

# 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

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. 10121R00

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, we are forwarding herewith Air Quality Permit No. 10121R00 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-CHM-1, 2, 3, and 4, ES-GWH-1 and 2, ES-PPS, ES-CLR-1, 2, 3, and 4, 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. Glenn Gray December 7, 2010 Page 2

the specific issues to be contested. This hearing request must be in the form of a written petition, confo. NCGS (North Carolina General Statutes) 150B-23, and filed with both the Office of Administrative Hearing Mail Service Center, Raleigh, North Carolina 27699-6714 and the Division of Air Quality, Permitting State 1641 Mail Service Center, Raleigh, North Carolina 27699-1641. The form for requesting a formal adjudic hearing may be obtained upon request from the Office of Administrative Hearings. Please note that this permit be stayed in its entirety upon receipt of the request for a hearing Unless a request for a hearing is made pursuan 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 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



# AIR QUALITY PERMIT

Permit No.	Replaces Permit No.(s)	Effective Date	Expiration Date
10121R00	N/A	December 7, 2010	November 30, 201

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:** 

4600107.10A

**Complete Application Date:** 

October 1, 2010

Primary SIC Code:

2499

Division of Air Quality,

Washington Regional Office 943 Washington Square Mall

**Regional Office Address:** 

Washington, North Carolina, 27889

Permit issued this the 7th day of December, 2010

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)
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: <a href="http://daq.state.nc.us/permits/insig/">http://daq.state.nc.us/permits/insig/</a>

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# 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-CHM- 1, 2, 3, and 4	Four coarse hammermills	CD-CHM-BV1, BV2, BV3, and BV4	Four bin vent filters (1,560 square feet of filter area each)
ES-GWH- 1 and 2	Ground wood handling	CD-GWH- BF1 and BF2	Two bin vent filters (417 square feet of filter area each)
ES-PPS	Pellet press silo	CD-PPS- BV	One bin vent filter (2,500 square feet of filter area)
ES-CLR1, 2, 3, and 4	Four pellet coolers	CD-CLR- C1, C2, C3, and C4	Four multicyclones (two, 43 inch diameter tubes each)
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), four coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4), ground wood handling (ID No. ES-GWH-1 and 2), pellet press silo (ID No. ES-PPS), and four pellet coolers (ID Nos. ES-CLR1, 2, 3, and 4)

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

D. 14.2		
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 $\ge 30$ 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

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)]

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

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

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

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

#### Testing [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 four coarse hammermills (ID Nos. ES-CHM1, 2, 3, and 4) shall be controlled by four bin vent filters (ID Nos. CD-CHM-BV1, 2, 3, and 4). Particulate matter emissions from the ground wood handling system (ID No. ES-GWH-1 and 2) shall be controlled by two bin vent filters (ID No. CD-GWH-BV1 and 2). Particulate matter emissions from the pellet press silo (ID No. ES-PPS) shall be controlled by a bin vent filter (ID No. CD-PPS-BV). Particulate matter emissions from the four pellet coolers (ID Nos. ES-CLR-1, 2, 3, and 4) shall be controlled by four multicyclones (ID Nos. CD-CLR-C1, 2, 3, and 4). To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In

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addition to the manufacturer's inspection and maintenance recommendations, or if there is no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

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

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

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

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

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

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

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

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

#### **Testing** [15A NCAC 02D .2601]

b. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 02D .2601 and General Condition JJ found in Section 3. If the results of this test are above the limit given in Section 2.1 A.2.a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0516.

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

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

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

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

#### Testing [15A NCAC 02D .2601]

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

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

- c. To assure compliance, once a month the Permittee shall observe the emission points of this source for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either:
  - i. take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or
  - ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2601 (Method 9) for 12 minutes is below the limit given in Section 2.1 A.3. a. above.

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

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

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

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

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

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

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

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

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

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#### Testing [15A NCAC 2D .0501(c)(4)]

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

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

c. No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of diesel fuel in these sources.

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

-a. Visible emissions from these sources shall not be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. [15A NCAC 2D .0521(d)]

#### **Testing** [15A NCAC 2D .0501(c)(8)]

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

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

- c. To assure compliance, once a month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. The Permittee shall establish "normal" for the sources in the first 30 days following operation. If visible emissions from this sources are observed to be above normal, the Permittee shall either:
  - i. take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken as provided in the recordkeeping requirements below, or
  - ii. demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .2601 (Method 9) for 12 minutes is below the limit given in Section 2.1 F.2. a. above.

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

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

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

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

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

a. The provisions of this subpart are applicable to manufacturer, owners, and operators of stationary compression ignition (CI), reciprocating internal combustion engines (RICE). The Permittee shall comply with all applicable provisions, including the requirements for emission standards, notification,

testing, reporting, recordkeeping, and monitoring, contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards (NSPS)" as promulgated in 40 CFR Part 60 Subpart IIII, including Subpart A "General Provisions."

#### Emission Standards for Manufacturers:

**Emergency Engines** 

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

#### Fire Pump Engines

- c. Pursuant to 40 CFR §60.4202(d), beginning with the model years in table 3 to this subpart, stationary RICE manufacturers must certify their fire pump RICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.
- d. Pursuant to 40 CFR §60.4210, RICE manufacturers must certify the engine using the certification procedures required in 40 CFR Part 89, subpart b, or 40 CFR Part 1039, subpart c as applicable.
- e. Pursuant to 40 CFR §60.4203, RICE must meet the emission standards during the useful life of the engine.

#### Emission Standards for Owners and Operators:

Emergency and Fire Pump Engines

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

0.20 g/kW for PM

3.5 g/kW for CO

4 g/kW for NOx + NMHC

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

### Fuel Requirements for Owners and Operators

- h. Pursuant to 40 CFR §60.4207, owners and operators must use fuel with a maximum sulfur content of 15 ppmw and a cetane index of at least 40.
- i. Pursuant to 40 CFR §60.4209(a), the owner or operator must install a non-resettable hour meter prior to start-up of the engines.

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# 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:

 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	1.095 lb/year
	Benzene	2864.52 lb/year
	Formaldehyde	6.02 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
	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
	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	Chronic	Toxicants	Acute	Systemic	Acute Irritants
	(lb/yr)	(lb/day)		Toxicants	(lb/hr)	(lb/hr)
1,3 Butadiene (106-99-0)	11					
Acetaldehyde (75-07-0)						6.8
Benzo(a)pyrene (50-32-8)	2.2					

Chloroform (67-66-3)	290			
Xylene (1330-20-7)		57		16,4
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Styrene (100-42-5)			2.7	
Toluene (108-88-3)		98	. /	14,4

# **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. ANNUAL EMISSION INVENTORY REQUIREMENTS The Permittee shall report by June 30 of each year the actual emissions of each air pollutant listed in 15A NCAC 02Q .0207(a) from each emission source within the facility during the previous calendar year. The report shall be in or on such form as may be established by the Director. The accuracy of the report shall be certified by the responsible official of the facility.
- 5. <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

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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.
- 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.

Permit No. 10121R00 Page 12

- 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  $XX^{th}$  day of , 2010.

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. 10121R00

#### **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<sub>x</sub> Nitrogen Oxides

NSPS New Source Performance Standard OAH Office of Administrative Hearings

PM Particulate Matter

PM<sub>10</sub> Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less

POS Primary Operating Scenario

PSD Prevention of Significant Deterioration
RACT Reasonably Available Control Technology

SIC Standard Industrial Classification

SIP State Implementation Plan

SO<sub>2</sub> Sulfur Dioxide tpy Tons Per Year

VOC Volatile Organic Compound

NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

**Facility Data** 

Permit Issue Date: 7 December 2010

Region: Washington Regional Office

County: Hertford

NC Facility ID: 4600107 Inspector's Name:

Date of Last Inspection:

Compliance Code:

Permit Applicability (this application only)

SIP: 02D .0515, .0516, .0521

NSPS: Subpart IIII

**NESHAP:** Subpart ZZZZ

PSD:

**PSD** Avoidance:

NC Toxics: 02D .1100 and 02Q .0711

112(r): Other:

Facility Address:

Enviva Pellets Ahoskie, LP 142 N.C. Rt 561 East Ahoskie, NC 27910

**Facility Contact** 

SIC: /2499 NAICS: /

Glenn Gray

Suite 200

Plant Manager

(804) 412-0227

1309 east Cary Street,

Richmond, VA 23219

Facility Classification: Before: N/A After: Title V Fee Classification: Before: N/A After: Title V

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

**Contact Data** 

**Authorized Contact Technical Contact** 

Glenn Gray

Plant Manager (804) 412-0227

1309 east Cary Street,

Suite 200

Richmond, VA 23219 Richmond, VA 23219 **Application Data** 

Application Number: 4600107.10A

**Date Received:** 10/01/2010 Application Type: New Permit Application Schedule: State

**Existing Permit Data** 

Existing Permit Number: N/A Existing Permit Issue Date: N/A Existing Permit Expiration Date: N/A

Comments / Recommendations:

Review Engineer: Kevin Godwin

Review Engineer's Signature:

Glenn Gray

Suite 200

Plant Manager

(804) 412-0227

1309 east Cary Street,

Issue 10121R00

Permit Issue Date: 12/07/2010

Permit Expiration Date: 11/30/2015

I. Introduction and Purpose of Application

Kevis T- Contain

- A. Enviva Pellets, LP (Enviva) is proposing to construct and operate a new wood pellets manufacturing plant at an existing facility in the town of Ahoskie, NC.
- B. The proposed plant is designed to produce up to 418,533 tons per year of wood pellets. The pelletizing process is described in the application as follows:
  - 1. Green wood will be delivered via trucks as whole logs or as chipped wood. Logs are chipped and debarked to specification for drying. Chipped wood is conveyed to wood storage and wood/bark is conveyed to green wood fuel dryer storage. Due to the high moisture content of green wood, negligible emissions from handling are expected. No air emissions from green wood handling and storage are reported in the application.
  - 2. Wood dryer (ID No. ES-Dryer) Green wood is conveyed to a rotary dryer system. Direct contact heat is provided to the system via a 125 million Btu/hr burner system. Air emissions from the dryer system are controlled by a simple cyclone (ID No. CD-DC) in series with a wet electrostatic precipitator (ID No. CD-WESP). Emissions are calculated based on a combination of dryer vendor emission guarantees and AP-42 emission factors.

- 3. <u>Dried wood handling (ID No. ES-DWH)</u> Dried materials are transferred from the dryer via conveyors to coarse hammermills for further size reduction prior to pelletizing. Calculations included in the application indicate emissions from dried wood handling are less than 5 tpy and are therefore insignificant.
- 4. <u>Coarse Hammermills (ID No. ES-CHM)</u> Dried materials are reduced to the appropriate size using four coarse hammermills operating in parallel. Particulate emissions are controlled using four bin vent filters (ID Nos. CD-CHM-BV1, 2, 3, and 4).
- 5. Pellet Press Silo and Ground Wood Handling (ID Nos. ES-PPS and ES-GWH) Ground wood from the hammermills is conveyed to a silo prior to pelletizing. Another set of conveyors transports ground wood to the pelletizers. Particulate emissions from the conveyors prior to and after the silo are controlled using a two bin vent filters (ID Nos. CD-GWH-BV1 and 2). Emissions from the silo are controlled using a separate bin vent filter (ID No. CD-PPS-BV).
- 6. Pellet Press System (ID No. ES-PP) Dried ground wood is compacted in the presence of water using several screw presses. Exhaust from the pellet press and associated conveyors are vented to the atmosphere with negligible particulate emissions. No chemical binding agents are used for pelletization.
- 7. Pellet Coolers (ID Nos. ES-CLR) Wood pellets are conveyed to one of four pellet coolers. Cooling air is passed through the pellets. Particulate emissions are controlled using multicyclones (ID Nos. CD-CLR-C1, C2, C3, and C4) operating in parallel.
- 8. Finished product handling (ID No. ES-FPH) Pelletized product is conveyed to storage and load-out operations with no emissions expected.
- 9. Emergency Generator (ID No. ES-EG), Fire water pump (ID No. ES-FWP) and associated Fuel oil storage tanks The facility will use a 350 bhp emergency generator and a 300 bhp fire water pump. Both engines operate on diesel fuel. Fuel for the emergency generator is stored in a 2,500 gallon tank and for the fire pump in a 500 gallon tank. Emissions from both tanks are insignificant.
- C. Pursuant to 15A NCAC 02Q .0501(c)(2), Enviva is a new Title V facility that will be issued a state construction permit under 15A NCAC 02Q .0300 with a requirement to submit a Title V permit application within 12 months after commencing operation.

#### II. Regulatory Review - Specific Emission Source Limitations

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

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

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

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

#### Control Device Monitoring

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

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

Reporting is required.

- B. 15A NCAC 02D .0516 "Sulfur Dioxide Emissions from Combustion Sources" Under this regulation, sulfur dioxide emissions from combustion sources cannot exceed 2.3 lb/million Btu heat input. No. 2 fuel oil is the worst case fuel. Firing No. 2 fuel oil (0.5% sulfur b.w.) will not cause this limit to be exceeded. Therefore, compliance is indicated.
- C. 15A NCAC 02D .0521 "Control of Visible Emissions" This regulation establishes a visible emission standard for sources based on the manufacture date. For sources manufactured after July 1, 1971, the standard is 20% opacity when averaged over a 6-minute period. The Permittee will be required to establish 'normal' visible emissions from these sources within the first 30-days of the permit effective date. In order to demonstrate compliance, the Permittee will be required to observe actual visible emissions on a monthly basis for comparison to 'normal'. If emissions are observed outside of 'normal', the Permittee shall take corrective action. Recordkeeping and reporting are required. Because all emission sources are designed to be well controlled, compliance with this standard is expected.

#### III. Regulatory Review - Multiple Emission Source Limitations

A. 15A NCAC 02D .0524 "New Source Performance Standards (NSPS), Subpart IIII" – This regulation applies to owners or operators of compression ignition (CI) reciprocating internal combustion engines (RICE) manufactured after April 1, 2006 that are not fire pump engines, and fire pump engines manufactured after July 1, 2006. Both the 350 hp emergency generator and the 300 hp fire pump engine are subject to the requirements of this regulation.

Under NSPS Subpart IIII, owners or operators of emergency generators manufactured in 2007 or later with a maximum engine power greater than or equal to 50 hp are required to comply with the emission limits referenced in 40 CFR §60.4205(b). These limits are as follows: 0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW for NOx + nonmethane hydrocarbons (NMHC).

Under NSPS Subpart IIII, owners or operators of fire pump engines manufactured after July 1, 2006 must comply with the emission limits in Table 4 of the subpart. The limits are as follows: 0.20 g/kW for PM; 3.5 g/kW for CO; and 4 g/kW for NOx + NMHC.

As stated in the application, Enviva will comply with these limits by operating the engines as instructed in the manufacturer's operating manual in accordance with 40 CFR 60.4211(a), and purchasing an engine certified to meet the referenced emission limits in accordance with 40 CFR 60.4211(b). The engines will be equipped with a non-resettable hour meter in accordance with 40 CFR 60.4209(a). Emergency and readiness testing will be limited to 100 hours per year.

In addition, both engines are required to comply with fuel requirements in 40 CFR 60.4207, which limit sulfur content to a maximum of 15 ppm and a cetane index of at least 40.

B. 15A NCAC 02D .1111 "Maximum Achievable Control Technology. Subpart ZZZZ" – 40 CFR Part 63 applies to RICE located at a major or area source of hazardous air pollutants (HAP). Pursuant to 40 CFR §63.6590(c) (amended August 20, 2010), a new stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart IIII for compression ignition engines. No further requirements apply to such engines under this part.

As reported in the application Enviva is an area source of HAP emissions with a facility-wide total of 13.02 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. Enviva emits five (5) listed TAPs above the permit exemption rate; acrolein, arsenic & compounds, benzene, formaldehyde, and phenol from the dryer, the fire water pump, and the emergency generator. 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) on October 26, 2010. According to Mr. Freeman's memo, the modeling did demonstrate compliance with North Carolina's Acceptable Ambient Levels (AAL) for the four TAP. Benzene had the highest impact at 13% of the AAL. 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. Therefore, Enviva is minor with regards to PSD. The following table taken from the application provides a summary of criteria pollutants from the rotary dryer:

Pollutant	Emission Factor	Factor Source	Potential Emissions (tpy)
CO	1.22 lb/ODT	Vendor	230.7
NOx	0.87 lb/ODT	Vendor	164.9
TSP	0.13 lb/ODT	WESP specifications	76.5
PM-10	0.13 lb/ODT	WESP specifications	76.5
$SO_2$	0.025 lb/MMBtu	AP-42, Section 1.6	13.7
VOC	1.051 lb/ODT	Vendor	197.9

E. <u>Nitrogen Dioxide Impact</u> – At the request of DAQ, Enviva modeled NO<sub>2</sub>. When the modeled impact and background concentration are added, the total impact reached 94% of the National Ambient Air Quality Standard (NAAQS).

#### 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 1, 2010.
- 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. Charles A. Hammond, Town Manager, Sept. 24, 2010).
- 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 December 2, 2010.
- According to the application, the facility does not handle any of the substances subject to 112(r).
- The application was signed by Mr. Matt Holland, Chief Operating Officer, on November 19, 2010.

#### V. Recommendations

This permit application for a new permit 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 November 12, 2010.

Issue Permit No. 10121R00

# Comprehensive Application Report for 4600107.10A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information:	Permit/Latest Revision: 10121/R00		Applic	Application Dates		
Permit code:	State	Received	Completeness Due	Clock Start	Calculated Issue Due	,
Application type:	New Permit	10/01/201011	0111 /15/2010	10/01/2010	01/26/2011	
Engineer/Rev. location:	Kevin Godwin/RCO		[ C.C.]	3	ř	
Regional Contact:	Yongcheng Chen	Initial amount:	Date received mount Due	:	Add. Amt Rcv'd: Date Rcv'd:	
Facility location:	Washington Regional Office	\$867.00	10/01/2010			
Facility classification:	Small	Fund type:	Deposit Slip #;	Location rec'd:	Location deposited:	
Clock is ON	Application is COMPLETE	2331			•	
Status is:	Issued					

	<u>Telephone</u> (804) 412-0227 (804) 412-0227
	23219 23219
	Address City State ZIP 1309 east Cary Street, Suite 200Richmond, VA 1309 east Cary Street, Suite 200Richmond, VA
Contact Information	Name Glenn Gray, Plant Manager Glenn Gray, Plant Manager
Conta	<u>Type</u> Authorized Technical/Permit

			omitted		1			
teria	Acceptance Criteria Description	Application fee	Appropriate number of apps submitted	Zoning Addressed	Source recycling/reduction form	Authorized signature	PE Seal	
Acceptance Criteria	Received?	Yes	Yes	Yes	Yes	Yes	Yes	

Completeness Criteria
Received? Complete Item Description

# Comprehensive Application Report for 4600107.10A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

12/07/2010

Hertford County

Application Events	Event         Start         Due         Complete         Comments         Staff           Acknowledgment letter due         10/01/2010 10/11/2010 10/12/2010         10/12/2010 11/18/2010 11/18/2010         10/12/2010 11/19/2010         IIII R/2010 11/19/2010         IIII R/2010 IIII R/2010         IIII R/2010 IIII R/2010         IIII R/2010 IIII R/2010         IIII R/2010 IIII R/2010         IIIII R/2010         IIII R/2010         IIIII R/2010         IIII R/2010         IIIII R/2010         IIII R/2010         IIIII R/2010         IIII R/2010         IIIII R/2010         IIII R/2010         IIII R/2010         IIII R/2010         IIII R/2010         IIII R/2010         IIII R/2010
Application	Event Acknowledgment letter due Technical additional informs Draft permit to region Draft permit to applicant Permit issued

# Comprehensive Application Report for 4600107.10A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107) Hertford County

	cesses
	Regulation Description Particulates Miscellaneous Industrial Processes Sulfur Dioxide Emissions Combustion Sources Control of Visible Emissions
Regulations Pertaining to this Permit	.0515 .0516 .0521
Regulations	Reference Rule 2D 2D 2D

	•
	<u>Editor</u> Mark Cuilla Mark Cuillà
	New Value 10/01/2010 10121
Audit Information Pertaining to this Application	Old Value 10/11/2010
mation Pertaining	Date Changed 10/12/2010 10/11/2010
Audit Infor	Column Name dt_App_Rec permit_No

KAL OFFICE PERMITETRACKING SLIP Facility/Application ID: County/Regional Office: Engineer: KNIN COAN Send Regional Office Copy of Application: ∵ Y'es INO Sec cover which PART I - ACCEPTANCE CHECKLIST Acknowledgement Letter: □ Already Sent ∠Please Send Initial Event(s): ☐ TV-Acknowledgement/Complete ☐ TV-Acknowledgement/Incomplete add info XAcknowledgement Letter due Application not accepted – add info request Fee Information: Acceptance Check List: Amount Due: PSD or NSR/NAA \$13,488 PSD and NSR/NAA \$26,235 Appropriate Number of Apps Submitted (minimum of 2) TV Greenfield \$8.910 Application Fee Submitted TV \$867\_ Zoning Addressed Ownership Change \$62 Source Recycling/Reduction Form Submitted Renewal/Name Change - NA Authorized Signature Initial Amount Received: PE Seal Additional Amount Due: PART II - IBEAM UPDATES PART III - COMPLETENESS CHECKLIST Application Type: Permit Application Schedule: ☐ Additional Permit □ Appeal Director Administrative Amendment Required Application Forms Submitted and Completed Administrative Amendment ☐ Expedited State D Permit Applicability Request ☐ Supporting Materials & Calculations Received ☐ Appea! □ PSD State DPE Seal (If 15A NCAC 2Q .0112) Greenfield Facility ☐ Modeling Protocol Acceptance ☐ Last GACT/Toxics ☐ Confirmation of Pollutants Modeled ☐ Last MACT/Toxics □ TV - State Only  $\Box TV - 502(b)(10)$ ☐ E5 Form (Significant Modifications) ☐ Modification ☐ TV - Expedited TV - Minor □ Name Change □ TV - Greenfield TV - Renewal E New Permit ☐ TV - Reopen for Cause □ TV - Significant (2Q .0501(c)(2)) Ownership Change □ TV - Administrative □ TV - Significant □ Renewal ☐ TV - Ownership Change □ TV - 1st Time ☐ Renewal w/Modification PART V - SUPERVISOR REVIEW CHECKLIST ESM Updated (by Engineer): Supervisor: 11-35-10 PART VI - CLOSEOUT INFORMATION Regulations Applicable to This Application (indicate all new regulations): Permit Class Information □ PSD/NSR SIP Regulations (list all new): Before ☐ PSD/NSR Avoidance .0515 □ Small ☐ Existing Source RACT/LAER Svn Minor ₽2D .1100 □ New Source RACT/LAER □ Title V ₽2Q.0711 □ RACT/LAER Added Fee □ Proh Small 2Q .0705 Last MACT/Toxics ☐ RACT Avoidance □ General ☐ Transportation

NESHAPS/MACT □ NESHAPS/GACT NSPS.

HAP Major Status (after) □ Major 

D Not Determined

☐ Multiple Permits at Facility

☐ Multi-Site Permit

□ Recycled Oil Condition

Dates

IBEAM Closed Out By:

Miscellaneous

Effective 12-7-10

Permit Number: 10121

Revision Number: ROO

Dublic Notice Published

☐ Public Notice Affidavit

Document Manager Updated by Engineer:



1309 East Cary Street, Suite 200 Richmond, VA 23219

> +1 (804) 381-4000 fax (804) 412-0229

www.envivabiomass.com

December 3, 2010

Mr. John C. Evans NCDENR, Division of Air Quality 1641 Mail Service Center Raleigh, NC 27604

Re:

Addendum to Air Quality Construction and Operating Permit Application Enviva Pellets Ahoskie, LLC

Dear Mr. Evans:

We are aware that during your final review of the permit being prepared for the Enviva Pellets Ahoskie, LP facility that you noted that emissions of arsenic were omitted from quantification in the application due to use of emission factor data sets that did not include this compound. Our consultant has confirmed the reasonableness of the arsenic calculations provided in your December 2, 2010 email correspondence and the minimal air quality impact (approximately 4 percent of the acceptable ambient level).

It is our understanding that the modeled emission rates for arsenic, based on the aforementioned calculation methodology, will be added to the permit table of other modeled compounds in Section 2.2.A.1 of the permit. It is our understanding that because the modeled concentration is so low that no testing, reporting or recordkeeping will be required for arsenic.

My staff has informed me that the North Carolina Division of Air Quality has provided excellent service throughout the entire application process. Thank you once again for the processing our application in such a timely manner.

Sincerely

Mat Holland

Chief Operating Officer

#### Godwin, Kevin

From:

Freeman, Jerry

Sent:

Thursday, December 02, 2010 1:50 PM

To:

Evans, John; Godwin, Kevin

Cc:

Roller, Jim

Subject:

Enviva Modeling Request Arsenic

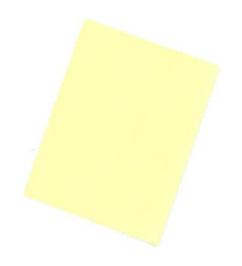
Per your direction, I modeled the emission rates and parameters in the table below based on modeling files from the October submission from the facility. The maximum arsenic impact was 1E-5 ug/m3 which is about 4% of the AAL (2.3E-4 ug/m3). Let me know if you require these results prepared in a modeling review memo, or if you need changes to any of the modeled parameters.

DAQ-processed meteorology = Norfolk 1988-1992

Source ID	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	ARSENIC (lb/hr)
DRYER	24.384	354.26	34.518	1.823	1.25E-04
FWPSTACK	9.144	727.59	24.239	0.203	3.00E-06
EMERGEN	9.144	727.59	28.279	0.203	3.60E-06

Jerry Freeman, Meteorologist II NC DENR, Division of Air Quality Permitting Section, Air Quality Analysis Branch 1641 Mail Service Center, Raleigh, NC 27699

Phone: 919-715-1814 Fax: 919-733-5317 www.ncair.org



#### Godwin, Kevin

From:

isullivan@trinityconsultants.com

Sent:

Tuesday, November 30, 2010 1:59 PM

To:

Godwin, Kevin

Cc:

Peter McDonald; Glenn.Gray@envivabiomass.com; CAberg@trinityconsultants.com

Subject:

Re: Enviva update

Attachments:

enviva-r00-p (2010-11-30 comments).doc; enviva-r00-p.doc; enviva-r00-rev.doc

Hello, Kevin. Here are our comments...just a few things. Probably the other things that are not administrative in nature are the comments regarding semi-annual reporting for the construction and operating permit (in advance of the Title V permit) and tweaks to the requirement for toxics reporting language. You may not be able to make changes to the toxics reporting language (seems like this language has become the boilerplate), but the current verbiage is not exactly clear what is being reported and the requested clarification would help the facility in the future to understand specifically what data is to be reported.

Neither of the specific comments discussed above are terribly important, so if you need to stick with the current reporting requirements, please just move forward with issuing the final permit.

Thanks again!

Regards, Joe

(See attached file: enviva-r00-p (2010-11-30 comments).doc)

Joe Sullivan, PE, CM Managing Consultant Trinity Consultants One Copley Parkway Suite 310 Morrisville, NC 27560

Phone: (919) 462-9693 Fax: (919) 462-9694 Mobile: (919) 271-8805

Stay sharp with professional training on timely environmental topics. For more information on Trinity courses, go to <a href="http://trinityconsultants.com/events">http://trinityconsultants.com/events</a>

From:

"Godwin, Kevin" < kevin.godwin@ncdenr.gov>

To:

Joe Sullivan < isullivan@trinityconsultants.com>

Date:

11/30/2010 09:47 AM

Subject:

Enviva update





# Updated Information for the Proposed Enviva Pellets Ahoskie Joe Sullivan to: Godwin, Kevin

11/24/2010 01:23 PM

Cc: Glenn.Gray, Peter McDonald, Chris Aberg

#### Kevin,

Per our discussion last Friday, this email contains a redline version of the draft permit as well as a description of several changes to the proposed Enviva Pellets Ahoskie, LP plant.

Changes are as follows:

- 1. One single pass dryer with a single 125 mmBtu/hr burner will be utilized.
- 2. A simple cyclone instead of two multicyclone will be used to control emissions from the dryer exhaust.
- 3. Four coarse hammermills with four bagfilters will be used instead of two hammermills.
- 4. Two bagfilters instead of a single filter will be used on ground wood handling operations.
- 5. Four pellet coolers with four multicyclones instead of two pellet coolers will be utilized .

Redline of Draft Permit (this probably provides the most concise clarification on process changes):



enviva-r00-p (2010-11-22).doc

Revised application forms. Please note that the authorized official has changed and the legal entity is an "LLP" not an "LLC."



Enviva Forms Changes (2010-11-23).pdf

Revised calculations for those sources impacted by process changes. In short, only particulate matter emissions were impacted.



Enviva Calcs Changes (2010-11-24).pdf

A hardcopy will be sent to you by mail so that you will have original signatures for the file. Please do not hesitate to contact me if you have any questions or comments. We are all very appreciative of your hard work in completing the permit for this project so quickly.

Regards, Joe

Joe Sullivan, PE, CM Managing Consultant Trinity Consultants One Copley Parkway Suite 310 Morrisville, NC 27560

Phone: (919) 462-9693 Fax: (919) 462-9694 Mobile: (919) 271-8805

TABLE 3-1
PSD APPLICABILITY SUMMARY
ENVIVA PELLETS AHOSKIE, LP

VOC (tpy)	197.95 5.59E-04 4.79E-04 0.00 0.00 0.00 0.00 3.79E-03	197.95 250 No
SO2 (tpy)	13.69 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 14.06 5.63 1.88 30.39 0.00	76.49 250 No
PM-10 (tpy)	24.48 0.03 0.02 14.06 5.63 1.88 30.39 0.00	76.49 250 No
TSP (tpy)	24.48 0.03 0.02 14.06 5.63 1.88 30.39 0.00	76.49 250 No
NOx (tpy)	163.86 0.58 0.49 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	230.71 250 No
Unit ID	ES-DRYER ES-EG ES-FWP ES-CHM-1, -2, -3, & -4 ES-PPS ES-GWH-1 & -2 ES-CLR-1, -2, -3, & -4 TK1 & TK2	Total Project Emission Increases PSD Significant Emission Rates PSD Review Required?
Source Description	Dryer System Emergency Generator Fire Water Pump Coarse Hammermills Pellet Press Silo Ground Wood Handling Pellet Coolers Diesel Storage Tanks	Total   PSD {

# **Dust Control Systems PM Emissions**

		Filter, Vent -or-		Pollutant	Annual					Potential Emissions	Smissions		
	Emission	Cyclone	Flowrate	Loading <sup>2</sup>	Operation	% PM	% PM that is	PM	_	PMI	10.3	PM,	3.5
Emission Unit	Source ID	ID	(dscfm)	(gr/dscf)	(hours)	$PM_{10}$	PM <sub>2.5</sub>	(Ib/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpv)
Coarse Hammermills Bagfilter 1	ES-CHM-1, -2, -3, & -4	CD-CHM-BV1	9,360	0.01	8,760	100%	100%	08.0	3.51	0.80	3.51	0.80	3.51
Coarse Hammermills Bagfilter 2	ES-CHM-1, -2, -3, & -4	CD-CHM-BV2	9,360	0.01	8,760	100%	%001	0.80	3.51	0.80	3.51	0.80	3.51
Coarse Hammermills Bagfilter 3	ES-CHM-1, -2, -3, & -4	CD-CHM-BV3	9,360	0.01	8,760	%001	%001	0.80	3.51	0.80	3.51	0.80	3.51
Coarse Hammermills Bagfilter 4	ES-CHM-1, -2, -3, & -4	CD-CHM-BV4	9,360	0.01	8,760	100%	100%	0.80	3.51	0.80	3.51	0 80	3.51
Ground Wood Handling Dust Collection System	ES-GWH-1 & -2	CD-GWH-BV1	2,500	0.01	8,760	%001	100%	0.21	0.94	0.21	0.94	0.21	0.94
Ground Wood Handling Dust Collection System	ES-GWH-1 & -2	CD-GWH-BV2	2,500	0.01	8.760	100%	100%	0.21	0.94	0.21	0.94	0.21	0.94
Pellet Press Silo Bin Vent Filter	ES-PPS	CD-PPS-BV	15,000	0.01	8,760	100%	%001	1.29	5.63	1.29	5.63	1.29	5.63
Pellet Coolers Cyclone 14	ES-CLR-1, -2, -3, & -4	CD-CLR-C1	9,200	0.022	8,760	100%	%001	1.73	7.60	1.73	7.60	1.73	7.60
Pellet Coolers Cyclone 24	ES-CLR-1, -2, -3, & -4	CD-CLR-C2	9,200	0.022	8,760	100%	%001	1.73	7.60	1.73	7.60	1.73	7.60
Pellet Coolers Cyclone 34	ES-CLR-1, -2, -3, & -4	CD-CLR-C3	9,200	0.022	8,760	100%	%001	1.73	7.60	1.73	7.60	1.73	7.60
Pellet Coolers Cyclone 44	ES-CLR-1, -2, -3, & -4	CD-CLR-C4	9,200	0.022	8.760	%001	100%	1.73	7.60	1.73	7.60	1.73	7.60
							TOTAL	11.86	51.96	98'11	96'15	11,86	51.96
						9							

Filter, Vent, and Cyclone inlet flow rate (cfin) provided by design engineering firm (HGA). The exit flowrate was conservatively assumed to be the same as the inlet flowrate.

2) Unless otherwise specified, pollutant (PM) loading conservatively assumed to be 0.01 gr/dscf

3) It was conservatively assumed that PM<sub>13</sub> and PM<sub>23</sub> equal PM emissions.

4) Pollutant loadings for pellet coolers are based upon expected emissions from other Enviva pellet plants in Europe. Coolers have expected emissions of 50 mg/N. cu. m. (0.022 gr/cu. ft.).



NOV 3 0 2010

#### **FORM A1**

#### **FACILITY (General Information)**

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D.H.			
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		10000	

REVISED 11/01/02 NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate	A1			
NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOW	ing:			
✓ Local Zoning Consistency Determination (if required) ✓ Facility Reduction & Recycling Survey Form (Form A4)	Application Fee			
	E. Seal (if required)			
GENERAL INFORMATION	File to Said with the second			
Legal Corporate/Owner Name: Enviva Pellets, LLC				
Site Name: Enviva Pellets Ahoskie, LP				
Site Address (911 Address) Line 1: 142 N.C. Rt 561 East				
Site Address Line 2:				
City: Ahoskie State: North Carolina				
Zip Code: 27910 County: Hertford				
CONTACT INFORMATION				
Permit/Technical Contact: Facility/Inspection Contact:				
Name/Title: Glenn Gray / Plant Manager Name/Title: Glenn Gray / Plant Manager				
Mailing Address Line 1: 4300 Fact Co. Ot 1 0 7 000	Street, Suite 200			
Mailing Address Line 2: Mailing Address Line 2:	Street, Stitle 200			
City: Richmond State: VA 7: Code: 20040 City	WA Zin Code. Conta			
Phone Me (este ends) (004) 440 com = 111	VA Zip Code: 23219 Fax No. ( area code) (804) 412-0229			
Email Address: Glenn.Gray@envivabiomass.com  Email Address: Glenn.Gray@envivabiomass.com				
Responsible Official/Authorized Contact: Invoice Contact:	COM			
Nome/Title: Class Conv. / Plant Ma.				
Modified Address Line 1: 4200 F 1 0	Physical D. N. 1000			
Molling Address Line 2.	Street, Suite 200			
City Pichmond State WA 75 Code: 000000000000000000000000000000000000				
Phone No (see code) (201) 440 ppg 7 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	VA Zip Code: 23219			
Email Address: Glenn.Gray@envivabiomass.com  Email Address: Glenn.Gray@envivabiomass.com	Fax No. (area code) (804) 412-0229			
APPLICATION IS BEING MADE FOR	com			
New Non pagetted Facility/Consequent	Luith Madification			
Modification of Facility (permitted)  Renewal with Modification  Renewal (TV Only)				
FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)	- Revise Some Sections			
☐ General ☐ Small ☐ Prohibitory Small ☐ Synthetic Minor ☑ Title V				
FACILITY (Plant Site) INFORMATION				
Describe nature of (plant site) operation(s): Facility ID No. : N/A (To be assigned)				
Wood pellet manufacturing facility				
Primary SIC/NAICS Code: 2499 (Wood Products, Not Elsewhere Classified)  Current/Previous Air Permit No. N/A				
Coellis Condinates	Expiration Date N/A			
Facility Coordinates: Latitude: 323,525.1 UTM E Longitude: 4,015,554.4 UTM N  Does this application contain confidential data? YES  NO				
PERSON OR FIRM THAT PREPARED APPLICATION				
Dornan Name				
Mailing Address Line 1: One Control Parks				
City Mariadila				
Phono No. (040) 462 0602	County: Wake			
Phone No. (919)-462-9693 Fax No. (919)-462-9694 Email Address: Jsullivan@trinity SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT	consultants.com			
Name (hyped):				
Y Connection (Disse letter 5				
Date: 11/19/10				

#### FORMs A2, A3

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

REVISED 04/10/07	NCDENR/Division of Air Quality - A	pplication for Air Permi	t to Construct/Operate	A2
EI	MISSION SOURCE LISTING: New, Mo	dified. Previously L	Innermitted Replaced Deleted	
EMISSION SOURCE	I EMISSION SOURCE	CONTROL DEVI	CE CONTROL DEVICE	
ID NO.	DESCRIPTION	ID NO.	DESCRIPTION	
Equip	oment To Be ADDED By This Applica			
ES-DRYER	Green Wood Direct-Fired Dryer System	CD-DC		
	State Wood Bricker fied Bryer System	CD-WESP	Single Cyclone Wet Electrostatic Precipitator	
ES-CHM-1, -		CD-WESP	Wet Electrostatic Precipitator	
2, -3, & -4	Four Coarse Hammermills	CD-CHM-BV1	Bin vent filter (1,560 s.f. of surface area	
		CD-CHM-BV2	Bin vent filter (1,560 s.f. of surface area)	
		CD-CHM-BV3	Bin vent filter (1,560 s.f. of surface area)	
ES-GWH-1 & -2	0 110 111 111	CD-CHM-BV4	Bin vent filter (1,560 s.f. of surface area)	
ES-GWH-1 & -2	Ground Wood Handling System	CD-GWH-BV1	Bin vent filter (417 s.f. of surface area)	
E0.000		CD-GWH-BV2	Bin vent filter (417 s.f. of surface area)	
ES-PPS	Pellet Press Silo	CD-PPS-BV	Bin vent filter (2,500 s.f. of surface area)	Ř
ES-CLR-1, -2, -3, & -4	Four Pellet Coolers	CD-CLR-C1	High Efficiency Multicyclone	
		CD-CLR-C2	High Efficiency Multicyclone	
		CD-CLR-C3	High Efficiency Multicyclone	
		CD-CLR-C4	High Efficiency Multicyclone	
ES-EG	Emergency Generator (250kw, 350bhp)	N/A	N/A	
ES-FWP	Fire Water Pump (300bhp)	N/A	N/A	
nul sugles	Equipment To Be DI	ELETED By This	Application	
			фрисаном	

112(r) APPLICABILITY	INFORMATION	4.3
Is your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section If No, please specify in detail how your facility avoided applicability:	n 112(r) of the Federal Clean Air Act? Yes / No	
Enviva Pellets Ahoskie, LLC will not handle any of the substances subject to 112 If your facility is Subject to 112(r), please complete the following:  A. Have you already submitted a Risk Management Plan (RMP) to EPA Pursuant		
Yes No Specify required RMP submittal date:  B. Are you using administrative controls to subject your facility to a lesser 112(r) processor of the submittal date:  Yes No Specify:	If submitted, RMP submittal date:	



NOV 3 0 2010 Air Fermilis Section

#### FORM D

#### TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

R	EVISED: 12/01/01	NCDENR/Division of Air Quality - Applicatio	n for Air Permit to Construct/Operate	D5			
	PRC DEMC	DNSTRATIONS MADE IN THIS APPLICATION. NECESSARY TO SUPPORT AND CLARIFY	TO SUPPORT ALL EMISSION, CONTROL, AND REGULAT INCLUDE A COMPREHENSIVE PROCESS FLOW DIAGRA. CALCULATIONS AND ASSUMPTIONS. ADDRESS THE IC ISSUES ON SEPARATE PAGES:	FORY MIAS			
H		FOLLOWING SPECIF	IC ISSUES ON SEPARATE PAGES:				
A	BEFORE AND, WHEF	HODS FROM WHICH THE POLLUTANT EMISSION R	SHOW CALCULATIONS USED, INCLUDING EMISSION FACTORS, PATES IN THIS APPLICATION WERE DERIVED. INCLUDE CALCUL ITE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFERENCES	ATION OF DOTENTIAL			
В	REQUIREMENTS) FO RATES OR OTHER O SIGNIFICANT DETER POLLUTANTS (NESH FACILITY, SUBMIT A	ES AND THE FACILITY AS A WHOLE. INCLUDE A DI- PR COMPLYING WITH APPLICABLE REGULATIONS, PERATIONAL PARAMETERS. PROVIDE JUSTIFICA' IORATION (PSD), NEW SOURCE PERFORMANCE S APS), TITLE VI. INCLUDING EXEMPTIONS FROM TH	E-TITLE V ONLY) - PROVIDE AN ANALYSIS OF ANY REGULATION SCUSSION OUTING METHODS (e.g. FOR TESTING AND/OR MONI PARTICULARLY THOSE REGULATIONS LIMITING EMISSIONS BATION FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (PREVETANDARDS (NSPS), NATIONAL EMISSION STANDARDS FOR HAZIE FEDERAL REGULATIONS WHICH WOULD OTHERWISE BE APPLY ANY REGULATIONS. INCLUDE EMISSION RATES CALCULATED THESE CALCULATIONS.	TORING SED ON PROCESS ENTION OF ARDOUS AIR			
С	PARAMETERS (e.g. C TO ENSURING PROP CONTROL DEVICES	AS, OR USED TO REDUCE EMISSION RATES IN CAL PERATING CONDITIONS, MANUFACTURING RECO ER PERFORMANCE OF THE CONTROL DEVICES)	UATION WITH SUPPORTING REFERENCES FOR ANY CONTROL. CULATIONS UNDER ITEM "A" ABOVE. INCLUDE PERTINENT OP MMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS AF INCLUDE AND LIMITATIONS OR MALFUNCTION POTENTIAL FOR URES FOR ASSURING PROPER OPERATION OF THE CONTROL	ERATING PPLICATION) CRITICAL			
D	IPROCESS, OPERATION	ONAL, OR OTHER DATA TO DEMONSTRATE COMPL PROPRIATE. LIST ANY CONDITIONS OR PARAMETE	TLE V ONLY) - SHOWING HOW COMPLIANCE WILL BE ACHIEVE LIANCE. REFER TO COMPLIANCE REQUIREMENTS IN THE REGU ERS THAT CAN BE MONITORED AND REPORTED TO DEMONSTR	LATORY ANALYSIS IN			
E	PROFESSIONAL ENGINEERING SEAL - PURSUANT TO 15A NCAC 2Q .0112 "APPLICATION REQUIRING A PROFESSIONAL ENGINEERING SEAL,"  A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA SHALL BE REQUIRED TO SEAL TECHNICAL PORTIONS OF THIS APPLICATION FOR NEW SOURCES AND MODIFICATIONS OF EXISTING SOURCES. (SEE INSTRUCTIONS FOR FURTHER APPLICABILITY).						
	I,Joe W.	Sullivan, P.E. attest	that this application for Enviva Pellets Ahoskie, LP				
	has been reviewed by me and is accurate, complete and consistent with the information supplied in the engineering plans, calculations, and all other supporting documentation to the best of my knowledge. I further attest that to the best of my knowledge the proposed design has been prepared in accordance with the applicable regulations. Although certain portions of this submittal package may have been developed by other professionals, inclusion of these materials under my seal signifies that I have reviewed this material and have judged it to be consistent with the proposed design. Note: In accordance with NC General Statutes 143-215.6A and 143-215.6B, any person who knowingly makes any false statement, representation, or certification in any application shall be guilty of a Class 2 misdemeanor which may include a fine not to exceed \$10,000 as well as civil penalties up to \$25,000 per violation.						
	(PLEASE LISE BLUE II	NK TO COMPLETE THE FOLLOWING)	DI AGE NODELI GADOLINA GENE				
	NAME:	Joe W. Sullivan, P.E.	PLACE NORTH, CAROLINA SEAL F	IEKE			
	DATE:	oc v. osiiivaii, i .c.	RHUAROLA	1			
	COMPANY:	Trinity Consultants of NC, PC	ESSION TESSION				
		One Copley Parkway, Suite 310	SEAL 023037				
	ADDRESS:	Morrisville, NC 27560	SEAL				
	TELEPHONE:	919-462-9693	023037				
	SIGNATURE:		The state of the s				
	PAGES CERTIFIED:	All changes per 11-24-10 email	SEAL 023037				
		correspondence	W. SULMIN				
			1 Day 1 1 DA				
		Y ABOVE EACH PERMIT FORM AND ATTACHMENT	( fl W. Aullua	n			

# FORM B

# SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/Division of	F Air Quality - A	pplication for	Air Permit to	Construct/O	perate		В
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO	D:	ES-DRYER	
Green Wood Direct-Fired Dryer System							
				EVICE ID NO		CD-DC & CD	-WESP
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK	) ID NO(	S):	EP-DRYER
DESCRIBE IN DETAILTHE EMISSION SOURCE PROCE	SS (ATTACH FL	OW DIAGRA	M):				
Green wood is conveyed to either a one rotary dryer sy	stem. Direct co	ntact heat is	provided to the	ne system via	a 125 m	mBtu/hr burn	er system
(one burner). Air emissions are controlled by a cyclone electrostatic precipitator (WESP) operating after the cy	TOF DUIK PARTIC	uiate remova	and addition	al particulate	is remov	ed utilizing a	wet
TYPE OF EMISSION SOURCE (CHECK A)	ND COMPLETE	APPROPRIA <sup>*</sup>	TE FORM B1-	B9 ON THE F	OLLOWI	NG PAGES):	
Coal,wood,oil, gas, other burner (Form B1)	dworking (Form I	B4)	Manufact	. of chemicals	/coatings	/inks (Form B7	7)
☐ Int.combustion engine/generator (Form B2) ☐ Coati	ng/finishing/prin	ting (Form B5)	Incinerati	on (Form B8)			
Liquid storage tanks (Form B3)	ge silos/bins (Fo	orm B6)	Other (Fo	orm B9)			
START CONSTRUCTION DATE: TBD OPERATI	ON DATE:	TBD	DATE MANU	FACTURED:	TBD		
MANUFACTURER / MODEL NO.: TBD'		EXPECTED (	OP. SCHEDUL	E: 24 HR/D			52 WK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHA	P (SUBPART	?):	MACT (SI			
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB		R-MAY 25%		AUG 25%		SEP-NOV 25	5%.
EXPECTED ANNUAL HOURS OF OPERATION 8,76	VISIBLE STA	CK EMISSION	IS UNDER NO	RMAL OPERA	ATION: _	<20 % OF	PACITY
CRITERIA AIR POLLUTA	NT EMISSIC	ONS INFOR	MATION F	OR THIS S	OURC		14818
	SOURCE OF	EXPECTE	D ACTUAL	F	OTENTI	AL EMSSIONS	S
	EMISSION		ROLS / LIMITS)	EFORE CONTRO	DLS / LIMIT	(AFTER CONTR	OLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM) PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )	See Emission	1 Calculations	in Appendix	В			
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )	-						
SULFUR DIOXIDE (SO2)			-				
NITROGEN OXIDES (NOx)					-		
CARBON MONOXIDE (CO)					$\vdash$		
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER							
HAZARDOUS AIR POLLUT	ANT EMISS	IONS INFO	RMATION				
	SOURCE OF	EXPECTE	D ACTUAL	P	OTENTI	AL EMSSIONS	3
MATARROUG AIR ROLL HEAVE AND ALCOHO	EMISSION			EFORE CONTRO		(AFTER CONTR	OLS / LIMITS)
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
	See Emission	Calculations	in Appendix	В	$\vdash$		
	-						
					$\vdash$		
TOXIC AIR POLLUTAN	T EMISSION	S INFORM	ATION FOI	R THIS SOI	URÇE	11. 7 II.	1000000
INDICATE EXPECTED			CONTROLS /	LIMITATIONS	3		
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		hr hr		/	lb/s	/r
	See Emission	Calculations	in Appendix	В			
	<del>                                     </del>						
Attachments: (1) emissions calculations and supporting documentat	ion: (2) indicate =	roquested at the	and fadl	ananahli "	Facility 1		
rates) and describe how these are monitored and with what frequen	cy; and (3) describ	e any monitorin	g devices, gauge	es, or test ports t	าเกษร (e.g for this soเ	. nours of operat	ion, emission

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

'Final equipment selection has not yet occurred.

#### FORM B1

# EMISSION SOURCE (WOOD, COAL, OIL, GAS, OTHER FUEL-FIRED BURNER)

REVISED 12/01/01	NCDENR/Division o	f Air Quality - A	Application for A	ir Permit to Constr	uct/Operate	B1		
EMISSION SOURCE DESCRIPTIO			ЕМ	ISSION SOURCE IE	NO: ES-DRYER			
Green Wood Direct-Fired Dryer Sy			CO	NTROL DEVICE ID	NO(S): CD-DC & CD-A	VESP		
OPERATING SCENARIO:	1OF			EMISSION POINT (STACK) ID NO(S): EP-DR				
DESCRIBE USE: PROCES	HEAT	SPACE HEAT	Г	€ ELECTRICA	L GENERATION			
€ CONTINU		STAND BY/E		other (de	SCRIBE):			
HEATING MECHANISM:	₫ INDIRECT	<u>_0</u>	DIRECT					
MAX. FIRING RATE (MMBTU/HOUI	R): <b>125</b>							
		WOOD-	FIRED BURN	ER				
WOOD TYPE: BARK	₫ WOOD/BARK	WET WO	OOD 6	DRY WOOD	OTHER (DESC	RIBE):		
PERCENT MOISTURE OF FUEL:	~50%							
	₫ CONTROL	ED WITH FLYA	ASH REINJECTION	ON Œ	CONTROLLED W/O	REINJECTION		
FUEL FEED METHOD: Air Swept	Fuel Feeders	HEAT TRANSF	ER MEDIA:	STEAM & AL				
METHOD OF TUBE CLEANING N/A	-Process uses high	nly purified wat	er					
	L.Cone		IRED BURN	ER				
TYPË OF BOILER	IF OTHER DESC	:RIRE:						
PULVERIZET OVERFEED STOKE			SPREAD	ER STOKER	ELLIDIZED BED			
□ WET BED Ø UNCONTROLLE			UNCONTRO		FLUIDIZED BED  CIRCULATING	100		
DRY BED CONTROLLED	& CONTROLL		FLYASH RE		RECIRCULATING			
			NO FLYASH		& ILCONCOLATIO	10		
METHOD OF LOADING:	CLONE & HANG	FIRED	TRAVELIN		THE (DECODINE)			
METHOD OF TUBE CLEANING:	SCORE O TIANE		CLEANING SCH		OTHER (DESCRIBE):			
Remarks the second	None of the		FIRED BURI		V-973 PI			
TYPE OF BOILER:	Y   INDUSTRI							
TYPE OF FIRING:	AL TANGEN	TIAL   LOW	NOX BURNER	S NO LOW NO	X BURNER			
METHOD OF TUBE CLEANING:			CLEANING SCH	EDLI) E-				
THE BE VALUE OF THE	A STATE OF		L-FIRED BU		SEE OF THE SEE	AT SERVICE AND INC.		
TYPE OF FUEL:	-	PERCENT MOIS						
TYPE OF BOILER: UTILI	Y   INDUSTRI			RESIDENTIAL				
TYPE OF FIRING:	TYPE OF C	ONTROL (IF AN	IY):		FUEL FEED ME	THOD:		
METHOD OF TUBE CLEANING:			CLEANING SCH		TOLLTELDING	.11100		
	FUEL USA			BACKUP FUEL	S)			
			MAXIMUM DES			REQUESTED CAPACITY		
FUEL TYPE	UNITS		CAPACITY (UNIT	/HR)	LIMITATION	(UNIT/HR)		
Wet Wood	LB	Nominal 29,762				,		
FUE	L CHARACTER	STICS (CON	APLETE ALL	THAT ARE APP	PLICABLE)			
			SPECIFIC SULFUR CON			CONTENT		
FUEL TYPE		вти с	BTU CONTENT (% BY		IT) (% B	Y WEIGHT)		
Wet Wood		Nominal 4200 BTU/lb		0.011		·		
				1				
SAMPLING PORTS, COMPLIANT W	ITH EPA METHOD	WILL BE INST.	ALLED ON THE	STACKS dy	ES) & NO			
COMMENTS:					0			

#### FORM C4

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

REVISED 12/01/01	NCDENR/D	ivision of Air Quali	ty - Applicati	on for Air I	Permit to Cons	truct/0	Operate	9		C4
CONTROL DEVICE ID NO:	CD-DC	CONTROLS EMIS	SSIONS FRO	M WHICH	EMISSION SOL	JRCE	ID NO	S):	ES-DRYER	-
EMISSION POINT (STACK) ID	NO(S): EP-DRYER	POSITION IN SEI			NO.	1	OF	2	UNITS	
MANUFACTURER: TBD1		МС	DEL NO:							
DATE MANUFACTURE TBD PR			PROPOSED OPERATION DATE: TBD							
ODEDATING COPNATIO			PROPOSED START CONSTRUCTION DATE: TBD							
1_	OF1	P.E	. SEAL REQU	JIRED (PE	R 2Q .0112)?	- 7		YES	ON & NO	
DESCRIBE CONTROL SYSTEM	vI :						_			
One cyclone equipped to the r	otary dryer system to	o capture bulk PM	emissions; e	missions a	are routed to th	e WES	SP.			
POLLUTANT(S) COLLECTED:			PM	PM <sub>10</sub>	PM <sub>2.5</sub>					
BEFORE CONTROL EMISSION	RATE (LB/HR):					_			_	
CAPTURE EFFICIENCY:	. ,					-			_	
CAFTORE EFFICIENCY:			<del></del> %			_%			%	
CONTROL DEVICE EFFICIENC	Y:		%		%	<b>%</b>			%	
CORRESPONDING OVERALL	EFFICIENCY:		%		%	%			%	
EFFICIENCY DETERMINATION	CODE:				-					
						-			_	
TOTAL EMISSION RATE (LB/HI	K):	Em	nissions ro	uted to	WESP		_			
PRESSURE DROP (IN. H <sub>2</sub> 0):	Nominal 2.5" to 4.0	" WARNING	G ALARM?	é YES	(d NO)					
INLET TEMPERATURE (°F):	MIN MAX	Nominal 400	OUTLE	T TEMPE	RATURE (°F):	MIN		MAX	Nominal 400	
INLET AIR FLOW RATE (ACFM	): 290,000	)	BULK	PARTICLE	DENSITY (LB/F	T <sup>3</sup> ):	3	E-05		
POLLUTANT LOADING RATE (	GR/FT <sup>3</sup> 0.24									
SETTLING CHAMBER	THE ROLL OF THE	CYC	LONE		17/1/2		157	M	ULTICYCLONE	4-19
LENGTH (INCHES):	INLET VELOCITY (F	FT/SEC):	15.9 d CH	RCULAR	RECTANGLE	NO	. TUBE	S-		
WIDTH (INCHES):	DIMENSIONS (INC	CHES) See instructi			Y UTILIZED	-			TUBES:	
HEIGHT (INCHES):	H: 117.87"	Dd: 64.5	64.5" LIQUID USED:			DIAMETER OF TUBES: HOPPER ASPIRATION SYSTEM?				
VELOCITY (FT/SEC.):	W: 46.63"	Lb: 290	90.72" FLOW RATE (GPM): N/A			é YES É NO				
NO. TRAYS:	De: 80.65"	Lc: 419		1471			LOUVERS?			
NO. BAFFLES:	D: 204.72"		TBD			é YES é NO				
	TYPE OF CYCLONE	,	7	á HIGH F	FFICIENCY	-		ED	E NO	
DESCRIBE MAINTENANCE PROCEDURES:				- 1110111	PARTICLE SIZE DISTRIBUTION					
Periodic inspection of mechanical integrity during plant out					SIZE	-	EIGHT		CUMULATIVE	20000000
as specified by manufacturer or common industry practices					(MICRONS)	0	F TOT	AL	%	
DESCRIBE INCOMING AIR STREAM:					0-1	Unknown				
1) The flue gas from the dryer will pass through the Cyclone				re	1-10					
entering the WESP				1	10-25					
<ol><li>Incoming flue gas assumed to be coming in via a circular ver</li></ol>					25-50					
(i.e. H = radius)				1	50-100					
				1	>100			$\dashv$		
									TOTAL = 100	
DESCRIBE ANY MONITORING	DEVICES, GAUGES, 1	TEST PORTS, ETC:							101712 - 100	
None										
ON A SEPARATE PAGE, ATTAC	H A DIAGRAM OF TH	IE DEL ATIONOLUO	OE TUE COL	TDO: DO	40C TO 170 =	110.01				
TELLITE TAGE, ATTAC	DINGIONN OF IT	IL ALLA HONORIP	OF THE CON	ILKOL DE	VICE TO ITS EN	MSSIC	IN SOL	JRCE(	(8):	

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

# FORM C2

# CONTROL DEVICE (Electrostatic Precipitator)

REVISED 12/01/01	NCDENR/Di	vision of Air Quality - A	oplication for Air Permit to Cor	nstruct/Operate	C2
CONTROL DEVICE ID	NO: CD-WESP		CONTROLS EMISSIONS FROM	M WHICH EMISSION SOUR	
EMISSION POINT (STA	CK) ID NO(SEP-DRYER		POSITION IN SERIES OF COM		OF 2 UNITS
MANUFACTURER:	TBD1		MODEL NO. TBD1		
MANUFACTURE DATE	: TBD		PROPOSED OPERATION DAT	TE: TB	ın.
	OPERATING SCENARIO	);	PROPOSED START CONSTRU		
	1_ OF1		P.E. SEAL REQUIRED (PER 20		
EQ	UIPMENT SPECIFICATI	ONS	GAS DISTRIBUTION GRIDS:	( YES ) NO	9 6 110
TYPE:	WET) &	DRY (	SINGLE-STAGE	& TWO-STAGE	
TOTAL COLLECTION P				). COLLECTOR PLATE PER	FIELD. 222 tuber
COLLECTOR PLATES S		WIDTH:	SPACING BETWEEN COLLEC		
	ECTRODE LENGTH(FT)	18"	GAS VISCOSITY (POISE): 2.0		nextube
NUMBER OF DISCHAR			NUMBER OF COLLECTING EL		
MAXIMUM INLET AIR F			PARTICLE MIGRATION VELOC		
MINIMUM GAS TREATM			BULK PARTICLE DENSITY (LB		0.234
	LTS) CHARGING: 83kV		CORONA POWER (WATTS/10)		45/cu ft
ELECTRICAL USAGE (A			CORUNA POWER (WATTS/10)	UO CFM):	4000
CLEANING PROCEDUR			ATIMO 1 MACURNO	Lower	
OPERATING PARAL	utility with a self-			OTHER_	
The state of the s				VARNING ALARM?	
RESISTIVITY OF POLLUINLET GAS TEMPERAT		N/A	GAS CONDITIONING: YES		
		MAX 178	OUTLET GAS TEMPERATURE		AX 178
POWER REQUIRE		192,123	INLET MOISTURE PERCENT:		X 48.8%
FIELD NO.			NAGEMENT SYSTEM USED?	( YES	NO
	NO. OF SETS	CHARGING	EACH TRANSFORMER (	(VA) EACH RECTIFIE	R Kv Ave/Peak Ma Dc
1	1		118	83 / 1265	
2	1		118	83 / 1265	
-					
POLLUTANT(S) COLLEC	CTED:	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	
BEFORE CONTROL EM	, , ,	49.02			
CAPTURE EFFICIENCY	:	%	%	%	%
CONTROL DEVICE EFF	ICIENCY:	88.9 %	%	%	%
CORRESPONDING OVE	RALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMIN	NATION CODE:				
TOTAL EMISSION RATE	(LB/HR):	See calculations in App	endix B		
PAR	TICLE SIZE DISTRIBUT	ION	DESCRIBE STARTUP PROCED	NIDEO.	
SIZE	WEIGHT %		Per manufacturer specification		ctices
(MICRONS)	OF TOTAL	%		, and a second pro-	
0-1	Unkn	own	DECCRIBE MAINTENANCE PO	00000000	
1-10	Oliki	OWN	DESCRIBE MAINTENANCE PRO Per manufacturer specification		cticos
10-25			The state of the s	o common madatry pra	ctices
25-50			DECORURE AND ALL HANDERS		
50-100			DESCRIBE ANY AUXILIARY MA SYSTEM:	TERIALS INTRODUCED IN	TO THE CONTROL
>100					
	TOTAL	= 100			
DESCRIBE AND MONITO					
DESCRIBE ANY MONITO PLC	ANING DEVICES, GAUG	ES, OK TEST PORTS AS	ATTACHMENTS:		
	MACDAM OF THE TOO	NEW OF THE EOD			
			DIMENSIONS (include at a minir		
and inc	ilicate the electrode type),	AND THE RELATIONSH	IP OF THE CONTROL DEVICE	TO ITS EMISSION SOURCE	E(S):

Attach Additional Sheets As Necessary

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

# **FORM B**

# SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

	sion of Air Qual	ity - Applicati	on for Air Perr	nit to Construc	t/Operate		В
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO:		ES-CHM-1, -	2, -3, & -4
Four Coarse Hammermills			CONTROL D	EVICE ID NO(S		/1, CD-CHM-B	V2, CD-CHM
					, ,		1, CD-CHM-
OPERATING SCENARIO 1 OF	1						M-BV3, & CE
			EMISSION P	OINT (STACK)	D NO(S):	CHM-BV4	
DESCRIBE IN DETAIL THE EMISSION SOURCE PRO							
Dried materials are reduced to the appropriate size	needed for pell	etization usin	g four coarse	hammermills			
TYPE OF EMISSION SOURCE (CIT	CK AND COM	NETE ADDD	DDILTE FOR				
TYPE OF EMISSION SOURCE (CHI							
Coal,wood,oil, gas, other burner (Form B1) Wo	-			. of chemicals/c	oatings/inks (F	form B7)	
Int.combustion engine/generator (Form B2); Coa			i) Incinerati	on (Form B8)			
Liquid storage tanks (Form B3)	age silos/bins (F	orm B6)	Other (Fo	rm B9)			
	TION DATE:	TBD	DATE MANU		TBD		
MANUFACTURER / MODEL NO.: TBD'		EXPECTED	OP. SCHEDUL	E: 24 HR/DA	Y _ 7_ DAY	7/WK _52_W	K/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?	P):N	NESHAP (SUE			(SUBPART?)		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-F		MAR-MAY		UN-AUG 25%		P-NOV 25%.	
EXPECTED ANNUAL HOURS OF OPERATIO 8,7	60 VISIBLE STA	CK EMISSIO	VS UNDER NO	RMAL OPERAT	ION: < 20	% OPACIT	Υ
CRITERIA AIR POL	LUTANT EM	ISSIONS II	VFORMATIC	ON FOR THI	SSOURCE	THE COLUMN	
	SOURCE OF	EXPECT	DACTUAL		POTENTIAL	EMSSIONS	
	EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CONT		3	ROLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	Jb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	See Emissio	n Calculation	s in Appendix	В			
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )							
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)			Billion a Riv	THE NEXT		POSSE UP	Estat value
NITROGEN OXIDES (NOx)	9.0139.53969		New York			الما وكاراري	
CARBON MONOXIDE (CO)			Section 1			STANCE IN	And Phoin
VOLATILE ORGANIC COMPOUNDS (VOC)						Butter L.	LI SLEEN
LEAD		DE SERVICE				THE SAME	
OTHER		が見まって					
HAZARDOUS AIR PO	LLUTANT E	MISSIONS	<b>INFORMAT</b>	TON FOR TH	HS SOURC	Æ	
	SOURCE OF	EXPECTE	D ACTUAL		POTENTIAL	EMSSIONS	
	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CONT	ROLS / 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			MINISTRE		2770-27	100	
					Lancas I	100 110 110	
					DIESTY IN THE	THE RESERVE	) SOCIA
			BELLEVALED.		LONG BAR		
		MES IN L			SHIP SALE	25.00 St.	
			DECOURTED TO		THE PROPERTY.	8/18/19/29	
	10-10-062				e-Martin		
				HIS IS THE	TRUE TO	関語   日本	( a a a a a a a a a a a a a a a a a a a
TOXIC AIR POLLU						Walter III	
INDICATE EXPE			AFTER CONTR	OLS / LIMITATI	ONS		
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb:	/hr	lb/d	ay	lb.	/yr
N/A	5102		A COLOR	WE - 1210	MALE AND	Market His	
			13 YE 12 E			TATE OF N	
	HEAT HES	I BURE	Parties a				30,000
						NEW PROPERTY.	Se de la
			DI VSSELE			in the nick	
	51000				UNIVERSE.	IIIVO EUROS A	15554
				La calle de la cal	NU-SUBULS		100000
Attachments: (1) emissions calculations and supporting documents	entation; (2) indicate	e all requested s	tate and federal a	enforceable nermit	limits (e.a. bour	s of operation on	nission rates)
and describe how these are monitored and with what frequency	and (3) describe a	sav monitorina d	evices gauges o	ar test norts for this	SOUTCE	s or operation, em	nasion rates;

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

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

# FORM B9

# **EMISSION SOURCE (OTHER)**

E ID NO: ES-CHM-1, -2, -3, & -4  CD-CHM-BV1, CD-CHM-BV2, CD- ID NO(S) CHM-BV3, & CD-CHM-BV4  CD-CHM-BV1, CD-CHM-BV2, CD-CHM-BV2, CD-CHM-BV2, CD-CHM-BV2, CD-CHM-BV3, & CD-CHM-BV4  Coarse harmermills  N REQUESTED CAPACITY  LIMITATION(UNIT/HR)
CD-CHM-BV1, CD-CHM-BV2, CD-CHM-BV4  CD-CHM-BV1, CD-CHM-BV2, CD-CHM-BV2, CD-CHM-BV3, & CD-CHM-BV4  Coarse hammermills  N REQUESTED CAPACITY
CHM-BV2, CD-CHM-BV3, & CD-CHM-BV4  coarse hammermills  REQUESTED CAPACITY
STACK) ID NO(S): BV3, & CD-CHM-BV4 coarse hammermills  N REQUESTED CAPACITY
oarse hammermills  N REQUESTED CAPACITY
N REQUESTED CAPACITY
THIN) LIMITATION(ONTITALS)
N REQUESTED CAPACITY
BATCH) LIMITATION (UNIT/BATCH)
E (MILLION BTU/HR): N/A
AL FUEL USE: N/A

**Attach Additional Sheets as Necessary** 

# FORM C1

### CONTROL DEVICE (FABRIC FILTER)

REVISED 12/04/01	NCDENR/D	ivision of Air Qual	ity - Application for	Air Permit to	Construct/Operate		C1
CD-CHM-BV1, C CONTROL DEVICE ID NO: CHM-BV3, & CD-	D-CHM-BV2, CD		SSIONS FROM WHI				
	HM-BV1, CD- BV2, CD-CHM- & CD-CHM-BV4	POSITION IN SE	RIES OF CONTROLS	3	NO	1.05	4 LINUTO
MANUFACTURER: TBD <sup>1</sup>		p comon at de	MODEL NO:	TBD	140	). 1 OF	1 UNITS
DATE MANUFACTURED: TBD					TDD		
OPERATING SCI	NARIO:		PROPOSED OPER			700	
1OF1			P.E. SEAL REQUI			( YES)	é NO
DESCRIBE CONTROL SYSTEM:			T THE TALK AND THE	TED (I EITZG.	0112):	e IES	ę NO
Four bin vent filters equipped to the	coarse hamme	mills. Each coars	e hammermill has	one bin vent fil	ter,		
POLLUTANT(S) COLLECTED:			PM	PM <sub>10</sub>	PM <sub>2.5</sub>		_
BEFORE CONTROL EMISSION RATE (LB/HF	R):					_	
CAPTURE EFFICIENCY:			%		%	%	— %
CONTROL DEVICE EFFICIENCY:			%		%	%	- ** %
CORRESPONDING OVERALL EFFICIENCY:							_
EFFICIENCY DETERMINATION CODE:			%				_%
TOTAL EMISSION RATE (LB/HR):			See calculation	ns in Appen	dix B		-
PRESSURE DROP (IN. H <sub>2</sub> 0): MIN: M	AX: 8"	GAUGE?			ARNING ALARM?	(YES)	- ! NO
BULK PARTICLE DENSITY (LB/FT³):	53		INLET TEMPERATI			N IES	) NO
POLLUTANT LOADING RATE: 0.01		₫ GR/FT³			nbient		
INLET AIR FLOW RATE (ACFM): 9,360		C 01011	FILTER MAX OPER				
NO. OF COMPARTMENTS: TBD¹		PER COMPARTME		CATING TEMP.	1	· ····································	
DIAMETER OF BAG (IN.):		@ INDUCED/NE		IDAS	FILTER SURFACE		
AIR TO CLOTH RATIO: 6		RIAL: Polyester or		7 00.	# WOVEN		1,560 each
DESCRIBE CLEANING PROCEDURES:						CLE SIZE DISTR	
é AIR PULSE		€ SONIC			SIZE	WEIGHT %	CUMULATIVE
€ REVERSE FLOW		€ SIMPLE BAG C	OLLAPSE		(MICRONS)	OF TOTAL	%
€ MECHANICAL/SHAKER		€ RING BAG CO	DLLAPSE		0-1	Uni	known
OTHER Cleaning procedu	re dependent o	n final design			1-10		
DESCRIBE INCOMING AIR STREAM:					10-25		
The air stream will contain wood d	ust particles				25-50		
					50-100		
					>100		
						TOT	AL = 100
METHOD FOR DETERMINING WHEN TO CLE							
& AUTOMATIC & TIMED	€ MANUAL						
METHOD FOR DETERMINING WHEN TO REF ALARM INTERNAL INS		iS: É VISIBLE EMISS	ION & OT	HER			
SPECIAL CONDITIONS: None							
€ MOISTURE BLINDING € CHE EXPLAIN:	MICAL RESISTI	VITY	é OTHER				
DESCRIBE MAINTENANCE PROCEDURES: I	Per manufacture	r recommendation	ns or common indu	stry practices			
ON A SEPARATE PAGE, ATTACH A DIAGRAM	SHOWING THE	RELATIONSHIP (	OF THE CONTROL I	DEVICE TO ITS	EMISSION SOUR	CE(S):	

Attach Additional Sheets As Necessary

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

# **FORM B**

# SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/Divisi	on of Air Qualit	y - Applicatio	n for Air Pern	nit to Constru	ct/Operate		В
EMISSION SOURCE DESCRIPTION:				SOURCE ID NO		ES-GWH-1 8	-2
Ground Wood Handling System					(:CD-GWH-BV		
OPERATING SCENARIO 1 OF	1		EMISSION F	OINT (STACK	O ID NO(S):	EP-GWH-1 8	
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO	CESS (ATTAC	H FLOW DIAC	GRAM):				
One set of conveyors after the hammermills transport	rts material to	the pellet pre	ss silo A ser	cond set of co	nvevors trans	norts the mat	erial from the
penet press silo to the pellet presses. Particulate el	nissions are ro	uted to two h	in vent filters	Drop points	routed to com	mon control	
mammermins to "accepts conveyor", "accepts conv	evor" to pellet i	oress silo infe	ed conveyor,	pellet press s	ilo to pellet pr	ess feed con	vevor, silo
bypass to pellet press conveyor, & pellet press distr	ibution convey	ors					•
TYPE OF EMISSION SOURCE (CHEC	K AND COMPI	ETE APPRO	PRIATE FORM	/ B1-B9 ON T	HE FOLLOWIN	IG PAGES):	
Coal,wood,oil, gas, other burner (Form B1) Wood	dworking (Form	B4)			/coatings/inks (		
☐ Int.combustion engine/generator (Form B2); ☐ Coal			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	to de la company	redatings/inks (	,i omi br)	
	age silos/bins (F						
			Other (F	,			
	ION DATE:	TBD	DATE MANU	FACTURED:	TBD		
MANUFACTURER / MODEL NO.: TBD			OP. SCHEDU			Y/WK _52 V	VK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART? PERCENTAGE ANNUAL THROUGHPUT (%): DEC-F		ESHAP (SUE			T (SUBPART)		
		MAR-MAY		UN-AUG 25		EP-NOV 25%	
	0 VISIBLE STA	CK EMISSIO	NS UNDER NO	DRMAL OPER	ATION: <u>&lt; 20</u>	% OPACI	TY
CRITERIA AIR POLL				N FOR TH	IS SOURCE		1.144
	SOURCE OF		D ACTUAL		POTENTIAL	EMSSIONS	
AIR POLLUTANT EMITTED	EMISSION		rrols / LIMITS)		TROLS / LIMITS)	(AFTER CONT	ROLS / LIMITS)
PARTICULATE MATTER (PM)	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM) PARTICULATE MATTER (10 MICRONS (PM <sub>10</sub> )	See Emissio	n Calculation	s in Appendix	В			
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)	-						
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							HELDES VALUE
VOLATILE ORGANIC COMPOUNDS (VOC)			Lesse Elle	0.000			
LEAD							
OTHER	PART OF ST					V. TELLON	
HAZARDOUS AIR POL	LUTANTEN	ISSIONS I	NEORMAT	ION FOR T	UIS SOLIDA	E	
	SOURCE OF		D ACTUAL	ON FOR T			
	EMISSION		ROLS/LIMITS)	(RESOUR CON)	POTENTIAL	_	
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	Ib/hr	rols / LIMITS) tons/yr	(AFTER CONTI	
N/A	0.30 0.00		torior yi	10/11	toris/yi	10/11/	tons/yr
	TO THE LA		STEEL STEEL		77 11 212		
	10.354						
	SERVICE TO THE	0.00		The province			
			1000000				
			MAIN NEWS		5V 5 50 1		
		ECELLIEN.	D ( 1884 )				
						A PARTY OF	
TOXIC AIR POLLUT	ANT EMISS	IONS INFO	RMATION	FOR THIS	SOURCE		
INDICATE EXPEC	TED ACTUAL E	MISSIONS AF	TER CONTRO	OLS / LIMITAT	IONS		
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		/hr	lb/d		lb/	vr
N/A						0.00	New Year
	(DATE:		D.SVIET A	THE PARTY			
			و عاد الإولىاللة				
	19 1						SKUDIX
				W - 541 3	Day 245	A STORE	TAX FIRST
		La gitte see	The Landson	1000 1100	of Subsection		A ROSELLER
			Marie Control	Charles of	24.752		
Attachments: (1) emissions calculations and supporting documer	tation; (2) indicate	all requested st	tate and federal e	enforceable perm	it limits (e.a. hou	s of operation	emission rates\
and describe how these are monitored and with what frequency;	and (3) describe a	ny monitoring de	evices, gauges, c	or test ports for th	is source.		

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

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

# FORM B9

# **EMISSION SOURCE (OTHER)**

for Air Permit to Construct/Op	perate B9
EMISSION SOURCE ID NO:	ES-GWH-1 & -2
CONTROL DEVICE ID NO(S): (	
EMISSION POINT (STACK) ID	
pellet press silo. A second s Particulate emissions are ro ills to "accepts conveyor", "a ed conveyor, silo bypass to p	outed to two bin
MAX. DESIGN	REQUESTED CAPACITY
CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
47.78	EMITATION(ONTMIK)
47.70	
MAX. DESIGN	REQUESTED CAPACITY
CAPACITY (UNIT/BATCH)	LIMITATION (UNIT/BATCH)
R):	
MUM FIRING RATE (MILLION	
CAPACITY ANNUAL FUEL US	SE: N/A

**Attach Additional Sheets as Necessary** 

# FORM C1

# CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01	NCDENR/E	lvision of Air Qua	lity - Application for	Air Permit to	Construct/Operat	e	C1
CD-G' CONTROL DEVICE ID NO: GWH-	WH-BV1 & CD-		SIONS FROM WHIC				
EMISSION POINT (STACK) ID NO(S):	EP-GWH-1 & EP-GWH-2	POSITION IN SER	RIES OF CONTROLS		NC	). 1 OF	1 UNITS
MANUFACTURER: TBD <sup>1</sup>			MODEL NO: 1	rBD			
DATE MANUFACTURED: TBD			PROPOSED OPER	ATION DATE:	TBD		
OPERATING S	CENARIO;		PROPOSED STAR	T CONSTRUCT	ION DATE:	TBD	
1OF	1		P.E. SEAL REQUIR	ED (PER 2Q .0	112)?	∉ YES	ė NO
DESCRIBE CONTROL SYSTEM: Two (2) bin vent filters will be e	quipped to coll	ect particulate em	issions from the gre	ound wood ha	ndling system		
POLLUTANT(S) COLLECTED:			PM	PM <sub>10</sub>	PM <sub>2.5</sub>		
BEFORE CONTROL EMISSION RATE (I	.B/HR):						_
CAPTURE EFFICIENCY:			%		%	%	— %
CONTROL DEVICE EFFICIENCY:			%		%	%	%
CORRESPONDING OVERALL EFFICIEI	NCY:		%		%	%	%
EFFICIENCY DETERMINATION CODE:							_ ′′
TOTAL EMISSION RATE (LB/HR):			See calculation	s in Annen	dix B		_
PRESSURE DROP (IN. H <sub>2</sub> 0): MIN:	MAX: 8"	GAUGE?			ARNING ALARM?	(é YES)	NO NO
BULK PARTICLE DENSITY (LB/FT3):	1.43E-06	57.002.				( TES	3 NO
POLLUTANT LOADING RATE: 0.01		d GR/FT <sup>3</sup>	INLET TEMPERATU		blent		
INLET AIR FLOW RATE (ACFM): 2500		P. GRVF1	OUTLET TEMPERA				
NO. OF COMPARTMENTS: TBD1		PER COMPARTME	FILTER MAX OPER.	ATING TEMP. (		1	
DIAMETER OF BAG (IN.):		# INDUCED/NEG			LENGTH OF BAG		
AIR TO CLOTH RATIO: 6		RIAL: Polyester or		PUS.	FILTER SURFAC		416.7 each
DESCRIBE CLEANING PROCEDURES:		inte. 1 oryester of	cquiralent		€ WOVEN	OLE SIZE DISTA	
∉ AIR PULSE		& SONIC			SIZE	WEIGHT %	CUMULATIVE
é REVERSE FLOW		SIMPLE BAG C	OLLAPSE		(MICRONS)	OF TOTAL	%
e MECHANICAL/SHAKER		e RING BAG CO			0-1	<del></del>	known
6 OTHER Cleaning	ng procedure d	ependent on final	design		1-10	011	T T
DESCRIBE INCOMING AIR STREAM:					10-25		<b>-</b>
The air stream will contain wo	od dust part	icles		1	25-50		
	•				50-100		
					>100		
						TOT	AL = 100
METHOD FOR DETERMINING WHEN TO	CLEAN:						
& AUTOMATIC & TIMED	& MANUAL						
METHOD FOR DETERMINING WHEN TO	REPLACE TH	BAGS:					
é ALARM ( INTERNAL II	ISPECTION	€ VISIBLE EMISSI	ION é OTH	HER			
SPECIAL CONDITIONS: None							
	MICAL RESIST	VITY	d OTHER				
EXPLAIN:							
DESCRIBE MAINTENANCE PROCEDUR	ES: Per manuf	acturer recommen	dations or common	industry prac	tices		
ON A SEPARATE PAGE, ATTACH A DIA	GRAM SHOWIN	G THE RELATIONS	SHIP OF THE CONTR	ROL DEVICE T	O ITS EMISSION S	SOURCE(S):	

Attach Additional Sheets As Necessary

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

# **FORM B**

# SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/	Division of Air Quality	y - Applicati	on for Air Pern	nit to Constru	ct/Operate		В
EMISSION SOURCE DESCRIPTION:		EMISSION SOURCE ID NO ES-CLR-1, -2, -3, & -4					
Four Pellet Coolers		CD-CLR-C1, CD-CLR-C					
			CONTROL	DEVICE ID NO	(:CD-CLR-C4	·	
	OF1	_	EMISSION F	POINT (STACE	() ID NO(S):	EP-CLR-1, E CLR-3, & EF	EP-CLR-2, EP
DESCRIBE IN DETAILTHE EMISSION SOURCE	PROCESS (ATTACH	I FLOW DIA	GRAM):				V-111.1
Four pellet coolers follow the pellet presses to	cool the newly form	ed pellets do	own to an acce	ptable storag	e temperatur	э.	
TVDC OF EARLOWING							
TYPE OF EMISSION SOURCE	CHECK AND COMPL	ETE APPRO					
Coal,wood,oil, gas, other burner (Form B1)			Manufac	t. of chemicals	coatings/inks	(Form B7)	
☐ Int.combustion engine/generator (Form B2); ☐	Coating/finishing/prin	ting (Form B	5) 🗌 Incinerat	tion (Form B8)			
	] Storage silos/bins (Fo		Other (F				
START CONSTRUCTION DATED OF	PERATION DATE:	TBD	DATE MANU	JFACTURED:	TRD		
MANUFACTURER / MODEL NO.: TB	D'		OP. SCHEDU	LE: 24 HR/C	AY 7 D	AY/WK 52	WK/VP
IS THIS SOURCE SUBJECT TO? NSPS (SUBP.	ART?); N	ESHAP (SUI	BPART?):		CT (SUBPART		***************************************
PERCENTAGE ANNUAL THROUGHPUT (%): D		MAR-MAY		UN-AUG 25	% 5	SEP-NOV 259	Yo.
EXPECTED ANNUAL HOURS OF OPERATION	8,760 VISIBLE STA	CK EMISSIO	NS UNDER NO	DRMAL OPER	ATION: < 2	0 % OPAC	ITY
CRITERIA AIR P	OLLUTANT EMIS	SSIONS IN	IFORMATIC	ON FOR TH	IS SOURC	E	
	SOURCE OF	EXPECT	ED ACTUAL	T	POTENTIA	L EMSSIONS	
	EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CON	TROLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM) PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )	See Emission	Calculation	s in Appendix	В			
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> ) PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)			E 74 6 1 1	THE PERSON	THE RESERVE	E INCOLOR	(Illay Gibbs
CARBON MONOXIDE (CO)							AND THE
VOLATILE ORGANIC COMPOUNDS (VOC)	100000000000000000000000000000000000000					5777	STATE OF STATE
LEAD	20 50 700				E8-923 (A)		THE PINE
OTHER		2 - VAR				-34-34-316	
HAZARDOUS AIR	POLLUTANT FM	ISSIONS	INFORMAT	ION FOR T	THE SALID	CE	
	SOURCE OF		D ACTUAL	ION FOR 1			
	EMISSION		TROLS / LIMITS)	/BEEODE CON	TROLS / LIMITS)	LEMSSIONS	
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	Ib/hr	tons/yr	Ib/hr	tons/yr
N/A				0 10 10 10 10 10 10 10 10 10 10 10 10 10	tonoryi	ID/III	torisryi
		TEN STOR	100000		000000000000000000000000000000000000000		
	(4482.5.4)						
		10000000	DOMESTICAL DAY	Man Sulkay	M. SILL		
				PARTS -			
	- Brewell		LI TELEVISION IN		BIOLOGICAL PRO		
TOVIC NO POL	I LITANT FINOS			MANUAL PROPERTY.	AB/ACP T-A		
I OXIC AIR POL	LLUTANT EMISS	ONS INF	ORMATION	FOR THIS	SOURCE		100
INDICATE E: TOXIC AIR POLLUTANT AND CAS NO.	XPECTED ACTUAL E			OLS / LIMITAT	IONS		
N/A	EF SOURCE	I	o/hr	ib/e	day	lb	/yr
	1050510		18,38	MAN PALLET			
			THE PARTY OF				
			ALUST NO.			18 1 7 1	LEAL SONT
			The second of				WE KNIEK
Attachments: (1) emissions and all all all all all all all all all al	180/40		VENEZIO I			CONTRACTOR OF THE PARTY OF THE	
Attachments: (1) emissions calculations and supporting do	ocumentation; (2) indicate	all requested s	tate and federal	enforceable perm	nit limits (e.g. ho	urs of operation,	emission rates)
and describe how these are monitored and with what frequency	soney, and (3) describe ar	iy monitoring d	evices, gauges, o	or test ports for the	ns source.		

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

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

# FORM B9

# EMISSION SOURCE (OTHER)

REVISED: 12/01/01 NCDENR/Division of Air Quality	- Applicatio	n for Air Permit to Construct/Op	erate	B9			
EMISSION SOURCE DESCRIPTION: Four Pellet Coolers	MISSION SOURCE DESCRIPTION: Four Pellet Coolers						
		EMISSION SOURCE ID NO: ES-CLR-1, -2, -3, & -4  CD-CLR-C1, CD-CLR-C2, CD-CLR-C3, CONTROL DEVICE ID NO(S) CD-CLR-C4					
OPERATING SCENARIO: 1 OF 1	_	EMISSION POINT (STACK) ID I		R-1, EP-CLR-2, EP- & EP-CLR-4			
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRA							
Four pellet coolers follow the pellet presses to cool the temperature.	e newly form	ed pellets down to an acceptabl	e storage				
MATERIALS ENTERING PROCESS - CONTINUOUS PRO	VESS.	MAX. DESIGN	DECLIER	TR CARLOTTA			
TYPE	UNITS	CAPACITY (UNIT/HR)		ED CAPACITY			
Wood Pellets	Tons	47.78	LIWITATIC	N(UNIT/HR)			
	10.00	47,10					
MATERIALS ENTERING PROCESS - BATCH OPERAT	TION	MAX. DESIGN	REQUEST	ED CAPACITY			
TYPE	UNITS	CAPACITY (UNIT/BATCH)		(UNIT/BATCH)			
MAXIMUM DESIGN (BATCHES / HOUR):		-					
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES	YR):					
FUEL USED: N/A	TOTAL MAX	KIMUM FIRING RATE (MILLION I	======================================				
MAX. CAPACITY HOURLY FUEL USE: N/A		D CAPACITY ANNUAL FUEL US					
COMMENTS:							
				,			

Attach Additional Sheets as Necessary

# FORM C4

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

S FROM WHICH  OF CONTROLS  NO: SED OPERATION SED START CONS  L REQUIRED (PE  The bulk PM emissi  PM 10  % % %  Iculations in A  FYES  FYES	NO.  DATE: TBD STRUCTION DAT R 2Q .0112)?  ions.  PM <sub>2.5</sub> % % %	1 OF 1 E: TBD	UNITS	
NO: SED OPERATION SED START CONS L REQUIRED (PE re bulk PM emissi  PM10 % % % % lculations in A	DATE: TBD STRUCTION DAT R 2Q .0112)? ions.  PM <sub>2.5</sub> % % %	E: TBD  # YES	% %	
SED OPERATION SED START CONS L REQUIRED (PE re bulk PM emissi PM10 % % % % lculations in A	PM <sub>2.5</sub> % % Appendix B	E: TBD  # YES	% %	
SED START CONS L REQUIRED (PE re bulk PM emissi  PM10  % % % % lculations in A	PM <sub>2.5</sub> % % Appendix B	% YES	% %	
SED START CONS L REQUIRED (PE re bulk PM emissi  PM10  % % % % lculations in A	PM <sub>2.5</sub> % % Appendix B	% YES	% %	
PM <sub>10</sub> % % % % lculations in A	PM <sub>2.5</sub> % %	% YES	% %	
PM <sub>10</sub> % % % % lculations in A	PM <sub>2.5</sub> % %	%%	% %	
PM <sub>10</sub> % % % % loculations in A	PM <sub>2.5</sub> % %	%	%	
% % % lculations in A	% % %	%	%	
% % % lculations in A	% % %	%	%	
% % Coulations in A	% % Appendix B	%	%	
% % Coulations in A	% % Appendix B	%	%	
% culations in A	%			
culations in A	ppendix B		%	
₹ YES(				
₹ YES(				
	Luc			
OUTLET TEMPE	d NO			
TOURLE I LEMPE	RATURE (°F):	MIN MAX	Ambient	
BULK PARTICLE	DENSITY (LB/F	^		
			MULTICYCLONE	Maj,
d CIRCULAR	e RECTANGLE	NO. TUBES:	2	
IF WET SPRA	AY UTILIZED	DIAMETER OF	TUBES: 43"	
LIQUID USED:		HOPPER ASPI	RATION SYSTEM?	
FLOW RATE (GP	PM):	é YES	Ø NO	
MAKE UP RATE	(GPM):	LOUVERS?		
		ė YES	( NO	
€ HIGH E	EFFICIENC	é OTHER		
		PARTICLE SIZE	DISTRIBUTION	
	SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIV %	Ē
	0-1		Unknown	
	1-10			
	10-25			
	25-50			
İ	50-100			
	>100			
			TOTAL = 100	
	# CIRCULAR  # CIRCULAR  # WET SPR  LIQUID USED: FLOW RATE (GF  MAKE UP RATE  # HIGH!	OUTLET TEMPERATURE (°F): BULK PARTICLE DENSITY (LB/F   ¿ CIRCULAR ¿ RECTANGLE  IF WET SPRAY UTILIZED  LIQUID USED: FLOW RATE (GPM):  MAKE UP RATE (GPM):  SIZE (MICRONS)  0-1 1-10 10-25 25-50 50-100 >100	DUTLET TEMPERATURE (°F): MIN MAX BULK PARTICLE DENSITY (LB/FT³): 3E-0   ¿ CIRCULAR ¿ RECTANGLE NO. TUBES: IF WET SPRAY UTILIZED DIAMETER OF HOPPER ASPIFUL SERVICE SIZE WEIGHT %  AMAKE UP RATE (GPM): LOUVERS?  ¿ YES  AMAKE UP RATE (GPM): OTHER  PARTICLE SIZE (MICRONS) OF TOTAL  0-1 1-10 10-25 25-50 50-100	OUTLET TEMPERATURE (°F): MIN MAX Ambient  BULK PARTICLE DENSITY (LB/FT³): 3E-06   MULTICYCLONE   © CIRCULAR © RECTANGLE NO. TUBES: 2  IF WET SPRAY UTILIZED DIAMETER OF TUBES: 43"  LIQUID USED: HOPPER ASPIRATION SYSTEM?  FLOW RATE (GPM): © YES © NO  MAKE UP RATE (GPM): LOUVERS?  © YES © NO  E HIGH EFFICIENCY © OTHER  PARTICLE SIZE DISTRIBUTION  SIZE WEIGHT % CUMULATIVI  OF TOTAL %  0-1 Unknown  1-10  10-25  25-50  50-100

Attach Additional Sheets As Necessary

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

# Godwin, Kevin

From:

Chen, Yongcheng

Sent:

Wednesday, November 17, 2010 1:47 PM

To:

Godwin, Kevin

Subject:

RE: New Permit Enviva Pellets in Ahoskie

Hi Kevin,

I have reviewed the draft permit and it looks very good.

I just like to make sure with you about the authorized contact (in the application form (A1) it is Glen Gray, plant manager).

Thanks.

Yongcheng

Yong Cheny Chen, Yongcheng Chen, Ph. D.

Permit Coordinator

North Carolina Division of Air Quality

Washington Regional Office

943 Washington Square Mall Washington, NC 27889

Phone: 252-948-3831

Fax: 252-975-3716

www.ncair.org

From: Godwin, Kevin

Sent: Friday, November 12, 2010 8:02 AM

**To:** Chen, Yongcheng **Cc:** Fisher, Robert **Subject:** New Permit

Yongcheng,

Attached, please find a draft for Enviva Pellets in Ahoskie. I appreciate your review. Please respond with any comments or recommendations. Thanks.

Kevin Godwin, Environmental Engineer NC DENR, Division of Air Quality

Permits

1641 MSC, Raleigh, NC 27699-1641

Phone: (919) 715-6255 Fax: (919) 733-5317 www.ncair.org

# Division of Air Quality October 26, 2010

# **MEMORANDUM**

Received

OCT 2 6 2018

**Air Permits Section** 

TO:

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

THROUGH:

Jim Roller, Supervisor, Air Quality Analysis Branch

FROM:

Jerry Freeman, Meteorologist II, Air Quality Analysis Branch

SUBJECT:

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

I reviewed the dispersion modeling analysis for the planned Enviva Pellets (EP) facility to be located in Ahoskie, NC. The analysis was received in this office on October 11, 2010, and was submitted to support the installation and operation of this new wood pellets, manufacturing facility. Five pollutants were modeled from three sources with the parameters and rates noted in Attachment 1 to this memo, and the rates shown were modeled as occurring continuously. The four toxic pollutants (acrolein, benzene, formaldehyde, and phenol) exceeded their TPER and thus were modeled, while NO2 (1 hr eval period) was modeled by special request from NCDAQ. In the NO2 modeling, EP chose a conservative modeling approach as described in the next paragraph. Attachment 2 is the layout of the facility as modeled. The modeling did demonstrate compliance with the NC Acceptable Ambient Levels (AAL) and the National Ambient Air Quality Standards (NAAQS).

EP used AERMOD with regulatory defaults, and with five years of DAQ-processed meteorology from Norfolk/Wallops Island (1988-1992) to model the emissions. The toxic pollutants required only the latest year of meteorology, per NCDAQ guidance, since impacts were less than 50 percent of the AAL, while the NO2 modeling used all five years. EP modeled NO2 in a conservative fashion, using the tier 2, 75 percent conversion factor approach along with an overall H8H impact instead of the perscribed (postprocessing) statistical method. Added to this modeled impact was a high background concentration provided by NCDAQ, which by itself consumed 49 percent of the NAAQS. When the modeled impact and the background concentration were summed, the total impact reached 94 percent of the NAAQS. I corroborated their results by rerunning the NO2 modeling with the proper processing techniques (actually obtained the same answer). This review assumes all emission information as provided is accurate.

Pollutant / Eval Period	Modeled Impact (ug/m3)	Back- ground (ug/m3)	AAL (ug/m³)	% of AAL
acrolein / 1hr	2.2	N/A	80	3
benzene / annual	0.02	N/A	0.12	13
formaldehyde / 1hr	13.39	N/A	150	9
phenol / 1hr	2.68	N/A	950	< 1
NO2 / 1hr	84.44	92.1	188	94

2 Atch: 1) Source parameters and emission rates (1 page)

2) Modeled site layout (1 page)

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

Source ID	Stack Height (m)	Tempera ture (K)	Exit Velocity (m/s)	Stack Diameter (m)	Acrolein (lb/hr)	Benzene (lb/hr)	Formald (lb/hr)	Phenol	NO2 (lb/hr)
DRYER	24.4	354.3	34.5	1.8	0.989	0.327	6.020	1.204	37.413
FWPSTACK	9.1	727.6	24.2	0.2	1.94E-04	0.002	0.002	0.000	1.970
EMERGEN	9.1	727.6	28.3	0.2	2.27E-04	0.002	0.003	0.000	2.298

Atch 1

	-4,015,850	-4,015,800	4,015,750	4,015,700	-4,015,650	2,600	4,015,550	4,015,500	5,450	5,400	350
323,900	-4,01	-4,01	4,01	4,01	4,01	4,015,600	4,018	4,0%	4,015,450	4,015,400	4,015,350
323,800											
323,700				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				•		•	
000,000				f f f f f f f f f f f f f f f f f f f				9	FWESTACK	4	
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t											

Atch 2



# North Carolina Department of Environment and Natural Resources

Division of Air Quality

Beverly Eaves Perdue Governor

Sheila C. Holman Director

Dee Freeman Secretary

October 12, 2010

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

SUBJECT: Receipt of Permit Application

New Permit

Application No. 4600107.10A Enviva Pellets Ahoskie, LLC

Facility ID: 4600107, Ahoskie, Hertford County

Dear Mr. Gray:

Your air permit application (4600107.10A) for Enviva Pellets Ahoskie, LLC, located in Hertford County, North Carolina was received by this Division on October 1, 2010.

Submittal of your air permit application request must include the following items:

A permit application processing fee:

Under the new permit application processing fee schedule effective January 1, 2010, your required fee is \$867.00.

The appropriate application fee amount was received.

Pending review of your application and based on the required fee amount indicated above, you may be required to pay an additional amount.

Number of Copies of Application:

The appropriate number of copies of the application was received.

Local zoning and subdivision ordinances consistency determination:

Your application <u>did</u> contain the complete request for consistency determination.



Mr. Gray October 12, 2010 Page 2

# A Survey of Facility Reduction and Recycling Activities (Form: A4):

Your application did contain a Reduction and Recycling Air Form.

# Signature of An Authorized Official:

Your application was signed by an authorized official as defined by 15A NCAC 2Q.0304(j).

# PE Seal Requirement:

The appropriate PE Seal was received.

In summary, 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 1, 2010, unless informed otherwise by this office within 45 days.

Should you have any questions concerning this matter, please contact Kevin Godwin at (919) 715-6255.

Sincerely,

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

cc: Washington Regional Office Files Central Files

# Comprehensive Application Report for 4600107.10A Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information:	Permit/Latest Revision: 10121/		Appli	Application Dates	,
Permit code:	State	Received	Completeness Due	Clock Start	Calculated Issue Due
Application type:	New Permit	10/01/2010	11/15/2010	10/01/2010	12/30/2010
Engineer/Rev. location:	Kevin Godwin/RCO		Hee Information	to to	
Regional Contact:	Yongcheng Chen	Initial amount:	Date received: Amount Due: Add. Amt Rcv'd: Date Rcv'd:	int Due: Add. Amt	Rcv'd: Date Rcv'd:
Facility location:	Washington Regional Office	\$867.00	10/01/2010		
Facility classification:	Unknown	Fund type:	Deposit Slip #:	Location rec'd:	Location deposited:
Clock is ON	Application is COMPLETE	2331			
Status is :	In progress				

	Telephone (804) 412-0227 (804) 412-0227
	City State ZIP Richmond, VA 23219 Richmond, VA 23219
	Address 1309 east Cary Street, Suite 200 1309 east Cary Street, Suite 200
et Information	<u>Name</u> Glenn Gray, Plant Manager Glenn Gray, Plant Manager
Contac	Type Authorized Technical/Permit

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

Hertford County

Application Events

Event

Acknowledgment letter due

Due Start

10/01/2010 10/11/2010 10/12/2010 Complete

Comments

Staff

mjcuilla

Regulations Pertaining to this Permit

Reference Rule

Regulation Description

Audit Information Pertaining to this Application

Old Value 10/11/2010 Column Name Date Changed dt\_App\_Rec 10/12/2010 10/11/2010

permit\_No

New Value 10/01/2010 10121

<u>Editor</u> Mark Cuilla Mark Cuilla d



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

September 30, 2010

Dr. Donald van der Vaart Permit Chief NC Division of Air Quality 2728 Capital Blvd. Raleigh, NC 27604 OCT - 1 2010

Air Permits Section

Re: Air Quality Construction and Operating Permit Application Enviva Pellets Ahoskie, LLC

Dear Dr. van der Vaart,

As you will recall, on September 8, 2010, Enviva Pellets Ahoskie, LLC (Enviva) and Trinity Consultants (Trinity) participated in a pre-application meeting with the Division of Air Quality (DAQ), regarding the proposed Ahoskie wood pellet manufacturing facility. Trinity has since prepared this air quality construction and operating permit application on behalf of Enviva. Enclosed please find three (3) copies of the full application along with the required application fee. Trinity is also providing two (2) additional copies of the application to the Washington regional office.

If you have any questions regarding this permit application, please do not hesitate to call Joe Sullivan or me at (919) 462-9693.

Sincerely,

Dale Overcash

Principal Consultant

**Trinity Consultants** 

Enclosures

cc: Mr. Robert Fisher, DAQ Washington Regional Office

Mr. Glenn Gray, Enviva

Mr. Peter MacDonald, Enviva

Intrinergy Operating, L.P. 1309 E. Cary Street, Suite 200 Richmond, VA 23219 USA

Wachovia 1021 East Cary Street Richmond, VA 23219

No. 0000000400

Babrille on Back

F

68-54/514

CHECK DATE 9/29/2010

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

PAY

Eight hundred sixty-seven and xx / 100 Dollars

TO THE ORDER OF

NC Division of Air Quality

USA

#\*\*O00000400# #\*\*\*\* 200004829??21#

VENDOR:

NCDIVI

Intrinergy Operating, L.P.

CHECK: 0000000400

DATE:

AUTHORIZED SIGNATURE

9/29/2010

REMIT TO:	NC Division	of Air Quality		COMMENT:			27,2010
INVOICE	DATE	VOUCHER	COMMENT		AMOUNT	DISCOUNT	NET AMOUNT
09291001	9/29/2010	0000000574			867.00	0.00	867.00
			ľ				
						4	
			V				
				TOTALS:	867.00	0.00	867.00

# AIR QUALITY CONSTRUCTION AND OPERATING PERMIT APPLICATION ENVIVA PELLETS AHOSKIE, LLC • AHOSKIE, NORTH CAROLINA



Prepared by:

TRINITY CONSULTANTS

One Copley Parkway, Suite 310 Morrisville, North Carolina 27560 919.463.9693

Fax: 919.462.9694 trinityconsultants.com

# Prepared for:

ENVIVA PELLETS, LLC 1309 East Cary Street Suite 200 Richmond, VA 23219

September 2010

Project 103401.0073



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APPEN APPEN	ADIX A – NCDAQ Application Forms  BDIX B – Emissions Calculations  BDIX C – Local Zoning Consistency Determination  BDIX D – Dispersion Modeling Support	

### 1.1 EXECUTIVE SUMMARY

Enviva Pellets, LLC (Enviva) is planning to construct and operate a wood pellets manufacturing plant in the town of Ahoskie, NC. The plant will be built on the site of a former sawmill plant owned by Georgia Pacific.

This document in its entirety comprises an air quality construction and operating permit application and for the project. The project will result in air quality emissions below levels triggering the Prevention of Significant Deterioration (PSD) preconstruction permit program and the Plywood and Composite Wood Products (PCWP) National Emissions Standards for Hazardous Air Pollutants (NESHAP). Emissions of several compounds regulated under 15A NCAC 2Q .0700 will exceed de minimis values requiring permitting and corresponding air dispersion modeling has been conducted to demonstrate compliance with ambient allowable levels. Finally, the NCDAQ requested that nitrogen dioxide (NO<sub>2</sub>) modeling be conducted and results of that evaluation are provided in this application.

# 1.2 ORGANIZATION OF APPLICATION

Three copies of the application have been provided along with the \$867 permit application processing fee. This application contains the following:

- Section 2 provides a project description and discusses air emissions,
- Section 3 discusses regulatory applicability,
- Section 4 contains the air dispersion modeling summary,
- Appendix A contains air permit application forms,
- Appendix B presents air emissions calculations,
- Appendix C contains the required local zoning consistency determination, and
- Appendix D contains supporting air dispersion modeling support information.

The proposed wood pellets plant is designed to produce up to 418,533 tons per year of wood pellets. Pellets will typically consist of hardwoods, but could contain up to 10 percent softwoods on an annual basis. This section discusses the Ahoskie Plant's pelletizing process and associated air emissions. Detailed air emissions calculations are presented for each source discussed in this section in Appendix B. A process flow diagram is presented in Figure 2-1.

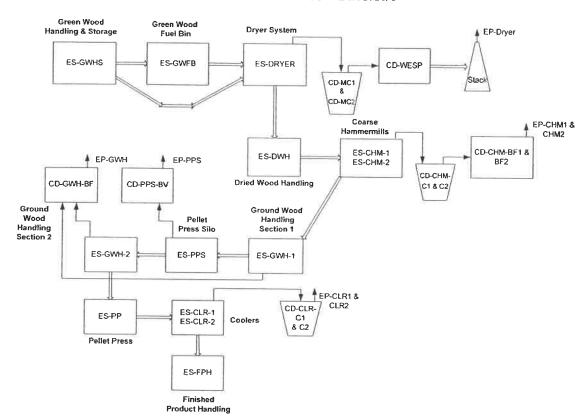


FIGURE 2-1. PROCESS FLOW DIAGRAM

# 2.1 GREEN WOOD HANDLING AND STORAGE (ES-GWHS) AND FUEL STORAGE BIN (ES-GWFB)

"Green" (i.e., wet) wood will be delivered to the facility via trucks as whole logs or as chipped wood. Logs will be chipped and debarked to specification for drying. Pre-chipped wood will be screened and oversized chips will undergo additional chipping. Chipped wood for drying is conveyed to wood storage and wood/bark is conveyed to a green wood dryer fuel storage bin. Green wood contains a high moisture content approaching 50 percent by weight and handling

operations for wet wood therefore has negligibly small emissions. The moisture content of wet wood is well above the applicability range of aggregate handling emissions estimation methodologies provided in AP-42, so no emission calculations are included for green wood transfer. Likewise, there are no applicable emissions factors for debarking or chipping.

# 2.2 WOOD DRYER (ES-DRYER)

Green wood is conveyed to either a one or two rotary dryer system. Direct contact heat is provided to the system via a 125 mmBtu/hr total heat input burner system (one or two burners). Air emissions are controlled by multiclones for bulk particulate removal and additional particulate is removed utilizing a wet electrostatic precipitator (WESP) operating after the cyclones.

Emissions are calculated using a combination of dryer vendor emission guarantees (criteria pollutants only) and AP-42 emissions factors.

# 2.3 Dried Wood Handling (ES-DWH)

Dried materials are transferred from the dryer via conveyors to coarse hammermills for further size reduction prior to pelletization. There are five dried wood transfer points occurring prior to the Coarse Hammermills. As shown in the calculations in Appendix B, emissions from any source within the Dried Wood Handling emission grouping are insignificant.

# 2.4 COARSE HAMMERMILLS (ES-CHM)

Prior to pellitization, dried materials are reduced to the appropriate size needed for pelletization using two Coarse Hammermills operating in parallel. A conveyor system receives the ground wood from the Coarse Hammermills and sends the ground wood to an "accepts conveyor."

Particulate emissions from the Coarse Hammermill are controlled using two cyclones in series with two bagfilters. Appendix B summarizes the emissions from each hammermill bagfilter system.

# 2.5 PELLET PRESS SILO (ES-PPS) AND GROUND WOOD HANDLING (ES-GWH)

Ground wood from the hammermills is conveyed on a set of conveyors (the first section of ES-GWH) to the Pellet Press Silo prior to pelletization. Another set of conveyors transports the ground wood to the pelletizers (the second section of ES-GWH). Particulate matter emissions from the associated conveyors prior to and after the Pellet Press Silo are controlled using a bagfilter. Emissions from the Pellet Press Silo are controlled using a separate bagfilter.

# 2.6 PELLET PRESS SYSTEM AND CONVEYORS (ES-PP)

Dried ground wood is mechanically compacted in the presence of water in several screw presses in the Pellet Press System. Exhaust from the Pellet Press and Pellet Presses conveyors are vented to the atmosphere with negligible particulate matter emissions, as shown in Appendix B. No chemical binding agents are needed for pelletization.

# 2.7 Pellet Coolers (ES-CLR1 and ES-CLR2)

Pellet Press conveyors discharge wood pellets through one of two Pellet Coolers. Cooling air is passed through the pellets. At this point, the Pellets contain a small amount of wood fines, which are swept out with the cooling air and are controlled utilizing dual high efficiency cyclones operating in parallel (one for each cooler) prior to discharge to the atmosphere.

# 2.8 Finished Product Handling (ES-FPH)

Pelletized product is conveyed to storage and loadout operations with no air emissions to the atmosphere.

# 2.9 EMERGENCY GENERATOR (ES-EG), FIRE WATER PUMP (ES-FWP) AND ASSOCIATED FUEL OIL STORAGE TANKS

The plant will utilize a 350 brake horsepower emergency generator for emergency operations and a 300 brake horsepower fire water pump engine. Both engines will combust diesel fuel. Aside from maintenance and readiness testing, these sources will only be utilized for emergency operations. Diesel for the emergency generator will be stored in up to a 2,500 gallon storage tank and diesel for the fire water pump will be stored in up to a 500 gallon storage tank. Emissions from both fuel oil storage tanks are insignificant.

This section discusses the applicability of key federal and state regulations.

# 3.1 FEDERAL REGULATIONS

# 3.1.1 PREVENTION OF SIGNIFICANT DETERIORATION (PSD), 40 CFR PART 51.166

North Carolina has implemented the federal PSD requirements of 40 CFR 51.166 under North Carolina Regulation 15A NCAC 2D .0530. Under the PSD regulations, a major stationary source for PSD is defined as any source in one of the 28 named source categories with the potential to emit 100 tpy or more of any regulated pollutant, or any source not in one of the 28 named source categories with the potential to emit 250 tpy or more of any regulated pollutant. Neither wood pellet production nor operation of associated combustion sources qualifies the facility for classification in one of the 28 listed source categories.

As shown in Table 3-1, the proposed project is a minor source for all regulated pollutants.

Source Description	Unit ID	(tbů.)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)
Dryer System	ES-DRYER	229.77	163.86	24.48	24,48	24.48	13.69	197.95
Emergency Generator	ES-EG	0.50	0.58	0.03	0.03	0.03	0.00	5.59E-04
Fire Water Pump	ES-FWP	0.43	0.49	0.02	0.02	0.02	0.00	4.79E-04
Coarse Hammermills	ES-CHM-1 & -2	0.00	0.00	28.53	28.53	28.53	0.00	0.00
Pellet Press Silo	ES-PPS	0.00	0.00	5.63	5.63	5.63	0.00	0.00
Ground Wood Handling	ES-GWH-1 & -2	0.00	0.00	1.88	1.88	1.88	0.00	0.00
Pellet Coolers	ES-CLR-1 & -2	0.00	0.00	33.04	33.04	33.04	0.00	0.00
Diesel Storage Tanks	TK1 & TK2	0.00	0.00	0.00	0.00	0.00	0.00	3.79E-03
PSD Signifi	Emission Increases cant Emission Rates D Review Required?	230.71 250 No	164.92 250 No	93.61 250 No	93.61 250 No	93.61 250 No	13.69 250 No	197.95 250 No

TABLE 3-1. PSD APPLICABILITY SUMMARY

# 3.1.2 TITLE V OPERATING PERMIT PROGRAM, 40 CFR PART 70

40 CFR Part 70 establishes the federal Title V operating permit program. North Carolina has incorporated the provisions of this federal program in its Title V operating permit program under 15A NCAC 2Q .0500. The major source thresholds with respect to the North Carolina Title V operating permit program regulations are 10 tons per year of a single HAP, 25 tpy of any combination of HAP, and 100 tpy of certain other regulated pollutants.

<sup>1 40</sup> CFR §52.21(b)(1)(i)

The site will be a major Title V source for only criteria pollutants. Enviva is requesting that the procedures of 15A NCAC 2Q .0504 be applied to this project allowing direct issuance of a construction and operating permit under 15A NCAC 2D .0300. Enviva will submit a permit application for a Title V permit within one year after commencement of operation.

# 3.1.3 New Source Performance Standards, 40 CFR Part 60 (15A NCAC 2D .0524 New Source Performance Standards)

New Source Performance Standards (NSPS), located in 40 CFR Part 60 and implemented in North Carolina Regulation 15A NCAC 2D .0524, require certain categories of new, modified, or reconstructed sources to control emissions to specified levels. Three potentially applicable NSPS are addressed below.

### 3.1.3.1 NSPS SUBPART HH

NSPS Subpart IIII applies to owners or operators of compression ignition (CI) internal combustion engines (ICE) manufactured after April 1, 2006 that are not fire pump engines, and fire pump engines manufactured after July 1, 2006. As noted in Section 2, the plant will have a 350 hp emergency generator and a 300 hp fire pump. The emergency generator and fire pump will be manufactured after the dates specified above. Therefore, the emergency generator and fire pump are subject to the provisions of NSPS Subpart IIII.

Under NSPS Subpart IIII, owners and operators of emergency generators manufactured in CY 2007 or later with a maximum engine power greater than or equal to 50 hp are required to comply with the emission limits referenced in 40 CFR §60.4205(b). These limits are as follows: 0.20 g/kW for PM, 3.5 g/kW for CO, and 4 g/kW for NO<sub>x</sub> + nonmethane hydrocarbons (NMHC).

Enviva will comply with the emission limits by operating the generator as instructed in the manufacturer's operating manual in accordance with 40 CFR §60.4211(a), and purchasing an engine certified to meet the referenced emission limits in accordance with 40 CFR §60.4211(c). The engine will be equipped with a non-resettable hour meter in accordance with 40 CFR §60.4209(a). Emergency and readiness testing of the unit will be limited to 100 hours per year.

In accordance with NSPS Subpart IIII, owners and operators of fire pump engines manufactured after July 1, 2006 must comply with the emission limits in Table 4 of NSPS Subpart IIII, which are organized based on the size of the unit. These limits are as follows: 0.20 g/kW for PM, 3.5 g/kW for CO, and 4 g/kW for NO<sub>x</sub> + nonmethane hydrocarbons (NMHC).

Enviva will comply with these emission limits by operating the fire pump as instructed in the manufacturer's operating manual in accordance with 40 CFR §60.4211(a), and purchasing an engine certified to meet the referenced emission limits in accordance with 40 CFR §60.4211(b). The engine will be equipped with a non-resettable hour meter in accordance with 40 CFR §60.4209(a). Emergency and readiness testing of the unit will be limited to 100 hours per year.

In addition, both the proposed emergency generator and fire pump will be required to comply with the fuel requirements in 40 CFR §60.4207, which limit sulfur to a maximum of 15 ppmw and a cetane index of at least 40.

### 3.1.3.2 NSPS SUBPARTS DB AND KB

The proposed plant will utilize direct fired drying of chipped wood and, therefore, will not trigger the NSPS Subpart Db (Industrial-Commercial-Institutional Steam Generating Units) regulations. Diesel fuel oil storage tank capacities are well below the NSPS Subpart Kb (Volatile Organic Liquid Storage Vessels, for which construction, reconstruction, or modification commenced after 7/23/1984) applicability storage capacity threshold of approximately 20,000 gallons.

# 3.1.4 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS, 40 CFR PART 63 (15A NCAC 2D .1111 MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY)

The National Emission Standards for Hazardous Air Pollutants (NESHAP) listed in 40 CFR Part 63 and implementing North Carolina regulation 15A NCAC 2D .1111 are source category-specific regulations that limit emissions of HAPs. Two potentially applicable NESHAPs are addressed below.

### 3.1.4.1 40 CFR PART 63 SUBPART ZZZZ

40 CFR 63 Subpart ZZZZ applies to reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions. An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions. Emergency power and limited use units are subject to limited requirements under 40 CFR 63.6590(b)(i) and 40 CFR 63.6590(b)(ii). Emergency stationary RICE are defined in 40 CFR 63.6675 as any stationary RICE that operates in an emergency situation. These situations include engines used for power generation when power from the local utility is interrupted, or engines used to pump water in the case of fire or flood.

The proposed emergency generator and the emergency fire pump at the site will be classified as emergency stationary RICE under the NESHAP and will comply with the requirements listed under this subpart.

### 3.1.4.2 40 CFR PART 63 SUBPART DDDD

40 CFR Subpart DDDD applies to Plywood and Composite Wood Products facilities classified as major sources of hazardous air pollutants (HAPs), having the potential to emit of 10 tons per year of a single HAP or 25 tons per year aggregate HAP. As indicated in Table 3-2, facility-wide potential HAP emissions are less than the major source threshold.

TABLE 3-2. FACILITY-WIDE HAP EMISSION SUMMARY

HAP Pollutant	Dryers	EG-1	FWP-1	TOTAL
	(tpy)	(tpy)	(tpy)	(tpy)
1,3-Butadiene		2.39E-05	2.05E-05	4.45E-05
Acetaldehyde	2.29	4.70E-04	4.03E-04	2.29E+00
Acrolein	0.70	5.67E-05	4.86E-05	7.03E-01
Benzene	0.23	5.71E-04	4.90E-04	2.33E-01
Chloroform	0.00	22	1-5	3.05E-03
Cumene	0.06			6.11E-02
Formaldehyde	4.28	7.23E-04	6.20E-04	4.28E+00
m-,p-Xylene	0.15	1.75E-04	1.50E-04	1.47E-01
Methanol	3.36			3.36E+00
Methyl isobutyl ketone	0.21			2.11E-01
Methylene chloride	0.05			5.50E-02
o-Xylene	0.01			1.37E-02
Phenol	0.86			8.55E-01
Propionaldehyde	0.40			3.97E-01
Styrene	0.01			1.10E-02
Toluene	0.40	2.51E-04	2.15E-04	3.98E-01
Total PAH (POM)		1.03E-04	8.82E-05	1.91E-04
TOTAL HAP	13.01	2.37E-03	2.03E-03	13.02

# 3.2 NORTH CAROLINA REGULATIONS

For the sources that are included for review in this application package, the North Carolina State Implementation Plan (SIP) rules and regulations have been evaluated for applicability. Applicable rules are identified below.

# 3.2.1 15A NCAC 02D .0515 PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

Particulate emissions from all emissions sources subject to permitting, including the wood pellet dryer are regulated under 15A NCAC 2D .0515. This regulation limits the particulate emissions based on total throughput. This regulation limits the particulate emissions based on process throughput using the equation  $E = 4.10 \times P^{0.67}$ , for process rates (P) less than 30 tons per hour (ton/hr) and  $E = 55 \times P^{0.11}$ -40 for process rates greater than 30 tons per hour.

All emissions from particulate matter sources are either negligible or well-controlled. The most significant emission unit at the site, the process dryer operating at 57.9 ton/hr input (43 ODT/hr + 14.9 ton fuel/hr), has an emissions limit of 46.0 lb/hr. Maximum emissions from the dryer are approximately 5.6 lb/hr, well below the standard.

# 3.2.2 15A NCAC 02D .0516 SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

Under this regulation, emissions of sulfur dioxide from combustion sources cannot exceed 2.3 pounds of sulfur dioxide per million Btu input. Low sulfur diesel is

combusted in the dryer and two emergency engines, resulting in operation well below regulatory limits.

### 3.2.3 15A NCAC 02D .0521 CONTROL OF VISIBLE EMISSIONS

Under this regulation, for sources manufactured after July 1, 1971, visible emissions cannot be more than 20 percent opacity when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent opacity under the following conditions:

- No six-minute period exceeds 87 percent opacity,
- No more than one six-minute period exceeds 20 percent opacity in any hour, and
- No more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

This rule applies to all processes that may have a visible emission, including the dryer, other particulate matter emissions sources controlled by cyclone and/or baghouse, and the diesel-fired engines.

# 3.2.4 15A NCAC 02Q .0700 TOXIC AIR POLLUTANT PROCEDURES

This regulation requires that new and modified sources of toxic air pollutants with emissions exceeding specified de minimis values apply for an air toxics permit. Facility-wide emissions of several compounds emitted from the site exceed the permitting de minimis level. A comparison of emissions to de minimis values are summarized in Table 3-3. Modeling for compounds triggering permitting is discussed in Section 4.

TABLE 3-3, DETERMINATION OF POLLUTANT'S SUBJECT TO AIR TOXICS PERMITTING

# TAP Entissions

			Dryer(s)		Eme	Emergency Generator	ator	£	Fire Water Pump	ulu		Total	
Pollutant	CAS Number	(ll/hr)	(Th/day)	(Hyvr)	(Ilyhr)	(Ib/day)	(HVyr)	(ll/hr)	(Ih/day)	(lh/vr)	(IIVhr)	(Ib/dav)	(HVvr)
1,3-Butadiene	0-66-901						4.7913-02			4.11E-02			8 90E-02
Acetaldehyde	75-07-0	3.23E+00			1.8865-03			1.61E-03			3.23E+00		
Acrolein	107-02-8	9.895-01			2.27E-04			1.945-04			9.89E-01		
Benzene	71-43-2			4,64E+02			1.146+00			9.80E-01			4 66F±02
Benzo(a)pyrene	50-32-8						2,3015-04			1.97E-04			4 28F-01
Chloroform	67-66-3			6.11E+00									6 11F+00
Formaldehyde	20-00-0	6.02E+00			2.89E-03			2.48E-03			6.03E+00		
Xylene	1330-20-7	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	
Methyl isobutyl ketone	1-01-801	2.97E-01	7.12E+00	4.22E+02							2.97E-01	7.12E+00	
Methylene chloride	75-09-2	7.74E-02	1.86E+00	1.10E+02							7.74E-02		1.10E+02
Phenol	108-95-2	1.20E+00	2.89E+01								1.20E+00		
Sivrene	100-42-5	1.55E-02	3.72E-01								1.55E-02		
Tolnene	108-88-3		1,346+01			2.40E-02			2.06E-02			1.35E+01	

# TPER Comparison Table

			Total		T	FPER (2Q .0711)	-	Modeling
Pollutant	CAS Number	(Ilyhr)	(H/day)	(HVvr)	(Ilvhr)	(Hydlay)	(H/vr)	Required?
1.3-Butadiene	106-99-0			8,905-02			1.1015101	z
Acetaldehyde	75-07-0	3.23E+00			6.80E±00			z
Actolem	107-02-8	9.89E-01			2.00E-02			7
Benzene	71-43-2			4.66E+02			8.1015+00	1
Benzo(a)pyrene	50-32-8			4.28E-04			2.2013+00	z
Chloroform	67-66-3			6.11E+00			2.90E+02	z
Formildehyde	20-00-0	6.03E+00			4.00E-02			,
Xylene	1330-20-7	2.27E-01	5.45E+00		1.64E+01	5.70E+01		z
Methyl isobutyl ketone	1.01-801	2.97E-01	7.12E+00		7,60E+00	5.20F+01		z
Methylene chloride	75-09-2	7.746-02		1.106+02	3.90E-01		1.60E+03	z
Phenol	108-95-2	1.20E+00			2.40E-01			1
Styrene	100-42-5	1.555-02			2.70E+00			z
Toluene	108-88-3		1,358+01			9.80F:+01		z

This section presents the methodology and results of the air quality dispersion modeling conducted for the proposed Enviva Wood Pellet Plant to be located in Ahoskie, NC (Ahoskie Plant). The modeling methodology used to demonstrate compliance with the NC air toxics acceptable ambient levels (AAL) conforms to the *Guidelines for Evaluating the Air Quality Impacts of Toxic Pollutants in North Carolina* (December 2009). During the pre-application meeting, NCDAQ also requested that Enviva perform a National Ambient Air Quality Standard (NAAQS) compliance demonstration for the new, 1-hour NO<sub>2</sub> standard. The NAAQS modeling methodology generally conforms to both the NC *Guidelines* and U.S. EPA *Guideline on Air Quality Models*. In lieu of a modeling protocol a protocol checklist is provided in Appendix D.

# 4.1 FACILITY AND PROJECT DESCRIPTION

Enviva is planning to construct and operate a wood pellet manufacturing plant in the city of Ahoskie, NC. The plant will be built on a 39 acre parcel, along NC 561, near the intersection with US Highway 13. The site was formerly a sawmill plant owned by Georgia Pacific. The approximate Universal Transverse Mercator (UTM) coordinates for the facility are 323.6 km East and 4,015.6 km North, Zone 18, in the North American 1983 Datum (NAD83). A signed survey of the facility property boundary will shortly be submitted under separate cover.

For modeling purposes, the appropriate urban/rural land use classification for the area was determined using the Auer technique, which is recommended in the *Guideline on Air Quality Models*. In accordance with this technique, the area within a 3-km radius of the facility was identified on US Geological Survey (USGS) topographic maps and was delineated by land use type. More than 50 percent of the surrounding land use can be classified as undeveloped rural (i.e., Auer's A4 classification), therefore the area is classified as rural. A map showing the location of the facility on the 7.5 minute USGS topographic maps is presented in Figure 4-1.

<sup>&</sup>lt;sup>2</sup> Pre-Application Meeting between NCDAQ, Enviva and Trinity on September 8, 2010.

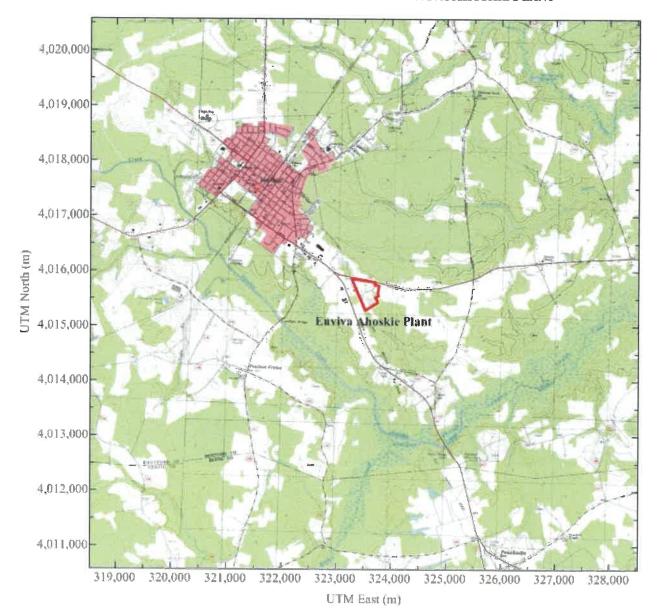


FIGURE 4-1. TOPOGRAPHIC MAP OF THE ENVIVA AHOSKIE PLANT

As previously described, the project will result in air quality emissions below levels triggering the Prevention of Significant Deterioration (PSD) preconstruction permit program and the Plywood and Composite Wood Products (PCWP) National Emissions Standards for Hazardous Air Pollutants (NESHAP). Potential emissions of several compounds regulated under 15A NCAC 2Q .0700 (NC Air Toxics) exceed de minimis values requiring permitting and this air dispersion modeling evaluation has been conducted to demonstrate compliance with the AAL. In addition a 1-hour NO<sub>2</sub> analysis was conducted to demonstrate compliance with the recently promulgated NAAQS.

# 4.2 MODEL SELECTION

The AERMOD dispersion model (version 09292) was used to calculate off-property concentrations in the modeling analysis. AERMOD was promulgated as the preferred model in 40 CFR 51, Appendix W on November 9, 2005 and is recommended by the NCDAQ for evaluating criteria and toxic air pollutant concentrations from industrial facilities such as Enviva's proposed Ahoskie plant. AERMOD was run using the regulatory default option, which automatically implements NCDAQ and U.S. EPA recommended model options.

# 4.3 SOURCE DESCRIPTION

Table 4-I presents a table of the modeled sources and their locations at the Ahoskie plant. All locations are expressed in UTM Zone 18 (NAD83) coordinates.

TABLE 4-1. MODELED SOURCE LOCATIONS

AERMOD ID	Description	UTM East (m)	UTM North (m)	Base Elevation (m)
DRYER	Main Dryer Stack	323,525.1	4,015,554.4	15.52
FWPSTACK	Firewater Pump Stack	323,615.3	4,015,465.0	15.28
EMERGEN	Emergency Generator Stack	323,508.7	4,015,483.0	15.23

Tables 4-2 and 4-3 present the stack parameters and emission rates input to the model for each of the sources.

TABLE 4-2. MODELED SOURCE PARAMETERS

AERMOD ID	Stack Ht. (m)	Stack Temp. (K)	Stack Vel. (m/s)	Stack Diam. (m)
DRYER	24.38	354.26	34.52	1.82
FWPSTACK	9.14	727.59	24.24	0.20
EMERGEN	9.14	727.59	28.28	0.20

<sup>&</sup>lt;sup>3</sup> 40 CFR 51, Appendix W-Guideline on Air Quality Models, Appendix A.1- AMS/EPA Regulatory Model (AERMOD).

TABLE 4-3. MODELED EMISSION RATES

AERMOD		Modeled Emission Rates (g/s)						
ID	Acrolein	Be nze ne	Formalde hyde	Phenol	$NO_x$			
DRYER	1.25E-01	4.12E-02	7.59E-01	1.52E-01	4.71E+00			
FWPSTACK	2.45E-05	2.47E-04	3.12E-04	0.00E+00	2.48E-01			
EMERGEN	2.86E-05	2.88E-04	3.64E-04	0.00E+00	2.90E-01			

#### 4.4 METEOROLOGICAL DATA

The AERMOD modeling analysis utilized sequential hourly surface observations from Norfolk, VA and upper air data from Wallops Island, VA. These stations are recommended by NCDAQ for modeling facilities located in Hertford County. The five (5) most recent, model-ready years (1988-1992) were downloaded from the NCDAQ website.<sup>4</sup> As shown in section 4.8, the TAP model impacts were all less than 50% of the AAL, so only the most recent year (1992) was input to AERMOD. For the 1-hour NO<sub>2</sub> NAAQS analysis, all 5 years were modeled.

#### 4.5 MODELED RECEPTORS

The receptors included in the modeling analysis consisted of property line receptors, spaced 25 meters (m) apart, and Cartesian receptor points spaced every 100 m, extending out 3 kilometers (km) from the facility. There are no public right-of-ways (e.g. roads, railways) traversing the property line, so the same receptor grid was modeled for the one-hour (1-hr) and annual TAP analyses, as well as for the 1-hour NO<sub>2</sub> NAAQS modeling. The impacts were reviewed to ensure that the maximum impacts were captured within the 100 m spaced grid. Figure 4-2 shows the receptors included in the modeling analysis.

<sup>4</sup> http://www.ncair.org/permits/mets/metdata.shtml

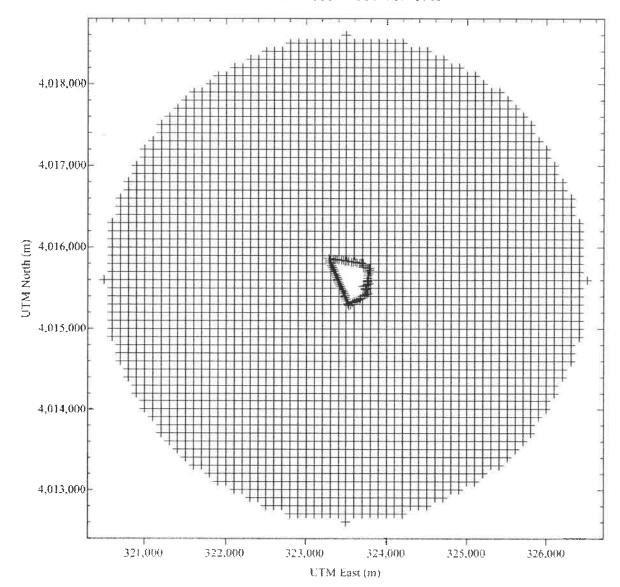


FIGURE 4-2. MODELED RECEPTOR GRID

The AERMOD model is capable of handling both simple and complex terrain. Through the use of the AERMOD terrain preprocessor (AERMAP), AERMOD incorporates not only the receptor heights, but also an effective height (hill height scale) that represents the significant terrain features surrounding a given receptor that could lead to plume recirculation and other terrain interaction.<sup>5</sup>

Receptor terrain elevations input to the model were interpolated from National Elevation Database (NED) data obtained from the USGS. NED data consist of arrays of regularly spaced elevations. The array elevations are at a resolution of 1 arcsecond (approximately 30 m intervals)

<sup>&</sup>lt;sup>5</sup> US EPA. Users Guide for the AERMOD Terrain Preprocessor (AERMAP), EPA-454/B-03-003, Research Triangle Park, NC.

and were interpolated using the latest version of AERMAP (version 09040) to determine elevations at the defined receptor intervals. The data obtained from the NED files were checked for completeness and spot-checked for accuracy against elevations on corresponding USGS 1:24,000 scale topographical quadrangle maps. AERMAP was also used to establish the base elevation of all Enviva structures and emission sources.

#### 4.6 BUILDING DOWNWASH

A Good Engineering Practice (GEP) stack height evaluation was conducted to determine if inclusion of building wake effects will be required in the modeling analysis. The latest version of Building Profile Input Program for PRIME (BPIP PRIME, version 04274) was used to calculate downwash values for input into the PRIME algorithm. Building heights and any other significant structures were specified for modeling purposes to facilitate the calculation of downwash, GEP stack heights, and building wake effects by the model. Figure 4-3 illustrates the modeled stacks and downwash structures planned at the Ahoskie Plant.

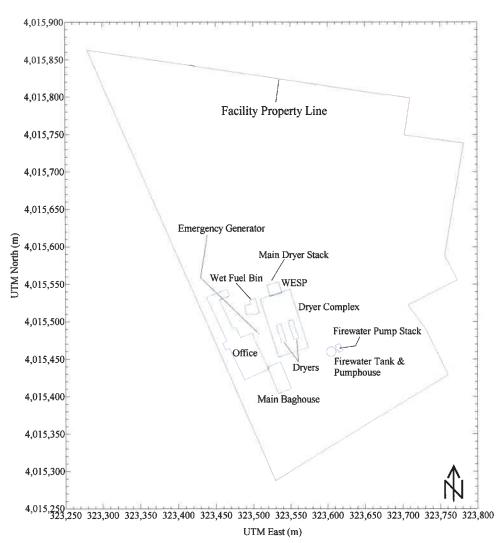


FIGURE 4-3. AHOSKIE PLANT LAYOUT

Table 4-4 presents the buildings and dimensions input to BPIP PRIME for downwash evaluation purposes. The dryer buildings are the governing structures for each of the modeled sources.

TABLE 4-4. MODELED DOWNWASH STRUCTURES

BPIP Structure ID	Height (m)	Length (m)	Width (m)	Projected Width (m)	L (m)	Formula GEP (m)
OFFICE	7.3	121.1	35.1	126.1	7.3	18.3
FWTANK	3.7	11.2	11.2	15.8	3.7	9.1
FUELBIN	12.6	17.9	16.5	24.3	12.6	31.5
FWPHOUSE	3.7	10.0	7.9	12.7	3.7	9.1
DRYERI	24.9	24.9	6.5	25.7	24.9	62.3
DRYER2	24.9	25.9	6.5	26.7	24.9	62.3
BHOUSE	12.2	38.6	18.3	42.7	12.2	30.5
WESP	20.4	15.5	16.4	22.6	20.4	51.1
EQUIPPAD	6.1	81.2	42.0	91.4	6.1	15.2

L - lessor of the structure height or projected width

Formula GEP = Height + (1.5 x L)

#### 4.7 1-HOUR NO<sub>2</sub> NAAQS MODELING APPROACH

The form of the new probabilistic NAAQS standard, as it applies to modeling, is written as the 5-year average of the 98<sup>th</sup> percentile [High-8<sup>th</sup>-High (H8H)] daily maximum 1-hour concentration. The current version of the AERMOD model will not output daily maximum values directly, so the Enviva Ahoskie modeling analysis was conservatively performed using the H8H 1-hour NO<sub>2</sub> concentration overall as output from AERMOD. The following sections describe the NO<sub>2</sub>-specific options used in the 1-hour NO<sub>2</sub> NAAQS modeling analysis.

#### 4.7.1 BACKGROUND CONCENTRATION

A NAAQS compliance demonstration requires that a representative background concentration be added to the modeled impact prior to comparing to the NAAQS. The state of NC currently has two (2), NO<sub>2</sub> monitors in operation, in Forsyth and Mecklenburg counties, both of which are in high-traffic and/or urban settings. Forsyth County is the closest monitor to the Ahoskie Plant, and NCDAQ provided Trinity with the H8H daily maximum 1-hour concentration for 2009, from that site. Trinity believes that the Forsyth County background value is overly conservative [92.1 µg/m³ (49% of the standard)], given the urban nature of the site, however, the 1-hour NO<sub>2</sub> NAAQS compliance demonstration utilized that value in order to maintain conservatism.

<sup>&</sup>lt;sup>6</sup> Email from Jim Roller (NCDAQ) to Jon Hill (Trinity) on August 31, 2010.

#### 4.7.2 AMBIENT RATIO METHOD

The Guideline on Air Quality Models includes a three-tiered approach for demonstrating compliance with the NO<sub>2</sub> NAAQS. While the tiered approach was originally developed for use with the annual NO<sub>2</sub> standard, recent U.S. EPA guidance has stated that the tiers are generally appropriate for use with the I-hour NO<sub>2</sub> NAAQS as well.<sup>7</sup> The first tier approach is to assume that 100% of NO<sub>x</sub> stack emissions are comprised of NO<sub>2</sub>. That tier is overly conservative for many types of combustion sources (including the dryer and emergency engines at the Ahoskie plant). The second tier, commonly referred to as the Ambient Ratio Method (ARM), involves applying a default national average NO<sub>2</sub>/NO<sub>x</sub> ratio of 75% to the NO<sub>x</sub> model impacts prior to determining compliance with the NAAQS. That ratio was determined to be conservative for Enviva's Ahoskie plant based on the following rationale:

- The modeled sources have relatively low stack heights (especially the emergency generator and fire pump stacks which drive the impacts);
- The maximum concentrations typically occur during nighttime hours when ambient ozone concentrations are generally low, providing limited opportunity for NO<sub>x</sub>-to-NO<sub>2</sub> conversion; and
- The localized nature of the impacts (within 300 m of the property) providing limited opportunity for NO<sub>x</sub>-to-NO<sub>2</sub> conversion.

#### 4.8 TAP Modeling Results

Table 4-5 presents the results for each of the modeled TAPs. Since the impacts for each TAP were less than 50% of the AAL, only the most recent year of meteorological data (1992) was modeled.

TABLE 4-5. TAP MODELING RESULTS

Pollutant	Averaging Period	UTM East	UTM North (m)	Date/Time (YYMMDDHH)	Max. Modeled Concentration (μg/m³)	AAL (µg/m³)	Percent of AAL (%)
Acrolein	1-Hour	323,399.3	4,015,587.3	92121017	2.20	80	2.75%
Benzene	Annual	323,300.0	4,015,300.0	92123123	0.02	0.12	13.25%
Formaldehyde	1-Hour	323,399.3	4,015,587.3	92121017	13.39	150	8.93%
Phenol	1-Hour	323,399.3	4,015,587.3	92121017	2.68	950	0.28%

 $<sup>^{7} \,</sup> http://www.epa.gov/ttn/scram/ClarificationMemo\_AppendixW\_Hourly-NO2-NAAQS\_FINAL\_06-28-2010.pdf$ 

The maximum impacts occur within 300 m of the property line. As shown, all modeled impacts are below their respective AAL and as such, the proposed facility will be in compliance with all applicable NC TAP regulations.

#### 4.9 1-HOUR NO<sub>2</sub> MODELING RESULTS

Table 4-6 presents the results for the 1-hour  $NO_2$  NAAQS analysis. As described in section 4.7, the total impact shown is based on a conservative estimate of the facility's contribution to the NAAQS, using the maximum 5-year average of the H8H, 1-hour concentrations overall rather than the daily maximum 1-hour values.

TABLE 4-6. 1-HOUR NO2 NAAQS MODELING RESULTS

Pollutant	Averaging Period	5-year Avg. High-8th-High <sup>1</sup> (μg/m <sup>3</sup> )	Background Concentration <sup>2</sup> (μg/m <sup>3</sup> )	Total (μg/m³)	NAAQS (μg/m³)	Percent of NAAQS (%)
NO <sub>2</sub>	1-Hour	84.44	92.10	176.54	188	93.90%

<sup>&</sup>lt;sup>1</sup> The impact shown includes the ambient ratio method (NO<sub>2</sub> = NO<sub>3</sub>\*0.75)

The maximum impacts again occur within 300 m of the property line. The results demonstrate that the Enviva Ahoskie plant will not cause a violation of the 1-hour  $NO_2$  NAAQS. The electronic modeling files used in the TAP and NAAQS analyses are contained on the CD-ROM in Appendix D.

<sup>&</sup>lt;sup>2</sup> Background Concentration from Forsyth County, NC Monitor as provided by Jim Roller (DAQ) via email on 8/31/10

## FORM A1

# FACILITY (General Information) on of Air Quality - Application for Air Permit to Construct/Operate

	cation for Air Permit to Construct/Operate
	ROCESSED WITHOUT THE FOLLOWING:
✓ Local Zoning Consistency Determination (if required) ✓ Facili	ty Reduction & Recycling Survey Form (Form A4)   Application Fee
	opriate Number of Copies of Application 🗵 P.E. Seal (if required)
GENERAL	INFORMATION:
Legal Corporate/Owner Name: Enviva Pellets, LLC	
Site Name: Enviva Pellets Ahoskie, LLC	
Site Address (911 Address) Line 1: 142 N.C. Rt 561 East	
Site Address Line 2:	
City: Ahoskie	State: North Carolina
Zip Code: 27910	County: Hertford
CONTACT	INFORMATION
Permit/Technical Contact:	Facility/Inspection Contact:
Name/Title: Glenn Gray / Plant Manager	Name/Title: Glenn Gray / Plant Manager
Mailing Address Line 1: 1309 East Cary Street, Suite 200	Mailing Address Line 1: 1309 East Cary Street, Suite 200
Mailing Address Line 2:	Mailing Address Line 2:
City: Richmond State: VA Zip Code: 23219	
Phone No. (area code) (804) 412-0227 Fax No. (area code) (804) 412-0229	Phone No. ( area code ) (804) 412-0227 Fax No. ( area code) (804) 412-0229
Email Address: Glenn.Gray@envivablomass.com	Email Address: Glenn.Gray@envivabiomass.com
Responsible Official/Authorized Contact:	Invoice Contact:
Name/Title: Glenn Gray / Plant Manager	Name/Title: Glenn Gray / Plant Manager
	Mailing Address Line 1: 1309 East Cary Street, Suite 200
•	Mailing Address Line 2:
Mailing Address Line 2:  City: Richmond State: VA Zip Code: 23219	City: Richmond State: VA Zip Code: 23219
- The state of the	Phone No. (area code) (804) 412-0227 Fax No. (area code) (804) 412-0229
Phone No. (area code) (804) 412-0227 Fax No. (area code) (804) 412-0229 Email Address: Glenn.Gray@envivabiomass.com	Email Address: Glenn.Gray@envivabiomass.com
	BEING MADE FOR
ELID AND STORY OF THE STORY OF	Facility (permitted) Renewal with Modification
	val (TV Only)
	ER APPLICATION (Check Only One)
General Small Prohibitory Small	Synthetic Minor
	Site) INFORMATION
The state of the s	
Describe nature of (plant site) operation(s): Facility ID No. : N/A (To be assigned)  Wood pellet manufacturing facility	
Troop page managers mg recury	
	Current/Previous Air Permit No. N/A Expiration Date N/A
Primary SIC/NAICS Code: 2499 (Wood Products, Not Elsewhere Classified)	Outline To To To Contract to
Facility Coordinates: Latitude: 323,525.1 UTM E	Longitude: 4,015,554.4 UTM N
Does this application contain confidential data?  YES  YES  PERSON OR FIRM THA	NO FREEDADED ADDITION
	F PREPARED APPLICATION
Person Name: Joe Sullivan	Firm Name: Trinity Consultants, Inc.
Mailing Address Line 1: One Copley Parkway	Mailing Address Line 2: Suite 310
City: Morrisville State: North Carolina	Zip Code: 27560 County: Wake
Phone No. (919)-462-9693 Fax No. (919)-462-9694	Email Address: Jsullivan@trinityconsultants.com
SIGNATURE OF RESPONSIBLE	OFFICIAL/AUTHORIZED CONTACT
Name (typed): Norti Hintz	Title: Vice President, Engineering
X Signature(Blue Ink):	Date: 591-29-2010
Attach Additional	Sheets As Necessary

# FORMs A2, A3

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

EMISSION SOURCE		phyconon for All Lettin	it to Construct/Operate	A2
	MISSION SOURCE LISTING: New, Mod	dified, Previously L	Inpermitted, Replaced, Deleted	
AND DESCRIPTION OF THE PROPERTY OF THE PROPERT		CONTROL DEVI		
ID NO.	DESCRIPTION	ID NO.	DESCRIPTION	
	pment To Be ADDED By This Applica	ation (New, Previo	usly Unpermitted, or Replacement)	
S-DRYER	Green Wood Direct-Fired Dryer System	CD-MC1	Multiclone 1	
		CD-MC2	Multiclone 2	
		CD-WESP	Wet Electrostatic Precipitator	
S-CHM-1 & -2	Two Coarse Hammermills	CD-CHM-C1	Cyclone	
		CD-CHM-C2	Cyclone	
		CD-CHM-BF1	Bagfilter	
		CD-CHM-BF2	Bagfilter	
S-GWH-1 & -2	Ground Wood Handling System	CD-GWH-BF	Dust Collection System Bagfilter	
S-PPS	Pellet Press Silo	CD-PPS-BV	Bin vent filter (2,500 s.f. of surface area)	
S-CLR-1 & -2	Two Pellet Coolers	CD-CLR-C1 CD-CLR-C2	Dual High Efficiency Cyclone	
S-EG	Emergency Generator (250kw, 350bhp)		Dual High Efficiency Cyclone	
S-FWP	Fire Water Pump (300bhp)	N/A N/A	N/A N/A	
5-1 ***	The Water Fullip (South)	INA	IWA	
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	112(A) APPLICA	ARII ITY INFORM	MATION	A 2
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	to 40 CFR Part 68 "Prevention of Accidental Release			A 3
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No, please specify inviva Pellets Ahos	to 40 CFR Part 68 "Prevention of Accidental Releatin detail how your facility avoided applicability: kie, LLC will not handle any of the substances	ases" - Section 112(r) of t		A 3
No, please specify inviva Pellets Ahos your facility is Subje	to 40 CFR Part 68 "Prevention of Accidental Releatin detail how your facility avoided applicability: kie, LLC will not handle any of the substances ect to 112(r), please complete the following:	subject to 112(r)	the Federal Clean Air Act? Yes (No)	A 3
No, please specify in nviva Pellets Ahos your facility is Subje A. Have you alrea	to 40 CFR Part 68 "Prevention of Accidental Releatin detail how your facility avoided applicability: kie, LLC will not handle any of the substances	subject to 112(r)	the Federal Clean Air Act? Yes (No)	A 3
No, please specify inviva Pellets Ahos your facility is Subje A. Have you alrea	to 40 CFR Part 68 "Prevention of Accidental Releatin detail how your facility avoided applicability: kie, LLC will not handle any of the substances ect to 112(r), please complete the following:	ases" - Section 112(r) of to subject to 112(r)  PA Pursuant to 40 CFR	the Federal Clean Air Act?  Yes (No)  Part 68.10 or Part 68.150?	A 3

FORM A4							
		NS AND FACILITY - W					*
DATE:	Does facility have	an environmental ma	ngement system i	n place?() YES(X)	NO If so, is facility ISO 1	4000 Certified? ( ) YES	(X) NO
Facility Name:	Enviva Pellets Aho	skie, LLC			Permit Number:	N/A	
	N/A (to be assigned)	County:	Henford		Environmental Contact:	Glenn Gray / Plant Mana	ger
Mailing Address	Line 1:	142 N.C. Rt 561 East			Phone No. ( )	(804) 412-0227	Fax No. ( ) (804) 412-0229
Mailing Address					Zip Code:	27910	County: Hertford
City:	Ahoskie	State:	North Carolina		Email Address:	Glenn.Gray@mnvivabiomass.	com
	*************	· ·	52/57/			0.00	
AIR EMISSIONS	SOURCE REDUCT				in the past year? ( ) YES		
		Enter Code for	Date Reduction	Quantity Emitted	Quantity Emitted	Has reduction activity been	Addition detail about source
Source Description and ID	Air Pollutant	Emission Reduction	Option Implemented	from prior annual	from current annual	discontinued? If so, when	
		Option (See Codes)	(mo/yr)	report to DAQ (lb/yr)	report to DAQ (lb/yr)	was it discontinued? (mo/yr)	
N/A							
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				ri vi	207 St 7-	- 750° 10°0 - 05 01	
FACILITY - WIDE		ECYCLING ACTIVITIE			Recycling Activities in the		
	Pollutant	Enter Code for	Date Reduction	Quantity Emitted	Quantity Emitted	Has reduction activity been	Addition detail about source
Source Description or	or	Emission Reduction	Option Implemented	from prior annual	from current annual	discontinued? If so, when	
Activity	Recycled or Reduced Materials	Option (See Codes)	(mo/yr)	report	report	was it discontinued? (molyr)	
N/A							
Comments							L

Comments:

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



REVISED 1/07

## FORM D1

#### **FACILITY-WIDE EMISSIONS SUMMARY**

VDivision of Air	Quality - Application for Air Permit	to Construct/Operate		D1
A AIR POLLUT	ANT EMISSIONS INFORMATIO	N - FACILITY-WIDE		100
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	See Table 3-2 in the accompanyir	g application document		
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				17 July 1
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## FORM D4

#### **EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY**

REVI	SED: 12/01/ NCDENR/Division of Air Quality -			D4
	ACTIVITIES EXE			
-	INSIGNIFICANT ACTIVITIES		OR TITLE V SOURCES	
	2	SIZE OR PRODUCTION	BASIS FOR EXEMPTION	OR
1	DESCRIPTION OF EMISSION SOURCE	RATE	INSIGNIFICANT ACTIV	
11.	Green Wood Handling and Storage ES-GWHS	716,304 tpy	15A NCAC 02Q .0102 (c)(2)(E)	
2.	Green Wood Fuel Storage Bin ES-GWFB	130,357 tpy	15A NCAC 02Q .0102 (c)(2)(E)	
3.	Dried Wood Handling ES-DWH	418,533 tpy	15A NCAC 02Q .0102 (c)(2)(E)	
A.	10 Pelletizers (Pellet Presses) ES-PP	418,533 tpy	15A NCAC 02Q .0102 (c)(2)(E)	
5.	Final Product Handling ES-FPH	418,533 tpy	15A NCAC 02Q .0102 (c)(2)(E)	
6.	Emergency Generator Diesel Fuel Tank TK1	2,500 gallons	15A NCAC 02Q .0102 (c)(1)(D)	}
h.	Fire Water Pump Diesel Fuel Tank TK2	500 gallons	15A NCAC 02Q .0102 (c)(1)(D)	
8.				
9.				
10.				
<u></u>				

## FORM D

## TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

R	REVISED: 12/01/01 NCDENR/Division of Air Quality - Application for Air Permit to Construct/Oper	rati	D5
	PROVIDE DETAILED TECHNICAL CALCULATIONS TO SUPPORT ALL EMISSION DEMONSTRATIONS MADE IN THIS APPLICATION. INCLUDE A COMPREHENSIVE NECESSARY TO SUPPORT AND CLARIFY CALCULATIONS AND ASSUMI FOLLOWING SPECIFIC ISSUES ON SEPARATE PAC	PROCESS FLOW DIAGR. PTIONS. ADDRESS THE	ATORY AM AS
1	A SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B) - SHOW CALCULATIONS USED, IN BALANCES. AND/OR OTHER METHODS FROM WHICH THE POLLUTANT EMISSION RATES IN THIS APPL OF POTENTIAL BEFORE AND, WHERE APPLICABLE. AFTER CONTROLS. CLEARLY STATE ANY ASSUMENCEDED TO SUPPORT MATERIAL BALANCE CALCULATIONS.	ICATION WEDE DEDIVED. IN	CLUDE CALCULATION
8	B SPECIFIC EMISSION SOURCE (REGULATORY INFORMATION)(FORM E2 - TITLE V ONLY) - PROVIDE AN INDIVIDUAL SOURCES AND THE FACILITY AS A WHOLE. INCLUDE A DISCUSSION OUTING METHODS (REQUIREMENTS) FOR COMPLYING WITH APPLICABLE REGULATIONS, PARTICULARLY THOSE REGULA RATES OR OTHER OPERATIONAL PARAMETERS. PROVIDE JUSTIFICATION FOR AVOIDANCE OF ANY F SIGNIFICANT DETERIORATION (PSD), NEW SOURCE PERFORMANCE STANDARDS (NSPS), NATIONAL E POLLUTANTS (NESHAPS), TITLE V). INCLUDING EXEMPTIONS FROM THE FEDERAL REGULATIONS WHIFFACILITY. SUBMIT ANY REQUIRED TO DOCUMENT COMPLIANCE WITH ANY REGULATIONS. INCLUDE IDATES OF MANUFACTURE. CONTROL EQUIPMENT. ETC. TO SUPPORT THESE CALCULATIONS.	e.g. FOR TESTING AND/OR MATIONS LIMITING EMISSIONS FEDERAL REGULATIONS (PRI EMISSION STANDARDS FOR PARTICLE OF THE PRINCE OF THE	ONITORING BASED ON PROCESS EVENTION OF HAZARDOUS AIR
С	C CONTROL DEVICE ANALYSIS (FORM C) - PROVIDE A TECHNICAL EVALUATION WITH SUPPORTING REF LISTED ON SECTION C FORMS, OR USED TO REDUCE EMISSION RATES IN CALCULATIONS UNDER ITE PARAMETERS (e.g. OPERATING CONDITIONS, MANUFACTURING RECOMMENDATIONS, AND PARAMETE CRITICAL TO ENSURING PROPER PERFORMANCE OF THE CONTROL DEVICES). INCLUDE AND LIMITAT PARTICULAR CONTROL DEVICES AS EMPLOYED AT THIS FACILITY. DETAIL PROCEDURES FOR ASSURDEVICE INCLUDING MONITORING SYSTEMS AND MAINTENANCE TO BE PERFORMED.	M "A" ABOVE. INCLUDE PER ERS AS APPLIED FOR IN THIS	TINENT OPERATING S APPLICATION)
D	PROCESS AND OPERATIONAL COMPLIANCE ANALYSIS - (FORM E3 - TITLE V ONLY) - SHOWING HOW OPROCESS. OPERATIONAL. OR OTHER DATA TO DEMONSTRATE COMPLIANCE. REFER TO COMPLIANCE IN ITEM "B" WHERE APPROPRIATE. LIST ANY CONDITIONS OR PARAMETERS THAT CAN BE MONITORE COMPLIANCE WITH THE APPLICABLE REGULATIONS.	F RECHIREMENTS IN THE DE	CULATORY ANALYSIS
E	PROFESSIONAL ENGINEERING SEAL - PURSUANT TO 15A NCAC 2Q .0112 "APPLICATION REQUIRIN A PROFESSIONAL ENGINEER REGISTERED IN NORTH CAROLINA SHALL BE REQUIRED TO SEAL TECHNINEW SOURCES AND MODIFICATIONS OF EXISTING SOURCES. (SEE INSTRUCTIONS FOR FURTHER AF	NICAL PORTIONS OF THIS AS	EERING SEAL." PPLICATION FOR
	I,M. Dale Overcash, attest that this application for has been reviewed by me and is accurate. complet in the engineering plans, calculations, and all other supporting documentation to the best of my know knowledge the proposed design has been prepared in accordance with the applicable regulations. A package may have been developed by other professionals, inclusion of these materials under my set and have judged it to be consistent with the proposed design. Note: In accordance with NC Genera person who knowingly makes any false statement, representation, or certification in any application is may include a fine not to exceed \$10,000 as well as civil penalties up to \$25,000 per violation.	te and consistent with the invelope. I further attest that the lithough certain portions of the all signifies that I have review that the statutes 143-215 6A and the lithough certains.	o the best of my his submittal wed this material
	NAME: M. Dale Overcash, P.E.	CAROLINA SEAL CAROLINA SEAL 12627	HERE
	(IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT THAT IS BEING CERTIFIED BY THIS SEAL)	William William	

# SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 12/01/01 NCDENR/Divisio	n of Air Quality - A	pplication fo	r Air Permit to	Construct/O	perate		В
EMISSION SOURCE DESCRIPTION:			EMISSION S			ES-DRYER	
Green Wood Direct-Fired Dryer System						CD-MC1, CD	-MC2, & CD-
ODERATIVO ACTIVIDAD			CONTROL D			WESP	
OPERATING SCENARIO 1 OF	1	0111 0 11 0 11	EMISSION P	OINT (STAC	K) ID NO(	S):	EP-DRYER
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO	CESS (ATTACH FL	OW DIAGRA	M):				
Green wood is conveyed to either a one or two rotal system (one or two burners). Air emissions are conf	ry dryer system. D	rect contact	heat is provid	ed to the sys	tem via a	125 mmBtu/l	or burner
utilizing a wet electrostatic precipitator (WESP) ope	ration after the cw	or buik pai	ticulate remov	al and addit	ional part	iculate is rem	oved
TYPE OF EMISSION SOURCE (CHECK	AND COMPLETE	APPROPRIA	TE FORM B1-	B9 ON THE F	OLLOWII	NG PAGES):	
Coal,wood,oil, gas, other burner (Form B1)	oodworking (Form	B4)	Manufact	l. of chemical	s/coatings	/inks (Form B	7)
Int.combustion engine/generator (Form B2)	oating/finishing/prin	ting (Form B5	) 🔲 Incinerati	on (Form B8)			
Liquid storage tanks (Form B3)	orage silos/bins (Fo	orm B6)	Other (Fo	orm B9)			
START CONSTRUCTION DATE: TBD OPER	ATION DATE:	TBI	DATE MANU	FACTURED:	TBD		
MANUFACTURER / MODEL NO.: TBD		EXPECTED	OP. SCHEDUL	E: 24 HR/		DAYIWK	52 WK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?)	: NESHA	P (SUBPAR	「?):		UBPART		JE WIGHT
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FI		R-MAY 25%		AUG 25%		SEP-NOV 2	5%.
EXPECTED ANNUAL HOURS OF OPERATION 8	,760 VISIBLE STA	CK EMISSIOI	IS UNDER NO	RMAL OPER	ATION: _	<20 % O	PACITY
CRITERIA AIR POLLU	TANT EMISSIC	NS INFO	RMATION F	OR THIS S	SOURCE	はなるがある	
	SOURCE OF	EXPECT	D ACTUAL		POTENTI	AL EMSSION	S
	EMISSION	(AFTER CON	ROLS / LIMITS)	EFORE CONTR			
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	See Emission	Calculation	s in Appendix	В			
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> ) PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )		1					
SULFUR DIOXIDE (SO2)					-		
NITROGEN OXIDES (NOx)	_		-		-		
CARBON MONOXIDE (CO)			-		-		
VOLATILE ORGANIC COMPOUNDS (VOC)					+		
LEAD			<del> </del>		+		
OTHER							
HAZARDOUS AIR POLL	UTANT EMISS	IONS INFO	RMATION	FOR THIS	SOUR	CEUSSO	252131
	SOURCE OF		D ACTUAL			AL EMSSIONS	3
	EMISSION	(AFTER CONT	ROLS / LIMITS)	EFORE CONTRO		(AFTER CONTR	
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	3b/hr	tons/yr
	See Emission	Calculation	in Appendix	В			
					+		
					-		
					+		
					+ +		
TOXIC AIR POLLUTA	NT EMISSION	SINFORM	ATION FOR	OZ ZIHT S	URCE	EXEMPLE SE	Savingston .
INDICATE EXPECTE	D ACTUAL EMISS	IONS AFTER	CONTROLS /	LIMITATION	S	or out of the second	department, esc
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb.	/hr	lb/da		lbΛ	r.
			in Appendix		,	ID/y	
Attachments: (1) emissions calculations and supporting docume	ntation; (2) indicate all	requested stat	e and federal enf	orceable permi	t limits (e.g.	hours of operat	ion, emission
rates) and describe how these are monitored and with what frequency	uency; and (3) describ	e any monitorir	g devices, gauge	s, or test ports	for this sou	rce.	

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

Final equipment selection has not yet occurred.

## EMISSION SOURCE (WOOD, COAL, OIL, GAS, OTHER FUEL-FIRED BURNER)

			Application for /	Air Permit to Constru	ct/Operate	B1
EMISSION SOURCE DESCRIPT			EΝ	ISSION SOURCE ID I	NO: ES-DRYER	
Green Wood Direct-Fired Dryer			CC	INTROL DEVICE ID N	O(S): CD-MC1, CD-MC2, a	& CD-WESP
OPERATING SCENARIO:	1 01			IISSION POINT (STAC	CK) ID NO(S):	EP-DRYER
DESCRIBE USE: PROCE	SS HEAT	SPACE HEA	AT.	€ ELECTRICAL	GENERATION	
d CONTIN	NUOUS US	STAND BY/	MERGENCY	& OTHER (DES	CRIBE):	
HEATING MECHANISM:	€ INDIRECT		DIRECT			
MAX. FIRING RATE (MMBTU/HO	UR): 125					
	Alteration is a	WOOD	-FIRED BURI	VER	一一一一	
WOOD TYPE: € BARK	∮ WOOD/BARK	WETW	000	DRY WOOD	d OTHER (DESCRIBE	):
PERCENT MOISTURE OF FUEL:	~50%					
d uncontrolled	€ CONTROL	LED WITH FLY	ASH REINJECTI	ON CÉ C	ONTROLLED W/O REINJ	ECTION
FUEL FEED METHOD: Air Swe				STEAM & AIR		
METHOD OF TUBE CLEANING				C O'LLING O AM	J O MEK	-
	A Trocess dises ing		FIRED BURN	ÉR :	The second second	
TYPE OF BOILER	IE OTHER SEC				and the second s	MAIN NEWS
	IF OTHER DES					
PULVERIZET OVERFEED STOR WET BED & UNCONTROL		D STOKER	1.	ER STOKER	FLUIDIZED BED	
			# UNCONTRO	DLLED		
DRY BED & CONTROLLE	D & CONTROL	LED	# FLYASH RE	INJECTION	RECIRCULATING	
			NO FLYASE	REINJECTION		
METHOD OF LOADING: & C	CYCLONE & HAN	DFIRED	# TRAVELI	NG GRATE & OT	HER (DESCRIBE):	
METHOD OF TUBE CLEANING:			CLEANING SCI			
			S-FIRED BUR			51.5
TYPE OF BOILER: UTI				RESIDENTIAL		
TYPE OF FIRING: UNOF	RMAL   TANGE	ALIAF [] FO.	W NOX BURNER	S ∏NO LOW NOX	BURNER	
METHOD OF TUBE CLEANING:			CLEANING SCH	IEDULE:		
		OTHER FU	EL-FIRED BL		1180860	MERICO
TYPE OF FUEL:		PERCENT MOI	STURE:			
TYPE OF BOILER: UTI			MERCIAL	☐ RESIDENTIAL		
TYPE OF FIRING:	TYPE OF C	ONTROL (IE A)	NY):		FUEL FEED METHO	D.
METHOD OF TUBE CLEANING:		OTTINOE (III A			FUEL FEED METHO	D:
A constant the second s	FUEL USA	GE (INCLUI	CLEANING SCH	BACKUP FUELS	):	LIST CHAR
The state of the s		1	MAXIMUM DES			
FUEL TYPE	UNITS		CAPACITY (UNI	1.	REQUESTED CAR	
	0,4110	l		i/nk)	LIMITATION (UN	II/HR)
107-4 107 A						
Wet Wood	LB	Nominal	29,762			
Wet Wood	LB	Nominal	29,762			
						ALSON OF SHOE
		изтіся (со	MPLETE ALL	THAT ARE APPL		
FU	EL CHARACTÉR	изтіся (со		THAT ARE APPL		TENT
	EL CHARACTÉR	EISTICS (CO	MPLETE ALL		NT ASH CON	
FU	EL CHARACTÉR	SISTICS (CO	MPLETE ALL	SULFUR CONTE	NT ASH CON	
FUEL TYPE	EL CHARACTÉR	SISTICS (CO	MPLETE ALL PECIFIC CONTENT	SULFUR CONTE	NT ASH CON	
FUEL TYPE	EL CHARACTÉR	SISTICS (CO	MPLETE ALL PECIFIC CONTENT	SULFUR CONTE	NT ASH CON	
FUEL TYPE	EL CHARACTER	SISTICS (CO SI BTU Nomina	MPLETE ALL PECIFIC CONTENT 1 4200 BTU/Ib	SULFUR CONTEI (% BY WEIGHT 0.011	NT ASH CON ) (% BY WE	
FUEL TYPE Wet Wood	EL CHARACTER	SISTICS (CO SI BTU Nomina	MPLETE ALL PECIFIC CONTENT 1 4200 BTU/Ib	SULFUR CONTEI (% BY WEIGHT 0.011	NT ASH CON ) (% BY WE	

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

REVISED 12/01/01	NCDENR/Di	vision of Air Quality - A	Application for Air	Permit to Constr	uct/Operate	C4		
CONTROL DEVICE ID NO:	CD-MC1 & CD-MC2	CONTROLS EMISSIC	NS FROM WHICH	EMISSION SOU	RCE ID NO(S):	ES-DRYER		
EMISSION POINT (STACK) ID I		POSITION IN SERIES		NO.	1 OF 2	UNITS		
MANUFACTURER: TBD1		MODEL	. NO:					
DATE MANUFACTURE TBD		PROPO	SED OPERATION	DATE: TBD				
OPERATI	NG SCENARIO:	PROPO	SED START CON	STRUCTION DAT	E: TBD			
1	OF 1		AL REQUIRED (PI		( YES	A NO		
DESCRIBE CONTROL SYSTEM	A :					-		
Two identical multi-cyclones ( emissions are routed to the W					sions;			
POLLUTANT(S) COLLECTED:		PM	PM <sub>10</sub>	PM <sub>2.5</sub>				
BEFORE CONTROL EMISSION	RATE (LB/HR):							
CAPTURE EFFICIENCY:			%	_ %	%	%		
CONTROL DEVICE EFFICIENC		%	_%	%	%			
CORRESPONDING OVERALL I	CORRESPONDING OVERALL EFFICIENCY:			_%%	%	<u></u> %		
EFFICIENCY DETERMINATION	CODE:					_		
TOTAL EMISSION RATE (LB/HI	R):	Emiss	ions routed to	WESP	-			
PRESSURE DROP (IN. H <sub>2</sub> 0);	MIN 2.5" MAX	4.0" WARNI	ING ALAF # YES	(2 NO)				
INLET TEMPERATURE (°F):	MIN MAX	Nominal 400	OUTLET TEMPERATURE (°F): MIN MAX Nominal 400					
INLET AIR FLOW RATE (ACFM	): 145,000		BULK PARTICL	E DENSITY (LB/F	T <sup>3</sup> ): 3E-05			
POLLUTANT LOADING RATE (	GR/FT <sup>3</sup> 0.24							
SETTLING CHAMBER	B014.5	CYCLON	E. J.			AULTICYCLONE		
LENGTH (INCHES):	INLET VELOCITY (F	T/SEC):	direction direct	* RECTANGLE	NO. TUBES: 30	)		
WIDTH (INCHES):	DIMENSIONS (INC	CHES) See instructions	IF WET SPR	AY UTILIZED	DIAMETER OF	TUBES: 24"		
HEIGHT (INCHES):	H:	Dd:	LIQUID USED:		HOPPER ASPIR	RATION SYSTEM?		
VELOCITY (FT/SEC.):	W:	Lb:	FLOW RATE (G	PM):	∍ YES	( NO)		
NO. TRAYS;	De:	Lc:	MAKE UP RATE	(GPM):	LOUVERS?			
NO. BAFFLES:	D:	S:		, = , =	≠ YES	( NO)		
	TYPE OF CYCLONE	* CONVENTIONAL)	≠ H)GH	EFFICIENCY	# OTHER			
DESCRIBE MAINTENANCE PRO			·			DISTRIBUTION		
Periodic inspection of m	echanical integr	ity during plant ou	utages	SIZE	WEIGHT %	CUMULATIVE		
as specified by manufac				(MICRONS)	OF TOTAL	%		
DESCRIBE INCOMING AIR STR	REAM:			0-1		Unknown		
The flue gas from the dr	yer will pass thro	ough the multiclor	nes before	1-10				
entering the WESP				10-25				
				25-50				
				50-100				
				>100				
						TOTAL = 100		
DESCRIBE ANY MONITORING I	DEVICES, GAUGES	TEST PORTS FTC:						
None								
ON A SEPARATE PAGE, ATTAC	CH A DIAGRAM OF TH	E RELATIONSHIP OF	THE CONTROL DI	EVICE TO ITS EM	ISSION SOURCE	E(S):		

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

#### CONTROL DEVICE (Electrostatic Precipitator)

REVISED 12/01/01	NCDENR/Di-	vision of Air Quality - A	pplication for Air Pern	nit to Construct/O	perate		C2
CONTROL DEVICE ID I	NO: CD-WESP	<u> </u>	CONTROLS EMISSIC	ONS FROM WHICH	EMISSION SO	URCE ID N	O ES-DRYER
EMISSION POINT (STA	CK) ID NO(SEP-DRYER		POSITION IN SERIES		NO. 2	OF 2	
MANUFACTURER:	TBD <sup>1</sup>		MODEL NO. TBD1				
MANUFACTURE DATE:	TBD		PROPOSED OPERAT	ION DATE:		TBD	
	OPERATING SCENARIO		PROPOSED START (		DATE:	TBD	
	1 OF 1		P.E. SEAL REQUIRED			YES)	NO
EQ	UIPMENT SPECIFICATION	ONS	GAS DISTRIBUTION	-,-	YES NO	2	
TYPE:	WET) &	DRY (	SINGLE-STAGE		TWO-STAGE	:	
TOTAL COLLECTION P			NO. FIELDS		CTOR PLATE P		222 4 1
COLLECTOR PLATES S		WIDTH:					232 tubes
	ECTRODE LENGTH(FT)		SPACING BETWEEN			12" nextuo	e
NUMBER OF DISCHAR			GAS VISCOSITY (PO				
			NUMBER OF COLLEC				
MAXIMUM INLET AIR F			PARTICLE MIGRATIC		SEC):	0.23	
MINIMUM GAS TREATM			BULK PARTICLE DEN			45/cu	
	LTS) CHARGING: 83kV	COLLECTING: N/	CORONA POWER (W	ATTS/1000 CFM):		401	00
ELECTRICAL USAGE (N							
CLEANING PROCEDUR				ASHING &	OTHER		
OPERATING PARA	PRESSURE	DROP (IN. H20): MIN	2" MAX 2"	WARNING	S ALARM?	YES	4 NO
RESISTIVITY OF POLL		N/A	GAS CONDITIONING	d YES & NO	TYPE OF AGE	NT (IF YES	): Water
INLET GAS TEMPERAT	URE (°F): MIN 178	MAX 178	OUTLET GAS TEMPE	ERATURE (°F):	MIN 178	MAX 178	
VOLUME OF GAS HAND		192,123	INLET MOISTURE PE	RCENT:	MIN 48.8%	MAX 48.89	6
POWER REQUIRE	MENTS	IS AN ENERGY MA	NAGEMENT SYSTEM	USED?	YES	» NO	
FIELD NO.	NO. OF SETS	CHARGING	EACH TRANSFO	ORMER (kVA)	EACH RECT	IFIER Kv A	ve/Peak Ma De
1	1			118	83 / 1265		
2	1			118	83 / 1265		
POLLUTANT(S) COLLEG	CTED:	PM	PM <sub>10</sub>	PM <sub>2.5</sub>			
BEFORE CONTROL EM	ISSION RATE (LB/HR):	49.02		2.3			_
CAPTURE EFFICIENCY		%	%		- %		%
CONTROL DEVICE EFF		88.9 %			-		
			%		- %		%
CORRESPONDING OVE		%	%		%		_%
EFFICIENCY DETERMIN					2 2		
TOTAL EMISSION RATE		See calculations in App	endix B		g 52		
PAR	TICLE SIZE DISTRIBUT	ON	DESCRIBE STARTUP	PROCEDURES:			
SIZE (MICRONS)	WEIGHT % OF TOTAL	CUMULATIVE %	Per manufacturer spe	cifications or con	nmon industry	practices	
0-1	Unkn	own	DESCRIBE MAINTENA	ANCE PROCEDUE	EC.		
1-10	O I I I		Per manufacturer spe			practices	
10-25						,	
25-50			DECCRIBE AND ALTON	LADV LASTEDITY	LINTROPUS	NAME OF THE	001555
50-100			DESCRIBE ANY AUXII SYSTEM:	JAKY MATERIALS	SINTRODUCED	INTO THE	CONTROL
>100							
	TO:::	-100					
	TOTAL						
	ORING DEVICES, GAUG	ES, OR TEST PORTS A	S ATTACHMENTS:				
PLC							
ATTACH A D	DIAGRAM OF THE TOP V	IEW OF THE ESP WITH	DIMENSIONS (include	at a minimum the	plate spacing ar	nd wire space	ing
and inc	dicate the electrode type).	AND THE RELATIONSH	HIP OF THE CONTROL	DEVICE TO ITS F	MISSION SOLI	RCE/S)	

**Attach Additional Sheets As Necessary** 

<sup>1</sup>Final 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/Divisi	on of Air Qual	ity - Applicati	on for Air Perr	mit to Construct	t/Operate		В
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO:		ES-CHM-1 &	-2
Two Coarse Hammermills					CD-CHM-C	1, CD-CHM-C	2. CD-CHM-
			CONTROL D	EVICE ID NO(S		1, & CD-CHM-	
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK) I	D NO(S):	EP-CHM1 &	EP-CHM2
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO							
Dried materials are reduced to the appropriate size r	eeded for pell	etization usin	g two coarse l	hammermills			
TYPE OF EMISSION SOURCE (OUT	2M 4MB 00MB						
TYPE OF EMISSION SOURCE (CHE							
Coal,wood,oil, gas, other burner (Form B1) Wood				t. of chemicals/co	oatings/inks (F	orm B7)	
☐ Int.combustion engine/generator (Form B2); ☐ Coati	ng/finishing/prir	iting (Form B5	) 🗌 Incinerati	ion (Form B8)			
Liquid storage tanks (Form B3)	ge silos/bins (F	orm B6)	Other (Fo	orm B9)			
START CONSTRUCTION DA' TBD OPERAT	ON DATE:	TBD	DATE MANU	FACTURED:	TBD		
MANUFACTURER / MODEL NO.: TBD*		EXPECTED	OP. SCHEDUL	E: 24 HR/DA	Y 7 DAY	/WK 52 WK	/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?)	N	ESHAP (SUB			(SUBPART?):		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE		MAR-MAY		UN-AUG 25%		P-NOV 25%.	
EXPECTED ANNUAL HOURS OF OPERATION 8,76	VISIBLE STA	CK EMISSIO	NS UNDER NO	RMAL OPERAT	ION: < 20	% OPACIT	Y
CRITERIA AIR POLL	UTANT EM	ISSIONS II	FORMATIC	ON FOR THIS	SOURCE		Steller's
	SOURCE OF	EXPECTE	D ACTUAL	1	POTENTIAL	EMSSIONS	
	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CONT		(AFTER CONTI	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 <sub>10</sub> )							
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)						1 500	and the first
NITROGEN OXIDES (NOx)		TREESIN	9 E 3 E E				SETS DITT
CARBON MONOXIDE (CO)		Value 183	PELLICITES I				A SECTION
VOLATILE ORGANIC COMPOUNDS (VOC)		7.	Dept. 1	es lu s		C4 10 1	10000000
LEAD		ded for	Mem II			0 (0.70)	10.2
OTHER	.5		XLUE COS			1 1 2	
HAZARDOUS AIR POL				TION FOR TH			
	SOURCE OF		D ACTUAL		EMSSIONS	SSIONS	
MAZADDONO ADDONI UZANZANIA CARANZ	EMISSION		ROLS / LIMITS)	(BEFORE CONTI	ROLS / LIMITS)	(AFTER CONTI	ROLS / LIMITS)
HAZARDOUS AIR POLLUTANT AND CAS NO. N/A	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
IVA				P. 1	5		
						or of the server	
						(5/5/20)	11156 1116
						180	250
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		\$1000 Day		17.5	2.00	1000
	Section of the second	C SEETINGS	Contract of		0 -	10.74	SE SECON
TOXIC AIR POLLU	TANT FMIC	SIONS INF	ORMATION	FOR THIS	SOURCE	- 25.00	28 50 La
INDICATE EXPEC	TED ACTUAL	EMISSIONS /	ETED CONTE	OLS / LIMITATI	ONE	EX2526	Charles Debt.
TOXIC AIR POLLUTANT AND CAS NO.	TEF SOURCE		/hr	lb/d		lb/	V.
N/A	Temperature	36 har 48 d	125 (E. J.	ID/G	o y	HO)	o Military and a
	(CE)(CE)(CE)	CXULLERY	MADON PE		15 a 15 a	J	S12123
	22,00,415	of Paris S	SERVICE SATE	file the law	fire to the	5 3 9	Start II
	13/43 W (352)	STATE OF THE STATE	Ortago Her	HOW A SEC	15 SOME DE	A	15 Sept 1 1/4
	LOW SE	TORK OF	102 201	WA-, IDE	XE Jak	-133	Probability
	KING THOUGH	STE OHANE	27	D. V. E. D.	V S SI	HE STREET	Chiefal ( P. C.)
		Rent s	3 15 1-1-1		Y STATE OF	100	Constant Constant
Attachments: (1) emissions calculations and supporting documer	tation: (2) indicate	all requested e	tate and federal o	enforceable normit	limite (a.a. bours	of operation c-	iccion rotoc)
and describe how these are monitored and with what frequency;	and (3) describe a	iny monitoring d	evices, gauges, c	or test ports for this	Source.	c. operation, em	~30011101031

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

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

## **EMISSION SOURCE (OTHER)**

MISSION SOURCE ID NO:  CONTROL DEVICE ID NO(S):  MISSION POINT (STACK) ID I	
ONTROL DEVICE ID NO(S): MISSION POINT (STACK) ID I	BF1, & CD-CHM-BF2 NO(S): EP-CHM1 & EP-CHM
tion using two coarse hamm	ermills
MAX DESIGN	REQUESTED CAPACITY
	LIMITATION(UNIT/HR)
47.78	LIMITATION(UNITIAN)
MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)
2):	
UM FIRING RATE (MILLION	BTU/HR): N/A
2	MAX. DESIGN CAPACITY (UNIT/BATCH)

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

REVISED 12/01/01	NCDENR/Div	ision of Air Qua	lity - Application	on for Air P	ermit to Constru	ct/Operate		C4
CONTROL DEVICE ID NO CD-CHI	M-C1 & CD-CHM-C2	CONTROLS E	MISSIONS FRO	M WHICH	EMISSION SOU	RCE ID NO(S):	ES-CHM-1 & -2	
EMISSION POINT (STACK) ID NO	(EP-CHM1 & EP-CHM)				NO.	1 OF 2	UNITS	
MANUFACTURER: TBD1		1	MODEL NO:	TBD1				
DATE MANUFACTURED: TBD		F	PROPOSED OF	PERATION	DATE: TBD			
OPERATIN	G SCENARIO:	Livering Colors			TRUCTION DAT	E: TBD		
1_	OF1	F	P.E. SEAL REQ	UIRED (PE	R 2Q .0112)?	, YES	) i NO	
DESCRIBE CONTROL SYSTEM:								
Two identical cyclones are equipy The parameters presented here a			ure bulk PM en	nissions; e	missions are rou	sted to two bagfil	ters.	
POLLUTANT(S) COLLECTED:			PM	PM <sub>10</sub>	PM <sub>2.5</sub>			
BEFORE CONTROL EMISSION RA	ATE (LB/HR):	_					_	
CAPTURE EFFICIENCY:		_	%		%	%	<del></del> %	
CONTROL DEVICE EFFICIENCY:			%		%	%	%	
CORRESPONDING OVERALL EFF	TCIENCY:		%		%	%	%	
EFFICIENCY DETERMINATION CO	DDE:						_	
TOTAL EMISSION RATE (LB/HR):		E	missions r	outed to	bagfilters		_	
PRESSURE DROP (IN. H <sub>2</sub> 0); MI	N MAX 6.0"	WARNING	S ALARM?	- YES(	é NO			
INLET TEMPERATURE (°F): MI	N MAX	Ambient	ОИТ	ET TEMPE	RATURE (°F):	MIN MAX	Ambient	
INLET AIR FLOW RATE (ACFM):	38,000		BULK	PARTICLE	DENSITY (LB/F	T³): 1E-06		
POLLUTANT LOADING RATE (GR/	FT <sup>3</sup> ): 0.01							
SETTLING CHAMBER		CY	CLONE	Sul I	V 5257	1	MULTICYCLONE	
LENGTH (INCHES):	INLET VELOCITY (FT.	/SEC):	50 2 C	IRCULAR -	RECTANGLE	NO. TUBES:		
WIDTH (INCHES):	DIMENSIONS (INC)	HES) See instruct	tions <sup>2</sup> IF	WET SPRA	AY UTILIZED	DIAMETER OF	TUBES:	
HEIGHT (INCHES):	H:	Dd:	LIQUI	D USED:		HOPPER ASPI	RATION SYSTEM?	
VELOCITY (FT/SEC.):	W:	Lb:	FLOV	/ RATE (GF	PM):	YES NO		
NO. TRAYS:	De:	Lc:	MAKE	UP RATE	(GPM):	LOUVERS?		
NO. BAFFLES:	D:	S:				YES	- NO	
	TYPE OF CYCLONE: (	d CONVENTA	ONAL)	= HIGH E	FFICIENCY	j OTHER		
DESCRIBE MAINTENANCE PROCE	EDURES:					PARTICLE SIZE	DISTRIBUTION	
Periodic inspection of mec	hanical integrity d	luring plant o	outages		SIZE	WEIGHT %	CUMULATIV	E
as specified by manufactur	er or common inc	lustry praction	es		(MICRONS)	OF TOTAL	%	
DESCRIBE INCOMING AIR STREAM	M:				0-1		Unknown	
The particulates from the h	ammermills will p	ass through	the cyclone	s before	1-10			
entering the bagfilters					10-25			
				ĺ	25-50			
					50-100			
					>100			
				i			TOTAL = 100	
DESCRIBE ANY MONITORING DEV None	/ICES, GAUGES, TEST	PORTS, ETC:						
ON A SEPARATE PAGE, ATTACH A			F THE CONTR	DL DEVICE	TO ITS EMISSI	ON SOURCE(S):		

<sup>&</sup>lt;sup>1</sup>Final equipment selection has not yet occurred but will be similar in design to specifications shown.

<sup>&</sup>lt;sup>2</sup>Dimensions of cyclones TBD, but bagfilter is primary control device

## CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01	NCDENR/Div	ision of Air Qual	ity - Application for	r Air Permit t	o Construct/Operate		C.		
CONTROL DEVICE ID NO: CD-CHM-BF1 & CD-					N SOURCE ID NO(S	): ES-CHM-1 & -2	2		
EMISSION POINT (STACK) ID NO(S): EP-CHM1 (	B EP-CHM2	POSITION IN SE	RIES OF CONTROL	.S	NC	). 2 OF :	2 UNITS		
MANUFACTURER: TBD <sup>1</sup>			MODEL NO:	TBD					
DATE MANUFACTURED: TBD		405 W. 7000 Ct	PROPOSED OPE						
OPERATING SCENAR	RIO:	0.0	PROPOSED START CONSTRUCTION DATE: TBD						
1OF1			P.E. SEAL REQUI	RED (PER 20	2 .0112)?	₹ YES)	ĕ NO		
DESCRIBE CONTROL SYSTEM:									
Two bagfilters equipped to the coarse ha	ammerm≀lls 1	following the cyc	lones.						
POLLUTANT(S) COLLECTED:			PM	PM <sub>10</sub>	PM <sub>2.5</sub>				
BEFORE CONTROL EMISSION RATE (LB/HR):							_		
CAPTURE EFFICIENCY:			%		%	%	- %		
CONTROL DEVICE EFFICIENCY:			Ş <del>.</del>			- "			
CORRESPONDING OVERALL EFFICIENCY:							- 70		
				-			_ %		
EFFICIENCY DETERMINATION CODE:							-		
TOTAL EMISSION RATE (LB/HR):			See calculatio	ns in App	endix B				
PRESSURE DROP (IN. H <sub>2</sub> 0): MIN: MAX:	8"	GAUGE?	d YES	NO	WARNING ALARM	? (YES)	€ NO		
BULK PARTICLE DENSITY (LB/FT3):	53		INLET TEMPERAT	TURE (°F):	Ambient				
POLLUTANT LOADING RATE: 0.01	∉ LB/HR	GR/FT <sup>3</sup>	OUTLET TEMPER	ATURE (°F):	Ambient				
INLET AIR FLOW RATE (ACFM): 38,000			FILTER MAX OPE	RATING TEM	IP. (°F): N/A				
NO. OF COMPARTMENTS: TBD1 NO	OF BAGS	PER COMPARTM	ENT: TBD1		LENGTH OF BAC	S (IN.):TBD1			
DIAMETER OF BAG (IN.): DR	AFT: (	# INDUCED/NE	FORCED	D/POS.	FILTER SURFAC	E AREA (FT <sup>2</sup> ):	6,333		
	TER MATER	IAL: Polyester o	r equivalent		- WOVE	N - FELTE	D		
DESCRIBE CLEANING PROCEDURES:					PARTI	CLE SIZE DISTR	RUTION		
# AIR PULSE		SONIC			SIZE	WEIGHT %	CUMULATIVE		
REVERSE FLOW		SIMPLE BAG			(MICRONS)	OF TOTAL	%		
MECHANICAL/SHAKER		RING BAG C	OLLAPSE		0-1	Unl	known		
é OTHER Cleaning procedure d	ependent or	n final design			1-10				
DESCRIBE INCOMING AIR STREAM:					10-25				
The air stream will contain wood dust	particles				25-50				
					50-100				
					>100	TOT	AL = 100		
METHOD FOR DETERMINING WHEN TO CLEAN:						1077	- 100		
	MANUAL								
METHOD FOR DETERMINING WHEN TO REPLACE		S:							
ALARM O INTERNAL INSPEC			SION + O	THER					
SPECIAL CONDITIONS: None									
F MOISTURE BLINDING & CHEMIC	AL RESISTI	VITY	OTHER						
EXPLAIN:									
DESCRIBE MAINTENANCE PROCEDURES: Per I	manufacture	r recommendation	ons or common ind	lustry practic	es				
ON A SEDADATE DAGE ATTACH A SIACE	MONTH TO THE	P PP 17							
ON A SEPARATE PAGE, ATTACH A DIAGRAM SH	TOWING I'H	E RELATIONSHIP	OF THE CONTRO	L DEVICE TO	IIS EMISSION SOL	IRCE(S):			

<sup>&</sup>lt;sup>1</sup>Final 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/Division	n of Air Quality	y - Application	n for Air Perm	it to Construc	t/Operate		В	
EMISSION SOURCE DESCRIPTION:			<b>EMISSION S</b>	OURCE ID NO	):	ES-GWH-1 &	-2	
Ground Wood Handling System			CONTROL D	EVICE ID NO	S):	CD-GWH-BF		
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK	) ID NO(S):	EP-GWH		
DESCRIBE IN DETAILTHE EMISSION SOURCE PROC	ESS (ATTACH	FLOW DIAG	RAM):					
One set of conveyors after the hammermills transpor	ts material to t	the pellet pres	ss silo. A sec	ond set of co	veyors trans	ports the mate	rial from the	
pellet press silo to the pellet presses. Particulate em	issions are ro	uted to a com	mon dust col	lection systen	n. Drop point	s routed to co	mmon	
control: coarse hammermills to "accepts conveyor",	"accepts conv	eyor" to pelle	t press silo ir	nfeed conveyo	r, pellet press	silo to pellet	press feed	
conveyor, silo bypass to pellet press conveyor, & pell	et press distri	bution conve	yors					
TYPE OF EMISSION SOURCE (CHECK	AND COMPL	ETE APPROF	PRIATE FORM	A B1-B9 ON TH	IE FOLLOWIN	G PAGES):		
Coal,wood,oil, gas, other burner (Form B1) Wood				t. of chemicals/				
☐ Int.combustion engine/generator (Form B2) ☐ Coatir		,	1222		coomigonino (	, 0,,,,		
I								
	je silos/bins (Fo		Other (F					
START CONSTRUCTION DA' TBD OPERATION OF CONSTRUCTION DA' TBD		TBD		FACTURED:				
MANUFACTURER / MODEL NO.: TBD!				LE: 24 HR/D		Y/WK _52_W	/K/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):		ESHAP (SUB			T (SUBPART)	, <del></del>		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE		MAR-MAY 2		UN-AUG 259		EP-NOV 25%		
	VISIBLE STA						ΓY	
CRITERIA AIR POLLU	TANT EMIS	ssions in	FORMATIC	ON FOR TH	S SOURCE			
	SOURCE OF	EXPECTE	D ACTUAL		POTENTIAL	EMSSIONS		
	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTI	ROLS / LIMITS)	
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM)	See Emission	n Calculations	in Appendix	В				
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )								
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )								
SULFUR DIOXIDE (SO2)		7.45 April -Y	Word, III To			2 - 1 -		
NITROGEN OXIDES (NOx)		1.70	CAUCATION ST		5"59			
CARBON MONOXIDE (CO)	NEW YORK		SOFTE BY		14,0000	Self net		
VOLATILE ORGANIC COMPOUNDS (VOC) LEAD								
OTHER	Service of the	1000 30010	dilina v		75 77	DEGN BL		
	AUTANIT CI	100101101	1500000			154	Dec. III	
HAZARDOUS AIR POLI				ION FOR T			<u> </u>	
	SOURCE OF	1	D ACTUAL			L EMSSIONS		
UATABBOUR AIR ROLLUTANT AND GARAGE	EMISSION		ROLS / LIMITS)		ROLS / LIMITS)	(AFTER CONTE		
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
N/A								
		I OF LINE	F THERE			ME DU		
	E Lead		Stage & All	V D A S				
	CA STATE	2 - 10 - 10 - 10	A BANG AND					
	2423 11 3350	STATE OF THE STATE OF	Section of the section	100 J. A. C.	V	THESE TOPS		
	CTVL-LUBERTY		3116-18-0-1	y Ne Constant	and the second	81.4 50.1		
TOXIC AIR POLLUT.	ANT ENGC	TOME INTER	DUATION	EOD TUIC	COUDER	BAYCH LIPS VI	A STATE OF THE STA	
INDICATE EXPECT						Anderson	100	
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE					11.		
N/A	EF SOURCE	ID	/hr	1D/6	day	lb/	yr	
INIA.	ASSESSMENT OF THE PARTY OF THE	SELECTION OF THE	MATERIAL CONTRACTOR	District Park		Ã.	1 101 111.	
	\$2000 (200 Hall 200)	R ST STORY AND	PERSONAL PROPERTY.	STATE OF THE STATE OF	1. Factor 47 4	March Control	Land Land	
	March Tollage Co.	24 - 25 1 - 9		KINDEL GEN		E-Sierde A		
	A STATE OF STATE	Santage (A)	Section States	GREEN TO THE	T I HOUSE	ANGEL COLCA	THE RESERVE	
	200 100		SPECIAL PROPERTY.	1875-20-10	-141		FINA	
			gric - C.Z.		S	Car Card		
Attended (4) and a later to the second of th	300 3		PEUM PEOPLE	Seat of the Seat of	- SITTY 150	585N 10-F	a day	
Attachments: (1) emissions calculations and supporting document and describe how these are monitored and with what frequency; a	ation; (2) indicate	e all requested si	late and federal	enforceable perm	nit limits (e.g. hou	ers of operation, e	emission rates)	
and with what neguency, a	ine folidescribe a	my morntoring de	wices, gauges,	or test pons for th	iis source.			

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

#### **Attach Additional Sheets As Necessary**

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

## **EMISSION SOURCE (OTHER)**

REVISED: 12/01/01 NCDENR/Division of Air Quality	- Application	for Air Permit to Construct/O	perate B9
EMISSION SOURCE DESCRIPTION:		EMISSION SOURCE ID NO:	ES-GWH-1 & -2
Ground Wood Handling System		CONTROL DEVICE ID NO(S):	CD-GWH-BF
OPERATING SCENARIO: 1 OF 1		EMISSION POINT (STACK) ID	NO(S): EP-GWH
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAL One set of conveyors after the hammermills transports transports the material from the pellet press silo to the common dust collection system. Drop points routed to conveyor", "accepts conveyor" to pellet press silo infect silo bypass to pellet press conveyor, & pellet press dist	material to th pellet presses common con ed conveyor, j	<ul> <li>Particulate emissions are ro trol: coarse hammermills to "a pellet press silo to pellet press</li> </ul>	outed to a accepts
MATERIALS ENTERING PROCESS - CONTINUOUS PRO	CESS	MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Ground Wood	Tons	47.78	
MATERIALS ENTERING PROCESS - BATCH OPERA)  TYPE	UNITS	MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED CAPACITY LIMITATION (UNIT/BATCH)
MAXIMUM DESIGN (BATCHES / HOUR): REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/	VD).	
CUEL USED: N/A	T	(IMUM FIRING RATE (MILLION	DTUILIDS ANA
MAX. CAPACITY HOURLY FUEL USE: N/A		D CAPACITY ANNUAL FUEL U	
COMMENTS:			View NVA

#### CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01	NCDENR	Division of Air Qua	ality - Applica	ion for A	ir Permit to Co	nstruct/Operate		C
CONTROL DEVICE ID NO: CD-GWH	8F	CONTROLS EMIS	SIONS FROM	WHICH E	EMISSION SOL	RCE ID NO(SE	ES-GWH-1 8 -	2
EMISSION POINT (STACK) ID NO(S): EI	P-GWH	POSITION IN SER				NC		1 UNITS
MANUFACTURER: TBD1			MODEL NO:	ТВ	D			
DATE MANUFACTURED: TBD			PROPOSED	OPERAT	ION DATE: 1	BD		
OPERATING SCEI	NARIO:	11.95% 92	PROPOSED	STARTO	ONSTRUCTIO	N DATE:	TBD	
1_OF1	_		P.E. SEAL R	EQUIRED	PER 2Q .011	2)?	YES	/ NO
DESCRIBE CONTROL SYSTEM:  A fabric filter dust collector system	will be equ	ipped collect partic	culate emissio	ons from t	the ground wo	od handling sys	tem	
POLLUTANT(S) COLLECTED:			PM		PM <sub>10</sub>	PM <sub>2.5</sub>		
BEFORE CONTROL EMISSION RATE (LB/H	R):					·		
CAPTURE EFFICIENCY:				·	9		%	<del>-</del> %
CONTROL DEVICE EFFICIENCY:				%	9		%	- <sup>/</sup>
CORRESPONDING OVERALL EFFICIENCY	:			%	9	,	%	- %
EFFICIENCY DETERMINATION CODE:						-		_ `
TOTAL EMISSION RATE (LB/HR):			See calcu	lations	in Appendi	В		_
PRESSURE DROP (IN. H <sub>2</sub> 0): MIN: I	лах: в"	GAUGE?	(é YES	2) N	O WAR	NING ALARM?	( YES) é	NO NO
BULK PARTICLE DENSITY (LB/FT3):	1.43E-06		INLET TEMP	ERATUR	E (°F): Ambi	ent		
POLLUTANT LOADING RATE: 0.01	ċ LB/HR	GR/FT <sup>3</sup>	OUTLET TEN	/PERATU	IRE (°F): Ambie	ent		
INLET AIR FLOW RATE (ACFM): 5000			FILTER MAX	OPERAT	ING TEMP. (°F)	: N/A		
NO. OF COMPARTMENTS: TBD1 NO	O. OF BAGS	PER COMPARTME	NT:	TBD1	L	ENGTH OF BAG	(IN.): TBD <sup>1</sup>	
DIAMETER OF BAG (IN.): DF	RAFT:	(INDUCEDINE	FC is	RCED/PC	S. F	LTER SURFAC	E AREA (FT²):	833
AIR TO CLOTH RATIO: 6 FIL	TER MATE	RIAL: Polyester or	equivalent			- WOVE	N ? FELTE	D
DESCRIBE CLEANING PROCEDURES:						PARTI	CLE SIZE DISTR	RIBUTION
F AIR PULSE		⇒ SONIC				SIZE	WEIGHT %	CUMULATIVE
- REVERSE FLOW		<ul> <li>SIMPLE BAG C</li> </ul>	OLLAPSE			(MICRONS)	OF TOTAL	%
- MECHANICAL/SHAKER		RING BAG CO	DLLAPSE			0-1	Un	known
é OTHER Cleaning	procedure d	ependent on final o	design			1-10		
DESCRIBE INCOMING AIR STREAM:						10-25		
The air stream will contain wood	dust part	icles				25-50		
					_	50-100		
						>100		
							TOT	AL = 100
METHOD FOR DETERMINING WHEN TO CL	EAN: MANUAL							
METHOD FOR DETERMINING WHEN TO BE		BACC.						
ALARM INTERNAL INSP		VISIBLE EMISS	ION	∉ OTHE	D .			
SPECIAL CONDITIONS: None				. 01116				
	CAL RESIST	IVITY						
EXPLAIN:								
DESCRIBE MAINTENANCE PROCEDURES:	Per manufa	cturer recommend	dations or co	nmon inc	tustry practice	s		
ON A SEPARATE PAGE, ATTACH A DIAGRA	MCHOWN	S THE BELLATIONS	LIID OF THE 1	ONTRO	DELMOS TO :	C EMICOION	UDOE:C:	
ATTACH A DIAGRA	IN OLICANIA	ITTE NELATIONS	THE OF THE	ONTRUL	DEVICE TO IT	S EMISSION SC	UKCE(S):	

<sup>&</sup>lt;sup>1</sup>Final 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	- Applicatio	n for Air Perm	it to Construc	t/Operate		В	
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO	):	ES-PPS		
Pellet Press Silo			CONTROL D	EVICE ID NO	S):	CD-PPS-BV		
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK	) ID NO(S):	EP-PPS		
DESCRIBE IN DETAILTHE EMISSION SOURCE PROC	CESS (ATTACH	FLOW DIAG	RAM):					
A pellet press silo stores dried ground wood prior to	transport to th	e pellet pres	ses.					
TYPE OF EMISSION SOURCE (CHEC	K AND COMPL	ETE APPRO	PRIATE FORM	B1-B9 ON TI	HE FOLLOWIN	G PAGES):		
Coal,wood,oil, gas, other burner (Form B1) Wood					coatings/inks (			
Int.combustion engine/generator (Form B2) Coati	na/finishina/print	ina (Form B5	i)	on (Form B8)		·		
I	ge silos/bins (Fo		Other (Fo					
START CONSTRUCTION DA. TBD OPERATI	ON DATE:	TBC	DATE MANU	FACTURED:	TBD			
MANUFACTURER / MODEL N TBD			OP. SCHEDUL			Y/WK 52 V	VK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):		ESHAP (SUE			T (SUBPART?			
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE	B 25%	MAR-MAY	25% J	UN-AUG 259		P-NOV 25%		
EXPECTED ANNUAL HOURS OF OPERATIO 8,760	VISIBLE STA	CK EMISSIO	NS UNDER NO	RMAL OPERA	ATION: < 20	% OP/	ACITY	
CRITERIA AIR POLLU							deside (A) V	
	SOURCE OF		D ACTUAL	1 7 5 5 5 5 5 5 5 5 5	POTENTIAL			
	EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)			
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM)	See Emission	Calculation	s in Appendix	В			,	
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )			T					
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.6</sub> )								
SULFUR DIOXIDE (SO2)						34.5 4.5 - 1		
NITROGEN OXIDES (NOx)		7.39.29.00	(E12   F17			Adv. National		
CARBON MONOXIDE (CO)	E F DI	Profes &	0.00	7 1 E ST 1	A RESIDENCE			
VOLATILE ORGANIC COMPOUNDS (VOC)	1000000	USE-6Rund	A Company	1.001				
LEAD		A3HROBOSHIII	102 W - P - P -	New Earlie	1 100 2000		SELXI- II	
OTHER	ULBRU	1251250	IST ISAS					
HAZARDOUS AIR POLI	UTANT EM	ISSIONS	NFORMAT	ON FOR T	HIS SOURCE	E	the Black	
	SOURCE OF		D ACTUAL	T	POTENTIAL			
	EMISSION		FROLS / LIMITS)	(BEFORE CON'	ROLS / LIMITS)	(AFTER CONTROLS / LIMITS)		
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
N/A		and Marie		70 -11	4700-970	PSCARIE CENT	tono, j.	
		10,748 (4) 13	12.4 NOT	-	V-3	EXCUSE VI		
	y response	10000			1 1 5 E E	STEED FALL	(300) = 1	
		Children of	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			287,0735	Lac III //	
	ME - 107	100000	ALEX MAR			UK RUJAY		
	ELT ON.	- 100 mark	15 / De 15 / D	131 - T. Val. 2	( TO TO THE SE	Str. S. J. 22	(17), 10, 1-10 (1)	
	W_ SUNSE	3.5690k;20	18 4		20.7 4.004	Seed-to-	Jan III II II	
TOXIC AIR POLLUT	ANT EMISS	IONS INFO	DRMATION	FOR THIS	SOURCE	W. Old Levi	2.00%	
INDICATE EXPECT	ED ACTUAL E	MISSIONS A	FTER CONTRO	OLS / LIMITAT	IONS			
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		/hr		day	lb/	vr	
N/A	F1/2003	TO SHARE OF	de se division	SERVE SVIVE	00000000000000000000000000000000000000	althus (5.5/15/5)	#ET.=BOOLLU	
	2 T S (1) (55)	15 10 10 19	SAME AREA	190	2 1 2 7 3 W	B B A S V	AUG PAG	
	90 9 NEW	to all the second	S. C.Mrs-1545.	State of the late	local Control of the		co-utility is	
	STATE OF THE STATE OF	HEED ON	pie invester		SOUTH THE SECTION OF	MR-2021-1526	HAMPA IS	
	PER CUS	199513	SCHOOL STORY	HANGE THE TANK		3773 TAX	than hotel	
	D. C. P. LINE	185,195,48	K - 100 M	( a) Pinte		Arthur de Water	1 3 × 1 × 1	
		A STATE OF THE STA	kanta he	15-17-17	Mary Co. Lot To.	IN POST OF	I WY	
Attachments: (1) emissions calculations and supporting documen	tation: (2) indicate	all convented a	tate and fade:-1	andono a subba c	it tierite de a			
and describe how these are monitored and with what frequency;	and (3) describe a	nv monitorina d	evices, gauges, o	or test ports for the	m mans (e.g. nou nis source	is or operation, i	amosion (9162)	

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)**

EMISSION SOURCE DESCR OPERATING SCENARIO:	RIPTIOI Pellet F	ress	Silo					
OPERATING SCENARIO:			0,10		EMISSION	SOURCE ID NO:	S-PPS	
OPERATING SCENARIO:					CONTROL	DEVICE ID NO(S):	CD-PPS-BV	
		1	OF1		EMISSION	POINT(STACK) ID NO(S): E	P-PPS	
DESCRIBE IN DETAIL THE I  A pellet press silo ste			•	ort to th	e pellet presses.			
MATERIAL STORED:					DENSITY OF MAT	EDIAL /I D/ETO). AD		
CAPACITY	CUBIC FEET	4778			DENSITY OF MAT TONS: 95.			
DIMENSIONS (FEET)	HEIGHT:	T	DIAMETER:	(OR)	LENGTH:	WIDTH: HEIGHT:		
ANNUAL PRODUCT THRO		_	ACTUAL:			DESIGN CAPACITY:		
PNEUMATICALLY FI	PNEUMATICALLY FILLED MECHANICALLY			ALLY FI		FILLED F	ROM	
∉ BLOWER		å :	SCREW CONVEYO	R		d RAILCAR	3 Nr 63 r	
d COMPRESSOR	<	1	BELT CONVEYOR	90 Î	MOTOR HP:	d TRUCK		
é OTHER:		ė	BUCKET ELEVATOR	₹		STORAGE PILE		
		é (	OTHER:				onveyor	
NO. FILL TUBES:								
MAXIMUM ACFM:								
MATERIAL IS FILLED TO: BY WHAT METHOD IS MATE Gravity with wood to droppi	ERIAL UNLOAD	DED FI				ollection system		
MAXIMUM DESIGN FILLING	DATE OF MAY	CDIAL	(TONORID)					
		_		47.78				
MAXIMUM DESIGN UNLOAD	ING RATE OF	MATE	RIAL (TONS/HR):	47.78				
COMMENTS: Silo sized to prov	ride 2 hours	s of h	old up capacity	/ in the	e event of drye	r downtime (47.78 tph	n * 2 hours	5)

#### CONTROL DEVICE (FABRIC FILTER)

REVISED 12/01/01	NCDEN	R/Division of Air Qua	lity - Application for A	Air Permit to C	onstruct/Operate		0
CONTROL DEVICE ID NO: CD-PPS	S-BV	CONTROLS EMIS	SIONS FROM WHICH	HEMISSION SC	DURCE ID NO(S):	ES-PPS	
EMISSION POINT (STACK) ID NO(S):	EP-PPS		RIES OF CONTROLS		NC		UNITS
MANUFACTURER: TBD1			MODEL NO: T	BD			
DATE MANUFACTURED: TBD			PROPOSED OPERA	ATION DATE:	TBD		
OPERATING SC	ENARIO:	312066	PROPOSED START	CONSTRUCT	ION DATE:	TBD	
1OF	1		P.E. SEAL REQUIRE	D (PER 2Q .0	112)?	YES	NO
DESCRIBE CONTROL SYSTEM:  A bin vent filter collects dust fron	when wood	enters or exits the s	ilo and displaces air.				
POLLUTANT(S) COLLECTED:			РМ	PM <sub>10</sub>	PM <sub>2.5</sub>		
BEFORE CONTROL EMISSION RATE (LB.	/HR):						-
CAPTURE EFFICIENCY:			%		%	%	%
CONTROL DEVICE EFFICIENCY:			%		%	%	<del>-</del> %
CORRESPONDING OVERALL EFFICIENC	Y:		%		%	%	%
EFFICIENCY DETERMINATION CODE:							-
TOTAL EMISSION RATE (LB/HR):			See calculations	s in Append	lix B	-	-
PRESSURE DROP (IN. H <sub>2</sub> 0): MIN:	MAX: 4"	GAUGE?			RNING ALARM?	( YES) é I	- NO
BULK PARTICLE DENSITY (LB/FT <sup>3</sup> ):	1.43E-0	6	INLET TEMPERATUR		Ambient		
POLLUTANT LOADING RATE: 0.01	r LB/HI	R GR/FT³	OUTLET TEMPERAT	URE (°F):	Ambient		
NLET AIR FLOW RATE (ACFM): 15,000	in a		FILTER MAX OPERA	TING TEMP. (°			
NO. OF COMPARTMENTS: TBD1	NO. OF BAG	S PER COMPARTME	NT: TBD		LENGTH OF BAG	(IN.): TBD'	
DIAMETER OF BAG (IN.):	DRAFT:	≥ INDUCED/NEC	S. FORCED/F	POS	FILTER SURFACE		2500
IR TO CLOTH RATIO: 6	FILTER MAT	ERIAL: Polyester or	equivalent		₹ WOVEN	r FELTE	
ESCRIBE CLEANING PROCEDURES:					PARTI	CLE SIZE DISTR	BUTION
AIR PULSE		<ul><li>SONIC</li></ul>			SIZE	WEIGHT %	CUMULATIV
		SIMPLE BAG C	OLLAPSE		(MICRONS)	OF TOTAL	%
- MECHANICAL/SHAKER		<ul> <li>RING BAG CO</li> </ul>	DLLAPSE		0-1	Unl	เกอพท
OTHER Cleaning	procedure d	ependent on final de	sign		1-10		
ESCRIBE INCOMING AIR STREAM:					10-25		
The air stream will contain wood	dust part	icles		ì	25-50		
					50-100		
					>100		
						TOTA	AL = 100
ETHOD FOR DETERMINING WHEN TO C	CLEAN:						
AUTOMATIC # TIMED	* MANUAL						
ETHOD FOR DETERMINING WHEN TO F							
ALARM INTERNAL INS	PECTION	VISIBLE EMISS	ION OTH	ER			
PECIAL CONDITIONS: None							
MOISTURE BLINDING CHENEXPLAIN:	MICAL RESIST	IVITY	₹ OTHER				
ESCRIBE MAINTENANCE PROCEDURES	Den me: 1						
ESCHOL MAINTENANCE / NOCEDULES	s. Fei inanui	acturer recommends	ations of common ind	sustry practice	s		
			_				
N A SEPARATE PAGE, ATTACH A DIAGF	RAM SHOWIN	G THE RELATIONSH	IP OF THE CONTROL	DEVICE TO IT	'S EMISSION SOU	RCE(S):	

Attach Additional Sheets As Necessary

<sup>1</sup>Final 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/Div	ision of Air Quality	- Application	for Air Perm	it to Constru	ct/Operate		В
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID NO	D:	ES-CLR-1 &	-2
Two Pellet Coolers			CONTROLE	EVICE ID NO	(S):	CD-CLR-C1	
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK	) ID NO(S):	EP-CLR-C1 &	EP-CLR-C
DESCRIBE IN DETAILTHE EMISSION SOURCE PI	ROCESS (ATTACH	FLOW DIAG	RAM):				
Two peliet coolers follow the pellet presses to co-	of the newly forme	d pellets dow	n to an accep	otable storage	temperature.		
TYPE OF EMISSION SOURCE (CH	ECK AND COMPL	ETE APPROP	PRIATE FORM	1 B1-B9 ON T	HE FOLLOWIN	NG PAGES):	
Coal,wood,oil, gas, other burner (Form B1) U				t. of chemicals			
Int.combustion engine/generator (Form B2) Co	oating/finishing/prin	tina (Form B5)			ŭ	. ,	
	orage silos/bins (Fo		Other (Fr	-			
START CONSTRUCTION DATED OPER	ATION DATE:	TBD	DATE MANU	FACTURED:	TBD		
MANUFACTURER / MODEL NO.: TBD		EXPECTED (	P. SCHEDUI	LE: _24 HR/D	AY 7 DA	Y/WK 52 V	VK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPAR'	T?):N	ESHAP (SUB			T (SUBPART		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC	-FEB 25%	MAR-MAY 2	5% J	UN-AUG 25		EP-NOV 25%	
EXPECTED ANNUAL HOURS OF OPERATION 8	,760 VISIBLE STA	CK EMISSION	S UNDER NO	DRMAL OPER			
CRITERIA AIR POL	LUTANT EMIS	SIONS IN	FORMATIC	N FOR TH	IS SOURCE		STATE OF STATE OF
	SOURCE OF		D ACTUAL	T		EMSSIONS	Charlesof and
	EMISSION		ROLS / LIMITS)	/REFORE CON	TROLS / LIMITS)	(AFTER CONT	DOLE (LIMITE)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	See Emission				tonsryi	10/11/	torisiyi
PARTICULATE MATTER<10 MICRONS (PM10)			, ppunuik	Ī			
PARTICULATE MATTER<2.5 MICRONS (PM25)				<u> </u>			
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)			11/2010	1 100			
CARBON MONOXIDE (CO)		1.745			WOL .		A.
VOLATILE ORGANIC COMPOUNDS (VOC)			1 3 THE P. LEWIS CO.	184	Sarre		NAME OF
LEAD		and the		SI SA			100
OTHER				La la constantina			de p
HAZARDOUS AIR PO	DLLUTANT EM	ISSIONS II	NFORMAT	ON FOR T	HIS SOUR	CF.	3.17
	SOURCE OF		D ACTUAL	1		EMSSIONS	
	EMISSION		ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTROLS / LIMITS	
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
N/A			* * * * * * * * * * * * * * * * * * * *				ieriery.
			TATE OF STREET				Seeman D
			XEIT, HIT				
			-Verte-Love	Will Ba			APPRIL TO
				1017-1-		e Hillian	Kid LC
			799	S - YA		And Thrist	morarita.
	1 1 1 1 1 1	S 30	Only March		WINTER.	The second	12/452
		-1.00	STATE OF SERVICE		SE - SE -	SKYKOLE	845
TOXIC AIR POLL	UTANT EMISS	IONS INFO	RMATION	FOR THIS	SOURCE	car lating	AND LIVE S
INDICATE EXP	ECTED ACTUAL E	MISSIONS AF	TER CONTR	OLS / LIMITAT	TONS		
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		hr		day	lb/	yr
N/A	1091.409	of daily	COURT SEL	05-8-48-8	op. Quality	SELL MICHAEL	California II
			PRODUCTION .		- FS ( Lat PARK)	en ur adiko 146	JAC004-6
	E EST. ETHE	E 17 700	2 301 x 75	Office chart	APRIOR STATE	60," - AL 806	
	16472 J.	1 1 W WOODE	12 12 12 12 12 12 12 12 12 12 12 12 12 1	Mary English	1570Y 25	No. of the last	STATE OF
	(1970 E. 1981)	A-17-1-12	STATE OF STREET	1015-1-10210	The Lates	2017 Da	SERVICE ATTACK
	6505FC W	30.00	7 THE REAL PROPERTY.	(S)	MAPS S	17 32 632	50.625677.1
	100			ALCOHOL STREET STREET	the second secon		The state of the s
	Responde	FID 5388	7.00	THE PART OF THE	Section ( )	DOAT CHAMPER	SERVICE COS
Attachments: (1) emissions calculations and supporting docur and describe how these are monitored and with what frequen	mentation; (2) indicate	all requested st	ate and federal	enforceable nern	nit limits (e.a. bo	rs of operation	emission rates

**Attach Additional Sheets As Necessary** 'Final equipment selection has not yet occurred but will be similar in design to specifications shown.

# EMISSION SOURCE (OTHER)

REVISED: 12/01/01 NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate B9					
EMISSION SOURCE DESCRIPTION: Two Pellet Coolers		EMISSION SOURCE ID NO:	ES-CL	R-1 & -2	
		CONTROL DEVICE ID NO(S):	CD-CL	R-C1 & CD-CLR-C2	
OPERATING SCENARIO: 1 OF 1	-	EMISSION POINT (STACK) ID N	O(S): EP-CLI	R-C1 & EP-CLR-C2	
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM Two pellet coolers follow the pellet presses to cool the n temperature.	newly formed	pellets down to an acceptable s	torage		
MATERIALS ENTERING PROCESS - CONTINUOUS PROC	CESS	MAX. DESIGN	REQUEST	ED CAPACITY	
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATIO	ON(UNIT/HR)	
Wood Pellets	Tons	47.78			
MATERIALS ENTERING PROCESS - BATCH OPERATI	-	MAX. DESIGN		ED CAPACITY	
TYPE	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION	(UNIT/BATCH)	
	-				
			-73		
	1				
	-				
MAYIMI IM DECICH (DATCHEC / LICHE)	1				
MAXIMUM DESIGN (BATCHES / HOUR): REQUESTED LIMITATION (BATCHES / HOUR):	/DATOUEO:	MD).			
	(BATCHES/				
		CIMUM FIRING RATE (MILLION B			
MAX. CAPACITY HOURLY FUEL USE: N/A COMMENTS:	TREGUESTE	D CAPACITY ANNUAL FUEL USE	E: N/A		

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

REVISED 12/01/01	NCDENR/Divisi	on of Air Quality -	Applicatio	n for Air Perm	it to Construct	/Oper	ate			C4
CONTROL DEVICE ID NO: CD-CLR-C	C1 & CD-CLR-C2	CONTROLS EMIS	SSIONS FE	ROM WHICH E	MISSION SOU	RCE I	D NO(S):		ES-CLR-1 & -2	-
EMISSION POINT (STACK) ID NO(S):	EP-CLR-C1 & EP-CLR-C	POSITION IN SEI	RIES OF C	ONTROLS	NO.	1	OF 1		UNITS	
MANUFACTURER: TBD <sup>2</sup>		МС	DEL NO:							
DATE MANUFACTURED: TBD		PR	OPOSED (	DPERATION D	ATE: TBD					
OPERATIN	G SCENARIO:	PR	OPOSED S	START CONST	RUCTION DAT	E:	TBD			
1	OF1	P.E	SEAL RE	QUIRED (PER	2Q .0112)?	(	• YI	ES)	⊮ NO	
DESCRIBE CONTROL SYSTEM:										
Two identical dual high efficiency cyc The parameters presented here are po			apture bu	k PM emissio	ns.					
POLLUTANT(S) COLLECTED:			PM_	PM <sub>10</sub>	PM <sub>2.5</sub>	_				
BEFORE CONTROL EMISSION RATE	(LB/HR):									
CAPTURE EFFICIENCY:			%		%	_%			%	
CONTROL DEVICE EFFICIENCY:			%		%	_%			%	
CORRESPONDING OVERALL EFFICIE	CORRESPONDING OVERALL EFFICIENCY:				%	%			%	
EFFICIENCY DETERMINATION CODE:	:	<del>-</del>	_			_				
TOTAL EMISSION RATE (LB/HR):		Se	e calcul	ati <u>ons in A</u> p	pendix B	_				
PRESSURE DROP (IN. H <sub>2</sub> 0): MIN	MAX 6.0" \	WARNING ALARM?	?	· YES	é NO					
INLET TEMPERATURE (°F): MIN	MAX	Ambient	ou	TLET TEMPER	ATURE (°F):	MIN	М	AX An	nbient	
INLET AIR FLOW RATE (ACFM):	20,000	).	BUL	K PARTICLE I	DENSITY (LB/F	T³):	3E-	06		
POLLUTANT LOADING RATE (GR/FT <sup>3</sup> )	): 0.022									
SETTLING CHAMBER		CYCLO	NE	MARKET	25/11/3		17.1	MUL	TICYCLONE	TO THE
LENGTH (INCHES):	INLET VELOCITY (FT/SEC	0):	50	CIRCULAR &	RECTANGLE	NO.	TUBES:		2	
WIDTH (INCHES):	DIMENSIONS (INCH	ES) See instructions	5	F WET SPRA	Y UTILIZED	DIA	METER (	OF TUE	BES: 43"	
HEIGHT (INCHES):	H:	Dd:	LIQ	UID USED:		нон	PPER AS	PIRAT	ION SYSTEM?	
VELOCITY (FT/SEC.):	W:	Lb:	FLC	W RATE (GPN	A):	1	YES	(	2 NO	
NO. TRAYS:	De:	Lc:	МАН	KE UP RATE (	GPM):	LOU	IVERS?			
NO. BAFFLES:	D:	S:				ر [	YES		· NO	
	TYPE OF CYCLONE:	CONVENTION	AL	HIGH E	FFICIENC	j	OTHER	₹		
DESCRIBE MAINTENANCE PROCEDU						PARI	ICLE SE	ZE DIS	TRIBUTION	
Periodic inspection of mechan				F	SIZE		EIGHT %	- 1	CUMULATIV	Æ
as specified by manufacturer	or common industry	practices			(MICRONS)	0	F TOTAL	$\perp$	%	
DESCRIBE INCOMING AIR STREAM:					0-1			υ	nknown	
Fine particulate emissions fro	m cooling pellets			1	1-10					
					10-25					
					25-50					
					50-100					
					>100					
								то	TAL = 100	
DESCRIBE ANY MONITORING DEVICE None	S, GAUGES, TEST PORT:	S, ETC:								
ON A SEPARATE PAGE, ATTACH A DI	AGRAM OF THE RELATIO	NSHIP OF THE CO	NTROL DE	VICE TO ITS	EMISSION SOL	JRCE	(S):			

<sup>&</sup>lt;sup>1</sup>Final 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/Division	on of Air Quality	- Applicatio					В
EMISSION SOURCE DESCRIPTION:				OURCE ID NO		ES-EG	
Emergency Generator (250kw, 350bhp)				EVICE ID NO		N/A	
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK	) ID NO(S):	EP-EG	
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO							
Diesel-fi <mark>red internal combustion generator to</mark> provid	e power in the	case of an en	nergency.				
TYPE OF EMISSION SOURCE (CHEC	K AND COMPL	ETE APPRO	DDIATE ENDA	I R1 R0 ON TI	HE EULLOWIN	IC DACEST	
Coal,wood,oil, gas, other burner (Form B1) Woo							
					/coatings/inks (	rom B7)	
Int.combustion engine/generator (Form B2); Coat							
Liquid storage tanks (Form B3)	age silos/bins (Fo	orm B6)	Other (Fo	orm B9)			
START CONSTRUCTION DA TBD OPERAT			DATE MANU		TBD		
MANUFACTURER / MODEL NO.: TBD'		EXPECTED	OP. SCHEDUL	E: 1 HR/DA	Y _ 7_ DAY	/WK 52 W	/K/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?		ESHAP (SUE	BPART?):	MAG	CT (SUBPART	?):_ZZZZ	
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FI		MAR-MAY		UN-AUG 25	-	EP-NOV 25%	6.
	VISIBLE STA						ACITY
CRITERIA AIR POLL	UTANT EMIS	sions in	FORMATIC	N FOR TH	IS SOURCE	44.50	MS/SAXIII
	SOURCE OF	EXPECTE	D ACTUAL		POTENTIAL	EMSSIONS	
	EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CON	TROLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	See Emission	Calculation	s in Appendix	В			
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )							
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC)							
LEAD							
OTHER			<u> </u>				
HAZARDOUS AIR POL				ION FOR T			
	SOURCE OF		D ACTUAL			EMSSIONS	
US 74 DD DOLL DTANT AND DAG NO	EMISSION		TROLS / LIMITS)		TROLS / LIMITS)		ROLS / LIMITS)
HAZARDOUS AIR POLLUTANT AND CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
	See Emission	Calculation	s in Appendix	В			
	-		-				
	-		<b>_</b>				
			<b>-</b>				
TOXIC AIR POLLU	TANT EMISS	IONS INF	ORMATION	FOR THIS	SOURCE	San July	11143
INDICATE EXPEC	TED ACTUAL E	MISSIONS A	FTER CONTR	OLS / LIMITAT	IONE		264
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		/hr		dav	11	o/yr
			s in Appendix		day	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	n yı
			· · · · · ipportoix				
	1 1						
ttachments: (1) emissions calculations and supporting docume	ntation: /21 india-+-	all considers -	tota and f-d		- (a b) - (a )		

Attach Additional Sheets As Necessary 'Final equipment selection has not yet occurred but will be similar in design to model shown.

## EMISSION SOURCE (INTERNAL COMBUSTION ENGINES/GENERATORS)

REVISED 12/01/01	NCDENR/Division of Air Quality	y - Application for A	ir Permit to Construct/Operate		B2
EMISSION SOURCE DESCRIPTION	Emergency Generator (250k)	v, 350bhp)	EMISSION SOURCE ID NO:	ES-EG	
			CONTROL DEVICE ID NO(S):	N/A	
OPERATING SCENARIO:	1 OF	1	EMISSION POINT (STACK) ID NO(S		
CHECK ALL THAT APPLY	EMERGENCY &	SPACE HEAT OTHER (DESCRIB	ELECTRICAL GENERATION		
GENERATOR OUTPUT (KW):	250 ANTICI	PATED ACTUAL HO	URS OF OPERATION AS PEAK SHAVE	R (HRS/YR): N	/A
ENGINE OUTPUT (HP): 350					
TYPE ICE:	IBE): LEAN BURN	N/A )	DJESEL ENGÎNE GREATER THAN 601 (complete below) REIGNITION CHAMBER COMBUSTION		EL ENGINE
OR STATIONARY GAS TU	RBINE (complete below	NATURAL GAS PIF	PELINE COMPRESSOR OR TURBINE (	rumlad afalomo	Call Section 5
FUEL & NATURAL GAS & OTHER (DESCRIBE):_ CYCLE: & COGENERATION & REGENERATIVE	É OIL ENGINE  N É SIMPLE CONTR  É COMBINED É NON	ETYPE:	CLE LEAN BURN	€ TURBINE IBE): E):	TION
202		INCLUDE STAP	TUP/BACKUP FUEL)	70.00	The same
	, and a definite	MAXIMUM DE		TEATON E	
FUEL TYPE	UNITS	CAPACITY (UN		TED CAPACITY ION (UNIT/HR)	
No. 2 Fuel Oil	gal	6.55	6.55		
FUEL TYPE  No. 2 Fuel Oil	BTU/UNIT 19,300	UNITS	(% 8	Y WEIGHT)	
	MANUFACTURER'S SEE	CIEIC EMISSIO	N FACTORS (IF AVAILABLE)		Sign Sign
POLLUTANT				A STATE MARKE	MICH NAME
EMISSION FACTOR LB/UNIT	,,,,,		PM PM10	VOC	OTHER
UNIT					
			OR LOW LOAD OPERATIONS: specifications or common industry pr	actices.	

## 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 Constru	ct/Operate		В
EMISSION SOURCE DESCRIPTION:			EMISSION S	OURCE ID N	D:	ES-FWP	
Fire Water Pump (300bhp)			CONTROL	DEVICE ID NO	(S):	N/A	
OPERATING SCENARIO 1 OF	1		EMISSION P	OINT (STACK	) ID NO(S):	EP-FWP	
DESCRIBE IN DETAIL THE EMISSION SOURCE PROC							
Diesel-fired internal combustion pump to provide wa	ter in the case	of a fire eme	gency.				
TYPE OF EMISSION SOURCE (CHEC			PRIATE FORM	A B1-B9 ON T	HE FOLLOWII	NG PAGES):	
Coal,wood,oil, gas, other burner (Form B1) Wood					/coatings/inks	(Form B7)	
Int.combustion engine/generator (Form B2) [ Coatii	ng/finishing/prin	ting (Form B5	) 🗌 Incinerat	ion (Form B8)			
	ge silos/bins (Fo		Other (F				
START CONSTRUCTION DA TBD OPERATI	ON DATE:	TBD	DATE MANU	FACTURED:	TBD	1	
MANUFACTURER / MODEL N TBD				LE: 2 HR/D/		/WK _52 WK	NP
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	HII N	ESHAP (SUB	PART?):	MA	CT (SUBPART		3770
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE	B 25%	MAR-MAY 2		UN-AUG 25		EP-NOV 25%	
EXPECTED ANNUAL HOURS OF OPERATION 100	VISIBLE STA	CK EMISSION	IS UNDER NO	DRMAL OPER	ATION: <2	0 % OPA	
CRITERIA AIR POLLU	<b>ITANT EMIS</b>	SSIONS IN	FORMATIC	N FOR TH	IS SOURCE	diseaso de	
	SOURCE OF		D ACTUAL			LEMSSIONS	
	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)		ROLS / LIMITS)
AIR POLLUTANT EMITTED	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PM)	See Emission	Calculation	in Appendix	В	<b>-</b>		
PARTICULATE MATTER<10 MICRONS (PM <sub>10</sub> )							
PARTICULATE MATTER<2.5 MICRONS (PM <sub>2.5</sub> )							
SULFUR DIOXIDE (SO2)							
NITROGEN OXIDES (NOx)							
CARBON MONOXIDE (CO)							
VOLATILE ORGANIC COMPOUNDS (VOC) LEAD							
OTHER							
	LITANTEN	1001010					
HAZARDOUS AIR POLI				ION FOR I			
	SOURCE OF		D ACTUAL			EMSSIONS	
HAZARDOUS AIR POLLUTANT AND CAS NO.	EMISSION FACTOR	(AFTER CONT	(AFTER CONTROLS / LIMITS)		TROLS / LIMITS)	(AFTER CONTI	
THE STEED BO AIR TO CECUTAINT AND CASING.	See Emission		tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
	Oce Limssidi	Calculations	in Appendix	I			
TOXIC AIR POLLUT	ANT EMISS	IONS INFO	RMATION	FOR THIS	SOURCE	A SECTION OF	
INDICATE EXPECT	ED ACTUAL E	MISSIONS AF	TER CONTR	OLS / LIMITAT	IONS		
TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE		'hr		day	lb/	/уг
	See Emission	Calculations	in Appendix	В			
		_					
Attachments: (1) emissions calculations and supporting documen	tation; (2) indicate	all requested s	ate and federal	enforceable perr	nit limits (e.g. ho	urs of operation,	emission rates)
and describe how these are monitored and with what frequency; a	and (3) describe a	ny monitoring de	evices, gauges, i	or test parts for t	his source.		

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

#### **EMISSION SOURCE (INTERNAL COMBUSTION ENGINES/GENERATORS)**

REVISED 12/01/01	NCDENR/Division of Air Quality	- Application for Air	Permit to Construct/Operate	•	B2
EMISSION SOURCE DESCRIPTION			EMISSION SOURCE ID NO:	ES-FWP	
			CONTROL DEVICE ID NO(S	): N/A	
OPERATING SCENARIO:	1 OF	1	EMISSION POINT (STACK) I		
CHECK ALL THAT APPLY	MERGENCY 6	SPACE HEAT	É ELECTRICAL GE		
d	PEAK SHAVER	OTHER (DESCRIBE			
GENERATOR OUTPUT (KW):	300 ANTICI		JRS OF OPERATION AS PEAI	K SHAVER (HRS/YR): N	₹/A
ENGINE OUTPUT (HP): 300					
TYPE ICE: GASOLINE ENG OTHER (DESCR		TO 600 HF	DIESEL ENGINE GREATER T	1 A 2 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3	JEL ENGINE
ENGINE TYPE & RICH BUI		N/A )	(complete below)	MARKET STREET	
EMISSION REDUCTION MODIFIC			EIGNITION CHAMBER COMBU	ISTION & OTHER	
			ELINE COMPRESSOR OR TU		NAME OF PROPERTY
FUEL & NATURAL GAS	1		CLE LEAN BURN & 4-CYCLE		
OTHER (DESCRIBE):			CLE RICH BURN & OTHER (		
CYCLE: COGENERATION			BUSTION MODIFICATIONS (D		
REGENERATIVE			TIC REDUCTION & SELECTI		TION
,	II .		COMBUSTION CHAMBER	UNCONTROLLE	
d UNCONTROLLED	LEAN-PREMIX	THE CONTENTED THE	SOMBOS HON CHAMBER	& DIVCONTROLLE	D
		INCLUDE STAR	TUP/BACKUP FUEL)	The State of the	E 7 ( )
		MAXIMUM DE		DECLIFOTED CARACI	D/
FUEL TYPE	UNITS	CAPACITY (UI	1	REQUESTED CAPACIT	
No. 2 Fuel Oil	gal	5.61			
10.2.00.0	gu/	3.61		5.6	1
FUEL TYPE No. 2 Fuel Oil	BTU/UNIT 19,300	UNITS		SULFUR CONTENT (% BY WEIGHT) <15 ppmw	T
	MANUFACTURER'S SPI	ECIFIC EMISSIO	N FACTORS (IF AVAIL)	ABLE)	
POLLUTANT	NOX	co	PM PM10	VOC	OTHER
EMISSION FACTOR LB/UNIT					
UNIT					
DESCRIBE METHODS TO MIN Periodic equipment maintenance  COMMENTS:					

#### 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 <sup>1</sup>	52.46	229.8
$NO_X$	0.87	lb/ODT	Vendor <sup>1</sup>	37.41	163.9
TSP	0.13	lb/ODT	Calculated from Guaranteed WESP Specifications <sup>2</sup>	5.59	24.5
Total PM <sub>10</sub>	0.13	lb/ODT	Calculated from Guaranteed WESP Specifications <sup>2</sup>	5.59	24.5
Total PM <sub>2.5</sub>	0.13	lb/ODT	Calculated from Guaranteed WESP Specifications <sup>2</sup>	5.59	24.5
SO <sub>2</sub>	0.025	lb/MMBtu	AP-42, Section 1.6 <sup>3</sup>	3.13	13.7
VOC	1.051	lb/ODT	Vendor <sup>1</sup>	45.19	197.9
Lead	0.00	N/A	N/A	0.00	0.0

#### Note:

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

2) WESP Outlet Air Flowrate

81,509 dSCFM

PM Grain Loading

0.008 gr/dSCF

**Emissions:** 

652.07 gr/min

0.093 lb/min

5.59 lb/hr

3) No emission factor is provided in AP-42, Section 10.6.2 for SO<sub>2</sub> 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.

**Sheet: Dryer System Criteria Emissions** 

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

## Calculation Inputs:

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

## HAP & TAP Emission Calculations;

HAPITAP Poliutant							Green, Direct wood-fired (inlet moisture	ood-fired (in	let moisture		
				Direct wor	Direct wood-fired, hardwood	poox	content >50%, dry basis), softwood	dry basis),	" boottwood		
				Emission			Emission			MAXIMUM TOTAL	I TOTAL
	CAS Number	HAP	NC TAP	Factor2	Enrissions <sup>3</sup>	ions <sup>3</sup>	Factor	Emissions <sup>3</sup>	sions <sup>3</sup>	EMISSIONS	SNOI
		(Yes/No)	(Yes/No)	(Ib/ODT)	(lb/hr)	(thy)	(Ib/ODT)	(lb/hr)	(thy)	(lb/hr)	(thy)
Acetaldehyde	75-07-0	Yes	Yes	3.83E-03	1.65E-01	7.21E-01	7.50E-02	3.23E+00	1.57E+00	3.23E+00	2.29E+00
Acrolein	107-02-8	Yes	Yes	1.17E-03	5.05E-02	2.21E-01	2.30E-02	9.89E-01	4.81E-01	9.89E-01	7.03E-01
Benzene	71-43-2	Yes	Yes	3.88E-04	1.67E-02	7.31E-02	7.60E-03	3.27E-01	1.59E-01	3.27E-01	2.32E-01
Chloroform	67-66-3	Yes	Yes	5.11E-06	2.20E-04	9.62E-04	1.00E-04	4,30E-03	2.09E-03	4 30E-03	3.05E-03
Cumene	98-82-8	Yes	οχ	1.02E-04	4.39E-03	1.92E-02	2.00E-03	8.60E-02	4.19E-02	8.60E-02	6.11E-02
Formaldehyde	50-00-0	Yes	Yes	7.15E-03	3.07E-01	1.35E+00	1.40E-01	6.02E+00		6.02E+00	4.28E+00
mp-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	ON	5.62E-03	2.42E-01	1,06E+00	1.10E-01	4.73E+00	2.30E+00	4.73E+00	3.36E+00
Methyl isobutyl ketone	108-10-1	Yes	Yes	3.52E-04	1.52E-02	6.64E-02	6.90E-03	2.97E-01	1,44E-01	2.97E-01	2.11E-01
Methylene chloride	75-09-2	Yes	Yes	9,1915-05	3.95E-03	1.73E-02	1.80E-03	7.74E-02	3.77E-02	7.74E-02	\$ 50E-02
o-Xvlene	95-47-6	Yes	No	2.30E.05	0.88E-04	4,33E-03	4.50E-04	1.94E-02	9.42E-03	1.94E-02	1.37E-02
Phenoi	108-95-2	Yes	Yes	1.43E-03	6.15E-02	2,6915-01	2.80E-02	1.20E+00	5.865-01	1,20E+00	8.55E-01
Propionaldehyde	123-38-6	Yes	oN	6.6413-04	2,85E-02	1.25E-01	1.30E-02	5.59E-01	2.72E-01	\$.59E-01	3.97E-01
Styrene	100-42-5	Yes	Yes	1.8415-05	7,90E-04	3.46E-03	3.6015-04	1.55E-02	7.53E-03	1.55E-02	1,10E-02
Toluene	108-88-3	Yes	Yes	6,6413-04	2.85E-02	1,25E-01	1.30E-02	5.59E-01	2.72E-01	5.59E-01	3.97E-01
									Total HAP	1.83E+01	1,30E+01

## Note:

<sup>1)</sup> 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 10.6.2-33

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

<sup>3)</sup> 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).

## Emergency Generator Emissions (ES-EG)

Equipment and Fuel Characteristics		
Engine Output	0.26	MW
Engine Power	350	hp (brake)
Hours of Operation	500	hr/yr <sup>1</sup>
Heating Value of Diesel	19.300	Btu-lb
Power Conversion	2,545	Btu/hr/hp

Pollutant				Potential	Emissions
	Category	Emission Factor	Units	lb/hr	fpy
TSP	PSD	4.41E-04	lb kW-hr (2)	0.12	2.88E-02
PM <sub>10</sub>	PSD	4.41 E-04	lb kW-hr (2)	0.12	2.88E-02
PM <sub>2.5</sub>	PSD	4.41 E-04	lb kW-hr (2)	0.12	2.88E-02
NO <sub>x</sub>	PSD	8.82E-03	lb kW-hr (5)	2.30	5.75E-01
SO <sub>2</sub>	PSD	15	ppmw (3)	1.38E-03	3.46E-04
CO	PSD	7.72E-03	lb·kW-hr (2)	2.01	5.03E-01
VOC (NMHC)	PSD	2.51E-03	lb'MMBtu (4)	2.24E-03	5.59E-04
Acrolein	HAP/TAP	6.48E-07	lb/hp-hr (4)	1.88E-03 2.27E-04	4.70E-04 5.67E-05
Acetaldehyde	HAP/TAP	5.37E-06	lb/hp-hr (4)	1.88E-03	4.70E-04
Benzene	HAP/TAP	6.53E-06	lb-hp-hr (4)	2.29E-03	5.71E-04
Benzo(a)pyrene <sup>6</sup>	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	1	1		9.49E-03	2.37E-03

## Note:

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.

<sup>&</sup>lt;sup>2</sup> Emissions factors from NSPS Subpart IIII (or 40 CFR 89.112 where applicable) in compliance with post-2009 construction.

<sup>&</sup>lt;sup>3</sup> Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(a) as required by NSPS Subpart IIII.

<sup>&</sup>lt;sup>4</sup> Emission factor obtained from AP-42 Section 3.3, Tables 3.3-1 Table 3.3-2.

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.

<sup>&</sup>lt;sup>6</sup> 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 <sup>1</sup>
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)	0.10	2.47E-02
$PM_{10}$	PSD	4.41E-04	lb/kW-hr (2)	0.10	2.47E-02
PM <sub>2.5</sub>	PSD	4.41E-04	lb/kW-hr (2)	0.10	2.47E-02
NO <sub>x</sub>	PSD	8.82E-03	lb/kW-hr (5)	1.97	4.93E-01
SO <sub>2</sub>	PSD	15	ppmw (3)	1.19E-03	2.97E-04
CO	PSD	7.72E-03	lb/kW-hr (2)	1.73	4.32E-01
VOC (NMHC)	PSD	2.51E-03	lb/MMBtu (4)	1.92E-03	4.79E-04
Acetaldehyde Acrolein Benzene	HAP/TAP HAP/TAP HAP/TAP	5.37E-06 6.48E-07 6.53E-06	lb.hp-hr (4) lb/hp-hr (4) lb/hp-hr (4)	1.61E-03 1.94E-04 1.96E-03	4.03E-04 4.86E-05 4.90E-04
Benzo(a)pyrene <sup>6</sup>	HAPTAP	1.32E-09	lb/hp-hr (4)	3.95E-07	9.87E-08
1.3-Butadiene	HAPTAP	2.74E-07	lb/hp-hr (4)	8.21E-05	2.05E-05
Formaldehyde	HAPTAP	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	HAPTAP	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	1	1		8.13E-03	2.03E-03

## Note:

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.

<sup>&</sup>lt;sup>2</sup> Emissions factors from NSPS Subpart IIII (or 40 CFR 89.112 where applicable) in compliance with post-2009 construction.

<sup>&</sup>lt;sup>3</sup> Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(a) as required by NSPS Subpart IIII.

<sup>&</sup>lt;sup>4</sup> Emission factor obtained from AP-42 Section 3.3. Tables 3.3-1 Table 3.3-2.

<sup>5</sup> 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.

<sup>&</sup>lt;sup>6</sup> Benzo(a)pyrene is included as a HAP in Total PAH,

## Dust Control Systems PM Emissions

		Filter, Vent -or-		Pollutant	Annual				_	Potential Emissions	Smissions		
	Emission	Cyclone	Flowrate	Loading	Operation	% PM	% PM that is	PM	1	PM	7 =	PNIZ	3
Entission Unit	Source ID	ID	(dscfm)	(gr/dscf)	(hours)	PNI	PNI2.5	(lh/hr)	(tpy)	(lh/hr)	(tpy)	(lb/hr)	(thy)
Coarse Hammermills Bagfilter 1	ES-CHM-I & -2	CD-CHM-BF1	38,000	0.01	8.760	100%	100°°	3.26	14.27	3.26	14.27	3.26	14.27
Coarse Flammermills Bagfilter 2	ES-CHM-1 & -2	CD-CHM-BF2	38,000	0,01	8.760	1000	100%	3.26	14.27	3.26	14.27	3.26	14.27
Pellet Press Silo Bin Vent Filter	ES-PPS	CD-PPS-BV	15,000	0.01	8,760	1000%	100%	1.29	5.63	1.29	5.63	1.29	5.63
Ground Wood Handling Dust Collection System	ES-GWH-1 & -2	CD-GWH-BF	5,000	10'0	8,760	%001	100%	0.43	1.88	0.43	1.88	0.43	1.88
Pellet Coolers Cyclone 14	ES-CLR-1 & -2	CD-CLR-C1	20,000	0.022	8.760	100%	%001	3.77	16.52	3.77	16.52	3.77	16.52
Pettet Coolers Cyclone 24	ES-CLR-1 & -2	CD-CLR-C2	20,000	0.022	8,760	100°a	100%	3.77	16.52	3.77	16.52	3.77	16.52
							TOTAL	15.77	80.69	15.77	80.69	15.77	80,69
													1

Filter. Vent. and Cyclone inlet flow rate (cfm) provided by design engineering firm (HGA). The exit flowrate was conservatively assumed to be the same as the inlet flowrate.
 Unless otherwise specified, pollutant (PM) loading conservatively assumed to be 0.01 gr/dscf
 It was conservatively assumed that PM<sub>10</sub> and PM<sub>2,5</sub> equal PM emissions.
 It was conservatively assumed that PM<sub>10</sub> and PM<sub>2,5</sub> equal PM emissions.
 Pollutant loadings for pellet coolers are based upon expected emissions from other Enviva pellet plants in Europe. Coolers have expected emissions of 50 mg/N. cu. m. (0.022 gr/cu. ft.).

Day					Thre	Throughput							
Diget Discharger to Dryer No 1 Outfeed   Enclosed   E	QI	Emission Source Group	Description	Control	Control Doserintion	Max.	Max.	Potential L	Incontrolled	Potential 1	ncontrolled	Potential U	acontrolled
DP1         ES-DWH         Dryer Discharger to Dryer No. I Outfood         Finchosed         Reduction to 2 mph         23.89         209,266.67         1.6E-03         (1970)           DP2         IBS-DWH         Dryer Discharger to Dryer No. 2 Outfood         Enclosed         Reduction to 2 mph         23.89         209,266.67         1.6E-03         6.9E-03           DP3         ES-DWH         Dryer Discharger to Dryer No. 2 Outfood         Enclosed         Reduction to 2 mph         47.78         418,533,33         3.2E-03         1.4E-02           DP4         ES-DWH         Silo Bypass / Dryer Silo to Conveyor to Silo Feed / Silo Enclosed         Reduction to 2 mph         47.78         418,533,33         3.2E-03         1.4E-02           DP5         ES-DWH         Conveyor Silo to Conveyor to Silo Feed / Silo Enclosed         Reduction to 2 mph         47.78         418,533,33         3.2E-03         1.4E-02           DP5         ES-DWH         Drop Emissions from Pollet Presses to Pollet         Enclosed         Reduction to 2 mph         47.78         418,533,33         3.2E-03         1.4E-02           Pps         ES-PP         Drop Emissions from Pollet Presses to Pollet         Enclosed         Reduction to 2 mph         47.78         418,533,33         3.2E-03         1.4E-02           ES-PP         Drop Emission						Hourly <sup>2</sup>	Annual	Emission	18 for PM1	Emissions	for PNIn	Emissions	for PM2.5
Dryer Discharger to Dryer No. 1 Outfload   Enclosed   Reduction to 2 mph   23.89   209,266.67   1.6E-03   6.9E-03   7.5E-04   3.3E-03   1.1E-04     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   1.1E-04     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   1.1E-04     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   3.3E-03     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   3.3E-03     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   3.3E-03     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   3.3E-03     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   3.3E-03     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   3.3E-03   3.3E-03   3.3E-03   3.3E-03   3.3E-03     Dryer Discharger to Dryer No. 2 Outfload   Enclosed   Reduction to 2 mph   47.78   418,533,33   3.2E-03   3.3E-03   3.3E-0						(tryh)	(101)	(lb/hr)		(lh/hr)	(tux)	(lb/hr)	(tity)
December    DP1	ES-DWII	Dryer Discharger to Dryer No. 1 Outfeed	Enclosed	Reduction to 2 mph	33.80	79.990.000	L	_	7 58 01	2 2 17 03	0 0 1	5 01. 01	
DP2   DP2   DP3-DWH   Dryer Discharger to Dryer No. 2 Outload   Conveyor Conveyor Conveyor Conveyor DP3   DP4   Dryer Duffeed Conveyor to Silo Reduction to 2 mph   47.78   418,533,33   3.2E-03   1.4E-02   1.5E-03   3.3E-03   1.1E-04			Conveyor		mean wind speed				Vi. 75-11.	1000		+(1-)	FO-SIO
Dig ES-DWH   Dig Conveyor   Dig Conveyor   Dig Es-DWH   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Enclosed   Dig Enclosed   Dig Enclosed   Dig Es-DWH   Dig Enclosed   Dig Enclo	DP2	HWG-SE	Diyer Discharger to Dryer No. 2 Outfeed	Foodoend	Reduction to 2 mph	00 55	F 2 235 005		60 10	10 11			1
PP3   ES-PWH   Diyer Outleed Conveyors to Silo Freed / Silo   Enclosed   Included   In			Conveyor	torciosed.	mean wind speed	20.5	10,002,712		CO-26-0	1 213-114	5.0-55-0.5	1 11:-04	2 01:10
DP4   ES-DWH   Sile Bypass / Dryce Sile of Conveyor to Hammermil Surge Bin drop   Enclosed   Reduction to 2 mph   47.78   418,533.33   3.2E-03   1.4E-02   1.5E-03   2.3E-03   2.3E-04	DP3	ES-DWII	Diyer Ouffeed Conveyors to Silo Feed / Silo	_	Reduction to 2 mph	37.21	55 555 011	L	10 31 1	1 615 00	00000	10.00	10 000
DP4   ES-DWH   Silo Bypass / Drycr Silo to Conveyor to Inammemul Surge Bin   DP5   ES-DWH   Conveyor to Indianaemul Surge Bin   DP6   ES-PP   ES-PP   Silo Bypass / Drycr Silo to Conveyor to Indianaemul Surge Bin   DP6   ES-PP   Silo Bypass / Drycr Silo to Conveyor to Indianaemul Surge Bin   DP6   ES-PP   Silo Bypass / Drycr Silo to Conveyor to Indianaemul Surge Bin   DP6   ES-PP   Silo Bypass / Drycr Silo Conveyor to Indianaemul Surge Bin   DP6   ES-PP   Silo Bypass / Drycr Silo Conveyor to Indianaemul Surge Bin   DP6   Dryc Emissions from Pollet Presses to Pollet   Drycr Silo Endose to Indianaemul Surge Bin   DP6   Dryc Emissions from Pollet Presses to Pollet   Drycr Silo Endose to Indianaemul Surge Bin   Drycr Silo Endose to Indianaemul Surge Bin   Drycr Silo Endose to Indianaemul Surge Bin   Drycr Silo Endose In			Bynass	Daculation	mean wind speed	47.70	410,000,00	_	70-9+1	CD-2C-1	0.05-03	T-17-17-1	7.916-0d
Drop Es-PP   Conveyor of Inamermall Surge Bin   Enclosed   Fig. 2 mean wind speed   Fig. 2 mean wind speed   Fig. 3 mean wind speed   Fig. 4 mea	DP4	ES-DWH	Sito Bypass / Dryer Silo to Conveyor to	Employed	Reduction to 2 mph	97. 57		10.10					
DP5   ES-DWH   Conveyor to Hammerull Surge Bin drop   Enclosed   mean wind speed   47.78   418.533.33   3.25.03   1.45.02   1.55.03   6.55.03   2.35.04			Hammermill Surve Bin	Parchaect	mean wind speed	c î	4   6,000,00	S elected	70-215	50-36	60-36 a	7.315-D4	0.95-04
DPo	DPS	ES-DWH	Conveyor to Hammermill Surge Bin drop	Gradenad	Reduction to 2 mph	1 10		_	•				
DPo   ES-PP   Drop Emissions from Pellet Presses to Pellet   Enclosed   Enclosed   Enclosed   Enclosed   Enclosed   Enclosed   Enclosed   Es-PP   ES			into HM Surve Bin	raicinsca	mean wind sneed	47.74	418,533,33	_	_	1.515-03	6.515-0.3	70-35-7	0.01-04
Press Callection Conveyors   Internated	DP6	96,00	Drop Emissions from Pellet Presses to Pellet	Town board	Reduction to 2 mph	9		100					
FS-DWH 1.3E-02 5.5E-02 6.0E-03 2.6E-03 2.6E-03 6.0E-03 2.6E-03 6.0E-03 2.0E-04 ES-PP 3.2E-03 1.4E-03 6.5E-03 2.3E-04			Press Collection Conveyors	cheiosed	mean wind speed	4/ /8	418,533.33	3.25-03	1.4E-02	1.5E-03	6.5E-03	2.36-04	FO-36 6
ES-DWH 1.3E-02 5.5E-02 6.0E-03 2.6E-03 2.6E-03 0.1E-04 6.5E-03 2.6E-03 2.3E-04							TOTAL	1.6E-02		7.5E-03	3.3E-02	1.1E-03	5.0E-03
ES-PP 3.2E-0.3 1.4E-0.2 1.5E-0.3 6.5E-0.3 2.3E-0.4							ES-DWH	1.3E-02	5.5E-02	6.0E-03	2.6E-02		4.0E-03
							ES-PP	3.2E-03		1.5E-03	6.5E-03		9.9E-04

Note:

1) Fugitive emissions are not included in facility-wide PTE because the Ahoskie Pellet Mill does not belong to one of the listed 28 source categories.

2) Maximum hourly throughput is based upon 8.760/yr.

3) Based emission factors calculated per AP-42 Section 13.2.4, September 2006.

2.00 11 6.6E-05 3.1E-05	U = mean wind speed (mph)  M = material moisture content (%)  E for PM (lb/ton) =  E for PM (lb/ton) =  F for PM (lb/ton) =
2.00	U = mean  wind speed (mph) $M = material underture content (%)$
0.053	k = particle size multiplier (dimensionless) for PM <sub>2.5</sub>
0.35	k = particle size multiplier (dimensionless) for PM10
0.74	where: E = emission factor (lb/ton) k = particle size multiplier (dimensionless) for PM
	$E = k (0.0032) \frac{\sqrt{3}}{2} \sqrt{\frac{11}{2}} (1b/ton)$

## Tank VOC Emissions

			Tank D	Tank Dimensions				TAN	TANKS 4.0
		Volume	Diameter	Height/Length Orientation	Orientation	Throughput	Turnovers	VOCE	VOC Emissions
Lank ID	Tank Description	(gal)	(ft)	(tt)		(gal/yr)		(lb/yr)	(tpv)
TK01	Emergency Generator Fuel Oil Tank <sup>2</sup>	2.500	9	12	Vertical	12,000	4.80	0.37	3.57E-03
TK02	FK02 Fire Water Pump Fuel Oil Tank <sup>2</sup>	500	m	10	Horizontal	10.300	20.60	0.43	2 1515-04
							TOTAL	08.0	3.79E-03

- Note:

  1. Conservative design specifications.

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

Sheet: Tanks

## **TANKS 4.0.9d**

Th. . KS 4.0 Report

## Characteristics **Emissions Report - Detail Format**

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J pue	2	
Tank Indentification		

	Enviva Diesel Generator Tank (2500 gal)	Raleigh	, ON	Enviva	Vertical Fixed Roof Tank	2,500 gallon Diesel Generator Tank
Identification	User Identification:	Qity:	State:	Company:	Type of Tank:	Description:

	12.00	6.00	12.00	12.00	2,500,00	4.80	12,000.00		
								Z	
Fank Dimensions	Shell Height (ft);	Diameter (ft):	Liquid Height (ft):	Avg. Liquid Height (ft):	Volume (galfons):	Turnovers:	Net Throughput(gal/yr):	Is Tank Heated (y/n):	

Diameter (ff): Liquid Height (ft): Avg. Liquid Height (ff): Volume (gallons): Turnovers: Net Throughput(gal/yr): Is Tank Heated (y/n):	z	2.500.00 12.00 2.500.00 12,000.00	
Roof Color/Shade: Roof Condition: Roof Characteristics Type: Height (ft) Radius (ft) (Dome Roof)	Gray/Medium Good Dome	0.50 6.00	
Breather Vent Settings Vacuum Settings (psig): Pressure Settings (psig)		-0.03 0.03	

Meterological Data used in Emissions Calculations: Raleigh, North Carolina (Avg Atmospheric Pressure ≈ 14.53 psia)

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TANKS 4.0.9d Emissions Report - Detail Format Liquid Contents of Storage Tank

Enviva Diesel Generator Tank (2500 gal) - Vertical Fixed Roof Tank Raleigh, NC

		Tem Tem	Daily Liquid Surf. emperature (deg F)	if. g.F.)	Liquid Bulk Temp	Vapor	√apor Pressure (psia)	(psia)	Vapor Moi.	Liquid Mass	Vapor	Mol	Basis for Vapor Pressure
Mixture/Component	Month	Avg.	Min.	Max.	(deg F)	Avg.	Min. Max.	Max.	Weight.	Fract.	Fract.	Weight	Calculations
us to desse de la 112 et 112 e		CONTRACTOR OF THE PARTY OF THE			and the second of the second of								the distinct with the first contract contract and the species of the second second second second second second
Distiliate fuel oil no. 2	₹	68,49	57.95	79.03	62.36	0.0088	0.0068	0.0117	0.0068 0.0117 130.0000			188.00	Option 1: VP60 = .0074 VP70 × .009

## Emissions Report - Detail Format Detail Calculations (AP-42) TANKS 4.0.9d

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f Tan	
ed Roof	
l Fixed	
Vertica	
tor Tank (2500 gal) -	
(2500)	
Tank	
Generator	
Diesel	, NC
Enviva	Raleigh
<b>Enviva Diesel Generator</b>	ئے

Annual Emission Calcaulations

0.0398 7.1340 0.0002 0.0760 0.9999	7,1340 6,0000 0,2553 12,0000 12,0000 0,2523	0.2523 6.0000 3.0000	130.000	260.1016 59.2833 10.731 552.0333	0.8800	0.0760 42.1602 0.0049 0.0600	0.0088	0.0068	0.0117 528,1618 517,6217	538.7018 21.7167	0.9999	0.0088
Standing Losses (Ib): Vapor Space Volume (or fi): Vapor Density (Ib/cu ft): Vapor Space Expansion Factor: Vented Vapor Saturation Factor:	Tank Vapor Space Volume: Vapor Space Volume (cu ft): Tank Diameter (ft): Vapor Space Outage (ft): Tank Shell Height (ft): Average Uquid Height (ft): Roof Outage (ft):	Roof Outage (Dome Roof) Roof Outage (f): Dome Radius (f): Shell Radius (f):	Vapor Density Vapor Chasily (Ib/cu fl); Vapor Molecular Weight (Is/b-mole); Vapor Pressure at Daily Average Liquid Surface Tengerature (Is/a)	Daily Average Ambient Temp, (deg. F). Ideal Gas Constant R (bala cutt/ (lb-mot-deg R)). Liquid Bulk Temperature (deg. R). Tank Paint Stolar Absorptions (Shall).	Tank Paint Soler Absorptiance (Roof): Daily Total Solar Insulation Factor (8tu/sqft day):	Vapor Space Expansion Factor Vapor Space Expansion Factor Daily Vapor Temperature Range (deg. R): Daily Vapor Pressure Range (gals): Bratther Vant Press. Setting Range (gals):	Vapor Pressure at Daily Average Liquid Surface Temperature (psia): Vapor Pressure at Daily Minimum Liquid	Surface Temperature (psia): Vapor Pressure at Daily Maximum Liquid	Daily Avg. Liquid Surface Temp. (deg R): Daily Min. Liquid Surface Temp. (deg R):	Daily Max, Liquid Sunace Temp. (deg K): Daily Ambient Temp, Range (deg. R):	Vented Vapor Saturation Factor Vented Vapor Saturation Factor: Vapor Pressure at Daily Average I juuid	Surface Temperature (psia): Vapor Space Outage (ft):

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0.3253	0,0088 12,000,0000 4,8000 1,0000 12,000 12,0000 1,0000 1,0000	0.3651
Working Losses (lb): Vapor Molecular Weight (lb/lb-mole): Vapor Presente at Deily Average I fould	Sufface Temperature (psis); Annual Net Throughput (gal/yr.); Annual Net Throughput (gal/yr.); Annual Turnovers: Turnover Factor; Maximum Liquid Volume (gal); Maximum Liquid Height (ft); Tank Diameter (ft); Vorking Loss Product Factor;	Total Losses (lb):

T. ..KS 4.0 Report

## TANKS 4.0.9d Emissions Report - Detail Format Individual Tank Emission Totals

Emissions Report for: Annual

Enviva Diesel Generator Tank (2500 gal) - Vertical Fixed Roof Tank Raleigh, NC

Components         Working Loss         Total E           Distillate fuel oil no. 2         0.33         0.04			Losses(lbs)	
2 0.33	Components	Working Loss	Breathing Loss	Total Emissions
	Distillate fuel oil no. 2	0.33	0.04	0.37

## Alastiff & Brownin Ellast Tanked And Alammanidicalar Ithm

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## **Emissions Report - Detail Format TANKS 4.0.9d**

Tank Indentification and Physical Characteristics

Identification User Identification:

Tra. KS 4.0 Report

City: State: Company: Type of Tank; Description:

Enviva Fire Water Diesel Tank (500 gal) Raleigh North Carolina Enviva Horizontal Tank 500 gallon Enviva Fire Water Diesel Tank

**Tank Dimensions** 

10.00 3.00 500.00 20.60 10,300.00

zz

Aluminum/Specular Good

-0.03

Meterological Data used in Emissions Calculations: Raleigh, North Carolina (Avg Atmospheric Pressure = 14.53 psia)

Shell Length (ft):
Diameter (ft):
Volume (gallons):
Turnovers:
Net Throughput(gal/yr):
Is Tank Heated (y/n):
Is Tank Underground (y/n):

Paint Characteristics Shell Color/Shade: Shell Condition

Breather Vent Settings Vacuum Settings (psig): Pressure Settings (psig)

T. .. KS 4.0 Report

Emissions Report - Detail Format Liquid Contents of Storage Tank **TANKS 4.0.9d** 

Enviva Fire Water Diesel Tank (500 gal) - Horizontal Tank Raleigh, North Carolina

Mol. Basis for Vapor Pressure	Weight Catculations	Distillate fuel oil no. 2 Ail 64.33 56.61 72.04 60.62 0.0081 0.0064 0.0096 130.0000 188.00 Option 1: VP60 = .0074 VP70 = .009
_	We	186
Vapor	Fract.	President de la constitue de l
Liquid Mass	Fract.	
Vapor Mol.	Weight.	130.000
(psia)	Max.	0.0096
/apor Pressure (p	Min.	0.0064
Vapo	Avg.	0.0081
Liquid Bulk Temp	(deg F)	60.62
urf. 9g F.)	Max.	72.04
aily Liquid Si sperature (de	Min.	56.61
Daily	Avg.	64.33
	Month	All
	Mixture/Component	Distillate fuel oil no. 2

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T. ... KS 4.0 Report

**Emissions Report - Detail Format** Detail Calculations (AP-42) **TANKS 4.0.9d** 

## Enviva Fire Water Diesel Tank (500 gal) - Horizontal Tank Raleigh, North Carolina

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and so the state of the state o	anding Losses (Ib):	0.1689
anaison Factor.  uration Factor.  uration Factor.  (ft): (ft	Appor Density (Ib/cu ft):	45.0228
ruation Factor.  (1): (1): (1): (1): (1): (1): (1): (1)	/apor Space Expansion Factor.	0.0550
(4);   (4);	rented Vapor Saturation Factor.	0.9994
(ff):	nk Vapor Space Volume:	46 0000
(*(†); **(*)** **(**)** **(**)** **(**)** **(**)**  **(**)*  **(**)**  **(**	ank Diameter (ft):	3,0000
acu fi):  cu fi):  Neight (Infh-mote):  Segion (Inf	:ffective Diameter (ft):	6,1820
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ure Range (deg. R):  ure Range (psia):  ss. Setting Range (psia):  play Average Lquid  rature (psia):  Daily Maxmum Liquid  Tature (psia):  Surface Temp. (deg R):  Surface Te	Vapor Space Expansion Factor:	0.0550
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Daily Average Liquid: Tattor Factor  Daily Average Liquid: Tattor Factor  Daily Maximum Liquid  Tature (psia): Daily Maximum Liquid  Tature (psia): Surface Temp. (deg R): Surface Temp	pally Vapor Pressure Kange (psia):	0.0032
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In: Yarige (deg. K);  Tration Factor Daily Average Liquid: ratue (psia); (ge (ft): Daily Average Liquid Daily Average Liquid Daily Average Liquid	bally Max. Liquid Surface Temp. (deg R):	531,7079
alton Factor Taraton Factor Daily Average Liquid: Gre (ft): Veight (ib/lb-mole): Daily Average Liquid Touring Average Liquid Touring Average Liquid Touring To	vally Ambient Temp, Kange (deg. K):	21.7167
Daily Average Liquid: rature (psia): tge (ft): Veight (lb/lb-mole): 10 Daily Average Liquid rature (psia): 10 or	Vented Vapor Saturation Factor Vented Vapor Saturation Factor:	0.9994
rature (psia): tge (ft): reight (lb/fb-mole):     Daily Average Liquid rature (psial):     10 ar	Vapor Pressure at Daily Average Liquid:	
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Veight (Ib/Ib-mole): 13 Daily Average Liquid ature (psial): 10 arc		
0.00	Working Losses (lb): Vapor Molecular Weight (lb/lb-mole): Vapor Branco di Polit Augusta Libria	0.2580
	vapor rressore ar Cariy Average Liquiu Surface Temperature (psia): Annual Nei Throughoul (palyrr):	0.0081

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Annual Turnovers:	Turnover Factor:	Tank Diameter (ft);	Vorking Loss Product Factor:	

20,5000 1,0000 3,0000 1,0000

Total Losses (lb):

0.4268

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## TANKS 4.0.9d Emissions Report - Detail Format Individual Tank Emission Totals

**Emissions Report for: Annual** 

Enviva Fire Water Diesel Tank (500 gal) - Horizontal Tank Raleigh, North Carolina

Working Loss		Losses(lbs)	
	Working Loss	Breathing Loss	Total Emissions
Ulstillate fuel oil no. z	0.26	0.17	0.43

## APPENDIX C-LOCAL ZONING CONSISTENCY DETERMINATION

## **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	(804) 412-0227
Mailing Address	1309 East Cary Street, Suite 200
Mailing City, State Zip	Richmond, VA 23219
Based on the information given ab	ove:
✓ I have received a copy of the a	air permit application (draft or final) AND
There are no applicable zonin	g ordinances for this facility at this time
	nsistent with applicable zoning ordinances
	OT consistent with applicable zoning ordinances
(please include a copy of the	he rules in the package sent to the air quality office)
The determination is pending to	further information and can not be made at this time
□ Other:	
Agency	Town of Ahoskie
Name of Designated Official	Charles A. Hammond
Title of Designated Official	Town Manager
Signature	(Albuneel)
Date	September 24, 2010
Please forward to the facility mail: at the appropriate address as check	ing address listed above and the air quality office

Courtesy of the Small Business Environmental Assistance Program toll free at 1-877-623-6748 or on the web at <a href="https://www.envhelp.org/sb">www.envhelp.org/sb</a>

## APPENDIX D – DISPERSION MODELING SUPPORT

## 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	Consultant (if applicable): Trinity Consultants			
Facility ID: New Facility - TBD	One Copley Parkway Suite 310			
Address: 142 N.C. Rt 561 East Ahoskie N.C. 27910	Morrisville, NC 27560			
Contact Name: Glenn Gray	Contact Name: Jon Hill			
Phone Number: (804) 412-0227 Email: Glenn.Gray@intrinergy.com	Phone Number: (919) 462-9693  Email: jhill@trinityconsultants.com			

## **GENERAL** Description of New Source or Source / Process Modification: provide a short description of the new or Χ 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 Х 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, Χ 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 Χ 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. SS 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 Χ 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 N/A (toxics) or beyond the fence line (criteria pollutants). No separate cavity analysis is required if using AERMOD. See Section 4.2

GENERAL (continued)	
<b>Background Concentrations</b> (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 (S1Ls) 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

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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
<b>Source / Source emission parameters</b> : 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
<b>GEP Analysis:</b> 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
<b>Terrain</b> : 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:	le Tillig
Meteorology: In SCREEN3, select full meteorology.	N/A
<b>Receptors</b> : 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
<b>Source / Source emission parameters</b> : Provide a table listing the sources modeled and the applicable source emission parameters. See NC Form 3 - Appendix A.	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
<b>Receptors</b> : The receptor grid should be of sufficient size and resolution to identify the maximum pollutant impact. <i>See Section 5.3.</i>	Х
<b>Meteorology</b> : 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	x
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).	
<b>Modeling Results:</b> 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
<b>Modeling Files</b> : 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

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## ENVIVA - AHOSKIE PLANT MODELING FILE INDEX

The following list describes how the files that were used in Enviva's Ahoskie modeling analyses are organized on the CD.

**AERMAP folder** – contains the AERMAP input (.inp), output (.out), source (.src) and receptor (.rec) files for the AERMAP terrain analysis. The NED data is also included in the NED folder.

AERMOD folder - contains the AERMOD input (.inp) and output (.out) files for each modeled pollutant.

BPIP folder - contains the input (.inp), output (.out) and summary (.sum) files for the BPIP-PRIME downwash analysis.

MET folder – contains the 1988-1992 Norfolk/Wallops Island surface (.sfc) and profile (.pfl) files that were used in the AERMOD analyses.