) After 07/10/10:	NO			

	rial Processes	stion Sources	
	Regulation Description Particulates Miscellaneous Industrial Processes	Sulfur Dioxide Emissions Combustion Sources Control of Visible Emissions	
Regulations Pertaining to this Permit	.0515	.0516	
Regulations P	Reference Rule 2D	2D	

	Editor
	New Value
Audit Information Pertaining to this Application	Column Name Date Changed Old Value



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.

OCT 2 5 2011
Air Permits Section

Changes to Control Device Information

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

- 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

Mr. John Evans October 21, 2011 Page 2

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. 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.

Mr. John Evans October 21, 2011 Page 3

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.

Mr. John Evans October 21, 2011 Page 4

Sincerely,

Joe Sullivan, PE, CM Managing Consultant

cc: Glenn Gray (Enviva)

Attachments

ATTACHMENT 1

UPDATED EMISSIONS CALCULATIONS

PSD APPLICABILITY SUMMARY ENVIVA PELLETS AHOSKIE, LP

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

TABLE 2 FACILITYWIDE HAP EMISSIONS SUMMARY ENVIVA PELLETS AHOSKIE, LLC

HAP Pollutant	Dryers	CHIP	EG-1	FWP-1	TOTAL
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
1,3-Butadiene			2.39E-05	2.05E-05	4.45E-05
Acetaldehyde			4.70E-04	4.03E-04	2.29E+00
Acetophenone					1.75E-06
Acrolein	7.03E-01		5.67E-05	4.86E-05	7.03E-01
Antimony & Compounds	4.80E-04		3.072 05	1.002 05	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				
Chloroform	3.05E-03				3.95E-04
Cumene	6.11E-02		_		3.05E-03
Dinitrophenol, 2,4-	9.86E-05				6.11E-02
					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			<u> </u>	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		
	1.64E-02			8.82E-05	6.86E-02
Trichlorophylene					1.64E-02
Trichlorophenol, 2,4,6-	1.20E-05				1.20E-05
Vinyl chloride	9.86E-03	 2.24E.01			9.86E-03
TOTAL HAP	14.87	2.24E-01	2.37E-03	2.03E-03	15.10

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)		Em	Emergency Generator	itor	<u></u>	Fire Water Pump	Ip.		Total	
Pollutant	(lb/hr)	(Ib/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			5				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	
Trichtoroethylene			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
	1 4317+01	3.20E+02	2 18F+04	CO TOTO	2 1816.01	4 54F+00	7 78E-03	1.87E-01	3.89E+00	1.34K+01	3 2117 +02	A 10E-LOA

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

	Emission Factors	Emis	sions ⁵
Pollutant	(lb/dry wood tons)	(lb/hr)	(tpy)
THC as Carbon ²	0.0041	2.096E-01	0.92
THC as alpha-Pinene ³ PM ⁴	0.0047 N/A	2.379E-01 N/A	1.04 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.

Sheet: Chipper

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 (C₅H₈)_n [where n = 2, 3, or 4 typically] but to convert from carbon to the equivalent weight in THC/VOC, the assumption was that alphapinene (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	Units	Emission Factor Source	Total Potent	ial Emissions
	(lb/ODT)			(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	Ib/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 SO₂ 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.

Calculation Inputs:

418,533	376,680	43.0	%06	10%
Dryer Production (Ton/yr)	ODT/yr	ODT/hr	Hardwood Composition	Softwood Composition

HAP & TAP Emission Calculations:

							Green, Direct wood-fired (inlet moisture	ood-fired (in	let moisture		
				Direct woo	Direct wood-fired, hardwood	wood	content >50%, dry basis), softwood1	dry basis),	softwood1		
				Emission			Emission			MAXIMI	MAXIMUM TOTAL
HAP/TAP Pollutant	CAS Number	HAP	NC TAP	Factor ²	Emissions ³	ions ³	Factor	Emis	Emissions ³	EMIS	EMISSIONS
		(Yes/No)	(Yes/No)	(Ib/ODT)	(lb/hr)	(tpy)	(Ib/ODT)	(lb/hr)	(tpy)	(lb/br)	(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	98-83-8	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	9-00-09	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	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	1.83E+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 AP42 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).

125.00 8,760 1,095,000 88,90% Heat Input (MMBlunhr)
Operating Schedule (tristyr)
Heat Input (MMBlunkr)
WESP Metal HAP Control Efficiency²
HCI Control Efficiency²

HAP & TAP Emission Calculations:

	Pollutant	,					Maxim	Maximum Uncontrolled Total	d Total	Maxin	Maximum Centrolled 10426 (ner holler)	I Deal
	Туре	Il Aman Res	Biomass lb/mmRtii	2-2	Bromass Ih/hr	255	lh/hr	Ib/vr	tpv	lb/hr	lb/yr	fpy
Pollutant		Uncontrolled	Controlled		Uncontrolled	Controlled		-	:			
Accionhanona	HAP	3.20E-09	3.20E-09	-	4.00E-07	4.00E-07	4,00E-07	3,50E-03	00'0	4.00E-07	3.50E-03	00.00
Antimony & Compounds	HAP	7.90E-06	8.77E-07	1, 2	9.88E-04	1.10E-04	9.88E-04	8,65E+00	00'0	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)nyrene	TAP/HAP	2.60E+06	2.60E-06	-	3.25E-04	3.25E-04	3.25E-04	2.85E+00	00'0	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	00.0	1.53E-05	1.34E-01	0.00
Cadminm 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	00'0	\$.69E-05	4.98E-01	0.00
Carbon tetrachloride	TAP/HAP	4.50E-05	4.50E-05	-	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	_	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	-	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	00'0
Cobalt compounds	HAP	6,50E-06	7.22E-07	1, 2	8.13E-04	9.02E-05	8.13E-04	7.12E+00	00.0	9.02E-05	7.90E-01	00'0
Dinitrophenol. 2.4-	HAP	1.80E-07	1.80E-07	-	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)nhthalate (DEHP)	TAP/HAP	4.70E-08	4.70E-08	-	5.88E-06	5.88E-06	5.88E-06	5.15E-02	00'0	5.88E=(16	5.15E-02	00'0
Ethyl henzene	HAP	3.10E-05	3.10E-05	-	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	-	3.63E-03	3.63E-03	3.63E-03	3.18E+01	0.02	3.63E-03	3.18E+01	0.02
Hexachlorodihenzon-dioxin 1 2 3 6 7 8	TAP	1.60E-06	1.60E-06	-	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	I, 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	00.00	4.38E-04	3.83E+00	0,00
Methyl bromide (bromomethane)	HAP	1.50E-05	1.50E-05	-	1.88E-03	1.88E-03	1.88E-03	1.64E+01	10.0	1.88E-03	1.64E+01	0.01
Methyl chloride (chloromethane)	HAP	2.30E-05	2.30E-05	-	2,88E-03	2.88E-03	2.88E-03	2,52E+01	10:0	2.88E-03	2.52E+01	0.01
Methyl chloroform (1.1.1 trichloroethane)	TAP/HAP	3.10E-05	3.10E-05	-	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	-	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	-	1,21E-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	-	1.38E-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	_	6.38E-06	6.38E-06	6.38E-06	5.58E-02	0.00	6.38E-06	5.58E-02	00.00
Perchloroethy tene (tetrachloroethy lene)	TAP/HAP	3.80E-05	3.80E-05	-	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	-	1.02E-06	1.02E-06	1.02E-06	8.92E-03	0.00	1,025-06	8.928-03	0.00
Polycyclic Organic Matter	HAP	1.25E-04	1.25E-04		1.56E-02	1.56E-02	1.50 E-02	3.715.01	0.07	1.30E-02	3.615±01	0.00
Propylene dichloride (1,2 dichloropropane)	HAP	3.305-05	3.308-03	٦ :	4.13E-03	4,135-03	4,13E=03	3.075+00	0.02	3 50F-04	3 07F±00	000
Selenium compounds	TADATAD	2.80E-00	9.40E 13	7 -	1 08E-09	1.08E-09	1 08F-09	9 42E-06	000	1.08E-09	9.42E-06	00'0
Teirschiotodibenzo-p-dioxin, 2,3,7,5=	TAP/HAP	3 00E-05	3 00E-05	, ,	3.75E-03	3.75E-03	3.75E-03	3.29E+01	0.02	3.75E-03	3.29E+01	0.02
Trichlorofluoremethers (CEC 111)	TAP	4.10E-05	4.10E-05		5,13E-03	5.13E-03	5,13E-03	4,49E+01	0.02	5,13E-03	4,49E+01	0.02
Trickloronhound 2.4 6.	НАР	2.20E-08	2.20E-08	-	2.75E-06	2.75E-06	2.75E-06	2.41E-02	00.00	2.75E-06	2.41E-02	00.00
Vinyl chloride	TAP/HAP	1.80E-05	1.80E-05	Ξ	2.25E-03	2,25E-03	2.25E-03	1.97E+01	10'0	2,25E-03	1.97E+01	0.01
# 835.mb.com 17 A ft							2,38E+00	2.08E+04	10.4	2.38E-01	2.08E+03	1,0
· Highest HAP							D 00011 000				10000	-

Uncontrolled and courtolled conission factors (criteria and HAPTAP) for wood combustion in a stoker boiler from NCDAQ Wood waste Combustion Spreadsheet/AP-42: Compilation of Air Pollutant Emission Factors Vol. 1 - 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 bydrochloric 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. Jassand, P.E. of Landberg Associates, a manufacturer of WESPs.

Emergency Generator Emissions (ES-EG)

Engine Output	0.26	MW
Engine Power	350	hp (brake)
Hours of Operation	500	hr/yr ^t
Heating Value of Diesel	19,300	Btu/lb
Power Conversion	2,545	Btu/hr/hp

Pollutant				Potential	Emissions
	Category	Emission Factor	Units	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	1b/kW-hr (2)	2.01	5.03E-01
VOC (NMHC)	PSD	2.51E-03	1b/MMBtu (4)	2.24E-03	5.59E-04
Acetaldehyde Acrolein	НАР/ТАР НАР/ТАР	5.37E-06 6.48E-07	lb/hp-hr (4) lb/hp-hr (4)	1.88E-03 2.27E-04	4.70E-04 5.67E-05
•					4.70E-04
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

D.H. d. d				Potential	Emissions
Pollutant	Category	Emission Factor	Units	lb/hr	tpy
rsp	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	1b/MMBtu (4)	1.92E-03	4.79E-04
Toxic/Hazardous Air Pollutant Emissic Acetaldehyde	Ons HAP/TAP	5.37E-06	lb/hp-hr (4)	1.61E-03	4.03E-04
		5 27E 06	15/5- b- (4)	1.61E.02	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

Enviva Pellets Ahoskie, LLC

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.

 $^{^{\}rm 4}$ 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

		Filter. Vent -or-		Pollutant	Annual					Potential Emissions	missions		
	Emission	Cyclone	Flowrate ¹	Loading ²	Operation	% PM that is	hat is	PM	Į	PM ₁₀	£ 0	PM2.5	. S. 3
Emission Unit	Source ID	<u>a</u>	(dscfm)	(gr/dscf)	(hours)	PM_{10}	PM _{2.5}	(lb/hr)	(tpy)	(lb/br)	(tpy)	(Ib/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-CHIM-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	FS-HAF	CD-HAF-FF	32,500	0.01	8,760	100%	100%	2.79	12.20	2.79	12.20	2.79	12.20
Dellet Mill Feed Silo Bin Vent Filter	ES-PMPS	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

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_{25} equal PM emissions .

Fugitive PM Emissions1

					Thro	Throughput						
		Beerintion	Control	Cantrol Control Description		Max.	Potential U	ncontrolled	Potential Uncontrolled Potential Uncontrolled Potential Uncontrolled	ncontrolled	Potential U	ncontrolled
a	Emission Source Group				Hourly ²	Annual	Emission	Emissions for PM ³	Emissions for PM ₁₀ ³	for PM ₁₀ ³	Emissions	Emissions for PM _{2.5}
					(tph)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Igc	HWH.28	Dryer Discharger to Dryer No. 1 Outfeed	Enclosed	Reduction to 2 mph	29.31	209,266.67	2.2E-03	7.9E-03	1.0E-03	3.7E-03	1.6E-04	5.7E-04
וייט	TIMO-ST	Conveyor		mean wind speed								
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 Bynass	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 Surue 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	3.0E-02 1.3E-03	4.6E-03
						ES-PP	4.7E-03	4.7E-03 1.7E-02	2.2E-03	7.9E-03	3.3E-04	1,2E-03

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.
 Maximum hourly throughput is based upon 8,760/yr.
 Based emission factors calculated per AP-42 Section 13.2.4, September 2006.

used emission factors calculated per AP-42 Section 13.2.4, September 200
$$\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \quad \text{(Ib/ton)}$$

$$E = k \; (0.0032) \; \frac{\left(\frac{M}{5}\right)^{1.4}}{\left(\frac{M}{2}\right)^{1.4}} \quad \text{(Ib/ton)}$$
 where:
$$E = \text{emission factor (Ib/ton)}$$

 $\label{eq:energy} Here: \qquad E = emission factor (lb/ton) \\ k = particle size multiplier (dimensionless) for PM$

0.74 0.35 0.053 2.00 10 7.6B-05 3.6B-05 5.4B-06 k = particle size multiplier (dimensionless) for PM_{10} k = particle size multiplier (dimensionless) for PM_{2.5} U = mean wind speed (mph)

M = material moisture content (%)E for PM (lb/ton) = E for PM₁₀ (lb/ton) =

E for PM_{2.5} (lb/ton) =

Tank VOC Emissions

			Tank Di	Tank Dimensions				TANKS 4.0	S 4.0
		Volume	Diameter	Height/Length Orientation Throughput Turnovers	Orientation	Throughput	Turnovers	VOC Emissions	issions
Tank ID	Tank Description	(gal)	(tJ)	(ft)		(gal/yr)		(lb/yr)	(tpy)
TK01	Emergency Generator Fuel Oil Tank ²	2,500	9	12	Vertical	12,000	4.80	0.37	0.37 3.57E-03
TK02	TK02 Fire Water Pump Fuel Oil Tank ²	200	6	10	Horizontal	10,300	20.60	0.43	2.15E-04
	J						TOTAL	0.80	3 79F-03

Note:

- Conservative design specifications.
 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/I	Ivision of Air C	Quality - Applic	ation for Air F	Permit to Const	ruct/Operate			A1
TO STATE OF STREET	NOTE- APPLICA	TION WILL	NOT BE PE	OCESSED	WITHOUT T	HE FOLLOW	ING:	THE PROPERTY OF	
✓ Local 2	Zoning Consistency Determ	ination (if require	ed)	Reduction & F	Recycling Surve	y Form (Form A4) 🗸 Appl	ication Fee	
✓ Resp	onsible Official/Authorized	Contact Signatu	re 🗹 Appro	priate Number	of Copies of Ap	plication 🗹 F	.E. Seal (if	required)	
			GENERAL II	NFORMATI	ON				
Legal Corporate/Owner Nam	e: Enviva P	ellets, LLC						9	Ran
	Ahoskie, LLC								-CO/
Site Address (911 Address) Li		Rt 561 East						D/	12
Site Address Line 2:								30	125 20
City: Ahoskie				State:	North Carol	ina		AVI Pa	- 40
Zip Code: 27910				County:	Hertford			. 911	nite o
Zip Code. 27310	SEPERITOR DE		CONTACT	NFORMATI	ON			Air Pen	06
Permit/Technical Contact:				Facility/Inspe	ction Contact:				
	Plant Manager			Name/Title:	same as pe	rmit/technical co	ntact		
Mailing Address Line 1:	7200 Wisconsin Avenue			Mailing Addres					
Mailing Address Line 1:	Suite 1100			Mailing Addres					
		d Zip Code:	20814			State:		Zip Code:	
City: Bethesda Phone No. (area code)	(757) 274-8377 Fax No.		(301) 657-5567		rea code)		Fax No. (a	area code)	
Email Address:	Glenn.Gray@envivablo			Email Address					
Responsible Official/Author				Invoice Cont	act:				
Name/Title: Norb Hintz	ized Contact.			Name/Title:	same as pe	rmit/technical c	ontact		
	7200 Wisconsin Avenue			Mailing Addre					
Mailing Address Line 1:	Suite 1100			Mailing Addre					
Mailing Address Line 2:		d Zip Code:	20814			State:		Zip Code:	
City: Bethesda	(301) 657-5567 Fax No.		(301) 657-5567		rea code)		Fax No. (a	rea code)	
Phone No. (area code)	Norb.Hintz@envivablor		(501) 001-0007	Email Addres					
Email Address:	NOID.HIIILZ@ettalvabloi	APPL	ICATION IS				B-DEI	STATE STATE	A
Name Alama Alama	-permitted Facility/Greenfie		Modification of			Renev	al with Mod	dification	
☐ New Non	-permitted radiity/oreemic	1		al (TV Only)	/	_			
	EACH ITY				ATION (Che	eck Only One	A VOLUME	SS WY I	
0	Small Prohibite			Synthetic Mine		√ Title V			
General			LITY (Plant				- 75		
Michael Control	Taglifa H	No. : N/A (To b		Olto/ Illi					
Describe nature of (plant site	The same of the sa) NO. : N/A (10 I	ue assigned)		popularia de la compansión de la compans	Control of the beautiful of the control of the cont	MALIFEREZ DU HONO NA	german and a state of the section of	
Wood peliet manufacturing	lacinty								
		N. 4 Elecentres	Cleanified	Current/Provi	ious Air Permit N	lo 10121R0	0	Expiration Date	11/30/201
Primary SIC/NAICS Code:	2499 (Wood Products,		Classified)	-	4,015,554.4				
Facility Coordinates:		1 UTM E	V	Longitude:	4,010,004	TO THE IX			
Does this application contain	confidential data?	PERSON OR			ED APPLICA	TION			
		-EKSON OK	THOW THA			nsultants, Inc.			
Person Name:	Joe Sullivan			Firm Name:		Suite 310			
Mailing Address Line 1:	One Copley Parkway			Mailing Addre		guite 310	County:	Wake	
City: Morrisville	State:	North Caroli		Zip Code:	27560	Jsullivan@tr			
Phone No. (919)-462-96	93 Fax No	(919)-462-96	94 PONSIDI E	Email Addres		D CONTACT		tai itai ooili	
		JAE UP KES	PLONSIDE						
Name (typed):	Norb Hintz	/		Title:	Vice Presi	dent, Engineerii	19		
X Signature(Blue Ink):	1/14/			Date:	10-10	-11			
	//	Attach	Additiona	Sheets A	s Necessa	rv			

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2 112r APPLICABILITY INFORMATION - A3

REVISED 04/10/07	NCDENR/Division of Air Quality - Ap			AZ
EN	MISSION SOURCE LISTING: New, Mod	ified, Previously U	npermitted, Replaced, Deleted	
EMISSION SOURCE	EMISSION SOURCE	CONTROL DEVIC	E CONTROL DEVICE	
ID NO.	DESCRIPTION	ID NO.	DESCRIPTION	
Equip	ment To Be ADDED By This Applicat	tion (New, Previous	sly Unpermitted, or Replacement)	
	†		<u> </u>	
ALC: VIEW	Existing Permitted Equipment	To Be MODIFIED	By This Application	
S-DWDS	Dried Wood Day Silo	CD-DWDS-BV	Bin vent filter (377 s.f. of surface area)	
001100	prior riod bay one	00 01100 01	Diff vent inter (517 Sin of Surious disca)	
S-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)	
S-HAF	Hammermill Area and 5th Hammermill	OR HAT EC	Pakala Silkan IS 447 - 6 - 6 - 16 - 17	
	round Wood Handling [ES-GWH-1 and 2])	CD-HAF-FF	Fabric filter (5,417 s.f. of surface area)	
Originally Called Of	Carla 44000 Flanding [LS-S441-1 and 2])			
S-PMFS	Pellet Mill Feed Silo	CD-PMFS-BV	Bin vent filter (377 s.f. of surface area)	
Originally called Pe	ellet Press Silo [ES-PPS])			
S-CLR1, 2, 3 & 4	Four Pellet Coolers	CD-CLR-C1	Dual High Efficiency Cyclone	
		CD-CLR-C2	Dual High Efficiency Cyclone	
0.01.01				
S-CLR5	Pellet Cooler #5	CD-CLR-C3	Single High Efficiency Cyclone	
	Equipment To Be DE	ELETED By This /	Application	
	 			
			+	
	112(r) APPLICA	BILITY INFORM	MATION	A 3
s your facility subject	to 40 CFR Part 68 "Prevention of Accidental Releas			
	in detail how your facility avoided applicability:			
nviva Pellets Ahos	kie, LLC will not handle any of the substances s	ubject to 112(r)		
	ect to 112(r), please complete the following:			
 A. Have you alrea 	ndy submitted a Risk Management Plan (RMP) to EF	PA Pursuant to 40 CFR P	art 68.10 or Part 68.150?	
Yes 🖞	No Specify required RMP submittal date	e:lf sul	bmitted, RMP submittal date:	
B. Are you using a	administrative controls to subject your facility to a les	sser 112(r) program stand	dard?	
Voc d				

FORM A4							
SURVE	Y OF AIR EMISSIO	HS AND FACILITY - W	IDE REDUCTION &	RECYCLING ACTIV	ITIES		
DATE:	Does facility have	an environmental ma	ngement system i	place?()YES (X)	NO If so, is facility ISO 1	4000 Certified? () YES	(X) NO
English Name	Enviva Pellets Aho	abla IIC			Permit Number:	10121R00	
	N/A (to be		Hertford		Environmental Contact:	Glenn Gray / Plant Mana	ger
	assigned)	County.	rie tioi u		Life ii oi iii oi ii oo ii aact.	Cionii Cray / Flant mana	90.
Mailing Address		142 N.C. Rt 561 East			Phone No. ()	(757) 274-8377	Fax No. () (301) 657-5567
Mailing Address		142 N.C. N. 301 Last			Zip Code:	27910	County: Hertford
	Ahoskie	State:	North Carolina		Email Address:	0	
			0				
AIR EMISSIONS	SOURCE REDUCTI	ONS	Any Air Emissions	Source Reductions	In the past year? () YES	(X) NO	
		Enter Code for	Date Reduction	Quantity Emitted	Quantity Emitted	Has reduction	Addition detail about source
						activity been	
Source	Air Pollutant	Emission	Option	from prior annual	from current annual	discontinued? If so,	
Description and		Reduction	Implemented			when	
ID							
		Option (See Codes)	(mo/yr)	report to DAQ	report to DAQ (lb/yr)	was it discontinued?	
				(lb/yr)		(mo/yr)	
N/A							
1							
i i				1.5			
	ľ						
Comments:							
FACILITY - WIDE		ECYCLING ACTIVITIE			Recycling Activities in the		
	Pollutant	Enter Code for	Date Reduction	Quantity Emitted	Quantity Emitted	Has reduction	Addition detail about source
						activity been	
Source	or	Emission	Option	from prior annual	from current annual	discontinued? If so,	
Description or		Reduction	implemented			when	
Activity							
	Recycled or	Option (See Codes)	(mo/yr)	report	report	was it discontinued?	
	Reduced					(mo/yr)	
N/A	Materials						
NA							
				,			
					1	1	

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.



REVISED 1/07

FORM D1

FACILITY-WIDE EMISSIONS SUMMARY

(AFTER CONTROLS / LIMITATIONS) AIR POLLUTANT EMITTED tons/yr tons/yr lons/yr see Table 1 in the accompanying application document PARTICULATE MATTER < 10 MICRONS (PM ₁₀) PARTICULATE MATTER < 2.5 MICRONS (PM ₂₀) 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 POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS) LIMITATIONS) HAZARDOUS AIR POLLUTANT EMITTED CAS NO. See Table 2 in the accompanying application document TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE INDICATE REQUESTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS) LIMITATIONS) TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE INDICATE REQUESTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS. Modeling Requires Modeling Requires		to Construct/Operate				COITEDIA
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FORM D4

EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

REV	SED: 12/01/4 NCDENR/Division of Air Quality -			D4
		MPTED PER 2Q		
	INSIGNIFICANT ACTIVITIES	PER 2Q .0503 FG	OR TITLE V SOURCES	
		SIZE OR		
		PRODUCTION	BASIS FOR EXEMPTION	OR
	DESCRIPTION OF EMISSION SOURCE	RATE	INSIGNIFICANT ACTIV	ITY
1.	Electric Powered Chipper	509,341 tpy	15A NCAC 02Q .0102(c)(2)(E)	
	ES-CHIP	51 tph		
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FORM D

TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

RE	/ISED: 12/01/01 NCDENR/Division of Air Quality - Application for	Air Permit to Construct/Operat	D5					
	SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B) - SHO BALANCES, AND/OR OTHER METHODS FROM WHICH THE POLLUTANT EM OF POTENTIAL BEFORE AND, WHERE APPLICABLE, AFTER CONTROLS. O NEEDED TO SUPPORT MATERIAL BALANCE CALCULATIONS.	IISSION RATES IN THIS APPLICATION WERE DERIVED. IN	CLUDE CALCULATION					
В	SPECIFIC EMISSION SOURCE (REGULATORY INFORMATION)(FORM E2 - 1 INDIVIDUAL SOURCES AND THE FACILITY AS A WHOLE. INCLUDE A DISC REQUIREMENTS) FOR COMPLYING WITH APPLICABLE REGULATIONS, PA RATES OR OTHER OPERATIONAL PARAMETERS. PROVIDE JUSTIFICATIC SIGNIFICANT DETERIORATION (PSD), NEW SOURCE PERFORMANCE STA POLLUTANTS (NESHAPS), TITLE V), INCLUDING EXEMPTIONS FROM THE FACILITY. SUBMIT ANY REQUIRED TO DOCUMENT COMPLIANCE WITH AND DATES OF MANUFACTURE, CONTROL EQUIPMENT, ETC. TO SUPPORT THE	JSSION OUTING METHODS (e.g. FOR TESTING AND/OR M RTICULARLY THOSE REGULATIONS LIMITING EMISSIONS IN FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (PR MDARDS (NSPS), NATIONAL EMISSION STANDARDS FOR I FEDERAL REGULATIONS WHICH WOULD OTHERWISE BE IY REGULATIONS. INCLUDE EMISSION RATES CALCULAT	ONITORING BASED ON PROCESS EVENTION OF HAZARDOUS AIR APPLICABLE TO THIS					
С	CONTROL DEVICE ANALYSIS (FORM C) - PROVIDE A TECHNICAL EVALUA LISTED ON SECTION C FORMS, OR USED TO REDUCE EMISSION RATES I PARAMETERS (e.g. OPERATING CONDITIONS, MANUFACTURING RECOMI CRITICAL TO ENSURING PROPER PERFORMANCE OF THE CONTROL DEV PARTICULAR CONTROL DEVICES AS EMPLOYED AT THIS FACILITY. DETA DEVICE INCLUDING MONITORING SYSTEMS AND MAINTENANCE TO BE P	N CALCULATIONS UNDER ITEM "A" ABOVE. INCLUDE PER IENDATIONS, AND PARAMETERS AS APPLIED FOR IN THI IGCES). INCLUDE AND LIMITATIONS OR MALFUNCTION PO ILL PROCEDURES FOR ASSURING PROPER OPERATION O	RTINENT OPERATING S APPLICATION) DTENTIAL FOR THE					
D	PROCESS AND OPERATIONAL COMPLIANCE ANALYSIS - (FORM E3 - TITLI PROCESS, OPERATIONAL, OR OTHER DATA TO DEMONSTRATE COMPLIA IN ITEM "B" WHERE APPROPRIATE. LIST ANY CONDITIONS OR PARAMETI COMPLIANCE WITH THE APPLICABLE REGULATIONS.	NCE, REFER TO COMPLIANCE REQUIREMENTS IN THE RI	EGULATORY ANALYSIS					
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. has been reviewed be in the engineering plans, calculations, and all other supporting docume knowledge the proposed design has been prepared in accordance with package may have been developed by other professionals, inclusion of and have judged it to be consistent with the proposed design. Note: In person who knowingly makes any false statement, representation, or comay include a fine not to exceed \$10,000 as well as civil penalties up to	y me and is accurate, complete and consistent with the ntation to the best of my knowledge. I further attest that the applicable regulations. Although certain portions of these materials under my seal signifies that I have revin accordance with NC General Statutes 143-215.6A and ertification in any application shall be guilty of a Class 2 o \$25,000 per violation.	information supplied t to the best of my f this submittal iewed this material ti 143-215.6B, any					
	(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING) NAME: DATE: COMPANY: Trinity Consultants of NC, PC One Copley Parkway, Suite 310 Morrisville, NC 27560 TELEPHONE: SIGNATURE: PAGES CERTIFIED: ALCONTROL device application forms (IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT)	PLACE NORTH CAROLINA SEAL ORDESSION SEAL 02303	HERE					
	THAT IS BEING CERTIFIED BY THIS SEAL)							

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS TOXIC AIR POLLUTANT AND CAS NO. EF SOURCE Ib/hr Ib/day Ib/yr	REVISED 12/01/01 NCDENR/Division	on of Air Quality	y - Applicatio	n for Air Perm	nit to Construc	ct/Operate		В
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, cil, gas, other burner (Form B1) □ Woodworking (Form B4) □ Manufact. of chemicals/coatings/inks (Form B7) □ Int. combustion engine/generator (Form B2) □ Coating/inishing/printing (Form B5) □ Incineration (Form B9) □ Liquid storage tanks (Form B3) □ Storage silos/bins (Form B6) □ Other (Form B9) □ START CONSTRUCTION DAT □ TBD □ DEPRATION DATE: □ TBD DATE MANUFACTURED: TBD □ START CONSTRUCTION DATE: □ TBD DATE MANUFACTURED: TBD □ START CONSTRUCTION DATE: □ TBD DATE MANUFACTURED: TBD □ START CONSTRUCTION DATE: □				EMISSION S	OURCE ID NO	D:	ES-DWDS	
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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): MACT (SUBPART?): MACT (SUBPART?): MACT (SUBPART): MACT (SUBPART?): MACT (SUBPART?): MACT (SUBPART?): MACT (SUBPART?): MACT (SUBPART?): MACT (SUBPART?): MACT (SUBPART): MACT (SUBPART): MACT (SUBPART): MACT (SUBPART?): MACT (SUBPART): MACT (SUBPART): MACT (SUBPART): MACT (SUBPART): MACT			orm B6)	Other (Fo	om B9)			
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EXPECTED ANNUAL HOURS OF OPERATIC 8,760 (VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EMISSION (AFTER CONTROLS / LIMITS) AIR POLLUTANT EMITTED PARTICULATE MATTER (PM) PARTICULATE MATTER: 0 MICRONS (PM ₁₀) PARTICULATE MATTER: 0 MICRONS (PM ₂₀) SULFUR DIOXIDE (SO2) NITROGEN OXIDES (NOX) CARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) LEAD OTHER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EMISSION (AFTER CONTROLS / LIMITS) (BEFORE C): N					?):	
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INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS TOXIC AIR POLLUTANT AND CAS NO. EF SOURCE Ib/hr Ib/day Ib/vr	N/A	ELECTION AND ADDRESS.						
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TOXIC AIR POLLUTANT AND CAS NO. EF SOURCE Ib/hr Ib/day Ib/yr	INDICATE EXPEC	TED ACTUAL E	MISSIONS A	FTER CONTR	OLS / LIMITAT	IONS		
	TOXIC AIR POLLUTANT AND CAS NO.						The state of the s	him.
		EI GOOKGE		FFII	IU/C	Jay	ID	уг
					- CONT.			
								12 11 12
			THE REST	CI HA				
			4.1	SV. SILIPLE			The state of	
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (e.g. hours of operation, emission	Attachments: (1) emissions calculations and supporting docume	ntation: (2) indicat	e all requested	etate and fodo	anformachie -	mit limite !	oues of access	a-lasi
rates) and describe how these are monitored and with what frequency; and (3) describe any monitoring devices, gauges, or test ports for this source.	rates) and describe how these are monitored and with what frequent	uency; and (3) des	cribe any monit	oring devices, as	luges, or test nor	ts for this source	iuis oi operation 3.	, emission

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE
Attach Additional Sheets As Necessary

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 12/01/01	IACDEIAK/DIAISI	on or An Quanty - A	ppiicalic	on for Air Permit to	onstructiOperate		DO
EMISSION SOURCE DESCR	IPTION Dried Wood	Day Silo		EMISSION S	OURCE ID NO:	ES-DWDS	
				CONTROL D	EVICE ID NO(S):	CD-DWDS-BV	'
OPERATING SCENARIO:	1	OF1		EMISSION P	OINT(STACK) ID NO(S):	EP-DWDS	
DESCRIBE IN DETAIL THE P Trucks pneumatically	•	•					
MATERIAL STORED:				DENSITY OF MATE	RIAL (LB/FT3): 40		
CAPACITY	CUBIC FEET 4400)		TONS: 88			
DIMENSIONS (FEET)	HEIGHT:	DIAMETER:	(OR)	LENGTH:	WIDTH: HEIGH	T:	
ANNUAL PRODUCT THRO	DUGHPUT (TONS)	ACTUAL:			ESIGN CAPACITY:		
PNEUMATICALLY FI		MECHANI	CALLY F			FROM	MAR EN
♦ BLOWER		SCREW CONVEY	OR		RAILCAR		
COMPRESSOR	-	BELT CONVEYOR	2	MOTOR HP:	TRUCK)	
OTHER:	d	BUCKET ELEVAT	OR		STORAGE PILE	<i>.</i>	
	d	OTHER:			OTHER:		
NO. FILL TUBES:					o onicia		
MAXIMUM ACFM: 2187							
MATERIAL IS FILLED TO:	Transferred pneun	natically to screen	preceedi	ng hammermills.			
BY WHAT METHOD IS MATE Pneumatic	RIAL UNLOADED F	FROM SILO?					
MAXIMUM DESIGN FILLING	RATE OF MATERIA	L (TONS/HR):	8				
MAXIMUM DESIGN UNLOAD	ING RATE OF MAT	ERIAL (TONS/HR):	8				
COMMENTS:							

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01	NCDENR/DI	ision of Air Qual	ity - Application	on for A	Air Permit to C	onstruct/Operate		[
CONTROL DEVICE ID NO: CD-DWDS	-BV	CONTROLS EMIS	SIONS FROM	WHIC	H EMISSION S	OURCE ID NO(S)	: ES-DWDS	
EMISSION POINT (STACK) ID NO(S): E	P-DWDS	POSITION IN SER	RIES OF CONT	ROLS		NO	. 1 OF '	UNITS
MANUFACTURER: Aircon Corp.			MODEL NO:	В	V25-10			
DATE MANUFACTURED: TBD			PROPOSED	OPER/	ATION DATE:	TBD		
OPERATING SCE	NARIO:		PROPOSED	START	CONSTRUCT	ION DATE:	TBD	
			P.E. SEAL R	EQUIR	ED (PER 2Q .0	112)?	é YES	₫ NO
DESCRIBE CONTROL SYSTEM: A bin vent filter collects dust from	when dried w	ood is pneumatic	ally conveyed	l into ti	ne silo during 1	truck unloading.		
POLLUTANT(S) COLLECTED:			PM		PM ₁₀	PM _{2.5}		_
BEFORE CONTROL EMISSION RATE (LB/I	HR):			- 6		3		_
CAPTURE EFFICIENCY:				%		%	%	%
CONTROL DEVICE EFFICIENCY:				%		%	%	%
CORRESPONDING OVERALL EFFICIENCY	Y:			%		%	%	- %
EFFICIENCY DETERMINATION CODE:				8		A)		
TOTAL EMISSION RATE (LB/HR):			See calcu	ation	s in Append	lix B		_
PRESSURE DROP (IN. H₂0): MIN:	MAX: 4"	GAUGE?	d YES	7	NO W	ARNING ALARM?	(YES	NO NO
BULK PARTICLE DENSITY (LB/FT3):	1.43E-06		INLET TEMP	ERATL	IRE (°F):	Ambient		
POLLUTANT LOADING RATE: 0.01	₫ LB/HR	GR/FT ³	OUTLET TEN	IPERA	TURE (°F):	Ambient		
INLET AIR FLOW RATE (ACFM) 2,186			FILTER MAX	OPER	ATING TEMP. (°F): N/A		
NO. OF COMPARTMENTS: TBD ¹ N	IO. OF BAGS F	PER COMPARTM	ENT:	rBD ¹		LENGTH OF BAC	(IN.): TBD ¹	
DIAMETER OF BAG (IN.):	RAFT:	d INDUCED/NE	G. FO	RCED/I	POS.	FILTER SURFAC	E AREA (FT ²):	377
AIR TO CLOTH RATIO: 5.8 F	ILTER MATER	IAL: Polyester o	equivalent			₫ WOVE	N ₫ FELT	D
DESCRIBE CLEANING PROCEDURES:						PARTI	CLE SIZE DISTR	BUTION
		d SONIC				SIZE	WEIGHT %	CUMULATIV
→ REVERSE FLOW		SIMPLE BAG	COLLAPSE			(MICRONS)	OF TOTAL	%
MECHANICAL/SHAKER		RING BAG C	OLLAPSE			0-1	Un	known
OTHER Cleaning	procedure dep	pendent on final o	lesign			1-10		
DESCRIBE INCOMING AIR STREAM:						10-25		
The air stream will contain wood	dust partic	eles				25-50		
						50-100		
						>100		
							TOT	AL = 100
METHOD FOR DETERMINING WHEN TO C								
	MANUAL							
METHOD FOR DETERMINING WHEN TO F								
ALARM INTERNAL INSP	PECTION	VISIBLE EMISS	SION	Ø OTI	HER			
SPECIAL CONDITIONS: None								
	CAL RESISTIV	/11 Y	OTHER					
DESCRIBE MAINTENANCE PROCEDURES	2: Dar manufa	chirar recommen	dations or	pa ne er	industry are	loon		
					ussy piati			
ON A SEPARATE PAGE, ATTACH A DIAGF	RAM SHOWING	G THE RELATION	ISHIP OF THE	CONT	ROL DEVICE T	O ITS EMISSION	SOURCE(S):	

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

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/Divis	ion of Air Qualit	Quality - Application for Air Permit to Construct/Operate					
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO:		ES-CHM-1, 2	3 & 4
Four Coarse Hammermills					CD-CHM-C1,	CD-CHM-C2,	CD-CHM-C3,
			I		CD-CHM-C4,	CD-CHM-FF1	, & CD-CHM-
				EVICE ID NO(S			
OPERATING SCENARIO 1 OF	1	I EL AMI DI I		OINT (STACK) I	D NO(S):	EP-CHM-1 &	EP-CHM-2
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO				la a una una a unua III-			
Dried materials are reduced to the appropriate size	needed for pell	Euzation usin	g rour coarse	nammermilis			
TYPE OF EMISSION SOURCE (CHE	CK AND COMP	LETE APPRO	PRIATE FOR	M B1-B9 ON TH	E FOLLOWIN	G PAGES):	
Coal,wood,oil, gas, other burner (Form B1) Wood				. of chemicals/c			
☐ Int.combustion engine/generator (Form B2 ☐ Coa		•	Incinerati	on (Form B8)			
	age silos/bins (F		Other (Fo	, ,			
START CONSTRUCTION DA'TBD OPERA'	TION DATE:	TBD	DATE MANU	FACTURED:	TBD		
MANUFACTURER / MODEL NO.: TBD ¹				E: 24 HR/DA		/WK _52_WI	K/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?		IESHAP (SUE			(SUBPART?)		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-F		MAR-MAY		JUN-AUG 25%		P-NOV 25%.	P3 4
	0 VISIBLE STA					% OPACIT	IY
CRITERIA AIR POLI				ON FOR THE			II DAGE
	SOURCE OF		D ACTUAL		POTENTIAL		
AIR POLLUTANT EMITTED	EMISSION FACTOR	(AFTER CONT	ROLS / LIMITS)	(BEFORE CONT	tons/yr	(AFTER CONT	ROLS / LIMITS) tons/yr
PARTICULATE MATTER (PM)			s in Appendix		toris/yr	10/11	toris/yi
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	CCC EIIIICGIC	Calculation	Т				
PARTICULATE MATTER<2.5 MICRONS (PM2.5)					f		
SULFUR DIOXIDE (SO2)	Section 1		KI MITTE		7,000		
NITROGEN OXIDES (NOx)				TE SKA			
CARBON MONOXIDE (CO)							A STATE OF
VOLATILE ORGANIC COMPOUNDS (VOC)				2 2 2	_		
LEAD OTHER			CONTRACTOR OF THE PARTY OF THE				
HAZARDOUS AIR PO	I I IITANT F	MISSIONS	INFORMA	TION FOR T	HIS SOURCE	F	- T - 100 T
THEAT OF AIR TO	ISOURCE OF		D ACTUAL		POTENTIAL		
	EMISSION		ROLS/LIMITS)	(BEFORE CONT		AFTER CONTROLS / LIMITS	
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
N/A			FEVERE				
			100 TO				
					-		
		TOTAL P					
TOXIC AIR POLL	JTANT EMIS	SIONS INF	ORMATIO	N FOR THIS	SOURCE	AL LONG	
INDICATE EXPE							
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	11:	o/hr	lb/d	day	lt	/уг
N/A							
		0.113		PATE IN			
		-				1985	
	W COLUMN	TRIPLE T		100 100		THURSDAY IN	I THERE
Attachments: (1) emissions calculations and supporting document describe how these are monitored and with what frequency						rs of operation, e	emission rates)

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

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

EMISSION SOURCE (OTHER)

CONTROL DEVICE ID NO EMISSION POINT (STACK) or pelletization using four coarse	CD-CHM-C1, CD-C C3, CD-CHM-C4, C SCD-CHM-FF2 ID NO(S): EP-CH	
EMISSION POINT (STACK)	C3, CD-CHM-C4, C SCD-CHM-FF2 ID NO(S): EP-CH	CD-CHM-FF1, &
EMISSION POINT (STACK)	ID NO(S): EP-CH	M-1 & EP-CHM-2
or pelletization using four coarse	hammermills	
or pelletization using four coarse	hammermills	
		ED CAPACITY
JNITS CAPACITY (UNIT/HR)	LIMITATIO	N(UNIT/HR)
ons 47.78		
MAX. DESIGN	REQUEST	ED CAPACITY
NITS CAPACITY (UNIT/BATCH	LIMITATION	(UNIT/BATCH)
	L	
TCUES/VD),		
	LONE DETAILS IN TAILS	
QUESTED CAPACITY ANNUAL FU	EL USE: N/A	
	MITS CAPACITY (UNIT/HR) DOIS 47.78 MAX. DESIGN NITS CAPACITY (UNIT/BATCH TCHES/YR): TCHES/YR):	MAX. DESIGN REQUEST CAPACITY (UNIT/BATCH) LIMITATION MAX. DESIGN REQUEST LIMITATION

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISED 12/01/01	NCDENR/Divisio	n of Air Quality - App	lication for Air Pern	nit to Construct/0	Operate		<u>C4</u>
CD-CHM-	C1, CD-CHM-C2, CD-CHM-						
CONTROL DEVICE ID NO: C3, & CD-	CHM-C4	CONTROLS EMISSION	NS FROM WHICH I	EMISSION SOUR	RCE ID NO(S):	ES-CHM-1, 2, 3 & 4	
	CD-CHM-FF1 & CD-CHM-	POOLEION IN GERIE	OF CONTROLS	NO.	1 OF 2	UNITS	
EMISSION POINT (STACK) ID NO(S):	FFZ	POSITION IN SERIES		NO.	1 0, 2	ONITS	
MANUFACTURER: Aircon Corp.			OSED OPERATION I	DATE: TRD			_
DATE MANUFACTURED: TBD	G SCENARIO:		OSED START CONS		E: TBD		
	OF1		AL REQUIRED (PE		(é YES) # NO	
DESCRIBE CONTROL SYSTEM:	<u> </u>						
Four identical simple cyclones are ed	uipped to the pellet coole	rs to capture bulk PM	emissions.				
The parameters presented here are p	er each dual high efficiend	zy cyclone.					
POLLUTANT(S) COLLECTED:		PM	PM ₁₀	PM _{2.5}		_	
BEFORE CONTROL EMISSION RATE	(LB/HR):					_	
CAPTURE EFFICIENCY:			%	%	%	%	
CONTROL DEVICE EFFICIENCY:			%	%	%	%	
CORRESPONDING OVERALL EFFICI	ENCY:		<u> </u>	%	%	— %	
			_ ~			_~	
EFFICIENCY DETERMINATION CODE	•	5	— — — in A	- — B		_	
TOTAL EMISSION RATE (LB/HR):			alculations in A	, ,			
PRESSURE DROP (IN. H₂0): MIN	MAX 6.0"	WARNING ALARM?	€ YES				
INLET TEMPERATURE (°F): MIN	MAX	Amblent	OUTLET TEMPE			Ambient	
INLET AIR FLOW RATE (ACFM):	20,000	1	BULK PARTICLE	E DENSITY (LB/F	T³): 3E-06		
POLLUTANT LOADING RATE (GR/FT)	3): 0.022					TIONOLOUS	
SETTLING CHAMBER		CYCLONE				IULTICYCLONE	
			7				
LENGTH (INCHES):	INLET VELOCITY (FT/SE			& RECTANGLE			
LENGTH (INCHES): WIDTH (INCHES):	DIMENSIONS (INCH	ES) See instructions	IF WET SPR	₹ RECTANGLE AY UTILIZED	DIAMETER OF		
	DIMENSIONS (INCH H: 48	ES) See instructions Dd:	IF WET SPR	AY UTILIZED	DIAMETER OF	RATION SYSTEM?	
WIDTH (!NCHES):	DIMENSIONS (INCH H: 48 W: N/A	ES) See instructions Dd: Lb:	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G	AY UTILIZED PM):	DIAMETER OF HOPPER ASPIR		
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS:	DIMENSIONS (INCH H:	ES) See instructions Dd: Lb: Lc: 191	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE	AY UTILIZED PM):	DIAMETER OF HOPPER ASPIR & YES LOUVERS?	RATION SYSTEM?	
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.):	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120	ES) See instructions B Dd: Lb: C Lc: 191. S: 66	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM):	DIAMETER OF HOPPER ASPIF # YES LOUVERS? # YES	RATION SYSTEM?	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE:	ES) See instructions Dd: Lb: Lc: 191	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY	DIAMETER OF HOPPER ASPIF # YES LOUVERS? # YES # OTHER	RATION SYSTEM? & NO & NO	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED	DIMENSIONS (INCH H:	ES) See instructions Dd: Lb: Lc: 191 S: 66	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY	DIAMETER OF HOPPER ASPIF # YES LOUVERS? # YES	RATION SYSTEM? & NO & NO	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: unical integrity during	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY	DIAMETER OF HOPPER ASPIR VES LOUVERS? VES OTHER PARTICLE SIZE	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mecha as specified by manufactures	DIMENSIONS (INCH H: 48 W: NIA De: 57 D: 120 TYPE OF CYCLONE: URES: Inical integrity during or common industry	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? # NO # NO DISTRIBUTION CUMULATIVE	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mecha	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: unical integrity during or common industry	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS)	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION CUMULATIVE %	
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mechas specified by manufactures DESCRIBE INCOMING AIR STREAM:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: unical integrity during or common industry	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS) 0-1	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION CUMULATIVE %	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mechas specified by manufactures DESCRIBE INCOMING AIR STREAM:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: unical integrity during or common industry	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS) 0-1 1-10	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION CUMULATIVE %	
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mechas specified by manufactures DESCRIBE INCOMING AIR STREAM:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: unical integrity during or common industry	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS) 0-1 1-10 10-25	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION CUMULATIVE %	E
WIDTH (!NCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mechas specified by manufactures DESCRIBE INCOMING AIR STREAM:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: unical integrity during or common industry	ES) See instructions Dd: Lb: Lc: 191 S: 66 CONVENTIONAL plant outages	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS) 0-1 1-10 10-25 25-50	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION CUMULATIVE %	
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mecha as specified by manufacturel DESCRIBE INCOMING AIR STREAM: Fine particulate emissions from	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: Inical integrity during or common industry om cooling pellets	ES) See instructions Dd: Lb: Lc: 191. S: 66 CONVENTIONAL g plant outages y practices	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? Ø NO Ø NO OSTRIBUTION CUMULATIVE %	Ē
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES: DESCRIBE MAINTENANCE PROCED Periodic inspection of mechas specified by manufacturer DESCRIBE INCOMING AIR STREAM:	DIMENSIONS (INCH H: 48 W: N/A De: 57 D: 120 TYPE OF CYCLONE: URES: Inical integrity during or common industry om cooling pellets	ES) See instructions Dd: Lb: Lc: 191. S: 66 CONVENTIONAL g plant outages y practices	IF WET SPR 24 LIQUID USED: 58 FLOW RATE (G 31 MAKE UP RATE 75	PM): E (GPM): EFFICIENCY SIZE (MICRONS) 0-1 1-10 10-25 25-50 50-100	DIAMETER OF HOPPER ASPIR YES LOUVERS? YES OTHER PARTICLE SIZE WEIGHT %	RATION SYSTEM? # NO # NO OSTRIBUTION CUMULATIVE % Unknown	

¹Final 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 NCDEN	/Division of Air Qual	ity - Application for A	ir Permit to Co	onstruct/Operate			C1
CONTROL DEVICE ID NO: CD-CHM-FF1 & CD-CHM-FF2	CONTROLS EMISS	SIONS FROM WHICH	EMISSION SC	URCE ID NO(S):	ES-CHM-1, 2, 3	& 4	_
EP-CHM-1 & EP-							
EMISSION POINT (STACK) ID NO(S): CHM-2	POSITION IN SER	IES OF CONTROLS		NO.	2 OF 2	UNITS	
MANUFACTURER: Aircon Corp.		MODEL NO: 16	RA412-10				
DATE MANUFACTURED: TBD		PROPOSED OPERA	TION DATE:	TBD			- 8
OPERATING SCENARIO:	Tree Tree Line	PROPOSED START	CONSTRUCT	ON DATE:	TBD		
1OF1		P.E. SEAL REQUIRE	D (PER 2Q .0	112)?	YES)	.e NO	
DESCRIBE CONTROL SYSTEM:							
Two (2) fabric filters equipped to the coarse ham	nermills. Each coars	se hammermill has on	e cyclone ver	ted to one of two f	abric 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	s in Appen	dix B			
PRESSURE DROP (IN. H ₂ 0): MIN: MAX: 8"	GAUGE	YES	NO W	ARNING ALARM?	YES	NO	
BULK PARTICLE DENSITY (LB/FT ³):	53	INLET TEMPERATU	RE (°F): An	nbient			
POLLUTANT LOADING RATE: 0.01 € LB/H	R GR/FT ³	OUTLET TEMPERAT	TURE (°F): An	nbient			
INLET AIR FLOW RATE (ACFM): 40,000 each file	ег	FILTER MAX OPERA	ATING TEMP.	(°F): N/A			
NO. OF COMPARTMENTS: TBD1 NO. OF BA	AGS PER COMPARTI	MENT: TBD ¹		LENGTH OF BAG	(IN.): TBD ¹		
DIAMETER OF BAG (IN.): DRAFT:		FORCED/	POS.	FILTER SURFACE	E AREA (FT ²):	6,66	7 each
	ATERIAL: Polyester	or equivalent			WOULD BE SEED OF THE SEED OF T		
DESCRIBE CLEANING PROCEDURES:					CLE SIZE DIST	CUMUL	A T0.45
AIR PULSE	SONIC			SIZE	WEIGHT % OF TOTAL	COMOL	
REVERSE FLOW	€ SIMPLE BAG			(MICRONS)	_		•
MECHANICAL/SHAKER	€ RING BAG C	OLLAPSE		1-10	U	known	
∅ OTHER				10-25		+	
DESCRIBE INCOMING AIR STREAM:	1			25-50		1	_
The air stream will contain wood dust partic	:ies			50-100		1 -	
				>100	,	1	
				- 100	то	TAL = 100	
METHOD FOR DETERMINING WHEN TO CLEAN:					_		
AUTOMATIC & TIMED & MANU	AL						
METHOD FOR DETERMINING WHEN TO REPLACE THE							
ALARM INTERNAL INSPECTION	€ VISIBLE EMIS	SION d OT	HER				
SPECIAL CONDITIONS: None							
d MOISTURE BLINDING d' CHEMICAL RE	SISTIVITY	₫ OTHER					
EXPLAIN:							
	cturer recommendat	tions or common indu	stry practices				
EXPLAIN:	cturer recommendat	tions or common indu	stry practices	•			
EXPLAIN:	cturer recommendat	tions or common indu	ustry practicas	•			
EXPLAIN:	cturer recommendat	tions or common indu	stry practices				

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

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/Divisio	n of Air Quality	- Application	n for Air Perm	nit to Construc	t/Operate		D	
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO):	ES-HAF		
Hammermill Area and Hammermill 5			CONTROL D	DEVICE ID NO	S):	CD-HAF-FF		
OPERATING SCENARIO 1 OF	1			OINT (STACK)		EP-HAF		
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO	CESS (ATTAC	I FLOW DIA		3	, <u>,</u>			
One set of conveyors after the hammermills transpo	•		•	econd set of c	onvovors tran	enorts the m	aterial from	
the peliet press silo to the pellet presses. Particula								
include: coarse hammermills to "accepts conveyor"								
feed conveyor, silo bypass to pellet press conveyor					nammermiii	is also routed	to this	
filter, as is the pneumatic transfer line associated w	ith dried wood	transfer from	n the dried w	ood day silo.				
TYPE OF EMISSION SOURCE (CHEC	K AND COMPL	ETE APPRO	PRIATE FORM	M B1-B9 ON TH	IE FOLLOWI	NG PAGES):		
Coal,wood,oil, gas, other burner (Form B1) Wood				t. of chemicals/		•		
			_		oodinigo iinto i			
☐ Int.combustion engine/generator (Form B2 ☐ Coat	• • •	• •						
	ge silos/bins (F		Other (F					
START CONSTRUCTION DA TBD OPERAT	ION DATE:	TBD	DATE MANU	JFACTURED:				
MANUFACTURER / MODEL NO.: TBD ¹		EXPECTED	OP. SCHEDU	LE: 24 HR/D			NK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):1	NESHAP (SUI	3PART?):	MA	CT (SUBPART		_	
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-F		MAR-MAY		JUN-AUG 25		SEP-NOV 25		
EXPECTED ANNUAL HOURS OF OPERATI 8,76	VISIBLE STA	CK EMISSIOI	NS UNDER NO	ORMAL OPERA	ATION: < 20	% OPAC	ITY	
CRITERIA AIR POLL								
	SOURCE OF		D ACTUAL	T		EMSSIONS		
	EMISSION	1	ROLS / LIMITS)	(DEFENDE CONT	ROLS / LIMITS)	(AFTER CONTI	OLE (LIMITE)	
AID DOLLUTANT EMITTED	FACTOR	ib/hr		lb/hr		!b/hr	tons/yr	
AIR POLLUTANT EMITTED			tons/yr		tons/yr	10/14	tons/yr	
PARTICULATE MATTER (PM)	See Emissio	n Calculation	s in Appendi	X D				
PARTICULATE MATTER<10 MICRONS (PM ₁₀)			-					
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})								
SULFUR DIOXIDE (SO2)								
NITROGEN OXIDES (NOx)								
CARBON MONOXIDE (CO)	7.64							
VOLATILE ORGANIC COMPOUNDS (VOC)								
LEAD					S			
OTHER		The same of	1750					
HAZARDOUS AIR POL	LUTANT EA	MISSIONS I	INFORMAT	TION FOR T	HIS SOUR	CE		
	SOURCE OF	EXPECTE	D ACTUAL	POTENTIAL EMSSIONS				
	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CONT	TROLS / LIMITS)	(AFTER CONTI	CONTROLS / LIMITS)	
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
N/A								
							0.000	
		50 m (0)						
							I E C	
					12 The Little O		Name and Associated to the Control of the Control o	
					RIVE TO			
	100		100		ministration of		The second second	
							0.0100000	
TOXIC AIR POLLU	TANT EMIC	NONE INE	OPMATION	FOR THIS	SOUDCE			
INDICATE EXPEC							15000	
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		o/hr	1D/	day	ID	/yr	
N/A					- 000	1000		
				-				
		1 - 218				1		
	LYLL CO.	Carlotte Control	100				A COLUMN	
	Substance of	THE PARTY OF THE P					Aut and the	
				1	307			
Attachments: (1) emissions calculations and supporting docum							n, emission	
rates) and describe how these are monitored and with what fre	quency; and (3) d	escribe any mor	itoring devices,	gauges, or test p	orts for this sour	ce.		

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

Attach Additional Sheets As Necessary

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

EMISSION SOURCE (OTHER)

MISSION SOURCE DESCRIPTION:	Application	for Air Permit to Construct/Op	erate	B9			
		EMISSION SOURCE ID NO:	ES-HAF				
Hammermill Area and Hammermill 5		CONTROL DEVICE ID NO(S):	CD-HAF	-FF			
PERATING SCENARIO: 1 OF 1		EMISSION POINT (STACK) ID N	IO(S): EP-HAF				
ESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM) One set of conveyors after the hammermills transports m transports the material from the pellet press silo to the pe area fabric filter. Drop points routed to common control i "accepts conveyor" to pellet press silo infeed conveyor, to pellet press conveyor, & pellet press distribution conv filter, as is the pneumatic transfer line associated with dr	naterial to the ellet presse include: corpellet pressergyors. The	es. Particulate emissions are ro arse hammermills to "accepts s silo to pellet press feed conve plant's 5th hammermill is also	outed to one (1) conveyor", eyor, silo bypass routed to this				
MATERIALS ENTERING PROCESS - CONTINUOUS PROC	ESS	MAX. DESIGN	REQUESTE	D CAPACITY			
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION				
	Tons	47.78					
MATERIALS ENTERING PROCESS - BATCH OPERATION	ON	MAX. DESIGN	REQUESTE	D CAPACITY			
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (I	JNIT/BATCH)			
AXIMUM DESIGN (BATCHES / HOUR):							
EQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES	ES/YR):					
NEL LIGED NIA	TOTAL MA	XIMUM FIRING RATE (MILLION	BTU/HR): N/A				
UEL USED: N/A 4	REQUESTED CAPACITY ANNUAL FUEL USE: N/A						

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01	NCDENR/D	/Division of Air Quality - Application for Air Permit to Construct/Operate						C1		
CONTROL DEVICE ID NO:	CD HAF FE	CONTROL & EMIS	SCIONE EDOM	MUICU	EMICEION C	OUBCE	ID NO(E)	Ee U	A.F.	
CONTROL DEVICE ID NO.	CD-HAF-FF	CONTROLS EMIS	BIONS FROM	MUCH	EIVISSION S	OURCE	ID NO(S):	E3-F1	A.F	
EMISSION POINT (STACK) ID N	O(S): EP-HAF	POSITION IN SER	ES OF CONT	ROLS			NO.	1	OF 1	UNITS
MANUFACTURER: Aircon (Corp.		MODEL NO:	14	RA296-12					
DATE MANUFACTURED:	TBD		PROPOSED (OPERA	TION DATE:	TBD				
OPERA"	TING SCENARIO:		PROPOSED S	START	CONSTRUCT	ION DA	TE:	TBD		
1	OF <u>1</u>		P.E. SEAL RE	QUIRE	D (PER 2Q .0	112)?		é YES	3)	é NO
DESCRIBE CONTROL SYSTEM: One (1) area fabric filters	-	collect particulate	emissions fror	n the d	ried wood ha	ndling	systems in	the v	icinity of	
the hammermills and 5th	h hammermili.									
20111741740 2011 50750			- DM		DN		DM			
POLLUTANT(S) COLLECTED:			PM	-	PM ₁₀		PM _{2,5}			
BEFORE CONTROL EMISSION	RATE (LB/HR):			-						
CAPTURE EFFICIENCY:				% _		%		.%		_%
CONTROL DEVICE EFFICIENCY				% _		.%		.%		_%
CORRESPONDING OVERALL E	FFICIENCY:			% _		.%		.%		_%
EFFICIENCY DETERMINATION	CODE:			-						
TOTAL EMISSION RATE (LB/HR	l):		See calcul	ations	in Append	dix B				
PRESSURE DROP (IN. H ₂ 0): N	MIN: MAX: 8"	GAUGE?	d YES	<u> </u>	NO W	ARNING	G ALARM?	0	YES d	NO
BULK PARTICLE DENSITY (LB/F	⁻ T ³): 1.43E-06		INLET TEMPE	RATUR	RE (°F): Am	nbient				
POLLUTANT LOADING RATE:	0.01 € LB/HR	GR/FT	OUTLET TEM	PERAT	URE (°F): Am	bient				
INLET AIR FLOW RATE (ACFM)	: 32500		FILTER MAX	OPERA	TING TEMP. ((°F):	N/A			
NO. OF COMPARTMENTS:	TBD ¹ NO. OF BAGS	PER COMPARTM	ENT: T	BD ¹		LENG	TH OF BAG	(IN.):	TBD1	
DIAMETER OF BAG (IN.):	DRAFT:	INDUCED/NE	FOF	RCED/P	os.	FILTER	R SURFACE	ARE	A (FT ²):	5,417
AIR TO CLOTH RATIO: 6.00		RIAL: Polyester or	requivalent				€ WOVEN	7	€ FELTE	
DESCRIBE CLEANING PROCED	DURES:					PARTICLE SIZE DISTRIBUTION				
€ AIR PULSE		# SONIC				l	SIZE		IGHT %	CUMULATIVE
€ REVERSE FLOW		SIMPLE BAG				(MI	CRONS)	OF	TOTAL	%
MECHANICAL/SHAKE	:R Cleaning procedure	∜ RING BAG C					1-10		Uni	known
		rependent on inia	design				10-25	_		
DESCRIBE INCOMING AIR STR		-42-1				_	25-50	-		
The air stream will cont	am wood dust pai	rticies				_	0-100	_		
						_	>100			
							-100		TOT	AL = 100
METHOD FOR DETERMINING V	WHEN TO CLEAN:						_			
AUTOMATIC & TIME										
METHOD FOR DETERMINING	WHEN TO REPLACE TO	HE BAGS:								
ALARM INTE	RNAL INSPECTION	d VISIBLE EMISS	SION	€ OTH	ER					
SPECIAL CONDITIONS: None										
MOISTURE BLINDING EXPLAIN:	d CHEMICAL RESIS	TIVITY	d OTHER							
DESCRIBE MAINTENANCE PRO	OCEDURES Parman	ifacturer recommo	ndations of a		industry are	ctions				
DESCRIBE WAIN FENANCE PRO	JOLDONGS. Per manu	riacturer recomme	INGGUOUS OF CO	nomin	moustry pra	ruces				
ON A SEPARATE PAGE, ATTAC	H A DIAGRAM SHOW	ING THE RELATION	NSHIP OF THE	CONT	ROL DEVICE	TO ITS	EMISSION	SOUR	CE(S):	

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

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/Divisio		- Application	•	it to Construct	/Operate		В	
EMISSION SOURCE DESCRIPTION:				OURCE ID NO:		ES-PMFS		
Pellet Mill Feed Silo				EVICE ID NO(S		CD-PMFS-B	1	
OPERATING SCENARIO 1 OF	1			OINT (STACK)		EP-PMFS		
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO	CESS (ATTACE	I FLOW DIA						
A pellet press silo stores dried ground wood prior t	o transport to t	he nellet nre	EEAE					
A pellet press silo stores dried ground wood prior	o transport to t	ne pener pre	3303.					
						IO BAOES).		
TYPE OF EMISSION SOURCE (CHEC								
□ Coal,wood,oil, gas, other burner (Form B1); □ Woo	dworking (Form	B4)		t. of chemicals/o	coatings/inks ((Form B7)		
☐ Int.combustion engine/generator (Form B2 ☐ Coat	ing/finishing/prin	ting (Form B5) [Incinerat	ion (Form B8)				
	age silos/bins (Fo		Other (F					
	ION DATE:		DATE MANU	FACTURED:	TBD			
MANUFACTURER / MODEL 1 TBD		EXPECTED	OP. SCHEDU	LE: 24 HR/D	AY 7 D/	AY/WK _52	WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?): N	IESHAP (SUI			CT (SUBPART	Γ?):		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-F	EB 25%	MAR-MAY	25%	JUN-AUG 25	%	SEP-NOV 2		
EXPECTED ANNUAL HOURS OF OPERATION 8.76	VISIBLE STA	CK EMISSIO	NS UNDER NO	ORMAL OPERA	TION: < 20) % OF	PACITY	
CRITERIA AIR POLL	UTANT EMIS	SIONS IN	FORMATIC	N FOR THI	S SOURCE		STATE OF	
	ISOURCE OF		D ACTUAL	T		EMSSIONS		
	EMISSION		ROLS / LIMITS)	(BEFORE CONT			ROLS / LIMITS)	
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM)			s in Appendi	-				
PARTICULATE MATTER<10 MICRONS (PM ₁₀)	TOO BILLIONS		I					
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})	+ -							
SULFUR DIOXIDE (SO2)	100000000000000000000000000000000000000	1 20 10		12 -21 III		50-30-0	- 33.55	
NITROGEN OXIDES (NOx)			NEW YORK			74200		
CARBON MONOXIDE (CO)							1011/100	
VOLATILE ORGANIC COMPOUNDS (VOC)				100000		Land St. No.		
LEAD			1000	100				
OTHER						OVER 1		
HAZARDOUS AIR POL	LUTANT EN	USSIONS	INFORMAT	TON FOR TI	HIS SOUR	CE		
TIPAD AND GOO PLANT OF	ISOURCE OF		D ACTUAL	T		EMSSIONS		
	EMISSION		TROLS / LIMITS)	(BEFORE CONT	ROLS / LIMITS)	7		
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	ib/hr	tons/vr	lb/hr	tons/yr	lb/hr	tons/yr	
N/A	TACTOR	10/11	torioryi	127111	to no. j.			
N/A						THE PARTY NAMED IN		
	-							
			Bull Cond		INTERNATION IN			
			N. E.		HE ULT STATE	L. L. L. Co		
				1 1 1	Mark Mark	A		
TOXIC AIR POLLU	TANT FMISS	SIONS INF	ORMATION	FOR THIS	SOURCE		1 88 1	
INDICATE EXPE								
	EF SOURCE		b/hr		dav	1	b/yr	
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		U/TH	ID/	uay		J	
N/A								
		1		1		1	1000000	
	1			1				
				1				
		The same of		1		-		
		1000					NI STATE	
	THE REAL PROPERTY.	- 19 10	11 32	HAR HILL	Sale Spirit			
Attachments: (1) emissions calculations and supporting docur	nentation: (2) indica	ate all requeste	d state and fede	ral enforceable pe	ermit limits (e.a.	hours of operat	on, emission	
rates) and describe how these are monitored and with what fro	equency; and (3) de	escribe any mo	nitoring devices,	gauges, or test p	orts for this sou	rce.		

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE
Attach Additional Sheets As Necessary

EMISSION SOURCE (STORAGE SILO/BINS)

NCDENR/D	IVISIO	1 OT AIT QU	Jainty - Ap	piicatioi	1 for Air Permit	to Co	nstru	cvOperate		B6
IPTION Pellet M	fill Fee	d Silo			EMISSIO	N SO	URCE	ID NO:	ES-PMFS	
					CONTRO	DE DE	VICE	D NO(S):	CD-PMFS-BV	
	1	OF,	1		EMISSIO	N POI	INT(S	TACK) ID NO(S):	EP-PMFS	
				ort to the	pellet presses.					
					DENSITY OF M	MATER	IAL (L	.B/FT3): 4	0	
CUBIC FEET	4778						(1			
		DIAMETER	R:	(OR)				IT:		
	-			. ,		_				
	-0, /		ECHANIC	ALLY FI		7,41	5,514		D FROM	3/1
€ BLOWER €						+	ad			
	-			201	MOTOR UE	<u></u>	Α.			
	A				MOTOR HE				=	
			ELEVATO	K		\dashv				
	e	OTHER:					-	OTHER:)	Conveyor	
Ground wood	l handl	ing conve	eyors on v	way to po	ellet press					
				WH (cor	itrolled by dust	: collec	ction	system		
RATE OF MAT	ERIAL	(TONS/H	R):	47.78						
DING RATE OF	MATE	RIAL (TO	NS/HR):	47.78						
vide 2 hours	s of h	old up c	apacity	in the	event of dry	er do	ownt	ime (47.78 tp	h * 2 hours)	
	CUBIC FEET HEIGHT: DUGHPUT (TO) ILLED Ground wood ERIAL UNLOAD Ing to conveyo	CUBIC FEET 4778 HEIGHT: DUGHPUT (TONS) ILLED Ground wood handl ERIAL UNLOADED FRING to conveyor. Cor	CUBIC FEET 4778 HEIGHT: DIAMETER DUGHPUT (TONS) BUCKET E BUCKET E OTHER: Ground wood handling converses Ground wood handling converses CRATE OF MATERIAL (TONS/H	CUBIC FEET 4778 HEIGHT: DIAMETER: DUGHPUT (TONS) BELT CONVEYOR BUCKET ELEVATO BUCKET ELEVATO OTHER: Ground wood handling conveyors on view of the conveyor. CONVEYOR DIAMETER: CONVEYOR BUCKET ELEVATO OTHER: GRATE OF MATERIAL (TONS/HR): DING RATE OF MATERIAL (TONS/HR):	CUBIC FEET 4778 HEIGHT: DIAMETER: (OR) DIAMETER: DIAMETER: OR) SCREW CONVEYOR BELT CONVEYOR BUCKET ELEVATOR OTHER: Ground wood handling conveyors on way to perform the conveyor. Conveyor part of ES-GWH (conveyors) FRATE OF MATERIAL (TONS/HR): 47.78 DING RATE OF MATERIAL (TONS/HR): 47.78	DENSITY OF MOTOR HEIGHT: CUBIC FEET 4778	EMISSION SO CONTROL DE EMISSION PO PROCESS (ATTACH FLOW DIAGRAM): DENSITY OF MATER TONS: 95.6 MAXIMUM DE MECHANICALLY FILED SCREW CONVEYOR BELT CONVEYOR BELT CONVEYOR BUCKET ELEVATOR OTHER: Ground wood handling conveyors on way to pellet press ERIAL UNLOADED FROM SILO? Ing to conveyor. Conveyor part of ES-GWH (controlled by dust collections to the pellet press PRATE OF MATERIAL (TONS/HR): 47.78 DING RATE OF MATERIAL (TONS/HR): 47.78	EMISSION SOURCE CONTROL DEVICE EMISSION POINT(S PROCESS (ATTACH FLOW DIAGRAM): DENSITY OF MATERIAL (L CUBIC FEET 4778 HEIGHT: DIAMETER: DENSITY OF MATERIAL (L WIDTH WIDTH DENSITY OF MATERIAL (L WIDTH	CONTROL DEVICE ID NO(S):	EMISSION SOURCE ID NO: ES-PMFS CONTROL DEVICE ID NO(S): CD-PMFS-BV DENISTY OF MATERIAL (LB/FT3): 40 CUBIC FEET 4778 TONS: 95.6 HEIGHT: DIAMETER: (OR) LENGTH: WIDTH: HEIGHT: DUGHPUT (TONS) ACTUAL: MAXIMUM DESIGN CAPACITY: ILLED MECHANICALLY FILLED FILLED FROM SCREW CONVEYOR MOTOR HP: TRUCK BELT CONVEYOR MOTOR HP: TRUCK BUCKET ELEVATOR OTHER: OTHER: Conveyor Ground wood handling conveyors on way to pellet press ERIAL UNLOADED FROM SILO? INTERIOR OF MATERIAL (TONS/HR): 47.78

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 SER	ES OF CONTROLS		NO.	1 OF	UNITS	
MANUFACTURER: Aircon Corp.			MODEL NO:	BV25-10				
DATE MANUFACTURED: TBD			PROPOSED OPER	ATION DATE:	TBD			
OPERATING 8	CENARIO:		PROPOSED STAR	T CONSTRUCT	ON DATE:	TBD		
1OF	1		P.E. SEAL REQUIR	RED (PER 2Q .01	112)?	YES	∂ NO	
DESCRIBE CONTROL SYSTEM:								
A bin vent filter collects dust fro	om 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 EFFICIE	NCY:		%		%	%	_%	
EFFICIENCY DETERMINATION CODE:							_	
TOTAL EMISSION RATE (LB/HR): See calculations in Appendix B								
PRESSURE DROP (IN. H₂0): MIN: MAX: 4" GAUGE? (YES) NO WARNING ALARM? (YES) NO								
BULK PARTICLE DENSITY (LB/FT3):	1.43E-0	6	INLET TEMPERAT	URE (°F):	Ambient			
POLLUTANT LOADING RATE: 0.0	o1_ € LB/HF	GR/FT ³	OUTLET TEMPER	ATURE (°F):	Ambient			
INLET AIR FLOW RATE (ACFM): 2,18	36		FILTER MAX OPE	RATING TEMP.	(°F): N/A			
NO. OF COMPARTMENTS: TBD1	NO. OF BAG	S PER COMPARTM	ENT: TBD1		LENGTH OF BAG	(IN.): TBD ¹		
DIAMETER OF BAG (IN.):	DRAFT:	€ INDUCED/NE	G. FORCE	/POS	FILTER SURFACE	AREA (FT ²):	37	77
AIR TO CLOTH RATIO: 5	8 FILTER MAT	ERIAL: Polyester of	r equivalent		e WOVEN			
DESCRIBE CLEANING PROCEDURES					PARTIC	LE SIZE DIST	-	
AIR PULSE		€ SONIC			SIZE	WEIGHT %		ILATIVE
₫ REVERSE FLOW		€ SIMPLE BAG			(MICRONS)	OF TOTAL		%
₫ MECHANICAL/SHAKER		€ RING BAG C			0-1	U	known	
OTHER Clean	ing procedure	dependent on final	design		1-10			
DESCRIBE INCOMING AIR STREAM:					10-25			
The air stream will contain w	ood dust pai	rticles			25-50			
					50-100			
					>100			
						TC	TAL = 100	
METHOD FOR DETERMINING WHEN	TO CLEAN:							
METHOD FOR DETERMINING WHEN		HE BAGS:						
11 (1 () () () () () () () () (INSPECTION	€ VISIBLE EMIS	SION é C	THER				
SPECIAL CONDITIONS: None								
₫ MOISTURE BLINDING ₫ CH	HEMICAL RESIS	TIVITY	OTHER					
EXPLAIN:								
DESCRIBE MAINTENANCE PROCEDURES Per manufacturer recommendations or common industry practices								

Attach Additional Sheets As Necessary

¹Final 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 N	CDENR/Division	of Air Quality	- Applicatio	n for Air Perm	nit to Constru	ct/Operate		B
EMISSION SOURCE DESCRIPTION:				EMISSION S	OURCE ID NO	DES-CLR1, 2,	3 & 4	1
Four Pellet Coolers								
				CONTROL D	NEVICE ID NO	CD CLB C4	and CD-CLP 1	,
				CONTROLL	EVICE ID NO	(CD-CLR-C1	IIIG CD-CLK-2	-
OPERATING SCENARIO1	OF	1		1				
5. 2. 5. 1. 11 to 00 El Willio		•	-	EMISSION P	OINT (STACK	() ID NO(S):	EP-CLR-1, E	P-CLR-2
DESCRIBE IN DETAILTHE EMISSION	SOURCE PRO	CESS (ATTAC	H FLOW DIA	GRAM):				
Four pellet coolers follow the pellet	presses to cool	the newly for	ned pellets o	lown to an ac	ceptable stor	age temperatu	re. ES-CLR1	and ES-CLR2
exhaust to CD-CLR-1 and ES-CLR3 a					·	-		
TYPE OF EMISSION S	OURCE (CHECK	AND COMPL	ETE APPRO	PRIATE FORM	# B1-B9 ON T	HE FOLLOWI	NG PAGES):	
Coal,wood,oil, gas, other burner (Fo	rm B1': Wood	working (Form	B4)	☐ Manufac	t. of chemicals	coatings/inks	(Form B7)	
☐ Int.combustion engine/generator (Fo				5) 🗌 Incinerat	ion (Form B8)	_		
Liquid storage tanks (Form B3)		ge silos/bins (F		Other (F				
START CONSTRUCTION DA TBD		ON DATE:	TBD		JFACTURED:	TRD		
	TBD			OP. SCHEDU			AY/WK 52	WILVE
MANUFACTURER / MODEL NO.:								WINTE
IS THIS SOURCE SUBJECT TO? NSI			MAR-MAY		JUN-AUG 2	ACT (SUBPAR	SEP-NOV 2	20/
PERCENTAGE ANNUAL THROUGHP						25% RATION: < 20		
EXPECTED ANNUAL HOURS OF OPE								11 1
CRITERIA	A AIR POLLU				IN FOR TH			
		SOURCE OF		ED ACTUAL			EMSSIONS	
		EMISSION		TROLS / LIMITS)		TROLS / LIMITS)		ROLS / LIMITS)
AIR POLLUTANT EMITTED		FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)		See Emissio	n Calculation	ns in Appendi	xВ			
PARTICULATE MATTER<10 MICRONS	(PM ₁₀)							
PARTICULATE MATTER<2.5 MICRONS	S (PM _{2.5})							
SULFUR DIOXIDE (SO2)								- 11-11-11
NITROGEN OXIDES (NOx)				WILL IN		Distance of the		Tem Ive
CARBON MONOXIDE (CO)		TOVIL TELL		DECEMBER OF THE PERSON NAMED IN COLUMN				
VOLATILE ORGANIC COMPOUNDS (VOC)			No. of the last of				
LEAD								
OTHER								
HAZARDO	US AIR POL	LUTANT EN	MISSIONS	INFORMAT	TON FOR 1	THIS SOUR	CE	
		ISOURCE OF	EXPECT	ED ACTUAL		POTENTIAL	EMSSIONS	
		EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE COM	NTROLS / LIMITS)	AFTER CONT	ROLS / LIMITS)
HAZARDOUS AIR POLLUTANT AND	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
N/A								
147.1			Dall E III			7.15/15		7-10-1
			2	975 U.S.			100	
					La Company		A Con-	
				1 13 13			77128	100
		2000			The second			
TOXIC	AIR PÖLLUT	ANT FMISS	SIONS INF	ORMATION	FOR THIS	SOURCE		
	DICATE EXPEC							
TOXIC AIR POLLUTANT AND CAS N		TEF SOURCE		b/hr		/day	1	o/yr
	0	EF SOURCE		D/TII	II.	7day	IL.	лут
N/A		-		the state of the s	-			1 1 2
		-			+		_	
					-			
			1		1			
			100			TRI NI D		
		HELDELING.	10 27/7					
		TO U.S.	100	DOMESTIC .				
Attachments: (1) emissions calculations and	supporting docume	entation: (2) indic-	ate all requests	d state and foder	ral enforceable r	permit limits (e.a.	hours of operation	on emission
rates) and describe how these are monitored	d and with what free	juency; and (3) de	escribe any mo	nitoring devices.	gauges, or test	ports for this sou	'Ce.	an emission

COMPLETE THIS FORM AND COMPLETE AND ATTACH APPROPRIATE B1 THROUGH B9 FORM FOR EACH SOURCE
Attach Additional Sheets As Necessary

¹Final 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	ty - Application	for Air Permit to Construct/Op	perate B9	
EMISSION SOURCE DESCRIPTION: Four Pellet Coole	rs	EMISSION SOURCE ID NO: E	S-CLR1, 2, 3 & 4	
		CONTROL DEVICE ID NO(S;C	D-CLR-C1 and CD-CLR-2	
OPERATING SCENARIO:1 OF1				
OPERATING SCENARIO.		EMISSION POINT (STACK) ID	NO(S): EP-CLR-1, EP-CLR-2	
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAG				
Four pellet coolers follow the pellet presses to cool temperature. ES-CLR1 and ES-CLR2 exhaust to CD-				
MATERIALS ENTERING PROCESS - CONTINUOUS P	DOCECO	MAX. DESIGN	REQUESTED CAPACITY	
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)	
Wood Pellets	Tons	47.78		
	15.15			
MATERIALS ENTERING PROCESS - BATCH OPE		MAX. DESIGN	REQUESTED CAPACITY	
TYPE	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (UNIT/BATCH)	
	_			
MAXIMUM DESIGN (BATCHES / HOUR):				
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES	S/YR):		
FUEL USED: N/A		MAXIMUM FIRING RATE (MILLION BTU/HR)N/A		
MAX. CAPACITY HOURLY FUEL USE: N/A COMMENTS:	REQUEST	ED CAPACITY ANNUAL FUEL	USE: N/A	
COMMENTS.				
THE STATE OF THE S				

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISED 12/01/01	NCDENR/Divis	ion of Air Quality -	Application for Air F	ermit to Construct/	Operate		C4
CONTROL DEVICE ID NO: CD-CLR-	C1 and CD-CLR-2	CONTROLS EMIS	SSIONS FROM WHIC	CH EMISSION SOUR	CE ID ES-CLR1,	2, 3 & 4	
EMISSION POINT (STACK) ID NO(S):	EP-CLR-1, EP-CLR-2	POSITION IN SER	RIES OF CONTROLS	NO.	1 OF 1	UNITS	
MANUFACTURER: TBD1		мс	DDEL NO:				
DATE MANUFACTURED: TBD		PR	OPOSED OPERATION	ON DATE: TBD			
OPERATIN	IG SCENARIO:			DNSTRUCTION DATE			
1	.OF1	P.E	SEAL REQUIRED	(PER 2Q .0112)?	∉ YES	NO	
DESCRIBE CONTROL SYSTEM: Two identical dual high efficiency cy	valence are equipped to the	o pollet coolers to	cantura bulk PM on	siecione EQ_CI D1 a	and ES_CI D2 avh	auet to CD-CI R-1 and	ı
ES-CLR3 and ES-CLR4 exhaust to C					ina Eo-OEIGE OXIII		
POLLUTANT(S) COLLECTED:			PM PM				
BEFORE CONTROL EMISSION RATE	(LB/HR):	-				_	
CAPTURE EFFICIENCY:			%	%	_%	%	
CONTROL DEVICE EFFICIENCY:		_	%	%	_%	%	
CORRESPONDING OVERALL EFFICE	ENCY:	_	%	%	_%	%	
EFFICIENCY DETERMINATION CODE	Ē:					_	
TOTAL EMISSION RATE (LB/HR):		Se	e calculations i	n Appendix B			
PRESSURE DROP (IN. H₂0): MIN	MAX 6.0"	WARNING ALARM?	? d YE	S d NO			
INLET TEMPERATURE (°F): MIN	MAX	Ambient	OUTLET TE	MPERATURE (°F):	MIN MAX	Ambient	
INLET AIR FLOW RATE (ACFM):	27,50	00	BULK PART	ICLE DENSITY (LB/F	T ³): 3E-06		
POLLUTANT LOADING RATE (GR/FT	³): 0.02	22					
SETTLING CHAMBER	is a little of	CYCLO	ONE			IULTICYCLONE)	
LENGTH (INCHES):	INLET VELOCITY (FT/SI	EC):	d CIRCUL	AR & RECTANGLE	NO. TUBES:	2	
WIDTH (INCHES):	DIMENSIONS (INC	HES) See instruction	s IF WET S	SPRAY UTILIZED	DIAMETER OF	TUBES: 43*	
HEIGHT (INCHES):	H:	Dd:	LIQUID USE	D:	HOPPER ASPIR	RATION SYSTEM?	
VELOCITY (FT/SEC.):	W:	Lb:	FLOW RATE	(GPM):	€ YES		
NO. TRAYS:	De:	Lc:	MAKE UP R	ATE (GPM):	LOUVERS?	RS?	
NO. BAFFLES:	D:	S:			e YES	(d NO)	
	TYPE OF CYCLONE:		VAL & HI	. (HIGH EFFICIENC) & OTHER			
DESCRIBE MAINTENANCE PROCED	URES:				PARTICLE SIZE		
Periodic inspection of mecha as specified by manufacture				SIZE (MICRONS)	OF TOTAL	CUMULATIV %	E
DESCRIBE INCOMING AIR STREAM:				0-1		Unknown	
Fine particulate emissions fr	om cooling pellets			1-10			
				10-25			
				25-50			
				50-100			
				>100			
						TOTAL = 100	
DESCRIBE ANY MONITORING DEVICE None	CES, GAUGES, TEST POR	TS, ETC:		>100		TOTAL = 100	

Attach Additional Sheets As Necessary

¹Final 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	y - Application	4				В
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO	ES-CLR-5		
Pellet Cooler #5							
			CONTROL D	EVICE ID NO(CD-CLR-C3		
OPERATING SCENARIO1OF	1						
				OINT (STACK	ID NO(S):	EP-CLR3	
DESCRIBE IN DETAILTHE EMISSION SOURCE PROC							
Fifth pellet cooler follows the pellet presses to cool t	he newly forn	ned pellets do	wn to an acce	eptable storag	e temperature	e. Cooler exh	austs to a
dedicated high efficiency cyclone.							
TOPE OF EMISSION COURSE (OUTO)	CAND COMP	CTE ADDDOL	DIATE FORM	B4 B0 ON Th	IE EOL LOWIN	C DACES):	
TYPE OF EMISSION SOURCE (CHECK							
Coal,wood,oil, gas, other burner (Form B1) Wood					coatings/inks (roilli bij	
☐ Int.combustion engine/generator (Form B2 ☐ Coatir							
	ge silos/bins (F		Other (Fo				
START CONSTRUCTION DATED OPERATION OPERATION OF THE PROPERTY O	ON DATE:			FACTURED:			
MANUFACTURER / MODEL NO.: TBD1				E: 24 HR/D			VK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):		NESHAP (SUB			T (SUBPART		,
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE	B 25%	MAR-MAY 2		UN-AUG 25		EP-NOV 25%	
		CK EMISSION					I Y
CRITERIA AIR POLLU	JTANT EMI	SSIONS IN	FORMATIO	IN FOR THE			
	SOURCE OF	EXPECTE	D ACTUAL		POTENTIAL	EMSSIONS	
	EMISSION		ROLS / LIMITS)		TROLS / LIMITS)		ROLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	See Emissio	n Calculation	s in Appendix	В			
PARTICULATE MATTER<10 MICRONS (PM ₁₀)							
PARTICULATE MATTER<2.5 MICRONS (PM _{2.5})							
SULFUR DIOXIDE (SO2)		E-pit E-jt	DIN ENGL	TO THE		ALC: U	
NITROGEN OXIDES (NOx)					JUST MICH		
CARBON MONOXIDE (CO)							- DI
VOLATILE ORGANIC COMPOUNDS (VOC)		2					
LEAD		-200					3 25 2 5
OTHER							
HAZARDOUS AIR POL	LUTANT EI			ION FOR T			
	SOURCE OF	EXPECTE	D ACTUAL			EMSSIONS	
	EMISSION		ROLS / LIMITS)		TROLS / LIMITS)		ROLS / LIMITS)
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
N/A		500000000000000000000000000000000000000		The state of the		Marie 12 min	
			3000				
				-			
		-					
		-					
	TANKE ENGO	OLONIO MIE	DIA TION	FOR THE	COURCE		
TOXIC AIR POLLUT							
INDICATE EXPEC							
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	E It	o/hr	lb.	day		o/yr
N/A							
			4 5			100	
						1000	
				200	DESIDE		
			C C T C	Divor -	- Tringer		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1000				
	ENGINEER PROPERTY.						
Attachments: (1) emissions calculations and supporting docume	ntation: (2) indi-	ate all requests d	etate and fode-	al enforceable so	mit limite (e.e. h	ours of operation	n emission
Attachments: (1) emissions calculations and supporting docume	mation, (2) male	ate all requested accriba any mon	itorina devices a	auces ortest n	orts for this source	and or obergro	1, 31111331011

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

¹Final 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: E	S-CLR5			
		CONTROL DEVICE ID NO(S) C	D-CLR-5			
OPERATING SCENARIO:1 OF1						
of Electing Societies.		EMISSION POINT (STACK) ID	NO(S): EP-CLF	₹-3		
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM	A):					
Fifth pellet cooler follows the pellet presses to cool the		d pellets down to an acceptabl	e storage tempera	ture.		
Cooler exhausts to a dedicated high efficiency cyclone.						
MATERIALS ENTERING PROCESS - CONTINUOUS PRO	CESS	MAX. DESIGN	REQUEST	ED CAPACITY		
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATIO	N(UNIT/HR)		
Wood Pellets	Tons	16.65				
		.5.05				
	-					
MATERIALS ENTERING PROCESS - BATCH OPERATI	ION	MAX. DESIGN	REQUEST	ED CAPACITY		
TYPE	UNITS	CAPACITY (UNIT/BATCH)		(UNIT/BATCH)		
		((0111172211011)		
	-					
MAXIMUM DESIGN (BATCHES / HOUR):	-					
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES	MD)·				
	10					
FUEL USED: N/A		AXIMUM FIRING RATE (MILLION BTU/HR): N/A				
MAX. CAPACITY HOURLY FUEL USE: N/A COMMENTS:	REQUESTE	D CAPACITY ANNUAL FUEL U	SE: N/A			
COMMENTS.						

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

OATE MANUFACTURED: TBD OPERATIN 1 DESCRIBE CONTROL SYSTEM: Two Identical dual high efficiency cycles.	EP-CLR-3 IG SCENARIO: OF1 clones are equipped to the	PROPO P.E. SE	OF CONTROLS NO: SED OPERATIO SED START CO	NO.	1 OF 1	UNITS
EMISSION POINT (STACK) ID NO(S): MANUFACTURER: TBD DESCRIBE CONTROL SYSTEM: Two Identical dual high efficiency cycles.	EP-CLR-3 IG SCENARIO: OF1 clones are equipped to the	POSITION IN SERIES MODEL PROPC PROPC P.E. SE	OF CONTROLS NO: SED OPERATIO SED START CO	NO. N DATE: TBD NSTRUCTION DATE	1 OF 1	
NANUFACTURER: TBD OPERATION OPE	IG SCENARIO: OF1 clones are equipped to the	MODEL PROPO PROPO P.E. SE	NO: SED OPERATIC SED START CO	N DATE: TBD NSTRUCTION DATE	3	UNITS
MANUFACTURER: TBD ¹ DATE MANUFACTURED: TBD OPERATIN 1 DESCRIBE CONTROL SYSTEM: Two Identical dual high efficiency cycles.	IG SCENARIO: OF1 clones are equipped to the	PROPO PROPO P.E. SE	SED OPERATIC SED START CO	NSTRUCTION DATE	E: TBD	
OPERATIN1 DESCRIBE CONTROL SYSTEM: wo identical dual high efficiency cycles.	OF1	PROPO P.E. SE	SED START CO	NSTRUCTION DATE	E: TBD	
OPERATIN1ESCRIBE CONTROL SYSTEM: wo identical dual high efficiency cyc	OF1	PROPO P.E. SE	SED START CO	NSTRUCTION DATE	E: TBD	
DESCRIBE CONTROL SYSTEM:	clones are equipped to the		AL REQUIRED (PER 2Q .0112)?		
wo identical dual high efficiency cy	clones are equipped to the				d YES) # NO
Two identical dual high efficiency cyc ES-CLR3 and ES-CLR4 exhaust to CI						
	0-CLR2. The parameters pro				d ES-CLR2 exha	ust to CD-CLR-1 and
POLLUTANT(S) COLLECTED:		PM	PM	10 PM _{2.5}		_
BEFORE CONTROL EMISSION RATE	(LB/HR):					
CAPTURE EFFICIENCY:			%	%	%	<u> </u>
CONTROL DEVICE EFFICIENCY:		<u></u>	%	%	%	%
CORRESPONDING OVERALL EFFICI	ENCY:		%	%		 %
EFFICIENCY DETERMINATION CODE	Ē:				_	
TOTAL EMISSION RATE (LB/HR):		See c	alculations in	Appendix B		
PRESSURE DROP (IN, H ₂ 0): MIN	MAX 6.0" V	VARNING ALARM?	7	s(d no)		
NLET TEMPERATURE (°F): MIN	MAX	Ambient	OUTLET TEN	MPERATURE (°F):	MIN MAX	Ambient
INLET AIR FLOW RATE (ACFM):	13,750)	BULK PARTI	CLE DENSITY (LB/F	T ³): 3E-0	6
POLLUTANT LOADING RATE (GR/FT	³): 0.022	2				·
SETTLING CHAMBER	AC DISTRIBUTE OF THE PARTY OF T					
LENGTH (INCHES):		CYCLONE	DE LA SERVICIO	A Contract of	MILE	MULTICYCLONE
	INLET VELOCITY (FT/SE		é CIRCULA	AR & RECTANGLE		
	INLET VELOCITY (FT/SEC	C):	*	AR		MULTICYCLONE
WIDTH (INCHES):		C):	*	PRAY UTILIZED	NO. TUBES: DIAMETER OF	MULTICYCLONE
WIDTH (INCHES): HEIGHT (INCHES):	DIMENSIONS (INCH	C): (ES) See instructions	IF WET S	PRAY UTILIZED):	NO. TUBES: DIAMETER OF	MULTICYCLONE TUBES:
MIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.):	DIMENSIONS (INCH	C): (ES) See instructions (Dd:	IF WET S	PRAY UTILIZED): (GPM):	NO. TUBES: DIAMETER OF	MULTICYCLONE TUBES: RATION SYSTEM?
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS:	DIMENSIONS (INCH H: W:	C): IES) See instructions Dd: Lb:	IF WET S LIQUID USET FLOW RATE	PRAY UTILIZED): (GPM):	NO. TUBES: DIAMETER OF HOPPER ASPI	MULTICYCLONE TUBES: RATION SYSTEM?
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS:	DIMENSIONS (INCH H: W: De: D:	C): (ES) See instructions Dd: Lb: Lc:	IF WET S LIQUID USEI FLOW RATE MAKE UP RA	PRAY UTILIZED): (GPM):	NO. TUBES: DIAMETER OF HOPPER ASPI Ø YES LOUVERS?	MULTICYCLONE TUBES: RATION SYSTEM? Å NO
WIDTH (INCHES): HEIGHT (INCHES): VELOCITY (FT/SEC.): NO. TRAYS: NO. BAFFLES:	DIMENSIONS (INCH H: W: De: D: TYPE OF CYCLONE:	C): IES) See instructions Dd: Lb: Lc: S:	IF WET S LIQUID USEI FLOW RATE MAKE UP RA	PRAY UTILIZED D: (GPM): ITE (GPM):	NO. TUBES: DIAMETER OF HOPPER ASPI YES LOUVERS? YES OTHER	MULTICYCLONE TUBES: RATION SYSTEM? Å NO
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Attach Additional Sheets As Necessary

¹Final 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. 10121R001

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. 10121R001 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 2HAF; ES-PMFPS; 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

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Mr. Glenn Gray December 7, 2010 Page 2

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

 Robert Fisher, Supervisor, Washington Regional Office Central Files State of North Carolina, Department of Environment, and Natural Resources

Division of Air Quality



Formatted Table

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
10121R0 <u>01</u>	N/A 10121R00	December 7, 2010 New Date	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: City, State, Zip:

1309 East Cary Street, Suite 200 Richmond, Virginia, 23219

Application Number: Complete Application Date:

4600107.10A October 1, 2010

Primary SIC Code:

Division of Air Quality, Regional Office Address: 2400

Washington Regional Office 943 Washington Square Mall

Washington, North Carolina, 27889

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

- 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.
- 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.ne.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

SECTION 2:

SPECIFIC LIMITATIONS AND CONDITIONS

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

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

SECTION 3:

GENERAL PERMIT CONDITIONS

ATTACHMENT

List of Acronyms

Permit No. 10121R00 Page 3

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	DWDW- BV	in vent filter (377 square feet of filter area)	CS 19 LINKED
ES-CHM-1, 2, 3, and 4	Four coarse hammermills	CD-CHM- C1 C2 C3 and C4 and CD-CHM- FF1 and FF2BV1, 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)	LINKED CS 20, 21, 22, 23 LINKED
ES- HAFGWH -1 and 2	Ground wood handlingHammermill Area and Hammermill No. 5	CD-HAF- FFGWH- BF1 and BF2	one fabric filter Two bin vent filters (5,417 square feet of filter area each)	CSZ4 LINKED
ES-P <u>MF</u> PS	Pellet press silo	P <u>MF</u> PS- BV	One bin vent filter (3772,500 square feet of filter area)	CSI
ES-CLR1, 2, 3, and 4	Four pellet coolers	CD-CLR- C1 and, C2, C3, and C4	Four multicyclones (two, 43 inch diameter tubes each)	CS 15 + 16 LINKED
KS-CLR-5	let Cooler No. 5	CD-CLR-5	One simple cyclone (XX in tube diameter)	CS 25 LINKED
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	

Permit No. 10121R00

Page 4

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 feedpress silo (ID No. ES-PMFPS), 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	15A NCAC 02D .0515
	Where, E = allowable emission rate (lb/hr) P = process weight rate (tph)	
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

 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)]

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

$$E = 55 \text{ x P}^{0.11}$$
 - 40 for process weight rate $\geq 30 \text{ tph}$

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

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

Testing [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 2BV1, 2, 3, and 4). Particulate matter emissions from the Hammermill Area and Hammermill No. 5ground wood handling system (ID No. ES-HAFGWH-1-and 2) shall be controlled by one fabric two bin vent-filters (ID No. CD-HAF-FFGWH-BV1 and 2). Particulate matter emissions from the pellet mill feedpress silo (ID No. ES-PMFPS) shall be controlled by a bin vent filter (ID No. CD-PMFPS-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 (1D 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
 - i. a monthly visual inspection of the system ductwork and material collection unit for leaks.
 - 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.

- 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;

requirement shall include the following:

- 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]

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

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Permit No. 10121R00 Page 6

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]

 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:
 - 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
 - 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:

 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	Limits/Standards	Applicable Regulation
Pollutant		

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	State-enforceable only	15A NCAC 2D .1100
pollutants	See Section 2.2 A.1.	
Hazardous air pollutants (HAP)	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal	15A NCAC 2D .1111 (40 CFR 63, Subpart
	Combustion Engines (RICE) No additional requirements per 63.6590(c)	ZZZZ)
NMHC and NOx,	0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW	15A NCAC 2D .0524
CO, PM	for NOx + NMHC	(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)]

 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 the sources are observed to be above normal, the Permittee shall either:
 - 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 $\S60.4205$, 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.
- 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.

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:

 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-	Acrolein	0.989 lb/hr
DRYER)	Arsenic & compounds	1.0952.674 lb/year
	Benzene	2864.52 lb/year
-	Benzo(a)pyrene	2.9 lb/year
/-	<u>Cadmium</u>	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-	Acrolein	1.94E-04 lb/hr
FWP)	Arsenic & compounds	1.50E-03 lb/year
	Benzene	17.52 lb/year
-/-	Benzo(a)pyrene	2.30E-04 lb/year
	Formaldehyde	2.48E-03 lb/hr
Emergency generator (ID No.	Acrolein	2.27E-04 lb/hr
ES-EG)	Arsenic & compounds	1.80E-03 lb/year
	Benzene	17.52 lb/year /
1	Benzo(a)pyrene	1.97E-04 lb/year
	Formaldehyde	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
1,3 Butadiene (106-99-0)	11		(10.11)	(10/111)
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		70.1
Mercury, vapor (7439-97-		0.013		
Methyl chloroform (1,1,1-trichloroethane) (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		<u>78</u>		
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)	<u>5.6</u>			
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

 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

- 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.
- 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.

Permit No. 10121R00 Page 12

- 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.
- 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.
- 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.

Permit No. 10121R00 Page 13

- 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. <u>PERMIT RETENTION REQUIREMENT</u> 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

Air Permit No. 10121R001

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

PM₁₀ 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

SO₂ Sulfur Dioxide tpy Tons Per Year

VOC Volatile Organic Compound

ATTACHMENT 3 LOCAL ZONING CONSISTENCY DETERMINATION

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 Sullivan, PE, CM Managing Consultant

Gre W. Sullivan

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	a above:
I have received a copy of t	he air permit application (draft or final) AND
	ning ordinances for this facility at this time
	consistent with applicable zoning ordinances
	NOT consistent with applicable zoning ordinances
(please include a copy of	of the rules in the package sent to the air quality office)
	ng 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 m at the appropriate address as che	ailing address listed above and the air quality office ecked 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 Consultant One Copley Parkway Suite 310 Morrisville, NC 2		
Contact Name: Glenn Gray	Contact Name: Chris Aberg / Joe Sulliva	ın	
Phone Number: (804) 412-0227 Email: Glenn.Gray@intrinergy.com	Phone Number: (919) 462-9693 Email: caberg@trinityconsultants.co	om	
	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.			
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).			
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.			
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.			
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.			
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.			
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			

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.	N/A
Simple: Complex:	
Meteorology: In SCREEN3, select full meteorology.	N/A
Receptors : SCREEN3 – use shortest distance to property boundary for each source modeled and use sufficient range to find maximum (See Section 4.1 (i) and (j)). Terrain above stack base must be evaluated.	N/A
Modeling Results : For each affected pollutant, modeling results should be summarized, converted to the applicable averaging period (See Table 3), and presented in tabular format indicating compliance status with the applicable AAL, SIL or NAAQS. See NC Form S5 – Appendix A.	N/A
Modeling Files: Either electronic or hard copies of SCREEN3 output must be submitted.	N/A

REFINED LEVEL MODELING			
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.	Х		
Source / Source emission parameters : Provide a table listing the sources modeled and the applicable source emission parameters. <i>See NC Form 3 - Appendix A</i> .	Х		
GEP Analysis: Use BPIP-Prime with AERMOD.	Х		
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.	Х		
Receptors : The receptor grid should be of sufficient size and resolution to identify the maximum pollutant impact. See Section 5.3.	Х		
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).	х		
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.	Х		
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.	Х		

s t

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 Benzo(a)pyrene	3.846E-05	2.589E-08	2.158E-08
	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	Modeled Concer	ntrations (µg/m³)
Period	1992	MAX
1-Hour	14.852	14.852
24-Hour	5.737	5.737
Annual	0.429	0.429

FINAL MODELING RESULTS

	Averaging	Max. Modeled Impact	Date/Time of Impact	Location o	f Maximum	AAL	% of AAL
Pollutant	Period	(μg/m³)	(YYMMDDHH)	UTM-E (m)	UTM-N (m)	$(\mu g/m^3)$	(%)
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%

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

Information Source(s) Bagfilter evaluation developed by:	> 20
	40
> 20 20 100.0 45.0 Sec.79 Overall Control Efficiency = Penetration =	
15 - 20 15 57.0 5.4 99.39 5.40 > 20 100.0 43.0 99.99 43.00 Overall Control Efficiency = 99.84 Penetration = 0.16	15-20 15 57.0 5.4 99.99
10 51.8 11.3 99.39 11.30 15-20 15.0 20 100.0 43.0 99.99 43.00	10-15 10 51.8 11.3 99.99 15-20 15 57.0 5.4 99.99
10 - 15	10 57.0 5.4 99.99
5.70 5.70 5.70 5.70 6.70 6.70 6.70 6.70 6.70 6.70 6.70 6	5 40.3 23.8 99.90 10 51.6 11.3 99.99 15 57.0 5.4 99.99
2.5-5 2.5 16.5 10.7 99.90 10.69 5-10 5 40.3 23.8 99.90 23.78 10-15 10 51.6 11.3 99.99 11.30 15-20 15 57.0 5.4 99.99 11.30 >20 20 100.0 43.0 99.99 43.00 Assume that a control of the control	2.5 16.5 10.7 99.90 5 40.3 23.8 99.90 10 51.6 11.3 99.99 15 57.0 54 99.99
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(ID No. CD-HA			Applicant Filtering Velocity (fpm)		Ch Acid	Fair		Gas Strea Uncontrolled 0.000 Controlled 0.0000	onable.		Dust drag (K2) param		eta-m	(%)	5.68	23.78	11.30	5.40				Managament	Viditagernen	
Bagfilter Evaluation - Enviva, Ahoskie (ID No. CD-HAF-FF)	Program Output	Filtering Velocity Analysis	Typical Filtering Velocity (fpm)	Typical filtering velocity not exceeded.	Fabric Durability Analysis	Fabric appropriate for max. oper. temp.	Particulate Emissions Analysis	Controlled Particulate Rate (lb/hr) 0.000	The estimated collection efficiency is reasonable.	Allowable Emissions per 2D .0515 (lb/hr)	Maximum Areal Dust Loading (gr/sq ft)	Efficiency Calculations	Mass in Range Control Efficiency		5.8 98.00	70.7 23.8 99.90		5.4 99.99 43.0	Overall Co		Bagfilter evaluation developed by:	William D. Willets, M.S., E.I.T.	Carolina Division or Environmental pality Permitting	Version 3.3; September 23, 1999
ter Evaluat	Progr	Filterin	Typical	Typical	Fabric	Fabric	Partice	Contro	The es	Allowa	Maxim				4 ,	- 2		, 4			Bagfill	William	Note:	Version
Bagfil			9 (%)	47	Material	7		J'hr)	nents		(uin)		Cumul. Mass	(% < size)	5.8	16.5	51.6	57.0	0.00					
	uble outline).	ed.	Estimated Efficiency (%)	Cloth Area (sq.ft)	Proposed Cloth Material	o de la companya de l	Pulse Jet? yes	Process Rate (lb/hr)	No. of compartm	Felted? no	Cleaning Time (min)	uo		(mn)	0	2.5	, 은	15	24					
	rmation in blue (do	tion is single outlin-		(acfm)	Temperature (F)			ate Rate (lb/hr)	Jrop (in H2O)	(%)	ings (min)	Particle Size Distribution	Size Ranges	(mn)	0 - 2.5	2.5 - 5	10 - 15	15 - 20	^ 20					
	User Input User must supply information in blue (double outline)	Optional user information is single outlined	Particulate Material	Actual Air Flow Rate (acfm)	Maximum Operating Temperature (F)			Uncontrolled Particulate Rate (lb/hr)	Maximum Pressure Drop (in H2O)	Gas Stream Moisture (%)	Time Between Cleanings (min)	Parti	Avg. Size	(mn)	1.25	3.75	12.5	17.5	50	Information Source(s)	4600107.11A		_	

NA CO CUM CEARCES)	Enviva, Anoskie (ID No. CD-Chim-fr I or r z)			Applicant Filtering Velocity (fpm) 6.0		Chemical Resistance Acid Alkali Organics	Fair	Gas Stream Particulate Loadings (gr/dscf) Uncontrolled 0.00 Note: Correct gas stream temperature and Controlled 0.0000 moisture content must be entered!	ble.		Dust drag (K2) parameter ((inH2O/fpm)/(lb/sq ft))		eta-m (%)	5.68 10 80	23.78	11.30 5.40	43.00 99.84 %	- 1		nagement
	Bagfiiter Evaluation - Enviva, Anoskie (II	Program Output	Filtering Velocity Analysis	Typical Filtering Vetocity (fpm)	Typical filtering velocity not exceeded.	Fabric Durability Analysis	Fabric appropriate for max. oper. temp. Particulate Emissions Analysis	Controlled Particulate Rate (lb/hr) Unc 0.000 C	The estimated collection efficiency is reasonable.	Allowable Emissions per 2D .0515 (lb/hr)	Maximum Areal Dust Loading (gr/sq ft) D	Efficiency Calculations	Mass in Range Control Efficiency	5.8 98.00		11.3 99.99 5.4 99.99	43.0 99.99 Overall Control Efficiency =	Penetration =	Bagfliter evaluation developed by:	William D. Willets, M.S., E.I.T. North Carolina Division of Environmental Management
	Bagfilter	ouble outline).	ned.	Estimated Efficiency (%)	Cloth Area (sq.ft) 6,667	Proposed Cloth Material	2	Process Rate (lb/nr)	No. of compartments	Felled? no	Cleaning Time (min)	tion	Size Cumul. Mass			10 51.6 15 57.0	20 100.0			
		User Input User must supply information in blue (double outline).	Optional user information is single outlined.	Particulate Material	Actual Air Flow Rate (acfm)	Maximum Operating Temperature (F)	nco	Uncontrolled Particulate Rate (lb/hr)	Maximum Pressure Drop (in H2O)	Gas Stream Moisture (%) 23.00	Time Between Cleanings (min)	Particle Size Distribution	Avg. Size Size Ranges	_	3.75 2.5-5 7.5 5-10	12.5 10 - 15			Information Source(s)	

Cyclone Design and Evaluation 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

	_			ri e	
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

			1			
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	Average	Density	Cumulative
Size Ranges	Range	Diameter	Function	Mass
(µm)	(µm)	(µm)	(%wt)	(% < 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

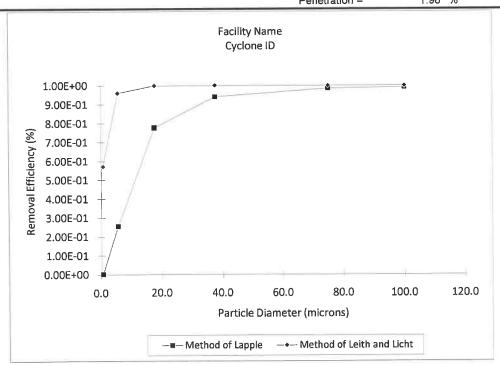
Performance Analyses

Performance Ana	lyses		Facility:	Enviva, Ahoskie	•	
Method of Lapple			Cyclone:	CD-CHM-C1, C	2, C3, C4	
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		

	Density	Mass		
Size Ranges	Function	in Fraction	eta	etam
(µm)	(µm)	(%)		
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 %
		Pe	netration =	22.24 %

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

19			Mass in			New Mass
Size Ranges	Avg. Size	Psi	Range	eta	etam	in Range
(µm)	(m)		(%)		(%)	(%)
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 e	fficiency =	98.02	%
			Pen	etration =	1.98	%



Zoning Consistency Determination

Facility Name	Enviva Pellets Ahoskie, LLC					
Facility Street Address	142 N.C. Rt. 561 East					
Facility City	Ahoskie, NC					
Pescription 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	ailing 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 zor	ring and increase for this facility at this time					
and the total specific and the specific						
The proposed operation IS consistent with applicable zoning ordinances						
The proposed operation IS NOT consistent with applicable zoning ordinances						
	f 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 257-287-5632					
Title of Designated Official	CHIEF CODE ENFORCEMENT OFFICER					
Signature	Hour R. Trum					
Date	10-25-11					
Please forward to the facility ma at the appropriate address as che	ailing address listed above and the air quality office ecked on the back of this form.					

Division of Air Quality November 10, 2011



MEMORANDUM

TO:

Kevin Godwin, Permit Engineer, Raleigh Central Office

Permit Coordinator, Washington Regional Office

THROUGH:

Mm 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	AAL/	Percent
	Impact	NAAQS	Standard
	(ug/m3)	(ug/m3)	%
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

	Temperature	Exit Velocity	Stack Diameter	ARSENIC	BENZO(A)	cadmium	chlorine	Hexa-p- dioxine	IZ
	٤	(s/ı	(m)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
				1.71E-					
727.594 24.239	24.239		0.203	07	3.95E-07	0	0	0	0
				2.05E-					
727.594 28.279	28.279		0.203	07	4.61E-07		0	0	0
				3.05E-		5.69E-	9.87E-	2.00E-	
350.372 8.221	8.221		3.048	04	3.25E-04	02	05	04	2.38

Atch 1

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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.

cc: Washington Regional Office Files



An Equal Opportunity \ Affirmative Action Employer

10/28/2011

Comprehensive Application Report for 4600107.11A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Application Events TV - Ac Event

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Audit Information Pertaining to this Application

Security Features Included Details on Back. ₪ No. 00000000559 *********** PAY THIS AMOUNT AUTHORIZED SIG 2000048 2976 1 1" Wachovia Bank 1021 E Carv St Richmond VA 23219 CHECK DATE 10/18/2011 #875000001 #855000000# Eight hundred sixty-seven and xx / 100 Dollars Enviva Pellets Ahoskie 7200 Wisconsin Ave Suite 1100 Bethesda, MD 20814 USA NCDENR USA TO THE ORDER OF PAY

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