ENVIVA PELLETS AHOSHIE 2016
P/N 10121
HERFORD COUNTY

CENTRAL OFFICE PERMIT TRACKING SLIP

Facility Name: Enviva Pellets Ahoskie, LLC
County/Regional Office: Hertford/WARO
Facility/Application ID: 4600107.12
Engineer: ~~Kevin Godwin~~ Yuki Puram

Send Regional Office Copy of Application: ☒ Yes ☐ No

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

PART I - ACCEPTANCE CHECKLIST

☒ Please Send
☐ State Ack. Letter due
☐ State App. not accepted – add info request

Fee Information:

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

Initial Amount Received: 867.00
Additional Amount Due:

Acceptance Check List:

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

PART II - IBEAM UPDATES

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

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

PART III - COMPLETENESS CHECKLIST

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

PART IV - GENERAL COMMENTS

App. 4600107.15B was consolidated to this application.

PART V - SUPERVISOR REVIEW CHECKLIST

TVEE Updated (by Engineer): MP 5/16/16
TVEE Verified: 5/16/2016
Supervisor: MJC 5/16/16
Chief: WDW 6/6/2016

PART VI - CLOSEOUT INFORMATION

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

☐ NESHAPS/MACT
☐ NESHAPS/GACT
☐ NSPS
☐ 2D .1100
☐ 2Q .0711
☐ 2Q .0705 Last MACT/Toxics

☐ PSD/NSR
☐ PSD/NSR Avoidance
☐ Existing Source RACT/LAER
☐ New Source RACT/LAER
☐ RACT Avoidance
☐ RACT/LAER Added Fee (Let Connie Horne know)

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

Permit Class Information

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

AP Major Status (after) ☐ Major ☒ Minor
D or NSR Status (after) ☐ Major ☒ Minor
scellaneous ☐ Not Determined
☐ Multiple Permits at Facility
es ☐ Multi-Site Permit ☐ Recycled Oil Condition

Issue 6/6/2016
Effective 6/6/2016
Expiration 5/31/2021
AM Closed Out By:
Permit Number: 10121
Revision Number: T04
blic Notice Published ☐ Public Notice Affidavit (if not noticed via DAQ Website)
ment Manager Updated by Engineer:
Date:

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JUN 10 16

CENTRAL OFFICE PERMIT TRACKING SLIP

Name: Enviva Pellets Ahoskie, LLC **Facility/Application ID:** 4600107.15B

/Regional Office: Hertford/WARO **Engineer:** Yuki Puram

egional Office Copy of Application: ◉ Yes ◎ No

PART I - ACCEPTANCE CHECKLIST

knowledgement Letter: ◎ Already Sent ◉ Please Send

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

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

Fee Information:

Amount Due:
- ☐ PSD or NSR/NAA $14,294
- ☐ PSD and NSR/NAA $27,802
- ☐ TV Greenfield $ 9,442
- ☐ TV $ 918
- ☐ Ownership Change $60, $50, $25
- ☑ Renewal/Name Change – NA

itial Amount Received: $0.00

dditional Amount Due: $0.00

Acceptance Check List:

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

PART II - IBEAM UPDATES

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

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

- ☐ TV – State Only
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- ☐ TV – 502(b)(10)
- ☐ TV – Minor
- ☐ TV – Renewal
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- ☐ TV – Significant
- ☐ TV – 1st Time

PART III - COMPLETENESS CHECKLIST

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

PART IV - GENERAL COMMENTS

Consolidated to 4600107.12A per NCGS 150B-3(a)

PART V - SUPERVISOR REVIEW CHECKLIST

TVEE Updated (by Engineer): _____ TVEE Verified: _____ Supervisor: _____ Chief: _____

PART VI - CLOSEOUT INFORMATION

Regulations Applicable to This Application (indicate all new regulations):
- ☐ NESHAPS/MACT
- ☐ NESHAPS/GACT
- ☐ NSPS
- ☐ 2D .1100
- ☐ 2Q .0711
- ☐ 112(j)/112(d)
- ☐ PSD/NSR
- ☐ PSD/NSR Avoidance
- ☐ Existing Source RACT/LAER
- ☐ New Source RACT/LAER
- ☐ RACT Avoidance
- ☐ RACT/LAER Added Fee*
  **(Notify Connie Horne)*
- ☐ Toxics/Combustion Sources After 7/10/10
- ☐ SIP Regulations (list all new): _____

Permit Class Information

Before	*After*
☐ Small	☐ Title V
☐ Syn. Minor	
☐ Title V	
☐ Proh. Small	
☐ General	

☐ Not Determined

HAP Major Status (after) ☐ Major ☐ Minor

PSD or NSR Status (after) ☐ Major ☐ Minor

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

Permit Dates Issue: _____ Effective: _____ Expiration: _____

IBEAM Closed Out By: Yuki Puram 6/7/16 Permit Number: 10121 Revision Number: T04

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

Document Manager Updated by Engineer: _____ Date: _____

Air Quality
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

SHEILA C. HOLMAN
Director

June 6, 2016

E. Royal Smith
Vice President of Operations
7200 Wisconsin Ave. Suite 1000
Bethesda, MD 20814

SUBJECT: Air Quality Permit No. 10121T04
Facility ID: 4600107
Enviva Pellets Ahoskie, LLC
Ahoskie, Hertford County, NC
Fee Class: Title V

Dear Mr. Smith:

In accordance with your completed Air Quality Permit Application for a first time Title V permit received November 13, 2012 and as amended on June 22, 2015, we are forwarding herewith Air Quality Permit No. 10121T04 to Enviva Pellets Ahoskie, LLC, located at 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 02Q .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.

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

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

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

The construction of new air pollution emission source(s) and associated air pollution control device(s), or modifications to the emission source(s) and air pollution control device(s) described in this permit must be covered under an Air Quality Permit issued by the Division of Air Quality prior to construction unless the Permittee has fulfilled the requirements of NCGS 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 NCGS 143-215.108A and may subject the Permittee to civil or criminal penalties as described in NCGS 143-215.114A and 143-215.114B.

The minor source baseline dates for PM10, SO_2 and NOx have been triggered in Northampton County. For increment tracking purposes, no emission increase was noted during this modification.

This Air Quality Permit shall be effective from June 6, 2016 until May 31, 2021, 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 Yuki Puram at (919) 707-8470 or yuki.puram@ncdenr.gov.

Sincerely yours,

William D. Willets, P.E., Chief, Permitting Section
Division of Air Quality, NCDEQ

Enclosure

c: Heather Ceron, EPA Region 4
Mooresville Regional Office
Central Files
Connie Horne (cover letter only)

ATTACHMENT 1 to Permit No. 10121T04

Insignificant Activities under 15A NCAC 2Q .0102

Emission Source ID No.	Emission Source Description
IES-DWH	Dried wood handling
IES-PP	Pellet press system
IST-1 and IST-2	Two diesel storage tanks (2,500 gallon and 500 gallon capacity)
IES-BARK	Electric powered bark hog
IES-CHP1	Electric powered green wood chipper
IES-CHP2	Green wood hammermill
IES-GWHS	Green wood handling and storage
IES-GWFB	Green wood fuel storage bin
IES-EG **(NSPS IIII, GACT ZZZZ)**	Diesel-fired emergency generator (350 HP)
IES-FWP **(GACT ZZZZ)**	Diesel-fired fire water pump (300 HP)

1. Because an activity is exempted from being required to have a permit or permit modification 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 02D .1100 "Control of Toxic Air Pollutants" or 02Q .0711 "Emission Rates Requiring a Permit."

3. For additional information regarding the applicability of GACT see the DAQ page titled "Specific Permit Conditions Regulatory Guide." The link to this site is as follows: http://deq.nc.gov/about/divisions/air-quality/air-quality-permits/specific-permit-conditions-regulatory-guide.

ATTACHMENT 2 to Permit No. 10121T04

List of changes made in the T04 permit.

Old Page(s)	New Page(s)	Condition/ Item*	Description of Change(s)
Global	Global	N/A	• Changed the application number and complete date. • Changed permit revision number to T04 • Changed the issuance/effective dates of the permit. • Changed from the state permit format to the Title V permit format. • Added noncompliance language to federally enforceable testing, monitoring and recordkeeping requirements. • Added "0" before the citation numbers 2D or 2Q.
Attachment 1		Insignificant list	• Added emergency generator (IES-EG) and fire water pump (IES-FWP) • Changed the website address for GACT applicability.
3	3	Equipment List	• Changed the control device description for the dry wood hammermills. • Changed the ID No. for the Hammermill area and Hammermill No. 5 to ES-DHM-5. • Changed the ID Nos. for the control devices for Hammermill area and Hammermill No. 5 to CD-DHM-C5 and CD-DHM-FF3.
4	4	2.1.A Emission Source List	• Changed the ID No. for the Hammermill area and Hammermill No. 5 to ES-DHM-5. • Changed the ID Nos. for the control devices for Hammermill area and Hammermill No. 5 to CD-DHM-C5 and CD-DHM-FF3.
5	5	2.1.A.1.c.ii	• Changed the ID Numbers.
6	7	2.1.A.3.a	• Changed the ID No. for the Hammermill area and Hammermill No. 5 to ES-DHM-5.
7	N/A	2.1.B	• Removed the emergency generator and the fire water pump from the permit.
12-13	8	2.2.A.2.a	• Added phenol to the pollutant list. • Updated the benzene emission limit from the dryer system, emergency generator and firewater pump.
13	N/A	2.2.A.2.c	• Removed the monitoring, recordkeeping and reporting requirements.
15	10	2.2.A.4.c.iii and A.4.d.	• Changed the ID No from ES-HAF to ES-DHM-5.
15-17	10-20	3	• Updated the general conditions to the Title V General Conditions Version 4.0.

State of North Carolina
Department of Environmental Quality
Division of Air Quality

AIR QUALITY PERMIT

Permit No.	Replaces Permit No.	Issue Date	Expiration Date
10121T04	10121R03	June 6, 2016	May 31, 2021

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 02D and 02Q, and other applicable Laws.

Pursuant to Title 15A NCAC, Subchapter 02Q, 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: **City, County, State, Zip:**	**142 N.C. Rt 561 East** **Ahoskie, Hertford County, North Carolina, 27910**
Mailing Address: **City, State, Zip:**	**7200 Wisconsin Avenue, Suite 1000** **Bethesda, Maryland, 20814**
Application Number: **Complete Application Date:**	**4600107.12A** **November 13, 2012 – Amended June 22, 2015**
Primary SIC Code: **Division of Air Quality,** **Regional Office Address:**	**2499** **Washington Regional Office** **943 Washington Square Mall** **Washington, North Carolina, 27889**

Permit issued this the 6th day of May, 2016

William D. Willets, P.E., Chief, Air Permitting Section
By Authority of the Environmental Management Commission

Table of Contents

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

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

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-DRYER	Direct heat, wood-fired dryer (175.3 million Btu per hour maximum heat input)	CD-DC CD-WESP	One simple cyclone (204 inches in diameter) in series with one wet electrostatic precipitator (29,904 square feet of total collection plate area)
ES-DWDS	Dried wood day silo	CD-DWDS-BV	One bin vent filter (377 square feet of filter area)
ES-DHM-1, ES-DHM-2,	Two dry wood hammermills	CD-DHM-C1, CD-DHM-C2, CD-DHM-FF1	Two simple cyclones (57 inches in diameter each) in series with a fabric filter (6,667 square feet of filter area)
ES-DHM-3, ES-DHM-4	Two dry wood hammermills	CD-DHM-C3, CD-DHM-C4, CD-DHM-FF2	Two simple cyclones (57 inches in diameter each) in series with a fabric filter (6,667 square feet of filter area)
ES-DHM-5	Hammermill area and Hammermill No. 5	CD-DHM-C5 CD-DHM-FF3	One simple cyclone One fabric filter (5,417 square feet of filter area)
ES-PMFS	Pellet feed mill silo	CD-PMFS-BV	One bin vent filter (377 square feet of filter area)
ES-CLR1, ES-CLR2	Two pellet coolers	CD-CLR-C1	One multicyclones (43 inch diameter tube)
ES-CLR3, ES-CLR4	Two pellet coolers	CD-CLR-C2	One multicyclones (43 inch diameter tube)
ES-CLR5	Pellet cooler No. 5	CD-CLR-C3	One simple cyclone
ES-FB	Fines bin	CD-FB-BV	One bin vent filter (325 square feet of filter area)
ES-FPH	Finished product handling	CD-FPH-BF	One bagfilter (4,842 square feet of filter area)
ES-TLB	Truck loadout bin (with 12 bottoms)		
ES-PL1, ES-PL2	Two pellet loadouts		

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 (ID No. ES-DRYER) with associated cyclone (ID No. CD-DC) in series with wet electrostatic precipitator (ID No. CD-WESP)
Dried wood day silo (ID No. ES-DWDS) with bin vent filter (ID No. CD-DWDS-BV)
Two dry wood hammermills (ID Nos. ES-DHM-1 and ES-DHM-2) with associated cyclone (ID No. CD-DHM-C1 and CD-DHM-C2) one each in series with parallel fabric filter (ID Nos. CD-DHM-FF1)
Two dry wood hammermills (ID Nos. ES-DHM-3 and ES-DHM-4) with associated cyclone (ID No. CD-DHM-C3 and CD-DHM-C4) one each in series with parallel fabric filter (ID Nos. CD-DHM-FF2)
Hammermill area and Hammermill No. 5 (ID No. ES-DHM-5) with associated cyclone (ID No. CD-DHM-C5) in series with fabric filter (ID No. DHM-FF3)
Pellet feed mill silo (ID No. ES-PMFS) with bin vent filter (ID No. CD-PMFS-BV)
Two pellet coolers (ID Nos. ES-CLR1 and ES-CLR2) with associated multicyclones (ID No. CD-CLR-C1)
Two pellet coolers (ID Nos. ES-CLR3 and ES-CLR4) with associated multicyclones (ID No. CD-CLR-C2)
One pellet cooler (ID No. ES-CLR5) with associated simple cyclone (ID No. CD-CLR-C3)
Fines bin (ID No. ES-FB) with associated bin vent filter (ID No. CD-FB-BV)
Finished product handling (ID No. ES-FPH), truck loadout bin (ID Nos. ES-TLB) and two pellet loadouts (ID Nos. ES-PL1, ES-PL2) with associated bagfilter (ID No. CD-FPH-BF)

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

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate matter	$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph $E = 55 \times P^{0.11} - 40$ for process weigh rate ≥ 30 tph Where, E = allowable emission rate (lb/hr) P = process weight rate (tph)	15A NCAC 02D .0515
Sulfur dioxide	For Dryer System (ID No. ES-DRYER) 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
Fugitive dust	**State-enforceable only** See Section 2.2A.1	15A NCAC 02D .0540
Toxic air pollutants	**State-enforceable only** See Section 2.2 A.2	15A NCAC 02D .1100
Toxic air pollutants	**State-enforceable only** See Section 2.2 A.3	15A NCAC 02Q .0711
Volatile organic compounds	See Section 2.2 A.4 Less than 391.6 tons per consecutive 12 month period	15A NCAC 02Q .0317 for avoidance of 15A NCAC 02D .0530

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

a. Emissions of particulate matter from these sources shall not exceed an allowable emission rate as calculated by the following equation:

$E = 4.10 \times P^{0.67}$ for process weight rate < 30 tph
$E = 55 \times P^{0.11} - 40$ for process weight rate ≥ 30 tph
where E = allowable emission rate in pounds per hour
P = process weight in tons per hour

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

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

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

For bagfilters and/or cyclones:

c. Particulate matter emissions shall be controlled as follows:
   i. Particulate matter emissions from the four dry wood hammermills **(ID Nos. ES-DHM-1 through ES-DHM-4)** shall be controlled by four simple cyclones **(ID Nos. CD-DHM-C1 through CD-DHM-C4)** in series with two fabric filters **(ID Nos. CD-FF1 and CD-FF2)**.
   ii. Particulate matter emissions from the hammermill area and hammermill No. 5 **(ID No. ES-DHM-5)** shall be controlled by a cyclone **(ID No. CD-DHM-C5)** in series with a fabric filter **(ID No. CD-DHM-FF3)**.
   iii. Particulate matter emissions from the four pellet coolers **(ID Nos. ES-CLR1 through ES-CLR4)** shall be controlled by two multicyclones **(ID Nos. CD-CLR-C1 and CD-CLR-C2)**.
   iv. Particulate matter emissions from pellet cooler No. 5 **(ID No. ES-CLR5)** shall be controlled by a simple cyclone **(ID No. CD-CLR-C3)**.
   v. Particulate matter emissions from the fines bin **(ID No. ES-FB)** shall be controlled by a bin vent filter **(ID No. CD-FB-BV)**.
   vi. Particulate matter emissions from the finished product handling **(ID No. ES-FBH)**, truck loadout bin **(ID No. ES-TLB)** and two pellet loadouts **(ID Nos. ES-PL1 and ES-PL2)** shall be controlled by a bagfilter **(ID No. CD-FPH-BF)**.

d. To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are 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 units 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, cyclones and bagfilter are not inspected and maintained.

For wet electrostatic precipitator:

e. Particulate matter emissions from the wood-fired 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)**.

f. 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 are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

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

ii. an annual (for each 12 month period following the initial inspection) internal inspection of the wet electrostatic precipitator. This inspection must include (but is not limited to):
   1. visual checks of critical components,
   2. checks for any equipment that does not alarm when de-energized, to ensure it is operational,
   3. checks for signs of plugging in the hopper and gas distribution equipment, and
   4. replacement of broken equipment as required.

The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0515 if the wet electrostatic precipitator is not monitored, inspected and maintained

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

g. The results of inspection and maintenance shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall include the following:
   i. the date and time of each recorded action;
   ii. the results of each inspection;
   iii. the results of any maintenance performed on any control device; 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)]

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

i. The Permittee shall submit a summary report of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

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

a. Emissions of sulfur dioxide from the wood-fired dryer **(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.

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

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

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

c. No monitoring, recordkeeping, or reporting is required for sulfur dioxide emissions from the firing of wood in this source **(ID No. ES-DRYER)**.

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

a. Visible emissions from these sources **(ID Nos. ES-DRYER, ES-DWDS, ES-DHM-1 through ES-DHM-5, ES-PMFS, ES-CLR1 through ES-CLR5, ES-FB, ES-FPH, ES-TLB, ES-PL1, ES-PL2)** 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.

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

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. 3. a. above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0521.

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

c. To assure compliance, once a month the Permittee shall observe the emission points of 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. If visible emissions from these 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 .2610 (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 logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook 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

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

e. The Permittee shall submit a summary report of the observations postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

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

A. Facility-wide sources

State-enforceable only

1. 15A NCAC 02D .0540: PARTICULATES FROM FUGITIVE DUST EMISSION SOURCES

a. As required by 15A NCAC 02D .0540 "Particulates from Fugitive Dust Emission Sources," the Permittee shall comply with all aspects of the most recently submitted fugitive dust control plan, approved September 13, 2013 and revised January 14, 2014.

State-enforceable only

2. TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REQUIREMENT

a. Pursuant to 15A NCAC 02D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limits shall not be exceeded:

Emission Source ID	Description	Acrolein lb/hr	Formaldehyde lb/hr	Benzene lb/yr	Phenol lb/hr
ES-DRYER	Dryer System	2.74	5.94	3196	1.344
ES-DHM-1, ES-DHM-2	Hammermills 1&2	0.209	0.272	N/A	N/A
ES-DHM-3, ES-DHM-4	Hammermills 3&4	0.209	0.272	N/A	N/A
ES-DHM-5	Hammermill 5	0.105	0.136	N/A	N/A
IES-EG	Emergency Generator	2.27E-04	2.89E-03	1.14	N/A
IES-FWP	Firewater Pump	1.94E-04	2.48E-03	0.98	N/A
ES-CLR1, ES-CLR2	Pellet Cooler 1&2	0.366	0.274	N/A	N/A
ES-CLR3, ES-CLR4	Pellet Cooler 3&4 Cyclone	0.366	0.274	N/A	N/A
ES-CLR5	Pellet Cooler 5 Cyclone	0.183	0.137	N/A	N/A

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

b. If emissions testing is required, the testing shall be performed in accordance with General Condition JJ.

Monitoring/Recordkeeping/Reporting

c. To ensure compliance with the above limits, the Permittee shall keep documents on site demonstrating the actual emissions being less than the limits. The supporting documents may be previous permit applications, emissions inventories, previous dispersion modeling analysis or engineering calculations using pervious performance test results. The Permittee shall be deemed in noncompliance with 15A NCAC 02D .1100 if the records are not kept on site. No reporting is required.

State-enforceable only

3. TOXIC AIR POLLUTANT EMISSION RATES REQUIRING A PERMIT

a. 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 listed in the table below:

Pollutant (CAS Number)	Carcinogens (lb/yr)	Chronic Toxicants (lb/day)	Acute Systemic Toxicants (lb/hr)	Acute Irritants (lb/hr)
1,3 Butadiene (106-99-0)	11			
Acetaldehyde (75-07-0)				6.8
Arsenic and Inorganic arsenic compounds	0.053			
Benzo(a)pyrene (50-32-8)	2.2			
Beryllium (7440-41-7)	0.28			
Cadmium (7440-43-9)	0.37			
Carbon tetrachloride (56-23-5)	460			
Chlorine (7782-50-5)		0.79		0.23
Chlorobenzene (108-90-7)		46		
Chloroform (67-66-3)	290			
Di(2-ethylhexyl)phthalate (DEHP) (117-81-7		0.63		
Ethylene dichloride (1,2-dichloroethane) (107-06-2)	260			
Hexachlorodibenzo-p-dioxin (57653-85-7)	0.0051			
Hydrogen chloride (7647-01-0)				
Manganese & compounds		0.63		
Mercury, vapor (7439-97-6)		0.013		
Methyl chloroform (1,1,1-trichloroethane) (71-55-6)		250		
Methyl ethyl ketone (78-93-3)		78		
Methyl isobutyl ketone (108-10-1)		52		7.6
Methylene chloride (75-09-2)	1600		0.39	
Nickel metal (7440-02-0)		0.13		
Pentachlorophenol (87-86-5)		0.063	0.0064	
Perchloroethylene (tetrachloroethylene) (127-18-4)	13000			
Polychlorinated biphenyls (1336-36-3)	5.6			
Styrene (100-42-5)			2.7	
Tetrachlorodibenzo-p-dioxin (1746-01-6)	0.00020			
Trichloroethylene (79-01-6)	4000			
Toluene (108-88-3)		98		14.4
Trichlorofluoromethane (CFC 111) (75-01-4)			140	
Vinyl chloride (75-01-4)	26			
Xylene (1330-20-7)		57		16.4

Monitoring/Recordkeeping/Reporting

b. No monitoring/recordkeeping/reporting is required.

4. 15A NCAC 02Q .0317: AVOIDANCE CONDITIONS FOR 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

a. In order to avoid applicability of 15A NCAC 02D .0530, as requested by the Permittee, facility-wide VOC emissions shall be less than 391.6 tons per consecutive 12-month period.

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

b. If emissions testing is required, the testing shall be performed in accordance with General Condition JJ. If the results of this test indicates emissions are above the limits given in condition 2.2.4.a above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530.

Monitoring/Recordkeeping

c. The Permittee shall record and maintain the following records in a logbook (written or electronic format) and make records available to DAQ personnel upon request.
   i. The oven dried tons of wood pellets produced each month;
   ii. The facility-wide emissions of VOC's calculated each month using the best available emissions factors (vendor certified compliance emission rates for emergency engines, performance stack test data, DAQ spreadsheets, EPA AP-42 emissions factors or other DAQ approved emission factors); and
   iii. The average softwood content of wood mixture processed in each of the dryer system **(ID No. ES-DRYER)**, the hammermills **(ID Nos. ES-DHM-1 through ES-DHM-5)** and the pellet coolers **(ID Nos. ES-CLR1 through ES-CLR5)** shall be recorded monthly. The monthly documented softwood content of the wood mixture shall be equal to or less than the content used for the testing to derive the VOC emission factors.

   The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530 if the above records are not kept or the particulate emissions exceed the above limit.

Reporting

d. The Permittee shall submit a semi-annual summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:
   i. The monthly VOC emissions for the previous 17 months. The emissions must be calculated for each of the 12-month rolling average over the previous 17 months.
   ii. The monthly softwood content of wood mixture processed in the dryer system **(ID No. ES-DRYER)**, the hammermills **(ID Nos. ES-DHM-1 through ES-DHM-5)** and the pellet coolers **(ID Nos. ES-CLR1 through ES-CLR5).**

SECTION 3 - GENERAL CONDITIONS (version 4.0 12/17/15)

This section describes terms and conditions applicable to this Title V facility.

A. **General Provisions** [NCGS 143-215 and 15A NCAC 02Q .0508(i)(16)]
   1. Terms not otherwise defined in this permit shall have the meaning assigned to such terms as defined in 15A NCAC 02D and 02Q.
   2. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to NCGS 143-215.114A and 143-215.114B, including assessment of civil and/or criminal penalties. Any unauthorized deviation from the conditions of this permit may constitute grounds for revocation and/or enforcement action by the DAQ.
   3. This permit is not a waiver of or approval of any other Department permits that may be required for other aspects of the facility which are not addressed in this permit.

4. This permit does not relieve the Permittee from liability for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted facility, or from penalties therefore, nor does it allow the Permittee to cause pollution in contravention of state laws or rules, unless specifically authorized by an order from the North Carolina Environmental Management Commission.
5. Except as identified as state-only requirements in this permit, all terms and conditions contained herein shall be enforceable by the DAQ, the EPA, and citizens of the United States as defined in the Federal Clean Air Act.
6. Any stationary source of air pollution shall not be operated, maintained, or modified without the appropriate and valid permits issued by the DAQ, unless the source is exempted by rule. The DAQ may issue a permit only after it receives reasonable assurance that the installation will not cause air pollution in violation of any of the applicable requirements. A permitted installation may only be operated, maintained, constructed, expanded, or modified in a manner that is consistent with the terms of this permit.

B. **Permit Availability** [15A NCAC 02Q .0507(k) and .0508(i)(9)(B)]
The Permittee shall have available at the facility a copy of this permit and shall retain for the duration of the permit term one complete copy of the application and any information submitted in support of the application package. The permit and application shall be made available to an authorized representative of Department of Environmental Quality upon request.

C. **Severability Clause** [15A NCAC 02Q .0508(i)(2)]
In the event of an administrative challenge to a final and binding permit in which a condition is held to be invalid, the provisions in this permit are severable so that all requirements contained in the permit, except those held to be invalid, shall remain valid and must be complied with.

D. **Submissions** [15A NCAC 02Q .0507(e) and 02Q .0508(i)(16)]
Except as otherwise specified herein, two copies of all documents, reports, test data, monitoring data, notifications, request for renewal, and any other information required by this permit shall be submitted to the appropriate Regional Office. Refer to the Regional Office address on the cover page of this permit. For continuous emissions monitoring systems (CEMS) reports, continuous opacity monitoring systems (COMS) reports, quality assurance (QA)/quality control (QC) reports, acid rain CEM certification reports, and NOx budget CEM certification reports, one copy shall be sent to the appropriate Regional Office and one copy shall be sent to:

Supervisor, Stationary Source Compliance
North Carolina Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641

All submittals shall include the facility name and Facility ID number (refer to the cover page of this permit).

E. **Duty to Comply** [15A NCAC 02Q .0508(i)(3)]
The Permittee shall comply with all terms, conditions, requirements, limitations and restrictions set forth in this permit. Noncompliance with any permit condition except conditions identified as state-only requirements constitutes a violation of the Federal Clean Air Act. Noncompliance with any permit condition is grounds for enforcement action, for permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application.

F. **Circumvention** - STATE ENFORCEABLE ONLY
The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air pollution control device(s) and appurtenances.

G. **Permit Modifications**
1. Administrative Permit Amendments [15A NCAC 02Q .0514]
The Permittee shall submit an application for an administrative permit amendment in accordance with 15A NCAC 02Q .0514.
2. Transfer in Ownership or Operation and Application Submittal Content [15A NCAC 02Q .0524 and 02Q .0505]
The Permittee shall submit an application for an ownership change in accordance with 15A NCAC 02Q.0524 and 02Q .0505.
3. Minor Permit Modifications [15A NCAC 02Q .0515]
The Permittee shall submit an application for a minor permit modification in accordance with 15A NCAC 02Q .0515.
4. Significant Permit Modifications [15A NCAC 02Q .0516]
The Permittee shall submit an application for a significant permit modification in accordance with 15A NCAC 02Q .0516.
5. Reopening for Cause [15A NCAC 02Q .0517]
The Permittee shall submit an application for reopening for cause in accordance with 15A NCAC 02Q .0517.

H. **Changes Not Requiring Permit Modifications**
1. Reporting Requirements
Any of the following that would result in new or increased emissions from the emission source(s) listed in Section 1 must be reported to the Regional Supervisor, DAQ:
   a. changes in the information submitted in the application;
   b. changes that modify equipment or processes; 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.
2. Section 502(b)(10) Changes [15A NCAC 02Q .0523(a)]
   a. "Section 502(b)(10) changes" means changes that contravene an express permit term or condition. Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.
   b. The Permittee may make Section 502(b)(10) changes without having the permit revised if:
      i. the changes are not a modification under Title I of the Federal Clean Air Act;
      ii. the changes do not cause the allowable emissions under the permit to be exceeded;
      iii. the Permittee notifies the Director and EPA with written notification at least seven days before the change is made; and
      iv. the Permittee shall attach the notice to the relevant permit.
   c. The written notification shall include:
      i. a description of the change;
      ii. the date on which the change will occur;
      iii. any change in emissions; and
      iv. any permit term or condition that is no longer applicable as a result of the change.
   d. Section 502(b)(10) changes shall be made in the permit the next time that the permit is revised or renewed, whichever comes first.
3. Off Permit Changes [15A NCAC 02Q .0523(b)]

The Permittee may make changes in the operation or emissions without revising the permit if:
a. the change affects only insignificant activities and the activities remain insignificant after the change; or
b. the change is not covered under any applicable requirement.

4. Emissions Trading [15A NCAC 02Q .0523(c)]
To the extent that emissions trading is allowed under 15A NCAC 02D, including subsequently adopted maximum achievable control technology standards, emissions trading shall be allowed without permit revision pursuant to 15A NCAC 02Q .0523(c).

I.A **Reporting Requirements for Excess Emissions and Permit Deviations** [15A NCAC 02D .0535(f) and 02Q .0508(f)(2)]
"Excess Emissions" - means an emission rate that exceeds any applicable emission limitation or standard allowed by any rule in Sections .0500, .0900, .1200, or .1400 of Subchapter 02D; or by a permit condition; or that exceeds an emission limit established in a permit issued under 15A NCAC 02Q .0700. *(Note: Definitions of excess emissions under 02D .1110 and 02D .1111 shall apply where defined by rule.)*

"Deviations" - for the purposes of this condition, any action or condition not in accordance with the terms and conditions of this permit including those attributable to upset conditions as well as excess emissions as defined above lasting less than four hours.

Excess Emissions

1. If a source is required to report excess emissions under NSPS (15A NCAC 02D .0524), NESHAPS (15A NCAC 02D .1110 or .1111), or the operating permit provides for periodic (e.g., quarterly) reporting of excess emissions, reporting shall be performed as prescribed therein.
2. If the source is not subject to NSPS (15A NCAC 02D .0524), NESHAPS (15A NCAC 02D .1110 or .1111), or these rules do NOT define "excess emissions," the Permittee shall report excess emissions in accordance with 15A NCAC 02D .0535 as follows:
   a. Pursuant to 15A NCAC 02D .0535, if excess emissions last for more than four hours resulting from a malfunction, a breakdown of process or control equipment, or any other abnormal condition, the owner or operator shall:
      i. notify the Regional Supervisor or Director of any such occurrence by 9:00 a.m. Eastern Time of the Division's next business day of becoming aware of the occurrence and provide:
         - name and location of the facility;
         - nature and cause of the malfunction or breakdown;
         - time when the malfunction or breakdown is first observed;
         - expected duration; and
         - estimated rate of emissions;
      ii. notify the Regional Supervisor or Director immediately when corrective measures have been accomplished; and
      iii. submit to the Regional Supervisor or Director within 15 days a written report as described in 15A NCAC 02D .0535(f)(3).

Permit Deviations

3. Pursuant to 15A NCAC 02Q .0508(f)(2), the Permittee shall report deviations from permit requirements (terms and conditions) as follows:
   a. Notify the Regional Supervisor or Director of all other deviations from permit requirements not covered under 15A NCAC 02D .0535 quarterly. A written report to the Regional Supervisor shall include the probable cause of such deviation and any corrective actions or preventative actions taken. The responsible official shall certify all deviations from permit requirements.

I.B **Other Requirements under 15A NCAC 02D .0535**

The Permittee shall comply with all other applicable requirements contained in 15A NCAC 02D .0535, including 15A NCAC 02D .0535(c) as follows:

1. Any excess emissions that do not occur during start-up and shut-down shall be considered a violation of the appropriate rule unless the owner or operator of the sources demonstrates to the Director, that the excess emissions are a result of a malfunction. The Director shall consider, along with any other pertinent information, the criteria contained in 15A NCAC 02D .0535(c)(1) through (7).
2. 15A NCAC 02D .0535(g). Excess emissions during start-up and shut-down shall be considered a violation of the appropriate rule if the owner or operator cannot demonstrate that excess emissions are unavoidable.

J. **Emergency Provisions** [40 CFR 70.6(g)]

The Permittee shall be subject to the following provisions with respect to emergencies:

1. An emergency means any situation arising from sudden and reasonably unforeseeable events beyond the control of the facility, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the facility to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.
2. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions specified in 3. below are met.
3. The affirmative defense of emergency shall be demonstrated through properly signed contemporaneous operating logs or other relevant evidence that include information as follows:
   a. an emergency occurred and the Permittee can identify the cause(s) of the emergency;
   b. the permitted facility was at the time being properly operated;
   c. during the period of the emergency the Permittee took all reasonable steps to minimize levels of emissions that exceeded the standards or other requirements in the permit; and
   d. the Permittee submitted notice of the emergency to the DAQ within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, steps taken to mitigate emissions, and corrective actions taken.
4. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
5. This provision is in addition to any emergency or upset provision contained in any applicable requirement specified elsewhere herein.

K. **Permit Renewal** [15A NCAC 02Q .0508(e) and 02Q .0513(b)]

This 15A NCAC 02Q .0500 permit is issued for a fixed term not to exceed five years and shall expire at the end of its term. Permit expiration terminates the facility's right to operate unless a complete 15A NCAC 02Q .0500 renewal application is submitted at least nine months before the date of permit expiration. If the Permittee or applicant has complied with 15A NCAC 02Q .0512(b)(1), this 15A NCAC 02Q .0500 permit shall not expire until the renewal permit has been issued or denied. Permit expiration under 15A NCAC 02Q .0400 terminates the facility's right to operate unless a complete 15A NCAC 02Q .0400 renewal application is submitted at least six months before the date of permit expiration for facilities subject to 15A NCAC 02Q .0400 requirements. In either of these events, all terms and conditions of these permits shall remain in effect until the renewal permits have been issued or denied.

L. **Need to Halt or Reduce Activity Not a Defense** [15A NCAC 02Q .0508(i)(4)]

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

M. **Duty to Provide Information (submittal of information)** [15A NCAC 02Q .0508(i)(9)]
1. The Permittee shall furnish to the DAQ, in a timely manner, any reasonable information that the Director may request in **writing** to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit.
2. The Permittee shall furnish the DAQ copies of records required to be kept by the permit when such copies are requested by the Director. For information claimed to be confidential, the Permittee may furnish such records directly to the EPA upon request along with a claim of confidentiality.

N. **Duty to Supplement** [15A NCAC 02Q .0507(f)]
The Permittee, upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application, shall promptly submit such supplementary facts or corrected information to the DAQ. The Permittee shall also provide additional information as necessary to address any requirement that becomes applicable to the facility after the date a complete permit application was submitted but prior to the release of the draft permit.

O. **Retention of Records** [15A NCAC 02Q .0508(f) and 02Q .0508 (l)]
The Permittee shall retain records of all required monitoring data and supporting information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring information, and copies of all reports required by the permit. These records shall be maintained in a form suitable and readily available for expeditious inspection and review. Any records required by the conditions of this permit shall be kept on site and made available to DAQ personnel for inspection upon request.

P. **Compliance Certification** [15A NCAC 02Q .0508(n)]
The Permittee shall submit to the DAQ and the EPA (Air and EPCRA Enforcement Branch, EPA, Region 4, 61 Forsyth Street SW, Atlanta, GA 30303) postmarked on or before March 1 a compliance certification (for the preceding calendar year) by a responsible official with all federally-enforceable terms and conditions in the permit, including emissions limitations, standards, or work practices. It shall be the responsibility of the current owner to submit a compliance certification for the entire year regardless of who owned the facility during the year. The compliance certification shall comply with additional requirements as may be specified under Sections 114(a)(3) or 504(b) of the Federal Clean Air Act. The compliance certification shall specify:
1. the identification of each term or condition of the permit that is the basis of the certification;
2. the compliance status (with the terms and conditions of the permit for the period covered by the certification);
3. whether compliance was continuous or intermittent; and
4. the method(s) used for determining the compliance status of the source during the certification period.

Q. **Certification by Responsible Official** [15A NCAC 02Q .0520]
A responsible official shall certify the truth, accuracy, and completeness of any application form, report, or compliance certification required by this permit. All certifications shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

R. **Permit Shield for Applicable Requirements** [15A NCAC 02Q .0512]
1. Compliance with the terms and conditions of this permit shall be deemed compliance with applicable requirements, where such applicable requirements are included and specifically identified in the permit as of the date of permit issuance.
2. A permit shield shall not alter or affect:
   a. the power of the Commission, Secretary of the Department, or Governor under NCGS 143-215.3(a)(12), or EPA under Section 303 of the Federal Clean Air Act;

b. the liability of an owner or operator of a facility for any violation of applicable requirements prior to the effective date of the permit or at the time of permit issuance;
c. the applicable requirements under Title IV; or
d. the ability of the Director or the EPA under Section 114 of the Federal Clean Air Act to obtain information to determine compliance of the facility with its permit.

3. A permit shield does not apply to any change made at a facility that does not require a permit or permit revision made under 15A NCAC 02Q .0523.
4. A permit shield does not extend to minor permit modifications made under 15A NCAC 02Q .0515.

S. **Termination, Modification, and Revocation of the Permit** [15A NCAC 02Q .0519]
The Director may terminate, modify, or revoke and reissue this permit if:
1. the information contained in the application or presented in support thereof is determined to be incorrect;
2. the conditions under which the permit or permit renewal was granted have changed;
3. violations of conditions contained in the permit have occurred;
4. the EPA requests that the permit be revoked under 40 CFR 70.7(g) or 70.8(d); or
5. the Director finds that termination, modification, or revocation and reissuance of the permit is necessary to carry out the purpose of NCGS Chapter 143, Article 21B.

T. **Insignificant Activities** [15A NCAC 02Q .0503]
Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement. The Permittee shall have available at the facility at all times and made available to an authorized representative upon request, documentation, including calculations, if necessary, to demonstrate that an emission source or activity is insignificant.

U. **Property Rights** [15A NCAC 02Q .0508(i)(8)]
This permit does not convey any property rights in either real or personal property or any exclusive privileges.

V. **Inspection and Entry** [15A NCAC 02Q .0508(l) and NCGS 143-215.3(a)(2)]
1. Upon presentation of credentials and other documents as may be required by law, the Permittee shall allow the DAQ, or an authorized representative, to perform the following:
   a. enter the Permittee's premises where the permitted facility is located or emissions-related activity is conducted, or where records are kept under the conditions of the permit;
   b. have access to and copy, at reasonable times, any records that are required to be kept under the conditions of the permit;
   c. inspect at reasonable times and using reasonable safety practices any source, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
   d. sample or monitor substances or parameters, using reasonable safety practices, for the purpose of assuring compliance with the permit or applicable requirements at reasonable times.

   Nothing in this condition shall limit the ability of the EPA to inspect or enter the premises of the Permittee under Section 114 or other provisions of the Federal Clean Air Act.
2. No person shall refuse entry or access to any authorized representative of the DAQ who requests entry for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such authorized 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.

W. **Annual Fee Payment** [15A NCAC 02Q .0508(i)(10)]
1. The Permittee shall pay all fees in accordance with 15A NCAC 02Q .0200.
2. Payment of fees may be by check or money order made payable to the N.C. Department of Environmental Quality. Annual permit fee payments shall refer to the permit number.
3. If, within 30 days after being billed, the Permittee fails to pay an annual fee, the Director may initiate action to terminate the permit under 15A NCAC 02Q .0519.

X. **Annual Emission Inventory Requirements** [15A NCAC 02Q .0207]
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 a responsible official of the facility.

Y. **Confidential Information** [15A NCAC 02Q .0107 and 02Q. 0508(i)(9)]
Whenever the Permittee submits information under a claim of confidentiality pursuant to 15A NCAC 02Q .0107, the Permittee may also submit a copy of all such information and claim directly to the EPA upon request. All requests for confidentiality must be in accordance with 15A NCAC 02Q .0107.

Z. **Construction and Operation Permits** [15A NCAC 02Q .0100 and .0300]
A construction and operating permit shall be obtained by the Permittee for any proposed new or modified facility or emission source which is not exempted from having a permit prior to the beginning of construction or modification, in accordance with all applicable provisions of 15A NCAC 02Q .0100 and .0300.

AA. **Standard Application Form and Required Information** [15A NCAC 02Q .0505 and .0507]
The Permittee shall submit applications and required information in accordance with the provisions of 15A NCAC 02Q .0505 and .0507.

BB. **Financial Responsibility and Compliance History** [15A NCAC 02Q .0507(d)(4)]
The DAQ may require an applicant to submit a statement of financial qualifications and/or a statement of substantial compliance history.

CC. **Refrigerant Requirements (Stratospheric Ozone and Climate Protection)** [15A NCAC 02Q .0501(e)]
1. If the Permittee has appliances or refrigeration equipment, including air conditioning equipment, which use Class I or II ozone-depleting substances such as chlorofluorocarbons and hydrochlorofluorocarbons listed as refrigerants in 40 CFR Part 82 Subpart A Appendices A and B, the Permittee shall service, repair, and maintain such equipment according to the work practices, personnel certification requirements, and certified recycling and recovery equipment specified in 40 CFR Part 82 Subpart F.
2. The Permittee shall not knowingly vent or otherwise release any Class I or II substance into the environment during the repair, servicing, maintenance, or disposal of any such device except as provided in 40 CFR Part 82 Subpart F.
3. The Permittee shall comply with all reporting and recordkeeping requirements of 40 CFR □ 82.166. Reports shall be submitted to the EPA or its designee as required.

DD. **Prevention of Accidental Releases - Section 112(r)** [15A NCAC 02Q .0508(h)]
If the Permittee is required to develop and register a Risk Management Plan with EPA pursuant to Section 112(r) of the Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.

EE. **Prevention of Accidental Releases General Duty Clause - Section 112(r)(1)** – FEDERALLY-ENFORCEABLE ONLY
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.

FF. **Title IV Allowances** [15A NCAC 02Q .0508(i)(1)]
This permit does not limit the number of Title IV allowances held by the Permittee, but the Permittee may not use allowances as a defense to noncompliance with any other applicable requirement. The Permittee's emissions may not exceed any allowances that the facility lawfully holds under Title IV of the Federal Clean Air Act.

GG. **Air Pollution Emergency Episode** [15A NCAC 02D .0300]
Should the Director of the DAQ declare an Air Pollution Emergency Episode, the Permittee will be required to operate in accordance with the Permittee's previously approved Emission Reduction Plan or, in the absence of an approved plan, with the appropriate requirements specified in 15A NCAC 02D .0300.

HH. **Registration of Air Pollution Sources** [15A NCAC 02D .0202]
The Director of the DAQ may require the Permittee to register a source of air pollution. If the Permittee is required to register a source of air pollution, this registration and required information will be in accordance with 15A NCAC 02D .0202(b).

II. **Ambient Air Quality Standards** [15A NCAC 02D .0501(c)]
In addition to any control or manner of operation necessary to meet emission standards specified in this permit, any source of air pollution shall be operated with such control or in such manner that the source shall not cause the ambient air quality standards in 15A NCAC 02D .0400 to be exceeded at any point beyond the premises on which the source is located. When controls more stringent than named in the applicable emission standards in this permit are required to prevent violation of the ambient air quality standards or are required to create an offset, the permit shall contain a condition requiring these controls.

JJ. **General Emissions Testing and Reporting Requirements** [15A NCAC 02Q .0508(i)(16)]
Emission compliance testing shall be by the procedures of Section .2600, except as may be otherwise required in Rules .0524, .0912, .1110, .1111, or .1415 of Subchapter 02D. If emissions testing is required by this permit or the DAQ or if the Permittee submits emissions testing to the DAQ to demonstrate compliance, the Permittee shall perform such testing in accordance with 15A NCAC 02D .2600 and follow the procedures outlined below:

1. The owner or operator of the source shall arrange for air emission testing protocols to be provided to the Director prior to air pollution testing. Testing protocols are not required to be pre-approved by the Director prior to air pollution testing. The Director shall review air emission testing protocols for pre-approval prior to testing if requested by the owner or operator at least **45 days** before conducting the test.
2. Any person proposing to conduct an emissions test to demonstrate compliance with an applicable standard shall notify the Director at least **15 days** before beginning the test so that the Director may at his option observe the test.
3. The owner or operator of the source shall arrange for controlling and measuring the production rates during the period of air testing. The owner or operator of the source shall ensure that the equipment or process being tested is operated at the production rate that best fulfills the purpose of the test. The individual conducting the emission test shall describe the procedures used to obtain accurate process data and include in the test report the average production rates determined during each testing period.
4. Two copies of the final air emission test report shall be submitted to the Director not later than **30 days** after sample collection unless otherwise specified in the specific conditions. The owner or operator may request an extension to submit the final test report. The Director shall approve an extension request if he finds that the extension request is a result of actions beyond the control of the owner or operator.
    a. The Director shall make the final determination regarding any testing procedure deviation and the validity of the compliance test. The Director may:

i. Allow deviations from a method specified under a rule in this Section if the owner or operator of the source being tested demonstrates to the satisfaction of the Director that the specified method is inappropriate for the source being tested.
ii. Prescribe alternate test procedures on an individual basis when he finds that the alternative method is necessary to secure more reliable test data.
iii. Prescribe or approve methods on an individual basis for sources or pollutants for which no test method is specified in this Section if the methods can be demonstrated to determine compliance of permitted emission sources or pollutants.

b. The Director may authorize the Division of Air Quality to conduct independent tests of any source subject to a rule in this Subchapter to determine the compliance status of that source or to verify any test data submitted relating to that source. Any test conducted by the Division of Air Quality using the appropriate testing procedures described in Section 02D .2600 has precedence over all other tests.

KK. **Reopening for Cause** [15A NCAC 02Q .0517]

1. A permit shall be reopened and revised under the following circumstances:
   a. additional applicable requirements become applicable to a facility with remaining permit term of three or more years;
   b. additional requirements (including excess emission requirements) become applicable to a source covered by Title IV;
   c. the Director or EPA finds that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or
   d. the Director or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
2. Any permit reopening shall be completed or a revised permit issued within 18 months after the applicable requirement is promulgated. No reopening is required if the effective date of the requirement is after the expiration of the permit term unless the term of the permit was extended pursuant to 15A NCAC 02Q .0513(c).
3. Except for the state-enforceable only portion of the permit, the procedures set out in 15A NCAC 02Q .0507, .0521, or .0522 shall be followed to reissue the permit. If the State-enforceable only portion of the permit is reopened, the procedures in 15A NCAC 02Q .0300 shall be followed. The proceedings shall affect only those parts of the permit for which cause to reopen exists.
4. The Director shall notify the Permittee at least 60 days in advance of the date that the permit is to be reopened, except in cases of imminent threat to public health or safety the notification period may be less than 60 days.
5. Within 90 days, or 180 days if the EPA extends the response period, after receiving notification from the EPA that a permit needs to be terminated, modified, or revoked and reissued, the Director shall send to the EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate.

LL. **Reporting Requirements for Non-Operating Equipment** [15A NCAC 02Q .0508(i)(16)]
The Permittee shall maintain a record of operation for permitted equipment noting whenever the equipment is taken from and placed into operation. During operation the monitoring recordkeeping and reporting requirements as prescribed by the permit shall be implemented within the monitoring period.

MM. **Fugitive Dust Control Requirement** [15A NCAC 02D .0540] - STATE ENFORCEABLE ONLY
As required by 15A NCAC 02D .0540 "Particulates from Fugitive Dust Emission Sources," the Permittee shall not cause or allow fugitive dust emissions to cause or contribute to substantive complaints or excess visible emissions beyond the property boundary. If substantive complaints or excessive fugitive dust emissions from the facility are observed beyond the property boundaries for six minutes in any one hour (using Reference Method 22 in 40 CFR, Appendix A), the owner or operator may be required to submit a fugitive dust plan as described in 02D .0540(f).

"Fugitive dust emissions" means particulate matter from process operations that does not pass through a process stack or vent and that is generated within plant property boundaries from activities such as: unloading and loading areas, process areas stockpiles, stock pile working, plant parking lots, and plant roads (including access roads and haul roads).

NN. **Specific Permit Modifications** [15A NCAC 02Q.0501 and .0523]

1. For modifications made pursuant to 15A NCAC 02Q .0501(c)(2), the Permittee shall file a Title V Air Quality Permit Application for the air emission source(s) and associated air pollution control device(s) on or before 12 months after commencing operation.
2. For modifications made pursuant to 15A NCAC 02Q .0501(d)(2), the Permittee shall not begin operation of the air emission source(s) and associated air pollution control device(s) until a Title V Air Quality Permit Application is filed and a construction and operation permit following the procedures of Section .0500 (except for Rule .0504 of this Section) is obtained.
3. For modifications made pursuant to 502(b)(10), in accordance with 15A NCAC 02Q .0523(a)(1)(C), the Permittee shall notify the Director and EPA (EPA - Air Planning Branch, 61 Forsyth Street SW, Atlanta, GA 30303) in writing at least seven days before the change is made. The written notification shall include:
   a. a description of the change at the facility;
   b. the date on which the change will occur;
   c. any change in emissions; and
   d. any permit term or condition that is no longer applicable as a result of the change.

In addition to this notification requirement, with the next significant modification or Air Quality Permit renewal, the Permittee shall submit a page "E5" of the application forms signed by the responsible official verifying that the application for the 502(b)(10) change/modification, is true, accurate, and complete. Further note that modifications made pursuant to 502(b)(10) do not relieve the Permittee from satisfying preconstruction requirements.

OO. **Third Party Participation and EPA Review** [15A NCAC 02Q .0521, .0522 and .0525(7)]

For permits modifications subject to 45-day review by the federal Environmental Protection Agency (EPA), EPA's decision to not object to the proposed permit is considered final and binding on the EPA and absent a third party petition, the failure to object is the end of EPA's decision-making process with respect to the revisions to the permit. The time period available to submit a public petition pursuant to 15A NCAC 02Q .0518 begins at the end of the 45-day EPA review period.

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
DEQ	Department of Environmental Quality
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
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_X	Nitrogen Oxides
NSPS	New Source Performance Standard
OAH	Office of Administrative Hearings
PM	Particulate Matter
PM_{10}	Particulate Matter with Nominal Aerodynamic Diameter of 10 Micrometers or Less
POS	Primary Operating Scenario
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
tpy	Tons Per Year
VOC	Volatile Organic Compound

NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: June 6, 2016

Region: Washington Regional Office
County: Hertford
NC Facility ID: 4600107
Inspector's Name: Betsy Huddleston
Date of Last Inspection: 05/05/2015
Compliance Code: 3 / Compliance - inspection

Facility Data

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

Facility Address:
Enviva Pellets Ahoskie, LLC
142 NC Route 561 East
Ahoskie, NC 27910

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

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

Permit Applicability (this application only)

SIP: 15A NCAC 02Q .0504, 15A NCAC 02Q .0521, 15A NCAC 02Q .0522
NSPS: Subpart IIII
NESHAP: GACT Subpart ZZZZ
PSD: N/A
PSD Avoidance: 15A NCAC 02Q .0317
NC Toxics: 15A NCAC 02D .1100, 15A NCAC 02Q .0711
112(r): N/A
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Joe Harrell Corporate EHS Manager (252) 209-6032 142 NC Route 561 East Ahoskie, NC 27910	Jason Ansley Plant Manager (252) 209-6032 142 NC Route 561 East Ahoskie, NC 27910	Joe Harrell Corporate EHS Manager (252) 209-6032 142 NC Route 561 East Ahoskie, NC 27910

Application Data

Application Number: 4600107.12A
Date Received: 11/13/2012
Application Type: Modification
Application Schedule: TV-1st Time

Existing Permit Data
Existing Permit Number: 10121/R03
Existing Permit Issue Date: 05/22/2015
Existing Permit Expiration Date: 11/30/2015

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	19.20	85.15	201.54	31.34	123.82	10.80	4.76 [Methanol (methyl alcohol)]
2013	8.70	100.74	56.47	37.13	113.65	15.70	5.86 [Formaldehyde]
2012	17.50	79.88	24.79	29.83	113.93	8.86	2.35 [Formaldehyde]
2011	1.10	13.50	16.30	18.90	12.60	---	--- [---]

Review Engineer: Yukiko (Yuki) Puram

Review Engineer's Signature: **Date: June 6, 2016**

Comments / Recommendations:
Issue 10121/T04
Permit Issue Date: June 6, 2016
Permit Expiration Date: May 31, 2021

I. Purpose of Application

Enviva Pellets Ahoskie, LLC (Enviva) currently holds Air Permit 10121R03. Per 15A NCAC 02Q .0504, the facility is allowed to construct and operate under 15A NCAC 02Q .0300 when a Title V permit application is submitted within one year from the date of beginning of operation. Operation of the facility commenced on November 22, 2011 and the first time Title V application (4600107.12A) was received on November 13, 2012, which was within the time period allowed. Because the facility's operation and the sources were modified several times since the first time Title V application being submitted, an amended first time Title V application was filed on June 22, 2015. According to the application, the operation of the facility is the same as described in the application for R03 (4600107.15A).

The facility also submitted a renewal to the current state permit R03 on October 6, 2015. However, in accordance to NCGS 150B-3(a), when a sufficient application was submitted to the agency in a timely manner, the existing permit does not expire until a decision on the application is finally made by the agency. Because the application for first time Title V was submitted on time, the applicant does not need to submit a renewal application to the state permit R03. Therefore, the application 4600107.15B will be consolidated to the first time title V application, 4600107.12A.

II. Facility Description

Enviva is a wood pellets manufacturing plant located in Ahoskie, Hertford County in NC. The wood pellets are used as a renewable fuel for energy generation in place of coal. Most of their products are shipped to Europe to be used as energy source. At the time of the application, the wood mixture that goes into the dryer is consisted of 70% hardwood and 30% softwood. In addition to the dried wood pieces that are processed on site, Enviva also uses dry wood chips that are purchased from off-site. Combining the wood chips from on-site and off-site, the final pellets consist of approximately 60% hardwood and 45% softwood.

III. History/Background/Application Chronology

December 7, 2010	The R00 permit was issued with a requirement to submit a First Time Title V application within a year of startup.
October 25, 2011	Enviva submitted application 4600107.11A.
November 22, 2011	Operation of the Enviva Pellets Ahoskie site was commenced.
January 3, 2012	Permit R01 was issued in response to application 11A. This permit changed the configuration of several control devices and incorporated modeling.
November 13, 2012	First time Title V permit application, 4600107.12A, was submitted.
April 8, 2013	Enviva submitted a letter to DAQ indicating the VOC emissions in the previous applications may be underestimated. The VOC emissions of similar facilities will be used to compare to their emissions described in the permit application.
December 10, 2013	Enviva submitted application 4600107.13A to incorporate the fugitive dust control plan.
March 10, 2014	Permit R02 was issued.

June 24-25 and July 2, 2014	A series of stack tests were conducted to measure VOC emissions from the hammermill, the pellet cooler and the dryer.
October 10, 2014	Permit application 12A was transferred to Yuki Puram.
January 9, 2015	Application 4600107.15A was submitted to increase the maximum operation rate and to increase the softwood content of the wood pellets.
February 11, 2015	DAQ's request for additional information regarding toxic emissions from the dryer was sent to Mr. Mike Deyo, consultant for Enviva.
February 13, 2015	Mr. Deyo provided test results from other Enviva facilities including some of the requested toxic emissions information. However, the test reports were not previously reviewed by DAQ. DAQ suggested Enviva submit the test report to DAQ's SSCB for review before applying the test results to the permit application.
February 25, 2015	Mr. Alan McConnell, attorney representing Enviva, contacted William Willets of DAQ regarding Enviva's toxic emissions.
April 14, 2015	Mr. Cuilla reviewed the updated permit.
April 16, 2015	Updated draft permit was sent to Mr. McConnell.
April 28, 2015	DAQ received comments from Mr. McConnell along with test reports conducted in Enviva's Amory and Wiggins sites in Mississippi.
May 22, 2015	Permit R03 issued.
June 22, 2015	An amended application to 4600107.12A was received.
October 9, 2015	The test reports conducted in the Enviva sites in Amory and Wigging, Mississippi were denied by the SSCB.
November 16, 2015	The DAQ and the Enviva staffs had a meeting to discuss toxic pollutants emissions. The staffs present at the meeting were: Mr. Steve Steigerwald of Enviva, Dr. John Richards of Air Control Techniques, Betsy Huddleston, Shannon Vogel, Mark Cuilla and Yuki Puram of DAQ.
December 18, 2015	Dr. Richards submitted an updated test report conducted at the Amory and Wiggins sites along with the document regarding benzene and other metal emissions from the Ahoskie site.
January 29, 2016	Ms. Vogel of DAQ reviewed the updated test report. She sent an email indicating that the SSCB "does not find any reason to disallow the October 2013 test results for use as supporting data for estimating emissions from the NC facilities."
February 1, 2016	Yuki Puram requested Mr. Steigerwald submit updated emission data specific to the Ahoskie site since Dr. Richards' documents did not include potential emissions at the Ahoskie site.

February 3, 2016	Mr. Joe Harrell of Enviva called DAQ to ask questions about the data requested by the email sent on February 1st. He assured that the requested data will be submitted shortly.
February 26, 2016	DAQ has not received the data requested by the email dated February 1st. Yuki Puram spoke to Mr. Harrell explaining that the emission factors from AP-42 and the modeling analysis conducted in 2011 will be used to calculate the potential emissions rather than utilizing the test data from the Amory and the Wiggins sites. Mr. Harrell agreed the calculation method that was proposed.
March 16, 2016	Mark Cuilla of DAQ reviewed the draft permit.
March 17, 2016	Yuki Puram of DAQ spoke with Mr. Harrell to correct the source ID no. and the control device ID Nos. for Hammermill area and Hammermill No. 5.
March 23, 2016	Ms. Huddleston of WaRO reviewed the draft permit and returned with comments.
April 4, 2016	Mr. Harrell sent the applicants' comments on the draft permit.

IV. Regulatory Review – Specific Emission Source Limitations

The emission sources and associated air pollution control devices and appurtenances listed below are subject to the following regulations:

A. Direct Wood-Fired Rotary Drum Drying System (ES-DRYER)

- Wood-fired dryer (ID No. ES-DRYER) with simple cyclone (ID No. CD-DC) in series with one wet electrostatic precipitator (ID No. CD-WESP)
- Dried wood day silo (ID No. ES-DWDS) with bin vent filter (ID No. CD-DWDS-BV)
- Four dry wood hammermills (ID Nos. ES-DHM-1 through ES-DHM-4) with four simple cyclones (ID Nos. CD-DHM-C1 through CD-DHM-C4) in series with two fabric filters (ID Nos. CD-DHM-FF1 and CD-DHM-FF2)
- Hammermill area and Hammermill No. 5 (ID No. ES-DHM-5) with associated cyclone (ID No. CD-DHM) in series with fabric filter (ID No. HAF-FF3)
- Pellet feed mill silo (ID No. ES-PMFS) with bin vent filter (ID No. CD-PMFS-BV)
- Five pellet coolers (ID Nos. ES-CLR1 through ES-CLR5) with two multicylones (ID Nos. CD-CLR-C1 and CD-CLR-C2) and one simple cycle (ID No. CD-CLR-3)
- Fines bin (ID No. ES-FB) with bin vent filter (ID No. CD-FB-BV)
- Finished product handling (ID No. ES-FPH), truck loadout bin (ID Nos. ES-TLB), and two pellet loadouts (ID Nos. ES-PL1, ES-PL2) all venting to bagfilter (ID No. CD-FPH-BF)

1. **<u>15A NCAC 02D .0515: Particulates from Miscellaneous Industrial Processes</u>**
   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. Enviva's maximum dryer production rate is 48 ODT/hr and the emissions are controlled by the wet electrostatic precipitator (WESP). Because the facility also uses dry wood chips that are purchased from off-site, the production rate of the pellet mill system and "downstream" material handling equipment is 55 ODT/hr. No change was made with the requirements associated with this regulation. See the review R03 for particulates emissions from each emission source.

2. **15A NCAC 02D .0516: Sulfur Dioxide Emissions from Combustion Sources**
This rule limits SO2 emissions from the wood-fired dryer associated with the wet electrostatic precipitator to 2.3 pounds per million Btu. SO2 emissions from the dryer system are estimated as 0.025lbs/mmBtu per AP-42 Table 1.6-2. Therefore, compliance is inherent. No testing, monitoring, recordkeeping or reporting is required.

3. **15A NCAC 02D .0521 "Control of Visible Emissions"**
This regulation limits visible emissions from all of the sources at the facility to 20% opacity except one per hour and four per 24 hours 6-minute average VE may exceed 20% opacity provided VE does not exceed 87% opacity. The facility is currently required to observe VE emissions monthly from all sources and to report semiannually. No change was made.

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

The emergency generator and the fire water pump were manufactured in 2011 and 1975 respectively. Based on the generators' maximum heat inputs and 500 hours of maximum operation per year, the potential emissions of each criteria pollutants are less than 5 tpy. Therefore, these sources will be removed from the permit to the insignificant emissions list. Both engines are still subject to GACT Subpart ZZZZ. The emergency generator (ID NO. ES-EG) is also subject to NSPS Subpart IIII. Per §63.6590(c)(1), a new RICE located an area source that is also subject to NSPS Subpart IIII is not subject to further requirements under GACT. On the other hand, the fire pump (ID No. ES-FWP) which is not subject to Subpart IIII, is still subject to the GACT requirements. These requirements are attached to this review for a compliance purpose.

V. Regulatory Review – Facility-wide Sources

1. **15A NCAC 02D .0540 "Particulates from Fugitive Dust Emissions"**
The facility developed a fugitive dust control plan which was revised on January 14, 2014. No change was made at this time.

2. **15A NCAC 02D .1100 "Toxic Air Pollutant Emissions Limitation and Requirement"**
The facility conducted a dispersion modeling analysis for acrolein, benzene, formaldehyde, phenol and NO_2 on October 26, 2010 and March 22, 2011. In addition, arsenic, bezo(a)pyrene, cadmium, chlorine, hexa-p-dioxin and hydrogen chloride were added to the pollutants subject to 15A NCAC 02D .1100 on November 10, 2011. However, the facility indicated most of these pollutants were not emitted from the dryer based on their tests conducted at their facilities in Wiggins and Amory, Mississippi. DAQ's SSCB reviewed those stack tests conducted at the Wiggins and Amory sites by Air Control Techniques, Inc. Initially, SSCB rejected the test results because the emissions were reported as "zero" when the emissions were below the detect limits. Air Control Techniques then revised the test results and reported at the detect limits. However, the facility did not submit potential emissions at the Ahoskie facility using the emission factors measured at the facilities in Wiggins and Amory.

Instead of using the tests conducted in another facility, the modeling analysis that was previously conducted for the Ahoskie site was reviewed. The facility's permit application R01 included a modeling analysis which was reviewed on March 22, 2011. The inputs used for the modeling were based on the AP-42 emission factors for a particle board dryer. Even though the wood pelletizing operation is different than particle board manufacturing, the type of the dryer used for the particle board manufacturing was the closest they could find at that time. Table 1 shows the input that was used for the modeling in 2011, and the updated input based on the facility's current operation. Because the facility increased the production rate since 2011, the modeling had to be updated in order

to calculate the impact of the emissions as a result of the increased production rate. The percentage of AAL for each pollutant was increased proportionally based on the increase of the input. See the sample calculation below.

Table 1: TAPs emissions from the dryer

Input: The dryer production rate in 2011: 43.0 ODT/hr
Current dryer production rate: 48 ODT/hr

Pollutant	Emission Factor* (lb/ODT)	3/22/11 Modeling		**Current Operation**		
		Input (lb/hr)	% of AAL	Input (lb/hr)	Input (lb/yr)	**% of AAL**
Acrolein	2.30E-02	0.989	4	1.104	N/A	**4.465**
Benzene	7.6E-03	0.327	26	0.365	3196	**29.01**
Phenol	2.8E-02	1.2	1	1.344	N/A	**1.120**

*AP-42 10.6.2, Table 10.2-3, Rotary dryer, green, direct wood-fired, softwood (inlet moisture content, >50%, dry basis)

- Sample Calculation: Benzene

Emissions in 2011: $7.6E-03\frac{lb}{ODT} \times 43\frac{ODT}{hr} = 0.327\frac{lb}{hr}$

Emissions at the current operation rate: $7.6E-03\frac{lb}{ODT} \times 48\frac{ODT}{hr} = 0.365\frac{lb}{hr}$

$$\%\ of\ AAL\ at\ the\ current\ operation\ rate: \frac{26\%\ of\ AAL * 0.365\ lb/hr}{0.327\ lb/hr} = 29.01\%\ of\ AAL$$

As shown in Table 1, each TAP emissions are below the AAL. Even though the facility reported that the TAP emissions from the dryer are much lower than the emissions from AP-42, this analysis shows even with the most conservative assumptions, the emissions are still under the AAL. Therefore, it demonstrates compliance with 15A NCAC 02D .1100. The monitoring and the recordkeeping conditions associated with 15A NCAC 02D .1100 will be removed. The limit of acrolein, benzene and phenol emissions will be updated accordingly.

In addition to the 2011 modeling, the facility conducted another modeling analysis in January 2015. Acrolein and formaldehyde emissions were two pollutants modeled at this time, optimizing the emissions to 99% of AAL for acrolein. The toxic emission limits in the Permit R03 were based on this 2015 modeling analysis. The acrolein emissions from the dryer used in the 2015 modeling was 2.74 lb/hr, which is higher than calculated maximum emissions of 1.104 lb/hr in Table 1. Because the impacts from both analysis were below the AAL, the limit for acrolein will be unchanged during this modification.

3. **15A NCAC 02Q .0711: "Toxic Air Pollutant Emission Rate Requiring a Permit"**
Based on the review described in Section 2 above, the only pollutants above the TPER were acrolein, formaldehyde, benzene and phenol. Since the phenol emission limit was added to the TPER list, phenol was removed from the table applicable to 02Q .0711. No recordkeeping, monitoring, or reporting is required in this section.

4. **15A NCAC 02Q .0317 "Avoidance Conditions for 15A NCAC 02D .0530, Prevention of Significant Deterioration"**
The facility requested to limit the VOC emissions to 391.64 tpy to avoid being subject to PSD conditions for major source. The limit stays the same as well as the monitoring, recordkeeping and reporting requirements for the PSD avoidance conditions.

VI. NSPS, NESHAPS, PSD, Attainment Status, 112(r), CAM

New Source Performance Standards (NSPS)
The facility is subject to 40 CFR Subpart IIII for their emergency engine. See the regulatory review above. No other NSPS conditions apply to the sources located at this facility.

NESHAP/MACT
The facility is an area source of HAPs, and is subject to GACT 4Z for their emergency engine and fire pump. See the regulatory review above.

Prevention of Significant Deterioration (PSD)
This facility has requested limits to be considered a minor source with respect to PSD. See the regulatory review above.

112(r)
The facility does not store any regulated materials in quantities for which Section 112(r) of the Clean Air Act applies.

Compliance Assurance Monitoring (CAM)
According to the application, none of the sources at the Enviva Ahoskie facility are Large PSEUs. Even though NOx and VOC emissions from the dryer system (ID No. ES-DRYER) and the VOC emissions from Pellet Presses and Coolers (ID Nos. ES-CLR1 through 6) are more than 100 tpy, no control devices are installed for these pollutants. Therefore, per §64.5(b), this modification does not trigger a CAM review. CAM for small PSEUs will be reviewed at the next renewal.

VII. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above.

VIII. 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 November 13, 2012 and an amended application was received on June 22, 2015.
- A Professional Engineer's Seal was included in the application (ref. J. Rusty Field, P.E. Seal No. 040609).
- According to the application, the facility does not handle any of the substances subject to 112(r).
- The application was signed by Mr. Royal Smith, Vice President of Operations, on June 18, 2015.

IX. Recommendations

This permit application was 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 recommended the issuance of Air Quality Permit No. 10121T04.

ATTACHMENT

NSPS Subpart IIII and GACT Subpart ZZZZ Requirements

For Emergency Generator (ID No. IES-EG)
15A NCAC 2D .0524 NEW SOURCE PERFORMANCE STANDARDS [40 CFR Part 60 Subpart IIII]

Applicability [15A NCAC 2Q .0508(f), 40 CFR 60.4200(a)(2)(i)]

a. For the emergency generator **(ID No. IES-EG)**, the Permittee shall comply with all applicable provisions, including the requirements for emission standards, notification, testing, reporting, record keeping, 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, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines," including Subpart A "General Provisions."

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

b. Pursuant to 40 CFR 60 .4218, the Permittee shall comply with the General Provisions of 40 CFR 60 Subpart A as presented in Table 8 of 40 CFR 60 Subpart IIII.

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

c. The Permittee shall comply with the emission standards 40 CFR 60.4202 for all pollutants, for the same model year and maximum engine power for this engine. [40CFR 60.4205(b)]

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

d. The Permittee shall use diesel fuel in the engine that meets the requirements of 40 CFR 80.510(b) including:
   i. a maximum sulfur content of 15 ppm; and
   ii. a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent. [40 CFR 60.4207(b)]

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

e. 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 limits given in conditions c. and d. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524.

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

f. The engine has the following monitoring requirements:
   i. The engines shall be equipped with a non-resettable hour meter prior to startup. [40CFR 60.4209(a)]
   ii. The engine, if equipped with a diesel particulate filter, must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [40CFR 60.4209(b)]

Compliance Requirements [15A NCAC 2Q .0508(b)]

g. The Permittee shall:
   i. operate and maintain the engines and control devices according to the manufacturer's emission related-written instructions over the entire life of the engine;
   ii. change only those emission-related settings that are permitted by the manufacturer; and
   iii. meet the requirements of 40 CFR 89, 94 and/or 1068 as applicable.
   [40CFR 60.4206 and 60.4211(a)]

h. The Permittee shall comply with the emission standards in condition c by purchasing an engine certified to the emission standards in condition c for the same model year and maximum engine power. The engine shall be installed and configured according to the manufacturer's emission-related specifications.
[40CFR 60.4211(c)]

i. In order for the engine to be considered an emergency stationary ICE under this condition, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non- emergency situations for 50 hours per year, as described below, is prohibited.
   i. There is no time limit on the use of emergency stationary ICE in emergency situations.
   ii. The Permittee may operate the emergency stationary ICE for any combination of the purposes specified in paragraphs i.ii.(A) through (C) of this condition for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph i.iii. of this condition counts as part of the 100 hours per calendar year allowed by this paragraph i.iii.
      (A) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.
      (B) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP–002–3, Capacity and Energy Emergencies (incorporated by reference, see 40 CFR 60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP–002–3.
      (C) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
   iii. Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph i.ii. of this condition. Except as provided in paragraph i.iii.(A) of this condition, the 50 hours per calendar year for non- emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
      (A) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
         (i) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
         (ii) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
         (iii) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(iv) The power is provided only to the facility itself or to support the local transmission and distribution system.
(v) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator. [40CFR 60.4211(f)]

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524, if the requirements in conditions f through i are not met.

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

j. To assure compliance, the Permittee shall perform inspections and maintenance on the engine as recommended by the manufacturer per 40 CFR 60.4206 and 40 CFR 60.4211(a). The results of inspection and maintenance shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook 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 on the engine;
   iv. any variance from manufacturer's recommendations, if any, and corrections made;
   v. the hours of operation of the engine in emergency and non-emergency service. [40 CFR 60.4214(b)]
   vi. if a PM filter is used, records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached [40 CFR60.4214(c)]; and
   vii. documentation from the manufacturer that the engine is certified to meet the emission standards in condition c.

   The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if these records are not maintained.

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

k. The Permittee shall submit a summary report of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of noncompliance with the requirements of this permit shall be clearly identified.

15A NCAC 2D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
[40 CFR Part 63 Subpart ZZZZ] – New Stationary RICE located at an Area Source of HAP Emissions

Applicability [40 CFR 63.6585, 6590(a)(2)(iii)]

a. For the emergency generator **(ID No. IES-EG)**, the Permittee shall comply with all applicable provisions, including the monitoring, recordkeeping, and reporting contained in Environmental Management Commission Standard 15A NCAC 2D .1111 "Maximum Achievable Control Technology" (MACT) as promulgated in 40 CFR 63, Subpart ZZZZ, "National Emission Standards For Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines located at Area Sources" and Subpart A "General Provisions."

Stationary RICE subject to Regulations under 40 CFR Part 60 [15 A NCAC 2Q. 0508(f)]

b. Pursuant to 40 CFR 63.6590(c)(1), the emergency generator **(ID No. ES-EG)** must meet the requirements of 40 CFR 63 Subpart ZZZZ and Subpart A by meeting the requirements of 40 CFR part 60 subpart IIII. No further requirements apply for this engine under 40 CFR 63 Subpart ZZZZ and Subpart A.

For Fire Water Pump (ID No. IES-FWP)
15A NCAC 2D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY
[40 CFR Part 63 Subpart ZZZZ] – Existing Stationary RICE located at an Area Source of HAP Emissions

Applicability [40 CFR 63.6585, 63.6590(a)(1)(iii)]

a. For the fire water pump **(ID No. IES-FWP)**, the Permittee shall comply with all applicable provisions, including the monitoring, recordkeeping, and reporting contained in Environmental Management Commission Standard 15A NCAC 2D .1111 "Maximum Achievable Control Technology" (MACT) as promulgated in 40 CFR 63, "Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines located at Area Sources" and Subpart A "General Provisions."

Definitions and Nomenclature

a. For the purposes of this permit condition, the definitions and nomenclature contained in 40 CFR 63.6675 shall apply.

General Provisions [40 CFR 63.6665]

c. The Permittee shall comply with the General Provisions as applicable pursuant to Table 8 of 40 CFR 63 Subpart ZZZZ.

Operating and Maintenance Requirements [15A NCAC 2Q .0508(b)]

d. During periods of startup of the IC engine, the Permittee shall minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR 63.6603(a), Table 2d and 63.6625(h)]

e. Except during periods of startup of the IC engine, the Permittee shall:
   i. Change oil and filter every 500 hours of operation or annually, whichever comes first;
   ii. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; and
   iii. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [40 CFR 63.6603(a), Table 2d]

f. The Permittee shall have the option to utilize the oil analysis program as described in 40 CFR 63.6625(i) in order to extend the specified oil change requirement in condition g. [40 CFR 63.6603(a), Table 2d, 63.6625(i)]

g. If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in condition e., or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable. [40 CFR 63.6603(a), Table 2d]

h. The permittee shall be in compliance with the emission limitations, operating limitations and other requirements that apply at all times. [40 CFR 63.6605(a)]

i. The Permittee shall operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. [40 CFR 63.6605(b)]

j. The Permittee shall operate and maintain the stationary RICE according to the manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 63.6625(e) and 63.6640(a), Table 6]

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1111 if conditions d through j are not met.

CENTRAL OFFICE PERMIT TRACKING SLIP

Facility Name: Enviva Pellets Ahoskie, LLC **Facility/Application ID:** 4600107.15B

County/Regional Office: Hertford/WARO **Engineer:** Yuki Puram

Send Regional Office Copy of Application: ◉ Yes ○ No

PART I - ACCEPTANCE CHECKLIST

Acknowledgement Letter: ○ Already Sent ◉ Please Send

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

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

Fee Information:

Amount Due:

☐ PSD or NSR/NAA	$14,294
☐ PSD and NSR/NAA	$27,802
☐ TV Greenfield	$ 9,442
☐ TV	$ 918
☐ Ownership Change	$60, $50, $25
☑ Renewal/Name Change – NA	

Initial Amount Received: $0.00

Additional Amount Due: $0.00

Acceptance Check List:

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

PART II - IBEAM UPDATES

Application Type:

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

Permit Application Schedule:

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

PART III - COMPLETENESS CHECKLIST

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

PART IV - GENERAL COMMENTS

Consolidated to 4600107.12A per NCGS 150B-3(a)

PART V - SUPERVISOR REVIEW CHECKLIST

TVEE Updated (by Engineer):_____ TVEE Verified:_____ Supervisor:_____ Chief:_____

PART VI - CLOSEOUT INFORMATION

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

- ☐ NESHAPS/MACT
- ☐ NESHAPS/GACT
- ☐ NSPS
- ☐ 2D .1100
- ☐ 2Q .0711
- ☐ 112(j)/112(d)
- ☐ PSD/NSR
- ☐ PSD/NSR Avoidance
- ☐ Existing Source RACT/LAER
- ☐ New Source RACT/LAER
- ☐ RACT Avoidance
- ☐ RACT/LAER Added Fee*
  (Notify Connie Horne)
- ☐ Toxics/Combustion Sources After 7/10/10
- ☐ SIP Regulations (list all new):

Permit Class Information

Before	After
☐ Small	☐ Title V
☐ Syn. Minor	
☐ Title V	
☐ Proh. Small	
☐ General	

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

PSD or NSR Status (after) ☐ Major ☐ Minor

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

Permit Dates Issue:_____ Effective:_____ Expiration:_____

IBEAM Closed Out By: Yuki Puram 6/7/16 Permit Number: 10121 Revision Number: T04

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

Document Manager Updated by Engineer:_____ Date:_____

Comprehensive Application Report for 4600107.12A

06/07/2016

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information: Permit/Latest Revision: 10121/ T04

Permit code:	TV-1st Time
Application type:	Modification
Engineer/Rev. location:	Yukiko (Yuki) Puram/RCO
Regional Contact:	Betsy Huddleston
Facility location:	Washington Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	Issued

Application Dates

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

Fee Information

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

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

Contact Information

Type	Name	Address	City State ZIP	Telephone
Authorized	Jason Ansley, Plant Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032
Technical/Permit	Joe Harrell, Corporate EHS Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032

Acceptance Criteria

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

Completeness Criteria

Received?	Complete Item Description

Comprehensive Application Report for 4600107.12A 06/07/2016

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Application Events

Event	Start	Due	Complete	Comments	Staff
Regional technical review completed/mailed	11/13/2012	12/13/2012	11/20/2012		ethuddleston
TV - Acknowledgment/Complete	11/13/2012	11/23/2012	11/14/2012		kmhash
Technical additional information request	11/16/2015	12/04/2015	12/04/2015		ypuram
Technical additional information request	02/01/2016	03/02/2016	02/26/2016		ypuram
Public notice to Affected states	04/15/2016		04/15/2016		kmhash
Public notice published	04/19/2016	08/10/2013	05/19/2016		kmhash
Sent EPA Proposed Permit (45 days review pe	04/19/2016	06/03/2016	06/03/2016		kmhash
Permit issued	06/06/2016		06/06/2016		kmhash

Comprehensive Application Report for 4600107.12A

06/07/2016

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Outcome Information

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

Permit/Revision: 10121/T04

Revision Issue Date: 06/06/2016

Accumulated process days (includes public notice periods): 1,25

Public notice/hearing/add info after 80 days:

Manager's discretion: Appealed? No

Current Permit Information:

Issue	Effective	Expiration	Revision #
06/06/2016	06/06/2016	05/31/2021	T04

Regulations Pertaining to this Permit

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

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor
engineer	10/13/2014	763 (Kevin Godwin)	5145 (Yukiko (Yuki) Puram)	Kevin Godwin
reg_Cont	11/04/2014	924 (Yongcheng Chen)	785 (Betsy Huddleston)	Robert Fisher

Comprehensive Application Report for 4600107.15B

06/07/2016

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

General Information:	Permit/Latest Revision: 10121/ R03
Permit code:	State
Application type:	Renewal
Engineer/Rev. location:	Yukiko (Yuki) Puram/RCO
Regional Contact:	Yongcheng Chen
Facility location:	Washington Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	Consolidated

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
10/06/2015	11/20/2015	10/06/2015	01/04/2016

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd:
	10/06/2015			

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

Contact Information

Type	Name	Address	City State ZIP	Telephone
Authorized	Jason Ansley, Plant Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032
Technical/Permit	Joe Harrell, Corporate EHS Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032

Acceptance Criteria

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

Completeness Criteria

Received?	Complete Item Description

Application Events

Event	Start	Due	Complete	Comments	Staff
Regional technical review completed/mailed	10/06/2015	11/05/2015	10/22/2015		ethuddleston
TV - Acknowledgment/Complete	10/06/2015	10/16/2015	10/06/2015		kmhash
App. consolidated with another app.	06/07/2016		06/07/2016	Consolicated to the first Title V	perypuram

Outcome Information

Permit: 10121

Outcome
06/07/2016

Accumulated process days (includes public notice periods): 245

Comprehensive Application Report for 4600107.15B 06/07/2016

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

Regulations Pertaining to this Permit

Reference Rule	Regulation Description

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor

enviva
7200 Wisconsin Avenue
Suite 1000
Bethesda, MD 20814 USA

+1 (301) 657 5560
fax (301) 657 5567

www.envivabiomass.com

September 11, 2015

Via FedEx
Overnight Delivery

Mr. William D. Willets, P.E.
Chief, Permitting Section
NCDENR-DAQ
1641 Mail Service Center
Raleigh, NC 27699-1641

Re: Enviva Pellets Ahoskie, LLC
Air Permit No. 10121R03
State Operating Permit Renewal Application

Mr. Willets:

Enviva Pellets Ahoskie, LLC (Enviva) is submitting the attached application for renewal of NCDENR Division of Air Quality (DAQ) Air Quality Permit No. 10121R03. Included as Attachment 1 of this letter is a completed North Carolina DAQ Form AA, Administrative Amendment – Application for Non-Title V Permit Renewal.

Enviva submitted an amended Title V Application for the Ahoskie facility in June 2015. As part of that application, Enviva submitted a request to remove Condition 2.2.A.2.c of the State Operating Permit (and forthcoming Title V). Follow-up information was also submitted to Ms. Yukiko Puram of your office via email on September 11, 2015. As discussed with Ms. Puram, we are also incorporating by reference that request as part of this renewal application. Attachment 2 provides a copy of the June 2015 amended Title V air permit application and September 11, 2015 email in support of this request to remove Condition 2.2.A.2.c.

If you have any questions or require additional information, please contact Michael Deyo at 804-937-0377 or me at 301-657-5560.

Sincerely,

Royal Smith
Vice President, Operations

cc: Michael Doniger, Enviva
Joe Harrell, Enviva
Stephen Steigerwald, Enviva
Michael Deyo, Deyo and Associates, LLC

ATTACHMENT 1

Enviva Pellets Ahoskie, LLC

North Carolina DAQ

Air Permit Renewal Application Form AA

NCDENR

REVISED 5/8/13

FORM AA

ADMINISTRATIVE APPLICATION (General Information)

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

Received
OCT 0 6 2015
Air Permits Section

AA

GENERAL INFORMATION

Legal Corporate/Owner Name: Enviva, LP

Site Name: Enviva Pellets Ahoskie, LLC

Site Address (911 Address) Line 1: 142 N.C. Route 561 East.

Site Address Line 2:

City: Ahoskie State: N.C. Zip Code: 27910 County: Hertford

CONTACT INFORMATION

Permit / Technical Contact: Joe Harrell

Name/Title: Corporate EHS Manager

Mailing Address Line 1: 142 N.C. Route 561 East

Mailing Address Line 2:

City: Ahoskie State: NC Zip Code: 27910

Ph. No. (area code) 252-209-6032 Fax No. (area code)

Email Address: joe.harrell@envivabiomass.com

Facility / Inspection Contact: Same as Permit/Technical Contact

Name/Title:

Mailing Address Line 1:

Mailing Address Line 2:

City: State: Zip Code:

Ph. No. (area code) Fax No. (area code)

Email Address:

Responsible Official/Authorized Contact: Royal Smith

Name/Title: Vice President, Operations

Mailing Address Line 1: 7200 Wisconsin Avenue

Mailing Address Line 2: Suite 1000

City: Bathesda State: MD Zip Code: 20814

Ph. No. (area code) 301-657-5560 Fax No. (area code) 301-657-5567

Email Address: Royal.Smith@envivabiomass.com

Invoice Contact: Same as Permit/Technical Contact

Name/Title:

Mailing Address Line 1:

Mailing Address Line 2:

City: State: Zip Code:

Ph. No. (area code) Fax No. (area code)

Email Address:

APPLICATION IS BEING MADE FOR

☒ Renewal (non-Title V) ☐ Renewal Title V ☐ Name Change ☐ Ownership Change ☐ Administrative Amendment

FACILITY CURRENT CLASSIFICATION (Check Only One)

☐ Small ☐ Synthetic Minor ☒ Title V

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s):

Wood Pellet Manufacturing Facility.

Primary SIC/NAICS Code: 2499 Current/Previous Air Permit No. 10121R03 Expiration Date: 11/30/15

Facility Coordinates: Latitude: 323,525.1 UTM E Longitude: 4,015,554.4 UTM N Facility ID No. 4600107

Does this application contain confidential data? YES ____ NO X ***If yes, please contact the DAQ Regional Office prior to submitting tis application.*** **(See Instructions)**

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name: Michael Deyo Firm Name: Deyo and Associates, LLC

Mailing Address Line 1: 12325 Morning Creek Rd. Mailing Address Line 2:

City: Glen Allen State: VA Zip Code: 23059 County: Henrico

Ph. No. (area code) 804-937-0377 Fax No. (area code) Email Address: mtdeyo@aol.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Royal Smith Title: Vice President, Operations

X Signature (Blue Ink):

SIGN HERE Date: 10/2/15

Attach Additional Sheets As Necessary

FORM AA (continued, page 2 of 2)
ADMINISTRATIVE APPLICATION

REVISED 5/8/13 — **Application for Air Permit to Construct/Operate** — **AA**

SECTION AA1 - APPLICATION FOR NON-TITLE V PERMIT RENEWAL

Enviva Pellets Ahoskie, LLC (Company Name) hereby formally requests renewal of Air Permit No. 10121R03

There have been no modifications to the originally permitted facility or the operations therein that would require an air permit since the last permit was issued.

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

If yes, have you already submitted a Risk Management Plan (RMP) to EPA? ☐ Yes ☐ No Date Submitted

Did you attach a current emissions inventory? ☐ Yes ☒ No If no, was it submitted via AERO or by mail (date mailed). 6/29/15

SECTION AA2 - APPLICATION FOR TITLE V PERMIT RENEWAL

In accordance with the provisions of Title 15A 2Q .0513 the responsible official of _____ (Company Name) hereby formally requests renewal of Air Permit No. _____ (Air Permit No.) and further certifies that:

(1) the current air quality permit identifies and describes all emissions units at the above subject facility, except where such units are exempted under the North Carolina Title V regulations at 15A NCAC 2Q .0500,
(2) the current air quality permit cites all applicable requirements and provides the method or methods for determining compliance with the applicable requirements,
(3) the facility is currently in compliance, and shall continue to comply, with all applicable requirements. (Note: As provided under 15A NCAC 2Q. 0512 compliance with the conditions of the permit shall be deemed compliance with the applicable requirements specifically identified in the permit.),
(4) for applicable requirements that become effective during the term of the renewed permit that the facility shall comply on a timely basis,
(5) the facility shall fulfill applicable enhanced monitoring requirements and submit a compliance certification as required by 40 CFR Part 64.

The responsible official (signature on page 1) certifies under the penalty of law that all information and statements provided above, based on information and belief formed after reasonable inquiry, are true, accurate, and complete.

SECTION AA3 - APPLICATION FOR NAME CHANGE

New Facility Name:

Former Facility Name:

An official facility name change is requested as described above for the air quality permit mentioned on page 1 of this form. Complete the other sections if there has been modifications to the originally permitted facility that would require an air quality permit since the last permit was issued and if there has been an ownership change associated with this name change.

SECTION AA4 - APPLICATION FOR AN OWNERSHIP CHANGE

By this application we hereby request transfer of Air Quality Permit No. _____ from the former owner to the new owner as describe below. The transfer of permit responsibility, coverage and liability shall be effective _____ (immediately or insert date). The legal ownership of the facility described on page 1 of this form has been or will be transferred on _____ (date). There have been no modifications to the originally permitted facility that would require an air quality permit since the last permit was issued.

Signature of New (Buyer) Responsible Official/Authorized Contact (as typed on page 1):

X Signature (Blue Ink):

Date:

New Facility Name:

Former Facility Name:

Signature of Former (Seller) Responsible Official/Authorized Contact:

Name (typed or print):

Title:

X Signature (Blue Ink):

Date:

Former Legal Corporate/Owner Name:

In lieu of the seller's signature on this form, a letter may be submitted with the seller's signature indicating the ownership change.

SECTION AA5 - APPLICATION FOR AN ADMINISTRATIVE AMENDMENT

Describe the requested administrative amendment here (attach additional documents as necessary):

Attach Additional Sheets As Necessary

ATTACHMENT 2

Enviva Pellets Ahoskie, LLC

June 2015 Amended Title V Air Permit Application

And September 11, 2015 Email Submission

From: mtdeyo <mtdeyo@aol.com>
To: yuki.puram <yuki.puram@ncdenr.gov>
Cc: joe.harrell <joe.harrell@envivabiomass.com>; michael.doniger <michael.doniger@envivabiomass.com>
Subject: Re: Enviva Ahoskie Frist Title V Permit
Date: Fri, Sep 11, 2015 10:46 am
Attachments: 2010 Enviva Ahoskie Title V Dryer HAP Emissions Calcs.pdf (124K), Enviva Ahoskie Title V Application Dryer Modeled Rates.pdf (63K), 150910 Enviva AHO Theoretical AP-42 Dryer Benzene Emissions.pdf (154K)

Ms. Puram:

Thank you for taking time to discuss Enviva's 2015 Amended Title V Application and request to remove State Operating Permit Condition 2.2.A.2.a. We are providing the following information in response to your question/comment in the email string below.

The benzene emissions as calculated in the original application were based on the processing of wood pellet material in the dryer, and not the combustion of the wood waste material (as previously indicated). As detailed in the original permit application, the maximum annual benzene emission rate at the facility's maximum production (and 10% softwood) was only 464 lb/year (see attached page of Title V application emissions calculations showing a maximum annual emission rate of 0.232 tons per year).

However, the air dispersion modeling analysis that was performed as part of the facility's initial Title V Air Permit Application was performed using an annual dryer benzene emission rate of 2,864.52 lb/year (See attached page of Title V Application modeling demonstration where benzene modeled at 4.12e-2 grams/second). This higher annual emission rate became, and remains, the permitted benzene emission limit for the dryer.

In other words, the modeling was conservatively run at a significantly higher rate than the calculated maximum potential emissions.

As detailed in our June 2015 Amended Title V Application, we do not believe that benzene is emitted from the facility dryer. However, even if Enviva were to calculate the theoretical benzene emissions for the increased softwood content of 30%, at the maximum permitted capacities, the maximum annual benzene emissions only increases to 1,072.92 lb/yr. This emission rate remains well below the facility's permitted dryer emission rate of 2,864.52 lb/yr. A copy of these theoretical emissions calculations are provided as an attachment to this email.

Since the facility can not exceed this permitted emission rate, even while operating at the maximum operating throughputs and maximum allowable softwood contents, we believe that the removal of the monitoring requirements at Condition 2.2.A.2.a is appropriate.

Also, I will continue to follow up on your other questions discussed during our call today and will contact you to discuss in the near future.

If you have any questions or require additional information, please contact me at 804-937-0377.

Sincerely,

Michael T. Deyo
On Behalf of Enviva Pellets Northampton, LLC

-----Original Message-----
From: Puram, Yukiko <yuki.puram@ncdenr.gov>
To: mtdeyo <mtdeyo@aol.com>
Cc: Joe Harrell (joe.harrell@envivabiomass.com) <joe.harrell@envivabiomass.com>
Sent: Tue, Sep 8, 2015 2:52 pm

Subject: Enviva Ahoskie Frist Title V Permit

Hi Mike;

Hope you had a nice weekend.

We have received a request to remove the monitoring conditions for acrolein, formaldehyde and benzene. I have a question regarding the statement made in Attachment 2 of the permit application. The footnote (2) indicated:

> (2) Benzene emissions limit for dryer reports benzene emission rate modeled as part of initial air permit application and calculated using maximum dryer burning rates and emission factors associated with wood waste combustion. Enviva does not believe that benzene is emitted from the wood pellet manufacturing facility and therefore, emissions from the dryer are considered zero. However, maximum potential benzene emissions from the dryer using the wood waste combustion factors would be equal to the permitted emission rate.

When the original permit (R00) was issued, the calculation was based on the incorrect maximum heat input (125 mmBtu/hr) of the dryer. Now that we know the heat input is actually 175.3 mmBtu/hr, I don't think we can use the previous modeling analysis. If you can show us the facility-wide benzene emissions (including emissions from wood combustion and the dryer) being lower than the TPER (8.1 lb/yr), I can take the monitoring requirement from the permit. Otherwise, the facility is required to conduct a modeling analysis on benzene, which was not included in the toxic analysis report submitted in January 2015.

If you have further questions, please let me know.
Thanks.

Yuki
Yuki Puram
Permits Section, Environmental Engineer
NC DENR, Division of Air Quality
1641 Mail Service Center, Raleigh NC, 27699-1641
Phone/Fax: 919-707-8470
www.ncair.org
yuki.puram@ncdenr.gov

APPENDIX B – EMISSIONS CALCULATIONS

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	90%
Softwood Composition	10%

HAP & TAP Emission Calculations:

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

Note:

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

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

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

TABLE 4-3. MODELED EMISSION RATES

AERMOD ID	Modeled Emission Rates (g/s)				
	Acrolein	Benzene	Formaldehyde	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.[4] 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_2 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_2 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.

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

TABLE B-5(a)
ROTARY DRYER BENZENE DRYER EMISSIONS
ENVIVA PELLETS AHOSKIE, LLC

Calculation Inputs:

Annual Composition and Throughput

Throughput ODT/yr	420,480
Hardwood Composition	70%
Softwood Composition	30%

Short Term Composition and Throughput

ODT/hr	48.00
Hardwood Composition	40%
Softwood Composition	60%

Emission Calculations:

Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	VOC (Yes/No)	Emission Factor Comparison				Weighted Emission Factor[3]			Emissions	
					AP-42 Calculated Direct wood-fired, hardwood factors		AP-42 Green, Direct wood-fired softwood factors						
					Emission Factor (lb/ODT)	Reference	Emission Factor (lb/ODT)	Reference	Short-term EF (lb/ODT)	Annual EF (lb/ODT)	EF Source	(lb/hr)	(lb/yr)
Benzene	71-43-2	Yes	Yes	Yes	3.88E-04	[2]	7.60E-03	[1]	4.72E-03	2.55E-03	AP-42	0.226	1072.92

NOTE: As detailed in the December 2014 Enviva air permit application, Enviva does not believe that Benzene emissions are present from its wood pellet manufacturing dryer. However, the initial Title V Application modeling demonstration included benzene emissions from the dryer. Therefore, for information purposes, we are providing the following calculations to demonstrate that benzene, even if present at emissions levels calculated using the same AP-42 emission factors detailed in the original Title V Application (See notes below for AP-42 emission factor sources), the resulting dryer emissions, at maximum rated capacities, are below the modeling emissions levels (and current permit emission limitation) of 2,864.52 lb/yr).

Notes:

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

[2] To account for hardwood emissions since no HAP/TAP emission factors are given for direct hardwood-fired, factors were conservatively calculated by multiplying AP-42 Section 10.6.2-3 HAP factors for green, direct softwood fired by the ratio of the VOC emission factors for hardwood to softwood drying (0.24/4.7).

[3] Short-term emissions based on worst case processing of 60% softwood.

Enviva Pellets Ahoskie, LLC
142 NC Route 561 East
Ahoskie, NC 27910 USA

+1 (252) 209 6032
fax (252) 364 3428
www.envivabiomass.com

June 19, 2015

Via FedEx Overnight Delivery

Mr. William D. Willets, P.E.
Chief, Permitting Section
NCDENR-DAQ
1641 Mail Service Center
Raleigh, NC 27699-1641

Re: Enviva Pellets Ahoskie, LLC
Title V Air Permit Application Amendment

Dear Mr. Willets:

The Title V Air Quality Permit Application attached as Appendix 1 to this letter is submitted to both amend the existing Title V Permit Application for the Enviva Pellets Ahoskie facility and comply with the May 22, 2015 cover letter issuing the latest revision to the Facility's air permit (#10121R03). There have been no changes to the facility since issuance of permit #10121R03 and as a result this permit application references the operational forms (Forms B, C, and D) and emissions calculations submitted in support of permit 10121R03.

As Enviva has discussed with Ms. Puram, Condition 2.2.A.2.c of permit #10121R03 requires Enviva to periodically monitor emissions of acrolein, formaldehyde, and benzene. However, at the plant's maximum rated capacity, emissions of acrolein, formaldehyde, and benzene emissions are less than the allowable permit limits based on modeling. Therefore, Enviva requests that the monitoring and reporting requirements in Condition 2.2.A.2.a be removed from the Facility's permit.

If you have any questions or require additional information, please contact Michael Deyo at 804-937-0377 or me at 804-929-8418.

Sincerely,

Michael J. Doniger
Director, Corporate Development

Attachment

cc: Joe Harrell, Enviva
Michael Deyo, Deyo and Associates, LLC
Alan McConnell, Kilpatrick Townsend

ATTACHMENT 1

Enviva Pellets Ahoskie, LLC

Amended North Carolina DAQ Title V

Air Permit Application Forms

FORM A1

FACILITY (General Information)

REVISED 05/25/12 — NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate — **A1**

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

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

GENERAL INFORMATION

Legal Corporate/Owner Name:	Enviva, LP
Site Name:	Enviva Pellets Ahoskie, LLC
Site Address (911 Address) Line 1:	142 N.C. Route 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: Joe Harrell	Name/Title: same as permit / technical contact
Mailing Address Line 1: 142 N.C. Route 561 East	Mailing Address Line 1:
Mailing Address Line 2:	Mailing Address Line 2:
City: Ahsokie State: NC Zip Code: 27910	City: State: Zip Code:
Phone No. (area code) (252)209-6032 Fax No. (area code)	Phone No. (area code) Fax No. (area code)
Email Address: joe.harrell@envivabiomass.com	Email Address:
Responsible Official/Authorized Contact:	***Invoice Contact:***
Name/Title: Royal Smith	Name/Title: same as permit / technical contact
Mailing Address Line 1: 7200 Wisconsin Avenue	Mailing Address Line 1:
Mailing Address Line 2: Suite 1000	Mailing Address Line 2:
City: Bethesda State: Maryland Zip Code: 20814	City: State: Zip Code:
Phone No. (area code) (301)657-5567 Fax No. (area code) (301)657-5567	Phone No. (area code) Fax No. (area code)
Email Address: royal.smith@envivabiomass.com	Email Address:

APPLICATION IS BEING MADE FOR

☐ New Non-permitted Facility/Greenfield ☐ Modification of Facility (permitted) ☐ Renewal with Modification
Renewal (TV Only) ☑ AMENDMENT TO INITIAL TITLE V APPLICATION

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

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

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s): Wood pellet manuacturing facility

Facility ID No. : 4600107

Primary SIC/NAICS Code: 2499 (Wood Products, Not Elsewhere Classified)	Current/Previous Air Permit No. 10121R02 Expiration Date 11/30/2015
Facility Coordinates: Latitude: 323,525.1 UTM E	Longitude: 4,015,554.4 UTM N

Does this application contain confidential data? YES ☐ NO ☑ ***If yes, please contact the DAQ Regional Office prior to submitting this application.*** (See Instructions)

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name: Michael Deyo	Firm Name: Deyo & Associates, LLC
Mailing Address Line 1: 5708 Shady Mill Way	Mailing Address Line 2:
City: Glen Allen State: Virginia	Zip Code: 23059 County: Henrico
Phone No. (area code) 804-937-0377 Fax No. (area code) 804-441-8272	Email Address: mtdeyo@aol.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Royal Smith	Title: Vice President of Operations
X Signature(Blue Ink):	Date: 6/18/15

Attach Additional Sheets As Necessary

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

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

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

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
	N/A - Title V Permit Application Update to Incorporate Facility Modifications Included in Enviva's December 2014 State Operating Permit Application, as Approved in Operating Permit No. 10121R03.		
Existing Permitted Equipment To Be MODIFIED By This Application			
	N/A - Title V Permit Application Update to Incorporate Facility Modifications Included in Enviva's December 2014 State Operating Permit Application, as Approved in Operating Permit No. 10121R03.		
Equipment To Be DELETED By This Application			

112(r) APPLICABILITY INFORMATION — A 3

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

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

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

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

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

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

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

Yes ☝ No ☝ If yes, please specify: _____

Attach Additional Sheets As Necessary

FORM E1

TITLE V GENERAL INFORMATION

REVISED: 12/01/01

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

E1

IF YOUR FACILITY IS CLASSIFIED AS "MAJOR" FOR TITLE V YOU MUST COMPLETE THIS FORM AND ALL OTHER REQUIRED "E" FORMS (E2 THROUGH E5 AS APPLICABLE)

Indicate here if your facility is subject to Title V by: ☐ Emissions ☐ Other

If subject to Title V by other, check or specify: ☐ NSPS ☐ NESHAPS (MACT) ☐ TITLE IV

Other, specify:

If you are or will be subject to any maximum achievable control technology standards (MACT) issued pursuant to section 112(d) of the Clean Air Act, specify below:

EMISSION SOURCE ID	*EMISSION SOURCE DESCRIPTION*	*MACT*
IES-EG	Emergency Generator	Part 63, Subpart ZZZZ
IES-FWP	Emergency Fire Water Pump Gene	Part 63, Subpart ZZZZ

List any additional regulation which are requested to be included in the shield and provide a detailed explanation as to why the shield should be granted:

REGULATION	*EMISSION SOURCE (Include ID)*	*EXPLANATION*
40 CFR Part DDDD	ES-Dryer	Facility is not defined as a "Plywood and Composite Wood Products (PCWP) Manufacturing Facility" as Defined at 40 CFR Part 63.2292.

Comments:

Attach Additional Sheets As Necessary

FORM E2

EMISSION SOURCE APPLICABLE REGULATION LISTING

REVISED 12/01/01

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

E2

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	OPERATING SCENARIO INDICATE PRIMARY (P) OR ALTERNATIVE (A)	POLLUTANT	APPLICABLE REGULATION
See attached table following Form E3 for a summary of regulatory requirements and associated compliance requirements.				

Attach Additional Sheets As Necessary

FORM E3

EMISSION SOURCE COMPLIANCE METHOD

REVISED 12/01/01 **NCDENR/Division Of Air Quality - Application for Air Permit to Construct/Operate** **E3**

Emission Source ID NO.: See attached table following Form E3 for a summary of regulatory requirements and associated compliance requirements.

Regulated Pollutant _____

Applicable Regulation _____

Alternative Operating Scenario (AOS) NO:

ATTACH A SEPARATE PAGE TO EXPAND ON ANY OF THE BELOW COMMENTS

MONITORING REQUIREMENTS

Is Compliance Assurance Monitoring (CAM) 40 CFR Part 64 Applicable? ☐ Yes ☐ No

If yes, is CAM Plan Attached (if applicable, CAM plan must be attached)? ☐ Yes ☐ No

Describe Monitoring Device Type:

Describe Monitoring Location:

Other Monitoring Methods (Describe In Detail):

Describe the frequency and duration of monitoring and how the data will be recorded (i.e., every 15 minutes, 1 minute instantaneous readings taken to produce an hourly average):

RECORDKEEPING REQUIREMENTS

Data (Parameter) being recording:

Frequency of recordkeeping (How often is data recorded?):

REPORTING REQUIREMENTS

Generally describe what is being reported:

Frequency: ☐ MONTHLY ☐ QUARTERI ☐ EVERY 6 MONTHS

☐ OTHER (DESCRIBE):

TESTING

Specify proposed reference test method:

Specify reference test method rule and citation:

Specify testing frequency:

NOTE - Proposed test method subject to approval and possible change during the test protocol process

Attach Additional Sheets As Necessary

Summary of Title V Applicable Regulations and Compliance Demonstration Procedures
Enviva Pellets Ahoskie, LLC

Emission Source Description and ID No.	Pollutant	Regulation	Monitoring\Method\Frequency\ Duration	Recordkeeping	Reporting
Wood-fired dryer system (ID No. ES-DRYER), dried wood day silo (ID No. DWDS), four dry wood hammermills (ID Nos. ES-DHM-1,2,3, and 4), Hammermill area and Hammermill No.5 (ID No. ES-HAF), pellet mill feed silo (ID No. ES-PMFS), five pellet coolers (ID Nos. ES-CLR 1,2,3,4, and 5), Fines Bin (ES-FB), Finished Product Handling (ES-FPH), Truck Loadout Bin (with 12 bottoms (ES-TLB), and two pellet loadouts (ES-PL1, PL-2).	PM	15A NCAC 2D.0515	Inspections and maintenance, including monthly inspection of ductwork and material collection units and annual internal inspection of bag filter integrity (See Operating Permit Condition 2.1.A.1.d). For WESP, establish minimum primary voltage and minimum current and monitor and record primary voltage and current through precipitator daily (See Operating Permit Condition 2.1.A.1.f.i) and perform annual inspection of the WESP as detailed in Operating Permit Condition 2.1.A.1.f.ii).	Written or electronic log of date and time of each inspection, results of inspection and maintenance, and variance from manufacturer's recommendation. Written or electronic log of the primary voltage and current through precipitator.	Semi-annual progress report and annual compliance certification
	SO2	15A NCAC 2D.0516	None required because inherently low sulfur content of wood fuel achieves compliance		
	Opacity	15A NCAC 2D.0521	Monthly visible observation for "normal"." If above normal, correct action or Method 9 observation required	Written or electronic log of date/time/result of each observation, results of each non-compliant observation and actions taken to correct, and results of the corrective action.	Semi-annual progress report and annual compliance certification
	VOCs	15A NCAC2Q.0317 for avoidance of 15A NCAC 2D.0530	Monthly, 12-month Rolling VOC Emissions Calculations	Monthly oven dried tons of wood pellets produced, monthly VOC emissions calculations, and monthly average softwood content of wood mixture processed in the dryer system, hammermills, and pellet coolers.	Semi-annual progress report and annual compliance certification
Emergency Generator (ID No. ES-EG) and Fire Water Pump (ID No. ES-FWP)	SO2	15A NCAC 2D.0516	None required because inherently low sulfur content of wood fuel achieves compliance		
Emergency Generator (ID No. ES-EG) and Fire Water Pump (ID No. ES-FWP)	Opacity	15A NCAC 2D.0521	Monthly visible observation for "normal"." If above normal, correct action or Method 9 observation required	Written or electronic log of date/time/result of each observation, results of each non-compliant observation and actions taken to correct, and results of the corrective action.	Semi-annual progress report and annual compliance certification
Emergency Generator (ID No. ES-EG)	PM ,CO, NOx, NMHC, SO2	40 CFR Part 60 Subpart IIII	All requirements as outlined in current permit, including the following: use certified emergency engines, operate according to manufacturer's procedures, use fuel oil with fuel content of no more than 15 ppmw sulfur and cetane index of at least 40, install non-resettable hours meter.	Maintain records of engine certification, fuel certifications and hours/year of operation of each engine.	N/A
Emergency Generator (ID No. ES-EG)[1]	HAPs	40 CFR Part 63 Subpart ZZZZ	Comply with the NSPS requirements above and no other requirements apply	Comply with the NSPS requirements above and no other requirements apply.	N/A
Fire Water Pump (ID No. ES-FWP)[1]	HAPs	40 CFR Part 63 Subpart ZZZZ	Firewater pump was built before NSPS applicability date of 2006 (built in 1970s). Meet work practice standards under Subpart ZZZZ.	N/A	N/A

Note 1: These units are exempt from permitting and the requirements that are listed are not considered Title V-enforceable permit limits.

FORM E4

EMISSION SOURCE COMPLIANCE SCHEDULE

COMPLIANCE STATUS WITH RESPECT TO ALL APPLICABLE REQUIREMENTS

Will each emission source at your facility be in compliance with all applicable requirements at the time of permit issuance and continue to comply with these requirements?

☝ Yes ☝ No **If NO**, complete **A** through **F** below for each requirement for which compliance is not achieved.

Will your facility be in compliance with all applicable requirements taking effect during the term of the permit and meet such requirements on a timely basis?

☝ Yes ☝ No **If NO**, complete **A** through **F** below for each requirement for which compliance is not achieved.

If this application is for a modification of existing emissions source(s), is each emission source currently in compliance with all applicable requirements?

☝ Yes ☝ No **If NO**, complete **A** through **F** below for each requirement for which compliance is not achieved.

A. Emission Source Description (Include ID NO.) _____

B. Identify applicable requirement for which compliance is not achieved:

_____

_____

_____

_____

_____

_____

C. Narrative description of how compliance will be achieved with this applicable requirements:

_____

_____

_____

_____

_____

D. Detailed Schedule of Compliance:

Step(s)	Date Expected

E. Frequency for submittal of progress reports (6 month minimum):

_____

F. Starting date of submittal of progress reports: _____

Attach Additional Sheets As Necessary

FORM E5

TITLE V COMPLIANCE CERTIFICATION (Required)

Revised 01/01/07 | NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate | E5

In accordance with the provisions of Title 15A NCAC 2Q .0520 and .0515(b)(4) the responsible company official of:

SITE NAME: Enviva Pellets Ahoskie, LLC

SITE ADDRESS: 142 NC Route 561 East

CITY, NC : Ahoskie, NC 27910

COUNTY: Hertford

PERMIT NUMBER : 10121R03

CERTIFIES THAT(Check the appropriate statement(s):

[X] The facility is in compliance with all applicable requirements

[ ] In accordance with the provisions of Title 15A NCAC 2Q .0515(b)(4) the responsible company official certifies that the proposed minor modification meets the criteria for using the procedures set out in 2Q .0515 and requests that these procedures be used to process the permit application.

[ ] The facility is not currently in compliance with all applicable requirements

If this box is checked, you must also complete form E4 "Emission Source Compliance Schedule"

The undersigned certifies under the penalty of law, that all information and statements provided in the application, based on information and belief formed after reasonable inquiry, are true, accurate, and complete.

Signature of responsible company official (REQUIRED, USE BLUE INK) Date: 6/18/15

Royal Smith, Vice President of Operations

Name, Title of responsible company official (Type or print)

Attach Additional Sheets As Necessary

ATTACHMENT 2

Enviva Pellets Ahoskie, LLC

Comparison of Maximum Potential Acrolein, Formaldehyde, and Benzene Emissions to Permit Emission Rate Limits

ATTACHMENT 2

Enviva Pellets Ahoskie, LLC

Comparison of Maximum Potential TAP Emission Rates vs. Current Permit Emission Rate Limits

Source	Maximum Potential Emission Rates (1)			Permit Condition 2.2.A.2.a Emission Rate Limits[3]		
	Acrolein (lb/hr)	Formaldehyde (lb/hr)	Benzene (lb/yr)[2]	Acrolein (lb/hr)	Formaldehyde (lb/hr)	Benzene (lb/yr)[2]
ES-DRYER	0	4.17	0	2.74	5.94	2864.52
ES-DHM-1-4, HAF	0.195	0	N/A	0.314	0.68	N/A
ES-EG	2.27E-04	2.89E-03	1.14	2.27E-04	2.89E-03	17.52
ES-FWP	1.94E-04	2.48E-03	0.98	1.94E-04	2.48E-03	17.52
ES-CLR-1 thru 5	0	0.342	N/A	0.915	0.685	N/A

(1) Maximum potential emissions based on maximum rated capacity of each unit and approved TAP Emission factors

(2) Benzene emissions limit for dryer represents benzene emission rate modeled as part of initial air permit application and calculated using maximum dyer burning rates and emission factors associated with wood waste combustion. Enviva does not believe that benzene is emitted from the wood pellet manufacturing facility and therefore, emissions from the dryer are considered zero. However, maximum potential benzene emissions from the dryer using the wood waste combustion factors would be equal to the permitted emission rate limits.

(3) Maximum allowable emission rates under NC Air toxics rules based on modeling demonstration. Emission rate limits included above for the hammermills and pellet coolers source groupings represents the sum of all individual hammermill and pellet cooler permit emission rates listed in Condition 2.2.A.2.a.

Comprehensive Application Report for 4600107.15B

Enviva Pellets Ahoskie, LLC - Ahoskie (4600107)

Hertford County

10/06/2015

General Information:	Permit/Latest Revision: 10121/ R03
Permit code:	State
Application type:	Renewal
Engineer/Rev. location:	Yukiko (Yuki) Puram/RCO
Regional Contact:	Yongcheng Chen
Facility location:	Washington Regional Office
Facility classification:	Title V
Clock is ON	Application is COMPLETE
Status is :	In progress

Application Dates

Received	Completeness Due	Clock Start	Calculated Issue Due
10/06/2015	11/20/2015	10/06/2015	01/04/2016

Fee Information

Initial amount:	Date received:	Amount Due:	Add. Amt Rcv'd:	Date Rcv'd:
	10/06/2015			

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

Contact Information

Type	Name	Address	City State ZIP	Telephone
Authorized	Jason Ansley, Plant Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032
Technical/Permit	Joe Harrell, Corporate EHS Manager	142 NC Route 561 East	Ahoskie, NC 27910	(252) 209-6032

Acceptance Criteria

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

Completeness Criteria

Received?	Complete Item Description

Application Events

Event	Start	Due	Complete	Comments	Staff
TV - Acknowledgment/Complete	10/06/2015	10/16/2015	10/06/2015		kmhash

Regulations Pertaining to this Permit

Reference Rule		Regulation Description
Part 60 - NSPS	Subpart IIII	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
2D	.0515	Particulates Miscellaneous Industrial Processes
2D	.0516	Sulfur Dioxide Emissions Combustion Sources
2D	.0521	Control of Visible Emissions
2D	.0540	Particulates Fugitive Non-process Dust Emission Sources
2D	.1100	Control of Toxic Air Pollutants
2D	.1111	Maximum Achievable Control Technology
2Q	.0711	Emission Rates Requiring a Permit
Part 63 - NESHAP/MACT	Subpart ZZZZ	Reciprocating Internal Combustion Engines

Audit Information Pertaining to this Application

Column Name	Date Changed	Old Value	New Value	Editor

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

October 6, 2015

Mr. Jason Ansley
Plant Manager
Enviva Pellets Ahoskie, LLC
142 NC Route 561 East
Ahoskie, NC 27910

SUBJECT: Receipt of Permit Application
Renewal of Permit No. 10121R03
Application No. 4600107.15B
Enviva Pellets Ahoskie, LLC
Facility ID: 4600107, Ahoskie, Hertford County

Dear Mr. Ansley:

Your air permit application (4600107.15B) for Enviva Pellets Ahoskie, LLC, located in Hertford County, North Carolina was received by this Division on October 6, 2015.

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 6, 2015, unless informed otherwise by this office within 60 days.

Should you have any questions concerning this matter, please contact Yukiko (Yuki) Puram at 919-707-8470.

Sincerely,

William D. Willets, P.E., Chief, Permits Section
Division of Air Quality, NCDENR

cc: Washington Regional Office Files

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

Trinity Consultants

November 2, , 2012

Mr. Donald van der Vaart, PhD, PE, Esq.
North Carolina Division of Air Quality (NC DAQ)
217 West Jones Street
Raleigh, NC 27603

Received
NOV 13 2012
Air Permits Section

RE: Title V Application for Enviva Pellets Ahoskie, LLC
Current Permit No. 10121R01

Dear Don:

In accordance with the "two-step" Title V application option under 15A NCAC 2Q .0504, Enviva Pellets Ahoskie, LLC (Enviva) is submitting a Title V application within one year of commencement of operation of the facility. Operation of the facility commenced on November 22, 2011.

Contents of this application are as follows:

1. Three (3) copies of the permit application
2. Permit application fee of $867
3. Required permit application forms (Attachment 1)
4. Updated emission calculations (Attachment 2)
5. General discussion of permit application (see below)

DISCUSSION OF PERMIT APPLICATION CONTENTS

The following subsections provide an overview of key details of the permit application.

Application Forms

In accordance with past precedence and guidance received from Mr. Kevin Godwin several months ago, resubmission of most of the application forms, specifically Parts B, C and D forms are not included because they have been previously reviewed by NC DAQ staff. Relevant Part A forms are included.

An updated version of the D4 form for exempt sources has been included to ensure that all exempt activities are added to the insignificant activities attachment to the permit. This form includes new exempt emissions source called a Bark Hog, which chips bark obtained from the debarking operation. Chipped bark is used for fuel for furnace that provides heated air to the chipped wood dryer. There is also a new exempt emissions source called a "Re-Chipper," which is located downstream of the first green wood chipper, which chips the wood another time for further reduction prior to drying. Please note that the two emergency engines have been added to the D-4 form. They are eligible for exemption under the specified citation and are not precluded from exemption under 15A NCAC 2Q .0102(a)(6), which precludes exemption for sources subject to Part 63 "maximum achievable control technology standards." These engines are subject to "generally available control technology standards" established under the Part 63 NESHAP. This concurrence regarding the eligibility for exemption was obtained from Mr. John Evans with the NC DAQ.

It should be noted that information required for the E2 and E3 forms is provided in a tabular summary following the E3 form. Please note that Enviva believes that the current permit identifies all Title V applicable requirements and includes acceptable monitoring, recordkeeping and reporting requirements, which are summarized in the tabular summary.

Regulatory Applicability

Both the current operating permit and the tabular summary provided after Form E3 identify all Title V applicable requirements. Please note that the 40 CFR Part 64 Compliance Assurance Monitoring (CAM) Regulations apply to the particulate matter and associated pollution control system for the rotary wood dryer; however, because post-control emissions are less than the major source threshold of 100 tpy, the CAM Plan is not required until Title V permit renewal.

Updated Emission Calculations

Enviva recently discovered that the heat input capacity for the rotary wood dryer was incorrectly permitted at 125 MMBtu/hr. This rating was based on vendor supplied emissions information; however, at the time of initial permitting, it was not realized that the heat input was based on "lower heating value." The actual rating of the burner based on "higher heating value" is 175.3 MMBtu/hr. Facility-wide emission calculations have been updated to reflect this change. Since all emissions estimates other than SO_2 were based on total emission rate guarantees rather than a lb/MMBtu emission factor, the only emission estimate affected was for SO_2. Revised potential SO_2 emissions from the dryer are relatively small (~19 tpy), so the revised emissions do not affect regulatory compliance, or otherwise impact regulatory applicability either at the time of original permitting or with this application. Accordingly, Enviva requests that the heat input capacity of the system be revised to 175.3 MMBtu/hr in the emission source description section of the permit when the Title V permit is issued.

Updated Source Name

Please revise the name of the "coarse hammermills" to "dry wood hammermills."

CLOSING

Please feel free to contact either Joe Harrell of Enviva at (252) 370-3181 or me at (919) 462-9693 if you have any questions.

Sincerely,

Joe Sullivan

Joe Sullivan, PE, CM
Managing Consultant

cc: Joe Harrell, Enviva

Attachments

Attachment 1
Permit Application Forms

FORM A1

FACILITY (General Information)

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

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

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

Received
NOV 13 2012
Air Permits Section

GENERAL INFORMATION

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

CONTACT INFORMATION

Permit/Technical Contact:				***Facility/Inspection Contact:***			
Name/Title:	**Joe Harrell**			Name/Title:	**Kerry Hill**		
Mailing Address Line 1:	**142 N.C. Route 561 East**			Mailing Address Line 1:	**142 N.C. Route 561 East**		
Mailing Address Line 2:				Mailing Address Line 2:			
City: **Ahoskie**	State: **NC**	Zip Code: **27910**		City: **Ahoskie**	State: **NC**	Zip Code: **27910**	
Phone No. (area code)	**(252) 209-6032**	Fax No. (area code)		Phone No. (area code)	**(252) 209-6032**	Fax No. (area code)	
Email Address:	**Joe.Harrell@envivabiomass.com**			Email Address:	**Kerry.Hill@envivabiomass.com**		
Responsible Official/Authorized Contact:				***Invoice Contact:***			
Name/Title:	**Pete Najera**			Name/Title:	**Kerry Hill**		
Mailing Address Line 1:	**7200 Wisconsin Avenue**			Mailing Address Line 1:	**142 N.C. Route 561 East**		
Mailing Address Line 2:	**Suite 1100**			Mailing Address Line 2:			
City: **Bethesda**	State: **MD**	Zip Code: **20814**		City: **Ahoskie**	State: **NC**	Zip Code: **27910**	
Phone No. (area code)	**(703) 380-9957**	Fax No. (area code)		Phone No. (area code)	**(252) 209-6032**	Fax No. (area code)	
Email Address:	**Pete.Najera@envivabiomass.com**			**Email Address:**	**Kerry.Hill@envivabiomass.com**		

APPLICATION IS BEING MADE FOR

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

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

☐ General ☐ Small ☐ 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. **10121R01**	Expiration Date: **11/30/2015**
Facility Coordinates:	Latitude: **323,525.1 UTM E**	Longitude: **4,015,554.4 UTM N**	
Does this application contain confidential data?	☐ YES	☑ NO	

PERSON OR FIRM THAT PREPARED APPLICATION

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

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed):	**Pete Najera**	Title:	**Vice President of Operations**
X Signature(Blue Ink):	Pete J Najera	Date:	November 6, 2012

Attach Additional Sheets As Necessary

FORM A4

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

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

Facility Name:	Enviva Pellets Ahoskie, LLC		Permit Number:	10121R01	
Facility ID:	N/A (to be assigned)	County: Hertford	Environmental Contact:	Joe Harrell	
Mailing Address Line 1:	142 N.C. Rt 561 East		Phone No. ( )	(252) 209-6032	Fax No. ( )
Mailing Address Line 2:			Zip Code:	27910	County: Hertford
City:	Ahoskie	State: North Carolina	Email Address:	Joe.Harrell@envivabiomass.com	

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

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

Comments:

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

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

Comments:

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

N.C. Division of Pollution Prevention and Environmental Assistance

POLLUTION PREVENTION PAYS

REVISED 1/07

Attach Additional Sheets As Necessary

FORM D4

EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

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

	DESCRIPTION OF EMISSION SOURCE	SIZE OR PRODUCTION RATE	BASIS FOR EXEMPTION OR INSIGNIFICANT ACTIVITY
1.	Green Wood Handling and Storage, ES-GWHS	1,051,200 tpy	15A NCAC 02Q .0102 (c)(2)(E)
2.	Green Wood Fuel Storage Bin, ES-GWFB	145,080 tpy	15A NCAC 02Q .0102 (c)(2)(E)
3.	Dried Wood Handling, ES-DWH	499,320 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
4.	Hammermill Conveyor System ES-HMCS	499,320 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
5.	12 Pelletizers (Pellet Presses) ES-PP	499,320 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
6.	Final Product Handling ES-FPH	420,480 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
7.	Emergency Generator Diesel Fuel Tank TK1	600 gallons	15A NCAC 02Q .0102 (c)(1)(D)
8.	Fire Water Pump Diesel Fuel Tank TK2	500 gallons	15A NCAC 02Q .0102 (c)(1)(D)
9.	Electric Powered Wood Chipper and Debarker, ES-CHIP-1	525,600 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
10.	Electric Powered Wood Re-Chipper, ES-CHIP-2	525,600 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
11.	Electric Powered Bark Hog, ES-BARK	145,080 tpy (ODT Basis)	15A NCAC 02Q .0102 (c)(2)(E)
12.	Emergency Power Generator, ES-EG	350 bhp, nominal	15A NCAC 02Q .0102 (c)(2)(v)(III)
13.	Emergency Firewater Pump, ES-FWP	300 bhp, nominal	15A NCAC 02Q .0102 (c)(2)(v)(III)

FORM E1

TITLE V GENERAL INFORMATION

REVISED: 12/01/01 | Division of Air Quality - Application for Air Permit to Construct/Operate | E1

IF YOUR FACILITY IS CLASSIFIED AS "MAJOR" FOR TITLE V YOU MUST COMPLETE THIS FORM AND ALL OTHER REQUIRED "E" FORMS (E2 THROUGH E5 AS APPLICABLE)

Indicate here if your facility is subject to Title V by: **X Emissions** ☐ Other

If subject to Title V by other, check or specify: ☐ NSPS ☐ NESHAPS (MACT) ☐ TITLE IV

Other, specify:

If you are or will be subject to any maximum achievable control technology standards (MACT) issued pursuant to section 112(d) of the Clean Air Act, specify below:

EMISSION SOURCE ID	*EMISSION SOURCE DESCRIPTION*	*MACT*
N/A		Although the two emergency engines at the site are subject to 40 CFR Part 63 Subpart ZZZZ, they are subject to GACT standards and no MACT standards.

List any additional regulation which are requested to be included in the shield and provide a detailed explanation as to why the shield should be granted:

REGULATION	*EMISSION SOURCE (Include ID)*	*EXPLANATION*
40 CFR 63 Subpart DDDD	ES-Dryer	Potential HAP emissions are below major source thresholds.

Comments:

Attach Additional Sheets As Necessary

FORM E2

EMISSION SOURCE APPLICABLE REGULATION LISTING

REVISED 12/01/01 — Division of Air Quality - Application for Air Permit to Construct/Operate — **E2**

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	OPERATING SCENARIO INDICATE PRIMARY (P) OR ALTERNATIVE (A)	POLLUTANT	APPLICABLE REGULATION
See attached table following Form E3 for a summary of regulatory requirements and associated compliance requirements				

Attach Additional Sheets As Necessary

FORM E3

EMISSION SOURCE COMPLIANCE METHOD

REVISED 12/01/01 | NCDENR/Division Of Air Quality - Application for Air Permit to Construct/Operate | E3

Emission Source ID NO. **See attached table following Form E3 for a summary of regulatory requirements and associated compliance requirements**

Regulated Pollutant

Applicable Regulation

Alternative Operating Scenario (AOS) NO:

ATTACH A SEPARATE PAGE TO EXPAND ON ANY OF THE BELOW COMMENTS

MONITORING REQUIREMENTS

Is Compliance Assurance Monitoring (CAM) 40 CFR Part 64 Applicable? ☐ Yes ☐ No

If yes, is CAM Plan Attached (if applicable, CAM plan must be attached)? ☐ Yes ☐ No

Describe Monitoring Device Type:

Describe Monitoring Location:

Other Monitoring Methods (Describe In Detail):

Describe the frequency and duration of monitoring and how the data will be recorded (i.e., every 15 minutes, 1 minute instantaneous readings taken to produce an hourly average):

RECORDKEEPING REQUIREMENTS

Data (Parameter) being recording:

Frequency of recordkeeping (How often is data recorded?):

REPORTING REQUIREMENTS

Generally describe what is being reported:

Frequency: ☐ MONTHLY ☐ QUARTERL ☐ EVERY 6 MONTHS

OTHER (DESCRIBE):

TESTING

Specify proposed reference test method:

Specify reference test method rule and citation:

Specify testing frequency:

NOTE - Proposed test method subject to approval and possible change during the test protocol process

Attach Additional Sheets As Necessary

Summary of Title V Applicable Regulations and Compliance Demonstration Procedures
Enviva Pellets Ahoskie, LLC

Emission Source Description and ID No.	Pollutant	Regulation	Monitoring Method/Frequency/Duration	Recordkeeping	Reporting
Wood-fired dryer system (ID No. ES-DRYER), dried wood day silo (ID No. DWDS), four coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4), Hammermill area and Hammermill No.5 (ID No. ES-HAF), pellet mill feed silo (ID No. ES-PMFS), and five pellet coolers (ID Nos. ES-CLR 1, 2, 3, 4, and 5)	PM	15A NCAC 2D .0515	Inspections and maintenance, including monthly inspection of ductwork and annual internal inspection of bagfilter integrity	Written or electronic log of date and time of each inspection, results of inspection and maintenance, and variance from manufacturer's recommendation	Semi-annual progress report and annual compliance certification
Wood-fired dryer system (ID No. ES-DRYER), dried wood day silo (ID No. DWDS), four coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4), Hammermill area and Hammermill No.5 (ID No. ES-HAF), pellet mill feed silo (ID No. ES-PMFS), and five pellet coolers (ID Nos. ES-CLR 1, 2, 3, 4, and 5)	SO2	15A NCAC 2D .0516	None required because inherently low sulfur content of wood fuel achieves compliance		
Wood-fired dryer system (ID No. ES-DRYER), dried wood day silo (ID No. DWDS), four coarse hammermills (ID Nos. ES-CHM-1, 2, 3, and 4), Hammermill area and Hammermill No.5 (ID No. ES-HAF), pellet mill feed silo (ID No. ES-PMFS), and five pellet coolers (ID Nos. ES-CLR 1, 2, 3, 4, and 5)	Opacity	15A NCAC 2D. 0521	Monthly visibile observation for "normal." If above normal, correct action or Method 9 observation required	Written or electronic log of date/time/result of each observation, results of each non-compliant observation and actions taken to correct, and results of the corrective action	Semi-annual progress report and annual compliance certification
Emergency Generator (ID No. ES-EG) and Fire Water Pump (ID No. ES-FWP)	SO2	15A NCAC 2D .0516	None required because inherently low sulfur content of fuel achieves compliance		
Emergency Generator (ID No. ES-EG) and Fire Water Pump (ID No. ES-FWP)	Opacity	15A NCAC 2D. 0521	Monthly visibile observation for "normal." If above normal, correct action or Method 9 observation required	Written or electronic log of date/time/result of each observation, results of each non-compliant observation and actions taken to correct, and results of the corrective action	Semi-annual progress report and annual compliance certification
Emergency Generator (ID No. ES-EG)	PM, CO, NOx, NMHC, SO2	40 CFR Part 60 Subpart IIII	All requirements as outlined in current permit, including the following: use certified emergency engines, operate according to manufacturers procedures, use fuel oil with fuel content of no more than 15 ppmw sulfur and cetane index of at least 40, install non-resettable hours meter	Maintain records of engine certification, fuel certifications and hours/year of operation of each engine	N/A
Emergency Generator (ID No. ES-EG) [1]	HAPs	40 CFR Part 63 Subpart ZZZZ	Comply with the NSPS requirements above and no other requirements apply	Comply with the NSPS requirements above and no other requirements apply	N/A
Fire Water Pump (ID No. ES-FWP) [1]	HAPs	40 CFR Part 63 Subpart ZZZZ	Firewater pump was built before NSPS applicability date of 2006 (built in 1970s). Meet work practice standards under Subpart ZZZZ.	N/A	N/A

Note 1: These units are exempt from permitting and requirements that are listed are not considered Title V-enforceable permit limits.

FORM E4
EMISSION SOURCE COMPLIANCE SCHEDULE

COMPLIANCE STATUS WITH RESPECT TO ALL APPLICABLE REQUIREMENTS

Will each emission source at your facility be in compliance with all applicable requirements at the time of permit issuance and continue to comply with these requirements?

X Yes No **If NO**, complete **A** through **F** below for each requirement for which compliance is not achieved.

Will your facility be in compliance with all applicable requirements taking effect during the term of the permit and meet such requirements on a timely basis?

X Yes No **If NO**, complete **A** through **F** below for each requirement for which compliance is not achieved.

If this application is for a modification of existing emissions source(s), is each emission source currently in compliance with all applicable requirements?

X Yes No **If NO**, complete **A** through **F** below for each requirement for which compliance is not achieved.

A. Emission Source Description (Include ID NO.) _____

B. Identify applicable requirement for which compliance is not achieved:

_____

_____

_____

_____

_____

_____

C. Narrative description of how compliance will be achieved with this applicable requirements:

_____

_____

_____

_____

_____

D. Detailed Schedule of Compliance:

Step(s)	Date Expected

E. Frequency for submittal of progress reports (6 month minimum):

_____

F. Starting date of submittal of progress reports: _____

Attach Additional Sheets As Necessary

FORM E5

TITLE V COMPLIANCE CERTIFICATION (Required)

Revised 01/01/07 | NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate | E5

In accordance with the provisions of Title 15A NCAC 2Q .0520 and .0515(b)(4) the responsible company official of:

SITE NAME: Enviva Pellets Ahoskie, LLC

SITE ADDRESS: 142 N.C. Route 561 East

CITY, NC : Ahoskie, NC

COUNTY: Hertford

PERMIT NUMBER : 10121R01

Received
NOV 13 2012
Air Permits Section

CERTIFIES THAT(Check the appropriate statement(s):

[X] The facility is in compliance with all applicable requirements

[ ] In accordance with the provisions of Title 15A NCAC 2Q .0515(b)(4) the responsible company official certifiies that the proposed minor modification meets the criteria for using the procedures set out in 2Q .0515 and requests that these procedures be used to process the permit application.

[ ] The facility is not currently in compliance with all applicable requirements
If this box is checked, you must also complete form E4 "Emission Source Compliance Schedule"

The undersigned certifies under the penalty of law, that all information and statements provided in the application, based on information and belief formed after reasonable inquiry, are true, accurate, and complete.

Pete J Najera
Signature of responsible company official (REQUIRED, USE BLUE INK)

Date: November 6, 2012

Pete Najera, Vice President of Operations
Name, Title of responsible company official (Type or print)

Attach Additional Sheets As Necessary

Attachment 2
Updated Emissions Estimates

FACILITY-WIDE CRITERIA AND OTHER NON-HAPS EMISSIONS SUMMARY
ENVIVA PELLETS AHOSKIE, LP

Source Description	Unit ID	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	VOC (tpy)	CO_{2e} (tpy)
Dryer System	ES-DRYER	45.00	182.91	24.48	24.48	24.48	19.20	20.25	61
Emergency Generator	ES-EG	0.50	0.58	0.03	0.03	0.03	0.00	5.59E-04	36
Fire Water Pump	ES-FWP	0.43	0.49	0.02	0.02	0.02	0.00	4.79E-04	31
Dry Wood Hammermills	ES-CHM	0.00	0.00	30.03	30.03	30.03	0.00	0.00	0
Pellet Press Silo	ES-PMFS	0.00	0.00	0.82	0.82	0.82	0.00	0.00	0
Ground Wood Handling	ES-HAF	0.00	0.00	12.20	12.20	12.20	0.00	0.00	0
Pellet Coolers	ES-CLR	0.00	0.00	56.78	56.78	56.78	0.00	0.00	0
Chipper and Re-Chipper	ES-CHIP-1 and -2	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0
Debarker	ES-BARK	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0
Diesel Storage Tanks	TK1 & TK2	0.00	0.00	0.00	0.00	0.00	0.00	3.79E-03	0
	Total Project Emission Increases	**45.94**	**183.98**	**124.37**	**124.37**	**124.37**	**19.20**	**20.25**	**129**
	PSD Significant Emission Rates	**250**	**250**	**250**	**250**	**250**	**250**	**250**	**100,000**
	PSD Review Required?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

FACILITYWIDE HAP EMISSIONS SUMMARY
ENVIVA PELLETS AHOSKIE, LLC

HAP Pollutant	Dryer (tpy)	CHIP-1, -2 (tpy)	BARK (tpy)	EG-1 (tpy)	FWP-1 (tpy)	TOTAL (tpy)
1,3-Butadiene	--	--	--	2.39E-05	2.05E-05	4.45E-05
Acetaldehyde	2.30	--	--	4.70E-04	4.03E-04	2.30E+00
Acrolein	0.71	--	--	5.67E-05	4.86E-05	7.06E-01
Benzene	0.23	--	--	5.71E-04	4.90E-04	2.34E-01
Chloroform	0.00	--	--	--	--	3.07E-03
Cumene	0.06	--	--	--	--	6.14E-02
Formaldehyde	4.30	--	--	7.23E-04	6.20E-04	4.30E+00
m-,p-Xylene	0.15	--	--	1.75E-04	1.50E-04	1.48E-01
Methanol	3.38	0.53	0.07	--	--	3.97E+00
Methyl isobutyl ketone	0.21	--	--	--	--	2.12E-01
Methylene chloride	0.06	--	--	--	--	5.52E-02
o-Xylene	0.01	--	--	--	--	1.38E-02
Phenol	0.86	--	--	--	--	8.59E-01
Propionaldehyde	0.40	--	--	--	--	3.99E-01
Styrene	0.01	--	--	--	--	1.10E-02
Toluene	0.40	--	--	2.51E-04	2.15E-04	3.99E-01
Total PAH (POM)	--	--	--	1.03E-04	8.82E-05	1.91E-04
TOTAL HAP	**13.07**	**5.26E-01**	**7.25E-02**	**2.37E-03**	**2.03E-03**	**13.68**

Rotary Dryer - Criteria Pollutant Emissions

Dryer Inputs:

Dryer Production	483,552 tons/year
Annual Dried Wood Throughput of Dryer	420,480 ODT/year
Hourly Dried Wood Throughput of Dryer	[illegible] ODT/hr
Burner Heat Input	175.3 MMBtu/hr
Percent Hardwood	90%
Percent Softwood	10%
Potential Operation	8,760 hr/yr

Criteria Pollutant Calculations:

Pollutant	Biomass Emission Factor (lb/ODT)	Units	Emission Factor Source	Total Emissions	
				(lb/hr)	(tpy)
CO	0.21	lb/ODT	Stack Testing [4]	10.27	45.0
NO_X	0.87	lb/ODT	Vendor [1]	41.76	182.9
TSP	0.12	lb/ODT	Calculated from Guaranteed WESP Specifications [2]	5.59	24.5
Total PM_{10}	0.12	lb/ODT	Calculated from Guaranteed WESP Specifications [2]	5.59	24.5
Total $PM_{2.5}$	0.12	lb/ODT	Calculated from Guaranteed WESP Specifications [2]	5.59	24.5
SO_2	0.025	lb/MMBtu	AP-42, Section 1.6 [3]	4.38	19.2
VOC	0.096	lb/ODT	Stack Testing [4]	4.62	20.2
Lead	0.00	N/A	N/A	0.00	0.0

ODT = BDT

Note:

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

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

43 average
45 most

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

4) CO and VOC emissions based on stack testing conducted on June 7, 2012. ODT factors derived by dividing hourly emission rates by [illegible] production rate and multiplying by carbon basis to pinene basis factor of 1.233. Potential emissions actually based on PSD avoidancelimit of 250 tpy.

Emergency Generator Emissions (ES-EG)

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

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

Note:

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

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

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

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

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

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

Firewater Pump Emissions (ES-FWP)

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

2,805.64

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

Note:

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

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

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

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

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

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

Potential Site-Wide GHG Emissions

Operating Data:

Dryer Heat Input	175.3 MMBtu/hr
Operating Schedule	8,760 hrs/yr
Emergency Generator Output	350 bhp
Operating Schedule	500 hrs/yr
Power Conversion	2,545 Btu/hr/hp
Energy Input	0.891 MMBtu/hr
Fire Water Pump Output	300 bhp
Operating Schedule	500 hrs/yr
Power Conversion	2,545 Btu/hr/hp
Energy Input	0.764 MMBtu/hr

Emission Unit ID	Fuel Type	Emission Factors from Table C-1 (kg/MMBtu)[1, 2]			Emissions (short tons)[2]			
		CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	Total CO_2e
ES-DRYER	Wood and Wood Residuals	0.00E+00	3.20E-02	4.20E-03	0	54	7	61
ES-GN	No. 2 Fuel Oil (Distillate)	7.40E+01	3.00E-03	6.00E-04	36	1.47E-03	2.95E-04	36
ES-FWP	No. 2 Fuel Oil (Distillate)	7.40E+01	3.00E-03	6.00E-04	31	1.26E-03	2.52E-04	31

[1] Emission factors from Table C-1 and C-2 of GHG Reporting Rule. Emission factors for methane and N_2O already multiplied by their respective GWPs of 21 and 310.

[2] The NC DAQ has adopted the GHG Biomass Deferral Rule which excludes CO_2 emissions from biomass combustion.

Dust Control Systems PM Emissions

Emission Unit	Emission Source ID	Filter. Vent -or- Cyclone ID	Flowrate[1] (dscfm)	Pollutant Loading[2] (gr/dscf)	Annual Operation (hours)	% PM that is		Potential Emissions					
								PM		PM_{10}[3]		$PM_{2.5}$[3]	
						PM_{10}	$PM_{2.5}$	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Dried Wood Day Silo	ES-DWDS	CD-DWS-BV	2,186	0.01	8,760	100%	100%	0.19	0.82	0.19	0.82	0.19	0.82
Dry Wood Hammermills 1 & 2	ES-CHM	CD-CHM-FF1	40,000	0.01	8,760	100%	100%	3.43	15.02	3.43	15.02	3.43	15.02
Dry Wood Hammermills 3 & 4	ES-CHM	CD-CHM-FF2	40,000	0.01	8,760	100%	100%	3.43	15.02	3.43	15.02	3.43	15.02
Hammermill Area and Hammermill 5	ES-HAF	CD-HAF-FF	32,500	0.01	8,760	100%	100%	2.79	12.20	2.79	12.20	2.79	12.20
Pellet Mill Feed Silo Bin Vent Filter	ES-PMFS	CD-PMFS-BV	2,186	0.01	8,760	100%	100%	0.19	0.82	0.19	0.82	0.19	0.82
Pellet Coolers Cyclone 1 & 2	ES-CLR1 & 2	CD-CLR-C1	27,500	0.022	8,760	100%	100%	5.19	22.71	5.19	22.71	5.19	22.71
Pellet Coolers Cyclone 3 & 4	ES-CLR3 & 4	CD-CLR-C2	27,500	0.022	8,760	100%	100%	5.19	22.71	5.19	22.71	5.19	22.71
Pellet Coolers Cyclone 5	ES-CLR5	CD-CLR-C3	13,750	0.022	8,760	100%	100%	2.59	11.36	2.59	11.36	2.59	11.36
Pellet Coolers Cyclone 6	ES-CLR6	CD-CLR-C4	13,750	0.022	8,760	100%	100%	2.59	11.36	2.59	11.36	2.59	11.36
							TOTAL	**25.57**	**112.02**	**25.57**	**112.02**	**25.57**	**112.02**

Note:

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

Fugitive PM Emissions[1]

ID	Emission Source Group	Description	Control	Control Description	Throughput		Potential Uncontrolled Emissions for PM[3]		Potential Uncontrolled Emissions for PM_{10}[3]		Potential Uncontrolled Emissions for $PM_{2.5}$[3]	
					Max. Hourly[2]	Max. Annual						
					(tph)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
DP1	ES-DWH	Dryer Discharger to Outfeed Conveyor	Enclosed	Reduction to 2 mph mean wind speed	65.55	574,218	1.3E-02	5.7E-02	6.2E-03	2.7E-02	9.4E-04	4.1E-03
DP2	ES-DWH	Dryer Outfeed Conveyors to Silo Feed / Silo Bypass	Enclosed	Reduction to 2 mph mean wind speed	65.55	574,218	1.3E-02	5.7E-02	6.2E-03	2.7E-02	9.4E-04	4.1E-03
DP3	ES-DWH	Silo Bypass / Dryer Silo to Conveyor to Hammermill Surge Bin	Enclosed	Reduction to 2 mph mean wind speed	65.55	574,218	1.3E-02	5.7E-02	6.2E-03	2.7E-02	9.4E-04	4.1E-03
DP4	ES-DWH	Conveyor to Hammermill Surge Bin drop into HM Surge Bin	Enclosed	Reduction to 2 mph mean wind speed	65.55	574,218	1.3E-02	5.7E-02	6.2E-03	2.7E-02	9.4E-04	4.1E-03
DP5	ES-PP	Drop Emissions from Pellet Presses to Pellet Press Collection Conveyors	Enclosed	Reduction to 2 mph mean wind speed	65.55	574,218	1.3E-02	5.7E-02	6.2E-03	2.7E-02	9.4E-04	4.1E-03
						TOTAL	**6.5E-02**	**2.9E-01**	**3.1E-02**	**1.4E-01**	**4.7E-03**	**2.1E-02**
						ES-DWH	**5.2E-02**	**2.3E-01**	**2.5E-02**	**1.1E-01**	**3.7E-03**	**1.6E-02**
						ES-PP	**1.3E-02**	**5.7E-02**	**6.2E-03**	**2.7E-02**	**9.4E-04**	**4.1E-03**

Note:

1) The listing of open transfer points may not be inclusive of all transfer points downstream of the dryer. Even if a few additional points may exist, the potential emissions of the insignificant activity emission source group ES-DWH is well below the 5 tpy threshold for significant emissions. Not included in facility-wide PTE because Pellet Mills are not one of the listed 28 categories for which calculation of facility-wide PTE must include fugitives.
2) Maximum hourly throughput is based upon 8,760/yr.
3) Based emission factors calculated per AP-42 Section 13.2.4, September 2006.

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

where: E = emission factor (lb/ton)	
k = particle size multiplier (dimensionless) for PM	0.74
k = particle size multiplier (dimensionless) for PM_{10}	0.35
k = particle size multiplier (dimensionless) for $PM_{2.5}$	0.053
U = mean wind speed (mph)	2.00
M = material moisture content (%)	5
E for PM (lb/ton) =	2.0E-04
E for PM_{10} (lb/ton) =	9.4E-05
E for $PM_{2.5}$ (lb/ton) =	1.4E-05

(actual moisture content of drop points can vary from 5 to 15%; 5% used for conservatism in this illustrative calculation of emissions)

Electric Powered Chippers (ES-CHIP-1 and ES-CHIP-2) Emissions

Hardwood Composition	90%	
Softwood Composition	10%	
Annual Throughput of Chipper	525,600	tons/year (dry wood)[1]
Maximum Annual Operation	8,760	hours

Pollutant	Emission Factors (lb/dry wood tons)	Emissions per Chipper (lb/hr)[5]	Emissions per Chipper (tpy)
THC as Carbon[2]	0.0041	1.107E-04	0.97
THC as alpha-Pinene[3]	0.0047	1.256E-04	1.10
PM[4]	N/A	0.000E+00	0.00
Methanol[2]	0.0010	3.000E-05	0.26

[1] The capacity of the green wood chipper and rechipper are 120 tph at 50% moisture content for green wood.

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

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

*lb VOC/ODT = lb C/ODT * (136.2 lb/mol AP / 12 lb/mol C) * (1 mol AP / 10 mol C)*

[4] PM emission factor is not applicable as the chipper emissions are routed downward to the ground. Emission factor for "chip cyclones" used as it is expected the equipment utilizes this inherent control.

[5] Short term emissions were based upon the annual throughput of the chipper (dry wood) divided by the total hours of operation.

Tank VOC Emissions

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

Note:

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

Electric-Powered Bark Hog (ES-BARK) Emissions

Hardwood Composition	90%	
Softwood Composition	10%	
Annual Throughput of Bark Hog	145,080	tons/year (dry wood)[1]
Maximum Annual Operation	8,760	hours

Pollutant	Emission Factors (lb/dry wood tons)	Emissions (lb/hr)[5]	Emissions (tpy)
THC as Carbon[2]	0.0041	3.056E-05	0.27
THC as alpha-Pinene[3]	0.0047	3.468E-05	0.30
PM[4]	N/A	0.000E+00	0.00
Methanol[2]	0.0010	8.281E-06	0.07

[1] As originally permitted, it is assumed that the wood received at the facility has a nominal water content of 50%.

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

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

*lb VOC/ODT = lb C/ODT * (136.2 lb/mol AP / 12 lb/mol C) * (1 mol AP / 10 mol C)*

[4] PM emission factor is not applicable as the chipper emissions are routed downward to the ground. Emission factor for "chip cyclones" used as it is expected the equipment utilizes this inherent control.

[5] Short term emissions were based upon the annual throughput of the chipper (dry wood) divided by the total hours of operation.

Enviva Pellets Ahoskie, LLC

NCDENR – Division of Air Quality

Application to Modify Construction and Operation Permit No. 10121R02

Prepared for:
Enviva Pellets Ahoskie, LLC

Prepared by:
Deyo and Associates, LLC

December 2014

cell
804-937-0377
Mike Deyo

Tables:

Appendices:

1.0 Executive Summary

Enviva Pellets Ahoskie, LLC (Enviva) operates a wood pellet manufacturing facility at its Ahoskie, North Carolina location. Operations at the site include timber handling equipment, wood chippers, dryers, hammermills, and pelletizers, and finished product (pellet) handling equipment.

Enviva manufactures wood pellets for use as a renewable fuel for energy generation and industrial customers. Enviva's customers use wood pellets in place of coal, significantly reducing emissions of pollutants such as carbon dioxide, mercury, arsenic and lead. The company is dedicated to improving the environmental profile of energy generation while promoting sustainable forestry in the southeastern United States. Enviva holds certifications from the Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI) and the Programme for the Endorsement of Forest Certifications (PEFC). Enviva requires that all suppliers adhere to state-developed "Best Management Practices" (BMPs) in their activities to protect water quality and sensitive ecosystems. In addition, Enviva is implementing an industry leading "track and trace" system to further ensure that all fiber resources come from responsible harvests. We pay particular attention to: land use change, use and effectiveness of BMPs, wetlands, biodiversity and certification status. All of this combined ensures that Enviva's forestry activities contribute to healthy forests both today and in the future.

Enviva is a Title V major source of criteria pollutants and currently operates under Permit to Construct and Operate No. 10121R02 issued by the North Carolina Division of Air Quality (DAQ) on March 10, 2014. The facility's potential emissions of all criteria pollutants are below the PSD major source threshold of 250 tons per year.

The current air permit and supporting application(s) assume a dryer throughput of 48 oven dried tons per hour (ODT/hr) and an operating schedule of 8,760 hours per year (420,480 ODT/yr). However, due to current equipment constraints, the dryer system is only capable of achieving a production rate of approximately 43 tons per hour.

In addition, the facility has the capability to process purchased dried wood product through the facility pellet presses (bypassing the dryer and hammermills). The permitted capacity of the pellet presses and equipment downstream of the presses is 48 ODT/hr.

Therefore, Enviva is proposing to make modifications to the dryer system to increase the dryer production rates to its currently permitted capacity of 48 tons per hour. In addition, to allow the pellet mill system to process additional purchased dried wood material, Enviva is proposing to make several modifications to the pellet mill system and "downstream"

material handling equipment to increase the hourly capacity of this equipment to a design throughput of 55 ODT/hr (481,800 ODT/yr). A complete description of these facility changes are provided in Section 2.0 of this application.

Although not currently included as a permit limitation in Permit No. 10121R02, all VOC and HAP emissions calculations for the Ahoskie facility have been performed assuming an annual average softwood throughput of 10%

Since issuance of Permit No. 10121R02 and the submission of the November 2, 2012 Title V Air Permit Application (Application 4600107.12A) for the facility, Enviva has performed VOC testing of the Ahoskie dryer and hammermills while processing 30% softwood, and testing of the pellet press system while processing 45% softwood, on a trial basis approved by DAQ. Furthermore, Enviva has performed numerous VOC and HAP stack tests at several of its "high softwood-content" wood pellet manufacturing facilities (i.e. facilities processing approximately 60% softwood) to develop appropriate VOC and HAP emission factors for its dryers, hammermills, and pellet presses.

Based on the emission factors developed from these stack tests, Enviva is proposing that the facility be permitted to utilize a higher softwood content in its wood mix and comply with an increased facility-wide VOC limitation at a level that does not trigger PSD review.

Based on the physical modifications to remove equipment constraints presented in this application, Enviva requests that a facility-wide VOC emissions limit equal to the facility's baseline VOC emissions (average annual emissions from previous 24 month period) plus 249 tons per year, be included as an annual permit limitation for the facility. A complete discussion of this proposed emissions limit is provided in Section 3.1.2 of this application.

The proposed increase in softwood content has no effect on the emission rates of other criteria pollutants at the facility (CO, NOx, PM, SO_2, etc.). Particulate emissions from sources with increased throughputs as a result of this application are calculated using control device air flows and rated performances; as such, there are no changes to particulate matter emissions calculations. However, for completeness, Enviva presents baseline and future potential emissions calculations for all pollutants to demonstrate that PSD review is not triggered. A complete discussion of these emissions calculations is provided in Section 3.3 of the application.

Only Application Forms for the sources being modified as part of this application are being provided with this application. Application forms for the following sources are included in Appendix A (note that the hammermills are not being modified as part of this application but are included since the VOC and HAP emissions of the hammermills increase as a result of the facility modifications):

- Dryer (ES-DRYER)
- Hammermills (ES-DHM-1 through DHM-4, ES-HAF)
- Pellet Coolers (ES-CLR1 through CLR5)
- Pellet Mill Fines Bin (ES-FB)
- Finished Product Handling (ES-FPH)
- Truck Load-out Bin (ES-TLB)
- Pellet Load-out (ES-PL1 and PL2)

Finally, the Ahoskie facility currently operates a green wood chipper and green wood hammermill prior to the dryer at the facility. However, the facility's current permit only lists one source (Electric powered green wood chipper (ID No. IES-CHP)) in the "insignificant activity" attachment to the permit. Therefore, we are also requesting that the DENR include both the electric powered green wood chipper (IES-CHP1) and the green wood hammermill (IES-CHP2) in the insignificant activity attachment of the permit. Emissions calculations for both units are included in the facility-wide emissions calculations provided with this application.

Included with this application are a description of the facility equipment modifications (Section 2.0), revised emissions calculations (Section 3.0), a summary of any PSD and HAP issues associated with the modifications (Section 4.0), a discussion of an updated NC TAP modeling demonstration (section 5.0), and a brief summary of the permit modifications being requested, including proposed procedures for demonstrating compliance with the proposed facility-wide VOC limitation (Section 6.0). Air permit application forms for the sources listed above are provided in Appendix A and the emissions calculations for the facility are provided in Appendix B.

2.0 Equipment Modifications

2.1 Dryer Modifications

As discussed in Section 1.0 above, the facility dryer is permitted for a maximum hourly throughput of 48 ODT/hr. However, based on the dryer's current design, the maximum demonstrated throughput is approximately 43 ODT per hour[1], resulting in a bottleneck on the manufacturing process. Therefore, Enviva is proposing to make several modifications to the dryer system to increase the achievable throughput to its permitted capacity of 48 tons per hour.

Modifications to the dryer include the installation of a new control program, additional instrumentation, and associated equipment. The installation of this new equipment will increase the efficiency of the system and allow for increased throughput to the process. A revised Air Permit form for the facility dryer is provided in Appendix A of this application.

2.2 Pellet Presses and Downstream Equipment Modifications

The facility pellet presses and all equipment downstream of the pellet presses are permitted for a maximum hourly throughput of 48 ODT/hr. The pellet presses are designed to accept material both from the facility dryer as well as purchased dried wood product material obtained from off-site. To accommodate increased throughput from the facility dryer and additional material purchased from off-site, Enviva is proposing to make several modifications to the pellet presses and downstream equipment to increase the rated capacity of this equipment to 55 ODT/hr.

Modifications to the pellet press system include the installation of baffles in the hoppers under the pellet coolers in order to level the flow of the coolers to the screen. Additional modifications will be made to the conveying equipment to accommodate this increased pellet press capacity. Revised air permit application forms for the pellet presses (coolers) and equipment downstream of the pellet presses (i.e. – Pellet Mill Fines Bin (ES-FB), Finished Product Handling (ES-FPH), Truck Load-out Bin (ES-TLB), and Pellet Loading (PL-1 and PL-2)), reflecting the new hourly rated capacity, are provided in Appendix A of this application.

[1] Highest throughput capacity achieved during previous stack testing performed in 2012 and 2014.

3.0 Emissions Calculations

3.1 VOC Emissions

3.1.1 Baseline VOC Emission

In Permit No. 10121R02, the following are identified as sources of VOC emissions:

- Dryer
- Green Wood Chippers
- Bark Hog
- Diesel Tanks
- Generators (Fire pump and emergency generators)

Dryer VOC emissions were calculated using emission factors derived from AP-42 emission factors while processing 10% softwood. The green wood chippers and bark hog emission factors were calculated based on AP-42 emission factors applicable to softwood. VOC emissions from the diesel tanks and generators were calculated using the EPA Tanks Program and AP-42 emission factors for diesel powered generators, respectively. Since that time, Enviva has performed VOC testing of its hammermills and pellet coolers at several of its sites and developed VOC emission factors for these sources at varying softwood contents.

To establish the current baseline VOC emissions for the site, Enviva calculated the average annual actual VOC emissions from the most recent 24 month period (i.e. – December 2012 through November 2014). Table 3-1 provides a summary of the baseline VOC emissions for the site and the emissions calculations are provided in Appendix B.

Table 3-1: Facility-wide Baseline VOC Emissions (10% Softwood)

Baseline Date Ranges	Total VOC Emissions (tpy)
12/2012-11/2013	146.48
12/2013-11/2014	138.80
Two Year Annual Average	142.64

3.1.2 Proposed Potential VOC Emissions

Enviva is requesting a facility-wide VOC emissions limit equal to the baseline VOC emissions plus a synthetic minor VOC increase of 249 tons per year. Therefore, Enviva is requesting a facility-wide VOC emissions limitation of 391.6 tons per year. Enviva proposes to demonstrate compliance with this permit limitation by calculating the 12-month rolling total VOC emissions on a monthly basis. The calculations will be based on actual material throughputs achieved at the site and emission factors appropriate for the annual average softwood content processed at the site. Proposed permit compliance language for the performance of these calculations is provided in Section 6.1 of this application.

To demonstrate that the facility can comply with the proposed VOC permit limitation at a range of softwood contents, Enviva calculated total potential VOC emissions from the site when operating at the maximum rated capacity of the facility equipment, and annual average softwood contents of 30% for the equipment upstream of the pellet presses (i.e. - bark hog, chippers, dryer, and hammermill), and 45% softwood to the pellet presses. A further description of these calculations is provided below. Enviva proposes to process higher softwood contents than 30%/45%, provided that appropriate emission factors are derived for those elevated softwood concentrations and approved by DAQ.

In June 2014, Enviva performed VOC stack testing of the Enviva Ahoskie dryer and hammermills while processing 30% softwood and VOC testing of the pellet presses (coolers) while processing 45% softwood. Based on these tests, VOC emission factors (in units of lb/ODT (as alpha pinene)) have been developed for each source as detailed in Table 3-2.

Table 3-2: June 2014 Stack Testing VOC Emission Factors

Source	Unit ID(s)	VOC Emissions (lb/hr)	Process Throughput (ODT/hr)	VOC Emissions Factor (lb/ODT)
Dryer	ES-Dryer	31.93	40.9	0.781
Hammermills	ES-CHM-1-4, ES-HAF	0.94	10.1	0.093
Pellet Presses/Coolers	ES-CLR-1 – 5	10.24	22.4	0.457

These emission factors have been used to calculate revised VOC emissions from each of these sources based on the proposed maximum dryer and

hammermill throughput of 48 ODT/hr (420,480 ODT/yr) and the proposed pellet press throughput of 55 ODT/hr (481,800 ODT/yr).

The chipper, green hammermill, and bark-hog VOC emissions have historically been calculated using AP-42 emission factors applicable to softwood sources and no changes to the emission factors for these sources are included in the revised emissions calculations. In addition, the increased throughput and softwood content have no impact on the diesel tank or generator emission factors and therefore, no changes to those calculations are proposed as part of this application.

Table 3-3 provides a summary of the calculated emissions from all PSD-regulated VOC sources at the modified facility. VOC emissions calculations for the proposed throughput scenarios are provided in Appendix B of this submittal.

Table 3-3: Facility-wide Potential VOC Emissions
(Modified Sources and Increased Softwood Content)

Source	Unit ID	Throughputs		Total Emissions (tpy)
		(tpy)	(hr/yr)	
Dryer	ES-Dryer	420,480		164.20
Emergency Generator	ES-EG		500	0.0015
Fire Water Pump	ES-FWP		500	0.0013
Hammermills	ES-CHM-1-4, ES-HAF	420,480		16.62
Pellet Presses and Coolers	ES-CLR-1 – 5	481,800		110.09
Diesel Storage Tanks	IST-1, 2		8,760	0.00094
			Facility Totals:	290.91

As shown in Table 3-3, the modified throughputs and use of 30%/45% softwood at the Ahoskie site results in VOC emissions well below the proposed annual VOC emissions limitation of 391.6 tpy. Enviva proposes to use an even higher softwood content provided that appropriate emission factors are derived and approved by DAQ as detailed in Section 6.1 of this application.

3.2 HAP Emissions

Dryer, bark hog, and chipper/green hammermill HAP emissions were previously calculated using AP-42 emission factors from other wood product industries.

Enviva has since performed HAP emissions testing of the hammermills and pellet coolers at several of its sites and developed HAP emission factors for these units based on varying softwood content. Enviva calculated the individual and cumulative HAP emissions for the baseline scenario and the modified facility scenario detailed in Sections 3.1.1 and 3.1.2, respectively. HAP emissions for the dryer, bark-hog, and chippers, continue to be calculated using AP-42 emission factors. HAP emissions from the hammermills and pellet coolers are calculated using emission factors derived from facility testing as discussed above. Copies of those emissions calculations are provided in Appendix B.

3.3 Other Emissions

All other emissions from the modified source scenario are calculated in the same manner as in previous applications. It should be noted that the only sources with increases in throughput from the previous application are the pellet presses/coolers and equipment downstream of those sources. Particulate emissions from these sources are controlled using fabric filter control technology and no modifications to these control devices are proposed as part of this application. Since particulate emissions from those sources are calculated using the air flow rate and rated performance of the control device, the increase in process throughput does not impact the particulate matter emissions. Therefore there are no increases in particulate emissions from the site compared to the existing permit application calculations. Particulate matter emissions from the baseline and modified source scenarios are also included in Appendix B.

Since the existing application calculations for the dryer system were performed at a rated capacity of 48 ODT/hr, combustion related emissions from the facility dryer (CO, NOx, SO2, CO2) are also unaffected by the facility modifications. Notwithstanding, combustion related emissions calculations for both the baseline and modified source scenarios are provided in Appendix B.

4.0 Federal NSR and HAP Major Source Applicability

4.1 Federal NSR Applicability

The Enviva facility has a current potential to emit below the PSD major source threshold of 250 tpy for VOC. Pursuant to this application, Enviva proposes physical changes to the equipment at the facility to debottleneck current operations. In order to prevent these modifications from triggering PSD review, Enviva proposes to add 249 tpy of VOC emissions to the current baseline for the facility and take a new federally enforceable limit for the facility of 391.6 tons per year. Enviva understands that after the proposed modification, Ahoskie will become a major source of VOC emissions for PSD purposes. However, the proposed synthetic minor modification to the existing minor source will not trigger PSD review at this time.

4.2 HAP Major Source Applicability

With the facility modifications proposed as part of this application, Enviva will become a Title V major source of HAPs. However, this modification triggers no new HAP requirements for the facility.

5.0 North Carolina Toxic Air Pollutants

Enviva previously submitted an air dispersion modeling demonstration showing compliance with the North Carolina Toxic Air Pollutant (TAP) Regulations at 15A NCAC 02Q.0700 for Acrolein, Benzene, Formaldehyde, and Phenol. The TAP demonstration was based on a dryer softwood content of 10%. Like many aspects of the original application, due to the lack of HAP/TAP data from wood pellet dryers at that time, the TAP emissions calculations utilized AP-42 emission factors associated with "similar" wood product industries. As a result, the initial emission factors included emissions of pollutants which have since been demonstrated to not be emitted from wood pellet dryers (e.g. - benzene and phenol). In addition, the initial modeling demonstration did not include TAP emissions from the hammermills and pellet presses/coolers.

Enviva has since performed HAP testing at several of its facilities and developed additional HAP/TAP emission factors. To demonstrate compliance with NC air toxics requirements for the facility as modified pursuant to this application, Enviva has conservatively calculated the TAP emissions from the facility using emission factors derived from facilities processing in excess of 60% softwood. Based on these factors, and the inclusion of the TAP emissions from the hammermills and pellet presses/coolers, Enviva has determined that only acrolein and formaldehyde emissions exceed the TAP Emission Rate Permitting Levels (TPERs) at 2Q.0711.

As discussed with the DEQ during our December 16, 2014 meeting, Enviva will submit updated air dispersion modeling demonstrating compliance with 15A NCAC 02Q.0700 under separate cover. Included with that submittal will be detailed TAP emissions calculations and comparisons to the TPERs listed at 2Q.0711.

6.0 Permit Modifications

6.1 VOC Limitation

As detailed above, Enviva proposes a federally-enforceable facility-wide annual VOC emissions limitation of 391.6 tons per year to avoid PSD review permitting. Enviva proposes to demonstrate compliance with this VOC emissions limitation by calculating the rolling 12-month total VOC emissions on a monthly basis, based on the throughputs achieved, and softwood content utilized, during that period. Suggested language for this condition is as follows:

> *"The permittee shall demonstrate compliance with the facility-wide VOC emissions limitation in Permit Condition [Insert Condition No. Here] by calculating the rolling 12-month annual facility-wide VOC emissions on a monthly basis (by the 30th day following the end of each calendar month). The VOC emissions shall be calculated in a manner consistent with the calculation methodologies included in the air permit application supporting this limitation. Emission factors used in the calculations for each source shall be appropriate for the annual average softwood content that has been processed in the previous 12-month period. All emission factors used shall be reviewed and approved by DAQ."*

7.0 Air Permit Application Fee

A check in the amount of $918 is also being submitted for the processing of this application.

APPENDIX A

Enviva Pellets Ahoskie, LLC

North Carolina DAQ Air Permit Application Forms

FORM A1

FACILITY (General Information)

REVISED 05/25/12 | NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate | A1

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

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

GENERAL INFORMATION

Received JAN - 9 2015 Air Permits Section

Legal Corporate/Owner Name: Enviva, LP	
Site Name: Enviva Pellets Ahoskie, LLC	
Site Address (911 Address) Line 1: 142 N.C. Route 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: Joe Harrell	Name/Title: same as permit / technical contact
Mailing Address Line 1: 142 N.C. Route 561 East	Mailing Address Line 1:
Mailing Address Line 2:	Mailing Address Line 2:
City: Ahsokie State: NC Zip Code: 27910	City: State: Zip Code:
Phone No. (area code) (252)209-6032 Fax No. (area code)	Phone No. (area code) Fax No. (area code)
Email Address: joe.harrell@envivabiomass.com	Email Address:
Responsible Official/Authorized Contact:	***Invoice Contact:***
Name/Title: Royal Smith	Name/Title: same as permit / technical contact
Mailing Address Line 1: 7200 Wisconsin Avenue	Mailing Address Line 1:
Mailing Address Line 2: Suite 1000	Mailing Address Line 2:
City: Bethesda State: Maryland Zip Code: 20814	City: State: Zip Code:
Phone No. (area code) (301)657-5567 Fax No. (area code) (301)657-5567	Phone No. (area code) Fax No. (area code)
Email Address: Royal.Smith@envivabiomass.com	Email Address:

APPLICATION IS BEING MADE FOR

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

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

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

FACILITY (Plant Site) INFORMATION

Describe nature of (plant site) operation(s): **Facility ID No. :** 4600107
Wood pellet manuacturing facility

Primary SIC/NAICS Code: 2499 (Wood Products, Not Elsewhere Classified)	Current/Previous Air Permit No. 10121R02 Expiration Date 11/30/2015
Facility Coordinates: Latitude: 323,525.1 UTM E	Longitude: 4,015,554.4 UTM N

Does this application contain confidential data? YES ☐ NO ☑ ***If yes, please contact the DAQ Regional Office prior to submitting this application.*** (See Instructions)

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name: Michael Deyo	Firm Name: Deyo & Associates, LLC
Mailing Address Line 1: 5708 Shady Mill Way	Mailing Address Line 2:
City: Glen Allen State: Virginia	Zip Code: 23059 County: Henrico
Phone No. (area code) 804-937-0377 Fax No. (area code) 804-441-8272	Email Address: mtdeyo@aol.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Royal Smith	Title: Vice President of Operations
X Signature(Blue Ink):	Date: 1/7/15

Attach Additional Sheets As Necessary

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

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

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

EMISSION SOURCE ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
Existing Permitted Equipment To Be MODIFIED By This Application			
ES-DRYER	Dryer System	CD-DC	Simple Cyclone
		CD-WESP	Electrostatic precipitator
ES-CLR 1 thru 4	Four pellet coolers	CD-CLR-C1	Dual high efficiency cyclone
		CD-CLR-C2	Dual high efficiency cyclone
ES-CLR 5	Pellet Cooler #5	CD-CLR-C3	Simple Cyclone
ES-FB	Fines Bin	CD-FB-BV	One Bin Vent Filter (325 square feet)
ES-FPH	Finished Product Handling	CD-FPH-BF	One bagfilter (4,842 square feet of filter area)
ES-TLB	Truck Loadout Bin (with 12 bottoms)		
ES-PL1, PL2	Two Pellet Loadouts		
Equipment To Be DELETED By This Application			

112(r) APPLICABILITY INFORMATION — A 3

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

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

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

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

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

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

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

Yes ☝ No ☝ If yes, please specify: _____

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

MISSION SOURCE DESCRIPTION: Green Wood Direct-Fired Dryer System	EMISSION SOURCE ID NO: ES-DRYER
	CONTROL DEVICE ID NO(S): CD-DC; CD-WESP
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-DRYER

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Green wood is conveyed to either a one or two rotary dryer system. Direct contact heat is provided to the system via a 175 mmBtu/hr burner system (one or two burners). Air emissions are controlled by cyclones for bulk particulate removal and additional particulate is removed utilizing a wet electrostatic precipitator (WESP) operating after the cyclone.

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

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

START CONSTRUCTION DATE: 2011	OPERATION DATE: 2011	DATE MANUFACTURED: 2011
MANUFACTURER / MODEL NO.: Teaford	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	See Emission Calculations in Appendix B						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	See Emission Calculations in Appendix B			

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

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

Attach Additional Sheets As Necessary

FORM B1

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

REVISED 12/01/01 — **NCDENR/Division of Air Quality - Application for Air Permit to Construct/Operate** — **B1**

ISSION SOURCE DESCRIPTION: Green Wood Direct-Fired Dryer System	EMISSION SOURCE ID NO: ES-DRYER
	CONTROL DEVICE ID NO(S): CD-DC; CD-WESP
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-DRYER

DESCRIBE USE: ☝ PROCESS HEAT ☝ SPACE HEAT ☝ ELECTRICAL GENERATION
☝ CONTINUOUS USE ☝ STAND BY/EMERGENCY ☝ OTHER (DESCRIBE): _____

HEATING MECHANISM: ☝ INDIRECT ☝ DIRECT

MAX. FIRING RATE (MMBTU/HOUR): 125

WOOD-FIRED BURNER

WOOD TYPE: ☝ BARK ☝ WOOD/BARK ☝ WET WOOD ☝ DRY WOOD ☝ OTHER (DESCRIBE): _____

PERCENT MOISTURE OF FUEL: ~50%

☝ UNCONTROLLED ☝ CONTROLLED WITH FLYASH REINJECTION ☝ CONTROLLED W/O REINJECTION

FUEL FEED METHOD: Air Swept Fuel Feeders	HEAT TRANSFER MEDIA: ☝ STEAM ☝ AIR ☝ OTHER
METHOD OF TUBE CLEANING: Scraping of Burner Floor	CLEANING SCHEDULE: Annual scraping of burner floor

COAL-FIRED BURNER

TYPE OF BOILER — IF OTHER DESCRIBE:

PULVERIZED	OVERFEED STOKER	UNDERFEED STOKER	SPREADER STOKER	FLUIDIZED BED
☐ WET BED	☝ UNCONTROLLED	☝ UNCONTROLLED	☝ UNCONTROLLED	☝ CIRCULATING
☐ DRY BED	☝ CONTROLLED	☝ CONTROLLED	☝ FLYASH REINJECTION	☝ RECIRCULATING
			☝ NO FLYASH REINJECTION	

METHOD OF LOADING: ☝ CYCLONE ☝ HANDFIRED ☝ TRAVELING GRATE ☝ OTHER (DESCRIBE): _____

METHOD OF TUBE CLEANING: — CLEANING SCHEDULE:

OIL/GAS-FIRED BURNER

TYPE OF BOILER: ☐ UTILITY ☐ INDUSTRIAL ☐ COMMERCIAL ☐ RESIDENTIAL

TYPE OF FIRING: ☐ NORMAL ☐ TANGENTIAL ☐ LOW NOX BURNERS ☐ NO LOW NOX BURNER

METHOD OF TUBE CLEANING: — CLEANING SCHEDULE:

OTHER FUEL-FIRED BURNER

TYPE OF FUEL: _____ PERCENT MOISTURE: _____

TYPE OF BOILER: ☐ UTILITY ☐ INDUSTRIAL ☐ COMMERCIAL ☐ RESIDENTIAL

TYPE OF FIRING: _____ TYPE OF CONTROL (IF ANY): _____ FUEL FEED METHOD: _____

METHOD OF TUBE CLEANING: — CLEANING SCHEDULE:

FUEL USAGE (INCLUDE STARTUP/BACKUP FUELS)

FUEL TYPE	UNITS	MAXIMUM DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION (UNIT/HR)
Wet Wood	LB	Nominal 29,762	

FUEL CHARACTERISTICS (COMPLETE ALL THAT ARE APPLICABLE)

FUEL TYPE	SPECIFIC BTU CONTENT	SULFUR CONTENT (% BY WEIGHT)	ASH CONTENT (% BY WEIGHT)
Wet Wood	Nominal 4200 BTU/lb	0.011	

MPLING PORTS, COMPLIANT WITH EPA METHOD 1 WILL BE INSTALLED ON THE STACKS: ☝ YES ☝ NO

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

ISSION SOURCE DESCRIPTION: Four dry wood hammermills	EMISSION SOURCE ID NO: ES-DHM-1, 2, 3 & 4
	CONTROL DEVICE ID NO(S): CD-DHM-C1, 2, 3, & 4 CD-DHM-FF1, 2
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-DHM-1, 2

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

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

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

START CONSTRUCTION DATE: 2011	OPERATION DATE: 2011	DATE MANUFACTURED: 2011
MANUFACTURER / MODEL NO.: Bliss, Model 44-60	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	See Emission Calculations in Appendix B						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	See Emission Calculations in Appendix B			

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

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

ISSION SOURCE DESCRIPTION: Four dry wood hammermills	EMISSION SOURCE ID NO: ES-DHM-1, 2, 3 & 4
	CONTROL DEVICE ID NO(S): CD-DHM-C1, 2, 3, & 4 CD-DHM-FF1, 2
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-DHM-1, 2

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Dried materials are reduced to the approporitate size needed for pelletization using four dry wood hammermills.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	ODT	48 (includes all hammermills)	

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

MAXIMUM DESIGN (BATCHES / HOUR):

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

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

COMMENTS:

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

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

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

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

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

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

START CONSTRUCTION DATE: 2011	OPERATION DATE: 2011	DATE MANUFACTURED: 2011
MANUFACTURER / MODEL NO.: Bliss, Model 44-60	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	See Emission Calculations in Appendix B						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	See Emission Calculations in Appendix B			

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

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

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

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

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

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Ground Wood	ODT	48 (includes all hammermills)	

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

MAXIMUM DESIGN (BATCHES / HOUR):

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

ISSION SOURCE DESCRIPTION: Four pellet coolers	EMISSION SOURCE ID NO: ES-CLR 1, 2, 3 & 4
	CONTROL DEVICE ID NO(S): CD-CLR-C1 & C2
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-CLR-1 & 2

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Four pellet coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. ES-CLR 1 and 2 exhaust to CD-CLR C1 and ES-CLR 3 and 4 exhaust to CD-CLR C2.

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

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

START CONSTRUCTION DATE: 2011	OPERATION DATE: 2011	DATE MANUFACTURED: 2011
MANUFACTURER / MODEL NO.: Bliss	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	See Emission Calculations in Appendix B						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	See Emissions Calculations in Appendix B			

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

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

ISSION SOURCE DESCRIPTION: Four pellet coolers	EMISSION SOURCE ID NO: ES-CLR 1, 2, 3 & 4
	CONTROL DEVICE ID NO(S): CD-CLR-C1 & C2
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-CLR-1 & 2

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Four pellet coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. ES-CLR 1 and 2 exhaust to CD-CLR C1 and ES-CLR 3 and 4 exhaust to CD-CLR C2.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION(UNIT/HR)
TYPE	UNITS		
Wood Pellets	ODT	55 (combined all 5 coolers)	

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

MAXIMUM DESIGN (BATCHES / HOUR):

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

ISSION SOURCE DESCRIPTION: Pellet Cooler #5	EMISSION SOURCE ID NO: ES-CLR 5
	CONTROL DEVICE ID NO(S): CD-CLR-C3
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-CLR-3

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

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

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

START CONSTRUCTION DATE: 2012	OPERATION DATE: 2012	DATE MANUFACTURED: 2012
MANUFACTURER / MODEL NO.: Kahl	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

HAZARDOUS AIR POLLUTANT AND CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) lb/hr	EXPECTED ACTUAL (AFTER CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (BEFORE CONTROLS / LIMITS) tons/yr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) lb/hr	POTENTIAL EMSSIONS (AFTER CONTROLS / LIMITS) tons/yr
	See Emission Calculations in Appendix B						

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

TOXIC AIR POLLUTANT AND CAS NO.	EF SOURCE	lb/hr	lb/day	lb/yr
	See Emission Calculations in Appendix B			

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

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

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

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

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

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Wood Pellets	ODT	55 (combined all 5 coolers)	

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

MAXIMUM DESIGN (BATCHES / HOUR):

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

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

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

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

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

START CONSTRUCTION DATE: 2014	OPERATION DATE: 3/1/2014	DATE MANUFACTURED: 2014
MANUFACTURER / MODEL NO.: Aircon/CAR 36-6		EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

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

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

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

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

MATERIAL STORED: Fine pellet material					DENSITY OF MATERIAL (LB/FT3): 40	
CAPACITY	CUBIC FEET: 2200				TONS:	
DIMENSIONS (FEET)	HEIGHT: 97.3	DIAMETER: 12	***(OR)***		LENGTH:	WIDTH: HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:				MAXIMUM DESIGN CAPACITY:	

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

NO. FILL TUBES:

MAXIMUM ACFM: 750 each

MATERIAL IS FILLED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSIONS SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

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

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

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

ES-FPH: Collection of transfer points, pellet screening operations, and pellet conveying.

ES-PB: Pellet loadout bins are used to store pellets for shipping. Pellets are then loaded from the bins directly into trucks in either of the two (2) pellet loadout areas.

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

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

☐ Coal,wood,oil, gas, other burner (Form B1) ☐ Woodworking (Form B4) ☐ Manufact. of chemicals/coatings/inks (Form B7)

☐ Int.combustion engine/generator (Form B2) ☐ Coating/finishing/printing (Form B5) ☐ Incineration (Form B8)

☐ Liquid storage tanks (Form B3) ■ Storage silos/bins (Form B6) ■ Other (Form B9)

START CONSTRUCTION DATE: 2011	OPERATION DATE: 2011	DATE MANUFACTURED: 2011
MANUFACTURER / MODEL NO.: Aircon Model # 13.6 RAW 268-10	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR	
IS THIS SOURCE SUBJECT TO? NSPS (SUBPART?):	NESHAP (SUBPART?):	MACT (SUBPART?):
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25%	MAR-MAY 25%	JUN-AUG 25% SEP-NOV 25%
EXPECTED ANNUAL HOURS OF OPERATION 8,760	VISIBLE STACK EMISSIONS UNDER NORMAL OPERATION: <20 % OPACITY	

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

INDICATE EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS

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

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

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

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

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

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood Pellets	ODT	55 tons per hour	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

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

SSION SOURCE DESCRIPTION: Pellet Loadout Bins	EMISSION SOURCE ID NO: ES-TLB
	CONTROL DEVICE ID NO(S): CD-FPH-BF
OPERATING SCENARIO: 1 OF 1	EMISSION POINT(STACK) ID NO(S): EP-13

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

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

MATERIAL STORED: Pellet Product				DENSITY OF MATERIAL (LB/FT3): 40		
CAPACITY	CUBIC FEET:			TONS:		
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: 12	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:			MAXIMUM DESIGN CAPACITY: 52 tph		

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

NO. FILL TUBES:

XIMUM ACFM: 750 each

MATERIAL IS FILLED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

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

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

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

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

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

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

MAXIMUM DESIGN (BATCHES / HOUR):

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM D1

FACILITY-WIDE EMISSIONS SUMMARY

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

*CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM D4

EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

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

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

	DESCRIPTION OF EMISSION SOURCE	SIZE OR PRODUCTION RATE	BASIS FOR EXEMPTION OR INSIGNIFICANT ACTIVITY
1.	Electric Powered Chipper ES-CHIP1	420,480 ODT/yr	15A NCAC 02Q .0102(c)(2)(E)
2.	Green Wood Hammermill ES-CHIP2	420,480 ODT/yr	15A NCAC 02Q .0102(c)(2)(E)
3.	Green Wood Handling and Storage ES-GWHS	716,304 tpy	15A NCAC 02Q .0102(c)(2)(E)
4.	Green Wood Fuel Storage Bin ES-GWFB	130,357 tpy	15A NCAC 02Q .0102(c)(2)(E)
5.	Dried Wood Handling ES-DWH	420,480 ODT/yr	15A NCAC 02Q .0102(c)(2)(E)
6.	10 Pelletizers (Pellet Presses) ES-PP	481,800 ODT/yr	15A NCAC 02Q .0102(c)(2)(E)
7.	Final Product Handling ES-FPH	481,800 ODT/yr	15A NCAC 02Q .0102(c)(2)(E)
8.	Emergency Generator Diesel Fuel Tank TK1	2,500 gallons	15A NCAC 02Q .0102(c)(1)(D)
9.	Fire Water Pump Diesel Fuel Tank TK2	500 gallons	15A NCAC 02Q .0102(c)(1)(D)
10.	Log Yard 300 Diesel Tank TK3	300 gallons	15A NCAC 02Q .0102(c)(1)(D)
11.	Electric Powered Bark Hog ES-BARK	145,080 ODT/yr	15A NCAC 02Q .0102(c)(2)(E)

Attach Additional Sheets As Necessary

FORM D

TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

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

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

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

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

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

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

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

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

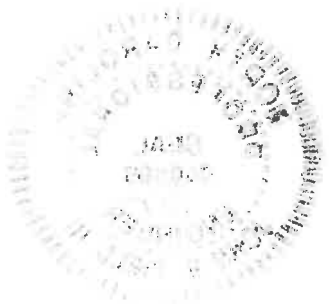
(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)

NAME: J. Rusty Field, P.E.
DATE: 12-23-14
COMPANY: ONE Environmental Group, LLC
ADDRESS: 500 Libbie Avenue, Suite 1C
TELEPHONE: 804-303-8784
SIGNATURE:
PAGES CERTIFIED: PSD Avoidance Determination
Modified Equipment - Form Bs

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

PLACE NORTH CAROLINA SEAL HERE

Attach Additional Sheets As Necessary



APPENDIX B

Enviva Pellets Ahoskie, LLC

Baseline and Modified Source Emissions Calculations

Eniva Ahoskie Pellets, LLC
PSD Avoidance Emissions Summary
And Proposed VOC Emissions Limitation
December 2014

Section 1: Two Year Average Baseline Emissions Calculations

Date Range	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	Total VOC (tpy)
12/2012-11/2013	33.40	138.26	119.21	119.19	119.17	14.24	146.48
12/2013-11/2014	31.54	130.55	118.18	118.15	118.13	15.34	138.80
Two Year Average	32.47	134.41	118.69	118.67	118.65	14.79	142.64

Section 2: Proposed VOC Emissions Limitation

Two Year Average:	142.64	tpy
Proposed Increase:	249.00	tpy
Proposed Limit:	391.64	tpy

Section 3: Other Pollutant Increases Compared to Baseline:

Scenario	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	Total VOC (tpy)[1]
Two Year Average	32.47	134.41	118.69	118.67	118.65	14.79	142.64
Modified Facility:	45.09	183.98	129.66	129.63	129.60	19.20	391.64
Emissions Increase:	12.62	49.57	10.97	10.96	10.95	4.41	249.00

296.14
95.5

(1) Total VOC emissions represents proposed VOC emissions limitation to avoid PSD review.

APPENDIX B.1

Enviva Pellets Ahoskie, LLC

December 2012- November 2013

Baseline Emissions Calculations

TABLE B-1
FACILITY-WIDE CRITERIA POLLUTANT SUMMARY (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Source Description	Unit ID	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	Total VOC (tpy)	CO_{2e} biomass defferal (tpy)	CO_{2e} (tpy)
Dryer System	ES-DRYER	33.36	138.22	18.50	18.50	18.50	14.24	112.80	2,478.52	120,251.94
Emergency Generator	ES-EG	0.02	0.02	0.00	0.00	0.00	0.0000	0.0001	4.02	4.02
Fire Water Pump	ES-FWP	0.01	0.01	0.00	0.00	0.00	0.0000	0.0000	2.04	2.04
Dry Wood Hammermills	ES-CHM-1 thru 4	-	-	30.03	30.03	30.03	-	8.54	-	-
Hammermill 5	ES-HAF	-	-	12.20	12.20	12.20	-		-	-
Pellet Mill Feed Silo	ES-PMFS	-	-	0.82	0.82	0.82	-	-	-	-
Dried Wood Day Silo	DWDS	-	-	0.82	0.82	0.82	-	-	-	-
Pellet Presses and Coolers	ES-CLR1 thru -6	-	-	56.78	56.78	56.78	-	25.14	-	-
Dried Wood Handling	ES-DHW, ES-PP	-	-	0.05	0.02	0.00	-	-	-	-
Diesel Storage Tanks	TK1 & TK2	-	-	-	-	-	-	8.80E-04	-	-
	Total PSD Emissions	**33.40**	**138.26**	**119.21**	**119.19**	**119.17**	**14.24**	**146.48**	**2,484.57**	**120,257.99**
Fugitive (Non-PSD Sources)										
Chipper and Re-chipper	ES-CHIP - 1	-	-	-	-	-	-	0.41	-	-
Green Hammermill	ES-CHIP - 2	-	-	-	-	-	-	0.74	-	-
Bark Hog	IES-BARK	-	-	-	-	-	-	0.16	-	-
Green Wood Handling	ES-GWS	-	-	0.02	0.01	0.00	-	-	-	-
Green Wood Piles	ES-GWSP1	-	-	2.65	1.33	0.20	-	2.93	-	-
	Total Facility Emisions:	**33.40**	**138.26**	**121.88**	**120.52**	**119.37**	**14.24**	**150.72**	**2,484.57**	**120,257.99**

TABLE B-2
FACILITYWIDE HAP EMISSIONS SUMMARY (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Description	Dryer (tpy)	ES-HM1 thru 5 (tpy)	ES-CLR1 thru 6 (tpy)	ES-EG (tpy)	ES-FWP (tpy)	ES-BARK (tpy)	ES-CHP-1 (tpy)	ES-CHP-2 (tpy)	Total (tpy)
1,3-Butadiene	-	-	-	1.03E-06	5.23E-07	-	-	-	1.55E-06
Acetaldehyde	1.74E+00	0.00E+00	0.00E+00	2.02E-05	1.03E-05	-	-	-	1.74E+00
Acrolein	0.00E+00	5.47E-01	0.00E+00	2.44E-06	1.24E-06	-	-	-	5.47E-01
Benzene	-	-	-	2.46E-05	1.25E-05	-	-	-	3.71E-05
Formaldehyde	3.25E+00	0.00E+00	2.34E-01	3.11E-05	1.58E-05	-	-	-	3.48E+00
m-,p-Xylene	-	-	-	7.52E-06	3.81E-06	-	-	-	1.13E-05
Methanol	2.55E+00	4.56E-01	4.68E-01	-	-	0.04	0.09	0.16	3.76E+00
Propionaldehyde	3.01E-01	0.00E+00	0.00E+00	-	-	-	-	-	3.01E-01
Toluene	-	-	-	1.08E-05	5.47E-06	-	-	-	1.63E-05
Total PAH (POM)	0.00E+00	-	-	4.43E-06	2.25E-06	-	-	-	6.68E-06
TOTAL HAP	**7.84**	**1.00**	**0.70**	**0.000**	**0.000**	**0.04**	**0.09**	**0.16**	**9.82**

TABLE B-4
ROTARY DRYER -CRITERIA POLLUTANT EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Dryer Inputs

Annual Dried Wood Throughput of Dryer	**317,750**	ODT/year
Max. Hourly Dried Wood Throughput of Dryer	43.00	ODT/hr
Burner Heat Input	175.3	MMBtu/hr
Percent Hardwood	90.0%	
Percent Softwood	10.0%	
Max Potential Annual Heat Input:	**1139055**	**MMBtu/yr**

Criteria Pollutant Calculations:

Pollutant	Biomass Emission Factor (lb/ODT)	Units	Emission Factor Source	Emissions (tpy)
CO	0.21	lb/ODT	Title V Application [1]	33.4
NO_X	0.87	lb/ODT	Stack Testing [2]	138.2
Total TSP	0.116	lb/ODT	Calculated from Guaranteed WESP Specifications [3]	18.5
Total PM_{10}	0.116	lb/ODT	Calculated from Guaranteed WESP Specifications [3]	18.5
Total $PM_{2.5}$	0.116	lb/ODT	Calculated from Guaranteed WESP Specifications [3]	18.5
SO_2	0.025	lb/MMBtu	AP-42, Section 1.6 [5]	14.2
VOC as alpha-pinene	0.710	lb/ODT	Stack Testing [4]	112.8
VOC as alpha-pinene	0.710	lb/ODT	Stack Testing [4]	112.8
Lead	0.00	N/A	N/A	0.0

0.714 Stack Test 2014

Note:

[1] CO emission factor obtained from 2012 Title V Application.

[2] NOx emission factor obtained from 2012 Title V Application.

[3] WESP Outlet Air Flowrate 81,509 dSCF
PM Grain Loading 0.008 gr/dSCF
Emissions: 652.07 gr/min
0.093 lb/min
5.59 lb/hr
Dryer Capacity Basis: 48.00 ODT/hr
Calculated PM Emission Factor: 0.116 lb/ODT

48 x 8760 = 420,480 ODT/yr.

Although the vendor estimated emissions to include condensibles, additional condensibles from wood combustion AP-42, Section 1.6 were included. The vendor only provided the filterable fraction of particulate matter in the emission factors. Enviva has conservatively calculated the condensible fraction based upon the heat input of the dryer burners using an emission factor for wood combustion from AP-42, Section 1.6.

[4] VOC emission factors are calculated from the Northampton October 2013 stack test.

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

TABLE B-5
ROTARY DRYER -HAP AND TAP WOOD COMBUSTION EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Calculation Inputs:

Annual Composition and Throughput

Throughput ODT/yr	317,750
Hardwood Composition	90%
Softwood Composition	10%

Emission Calculations:

Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	VOC (Yes/No)	Emission Factor Comparison				Weighted Emission Factor[3]		Emissions
					AP-42 Calculated Direct wood-fired, hardwood factors		AP-42 Green, Direct wood-fired softwood factors				
					Emission Factor (lb/ODT)	Reference	Emission Factor (lb/ODT)	Reference	Anuual EF (lb/ODT)	EF Source	(tpy)
Acetaldehyde	75-07-0	Yes	Yes	Yes	3.83E-03	[1,2]	7.50E-02	[1]	1.09E-02	AP-42	1.74E+00
Acrolein	107-02-8	Yes	Yes	Yes	0.00E+00	[1,2,4]	0.00E+00	[1,4]	0.00E+00	AP-42	0.00E+00
Formaldehyde	50-00-0	Yes	Yes	Yes	7.15E-03	[1,2]	1.40E-01	[1]	2.04E-02	AP-42	3.25E+00
Methanol	67-56-1	Yes	No	Yes	5.62E-03	[1,2]	1.10E-01	[1]	1.61E-02	AP-42	2.55E+00
Propionaldehyde	123-38-6	Yes	No	Yes	6.64E-04	[1,2]	1.30E-02	[1]	1.90E-03	AP-42	3.01E-01
										Total HAPs	**7.84**

Notes:

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

[2] To account for hardwood emissions since no HAP/TAP emission factors are given for direct hardwood-fired, factors were conservatively calculated by multiplying AP-42 Section 10.6.2-3 HAP factors for green, direct softwood fired by the ratio of the VOC emission factors for hardwood to softwood drying (0.24/4.7).

[3] Short-term and annual emissions based on worst case processing of 10% softwood.

[4] Through testing at other Enviva facilities Acrolein and Phenol are typically not evident in the emissions stream.

TABLE B-7
HAMMERMILLS - VOC, HAP, AND TAP EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Calculation Inputs:

Total Plant Throughput ODT/yr	317,750
% of Total Throughput to the Hammermills	85%

via AHO test for Dry Hammermill pre-screener bypass

Annual Composition and Throughput

Hammermills Throughput ODT/yr	270,088
Hardwood Composition	90%
Softwood Composition	10%

Emission Calculations:

Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	VOC (Yes/No)	Emission Factor – Stack Tests: Emission Factor (lb/ODT)	Emission Factor – Stack Tests: Reference	Emission Factor: Annual EF (lb/ODT)	Emission Factor: EF Source	Emissions (tpy)
VOC and Alpha Pinene	N/A	N/A	N/A	N/A	0.063	1	0.06	Stack Test	8.54
Acetaldehyde	75-07-0	Yes	Yes	Yes	0.0000	3	0.0000	Stack Test	0.00E+00
Acrolein	107-02-8	Yes	Yes	Yes	0.0041	3	0.0041	Stack Test	5.47E-01
Formaldehyde	50-00-0	Yes	Yes	Yes	0.0000	3	0.0000	Stack Test	0.00E+00
Methanol	67-56-1	Yes	No	Yes	0.0034	3	0.0034	Stack Test	4.56E-01
Propionaldehyde	123-38-6	Yes	No	Yes	0.0000	3	0.0000	Stack Test	0.00E+00
								Total VOC	**8.54**
								Total HAPs	**1.00**

Notes:

[1] VOC emissions from Enviva Ahoskie July 2013 stack testing

[2] HAP & TAP emission factors obtained from Enviva Amory October 2013 Stack Testing as a conservative measure (60% softwood).

TABLE B-8
PELLET PRESSES AND COOLERS - VOC, HAP, AND TAP EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Calculation Inputs:

Annual Composition and Throughput

Throughput ODT/yr	354,678
Hardwood Composition	90%
Softwood Composition	10%

Emission Calculations:

Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	VOC (Yes/No)	Emission Factor – Stack Tests		Emission Factor		Emissions
					Emission Factor (lb/ODT)	Reference	Annual EF (lb/ODT)	EF Source	(tpy)
VOC as alpha-pinene	N/A	N/A	N/A	N/A	0.14	[1]	0.14	stack test	25.14
Acetaldehyde	75-07-0	Yes	Yes	Yes	0.00E+00	[2]	0.00E+00	stack test	0.00E+00
Acrolein	107-02-8	Yes	Yes	Yes	0.00E+00	[2]	0.00E+00	stack test	0.00E+00
Formaldehyde	50-00-0	Yes	Yes	Yes	1.32E-03	[2]	1.32E-03	stack test	2.34E-01
Methanol	67-56-1	Yes	No	Yes	2.64E-03	[2]	2.64E-03	stack test	4.68E-01
Propionaldehyde	123-38-6	Yes	No	Yes	0.00E+00	[2]	0.00E+00	stack test	0.00E+00
								Total VOC	**25.14**
								Total HAPs	**0.70**

Notes:

[1] VOC emissions from Enviva Northampton September 2013 engineering stack test results.

[2] HAP & TAP emission factors obtained from Enviva Northampton September 2013 Stack Testing.

TABLE B-9
BARK HOG VOC, PM, and HAP Emissions (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Annual Throughput of Bark Hog	70,513	tons/year (dry wood)[1]
Dryer Throughput	43.00	tons/hr (dry wood)[1]

Pollutant	Emission Factors (lb/dry wood tons)	(tpy)
THC as Carbon[2]	0.0041	0.14
THC as alpha-Pinene[3]	0.0047	0.16
PM[4]	N/A	N/A
Methanol[2]	0.0010	0.04

[1] The annual throughput used for the bark-hog is obtained from facility operating records. The short-term throughput is based upon the maximum throughput to the dryer.

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

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

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

TABLE B-10
ELECTRIC POWERED CHIPPER (ES-CHIP1) - VOC, HAP, AND TAP EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Annual Throughput to ES-CHP1	300,523	tn/yr
Moisture Content:	42%	
Annual Throughput to ES-CHP1	174,303	tons/year (dry wood)[1]
Short-term Throughput of Chipper	43.00	tons/hr (dry wood)[1]

Pollutant	Emission Factors (lb/dry wood tons)	Emissions[5] (tpy)
THC as Carbon[2]	0.0041	0.36
THC as alpha-Pinene[3]	0.0047	0.41
PM[4]	N/A	**N/A**
Methanol[2]	0.0010	**0.09**

[1] The annual throughput used for CHP1 is based on facility throughput records. The annual throughput to CHP2 is conservatively assumed to be the same as the dryer. The short-term throughput is based upon the maximum hourly throughput of the dryer.

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

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

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

[5] Short term emissions were based upon the max short term capacity of the chippers.
Emissions are representative of the total combined emissions for both rechippers.

TABLE B-11
GREEN HAMMERMILL (ES-CHP2) - VOC, HAP, AND TAP EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Annual Throughput to ES-CHP2	547,845	tn/yr
Moisture Content:	42%	
Annual Throughput to ES-CHP2	317,750	tons/year (dry wood)[1]
Short-term Throughput of Green Hammermill	43.00	tons/hr (dry wood)[1]

Pollutant	Emission Factors (lb/dry wood tons)	Emissions[5] (tpy)
THC as Carbon[2]	0.0041	0.65
THC as alpha-Pinene[3]	0.0047	0.74
PM[4]	N/A	N/A
Methanol[2]	0.0010	**0.16**

[1] The annual throughput used for CHP1 is based on facility throughput records. The annual throughput to CHP2 is conservatively assumed to be the same as the dryer. The short-term throughput is based upon the maximum hourly throughput of the dryer.

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

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

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

[5] Short term emissions were based upon the max short term capacity of the chippers.
Emissions are representative of the total combined emissions for both rechippers.

TABLE B-12
BAGFILTER AND CYCLONE EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Emission Unit	Emission Source ID	Filter. Vent -or- Cyclone ID	Flowrate[1] (cfm)	Pollutant Loading[2] (gr/cf)	Annual Operation (hours)	% PM that is PM_{10}	% PM that is $PM_{2.5}$	PM (tpy)	PM_{10}[3] (tpy)	$PM_{2.5}$[3] (tpy)
Dried Wood Day Silo	ES-DWDS	CD-DWS-BV	2186	0.01	8,760	100%	100%	0.82	0.82	0.82
Dry Wood Hammermills 1 & 2	ES-CHM	CD-CHM-FF1	40000	0.01	8,760	100%	100%	15.02	15.02	15.02
Dry Wood Hammermills 3 & 4	ES-CHM	CD-CHM-FF2	40000	0.01	8,760	100%	100%	15.02	15.02	15.02
Hammermill Area and HM-5	ES-HAF	CD-HAF-FF1	32,500	0.01	8,760	100%	100%	12.20	12.20	12.20
Pellet Mill Feed Silo Bin Vent Filter	ES-PMFS	CD-PMFS-BV	2,186	0.01	8,760	100%	100%	0.82	0.82	0.82
Fines Bin	ES-FB	CD-FB-BV	3,600	0.003	8,760	100%	100%	0.41	0.41	0.41
Finished Product Handing	ES-FPH, ES-PL, ES-TLB	CD-FPH-BV	35,500	0.003	8,760	100%	100%	4.00	4.00	4.00
Pellet Coolers Cyclone 1 & 2	ES-CLR-1	CD-CLR-1	27,500	0.022	8,760	100%	100%	22.71	22.71	22.71
Pellet Coolers Cyclone 3 & 4	ES-CLR-2	CD-CLR-2	27,500	0.022	8,760	100%	100%	22.71	22.71	22.71
Pellet Coolers Cyclone 5	ES-CLR-5	CD-CLR-3	13,750	0.022	8,760	100%	100%	11.36	11.36	11.36
Pellet Coolers Cyclone 6	ES-CLR-6	CD-CLR-4	0	0.022	0	100%	100%	-	-	-
							TOTAL	**105.06**	**105.06**	**105.06**

Note:

[1] Filter, Vent, and Cyclone inlet flow rate (cfm) provided by design engineering firm (Mid-South Engineering Co.).

[2] Unless otherisw specidied, pollutant (PM) loading conservatively assumed to be 0.01 gr/dscf.

[3] It was conservatively assumed that PM_{10} and $PM_{2.5}$ equal PM emissions.

TABLE B-13
EMERGENCY GENERATOR AND FIRE PUMP (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Emergency Generator Emissions (ES-EG)

Equipment and Fuel Characteristics

Engine Output	0.26	MW
Engine Power	350	hp (brake)
Hours of Operation	22	hr/yr[1]
Heating Value of Diesel	19,300	Btu/lb
Power Conversion	7,000	Btu/hr/hp
Fuel Usage	17.6	gal/hr

Criteria Pollutant Emissions

Pollutant	Category	Emission Factor	Units	tpy
TSP	PSD	4.41E-04	lb/kW-hr (2)	1.24E-03
PM_{10}	PSD	4.41E-04	lb/kW-hr (2)	1.24E-03
$PM_{2.5}$	PSD	4.41E-04	lb/kW-hr (2)	1.24E-03
NO_x	PSD	8.82E-03	lb/kW-hr (5)	2.48E-02
SO_2	PSD	15	ppmw (3)	4.10E-05
CO	PSD	7.72E-03	lb/kW-hr (2)	2.17E-02
VOC (NMHC)	PSD	2.51E-03	lb/MMBtu (4)	6.62E-05
Toxic/Hazardous Air Pollutant Emissions				
Acetaldehyde	HAP/TAP	5.37E-06	lb/hp-hr (4)	2.02E-05
Acrolein	HAP/TAP	6.48E-07	lb/hp-hr (4)	2.44E-06
Benzene	HAP/TAP	6.53E-06	lb/hp-hr (4)	2.46E-05
Benzo(a)pyrene[6]	HAP/TAP	1.32E-09	lb/hp-hr (4)	4.96E-09
1,3-Butadiene	HAP/TAP	2.74E-07	lb/hp-hr (4)	1.03E-06
Formaldehyde	HAP/TAP	8.26E-06	lb/hp-hr (4)	3.11E-05
Total PAH (POM)	HAP	1.18E-06	lb/hp-hr (4)	4.43E-06
Toluene	HAP/TAP	2.86E-06	lb/hp-hr (4)	1.08E-05
m-,p-Xylene	HAP/TAP	2.00E-06	lb/hp-hr (4)	7.52E-06
Highest HAP (Formaldehyde)		8.26E-06	lb/hp-hr (4)	3.11E-05
Total HAPs				1.02E-04

Note:

[1] Operating hours based on facility operational records.

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

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

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

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

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

Firewater Pump Emissions (ES-FWP)

Equipment and Fuel Characteristics

Engine Output	0.22	MW
Engine Power	300	hp
Hours of Operation	13	hr/yr[1]
Heating Value of Diesel	19,300	Btu/lb
Power Conversion	7,000	Btu/hr/hp
Fuel Usage	15.1	gal/hr

Criteria Pollutant Emissions

Pollutant	Category	Emission Factor	Units	tpy
TSP	PSD	4.41E-04	lb/kW-hr (2)	6.28E-04
PM_{10}	PSD	4.41E-04	lb/kW-hr (2)	6.28E-04
$PM_{2.5}$	PSD	4.41E-04	lb/kW-hr (2)	6.28E-04
NO_x	PSD	8.82E-03	lb/kW-hr (5)	1.26E-02
SO_2	PSD	15	ppmw (3)	2.08E-05
CO	PSD	7.72E-03	lb/kW-hr (2)	1.10E-02
VOC (NMHC)	PSD	2.51E-03	lb/MMBtu (4)	3.35E-05
Toxic/Hazardous Air Pollutant Emissions				
Acetaldehyde	HAP/TAP	5.37E-06	lb/hp-hr (4)	1.03E-05
Acrolein	HAP/TAP	6.48E-07	lb/hp-hr (4)	1.24E-06
Benzene	HAP/TAP	6.53E-06	lb/hp-hr (4)	1.25E-05
Benzo(a)pyrene[6]	HAP/TAP	1.32E-09	lb/hp-hr (4)	2.51E-09
1,3-Butadiene	HAP/TAP	2.74E-07	lb/hp-hr (4)	5.23E-07
Formaldehyde	HAP/TAP	8.26E-06	lb/hp-hr (4)	1.58E-05
Total PAH (POM)	HAP	1.18E-06	lb/hp-hr (4)	2.25E-06
Toluene	HAP/TAP	2.86E-06	lb/hp-hr (4)	5.47E-06
m-,p-Xylene	HAP/TAP	2.00E-06	lb/hp-hr (4)	3.81E-06
Highest HAP (Formaldehyde)		8.26E-06	lb/hp-hr (4)	1.58E-05
Total HAPs				5.18E-05

Note:

[1] Operating hours based on facility operational records.

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

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

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

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

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

TABLE B-14
DRIED WOOD HANDLING DROP POINT EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Annual Dryer Output Throughput (ODT/yr)	317,750	
Annual Pellet Press Throughput (ODT/yr)	354,678	
Dryer Output Moisture Content:	17%	
Pellet Mill Output Moisture Content:	6%	
Amount of Fines Diverted from Hammermills	15.0%	via AHO test for Dry Hammermill pre-screener bypass

ID	Emission Source Group	Description	Control	Control Description	Throughput		PM^3 Emissions	$PM_{10}{}^3$ Emissions	$PM_{2.5}{}^3$ Emissions
					Max. Hourly[2] (tph)	Annual (tpy)	(tpy)	(tpy)	(tpy)
DP1	ES-DWH	Dryer Discharger to Outfeed Conveyor	Enclosed	Reduction to 2 mph mean wind speed	51.81	382,831	6.9E-03	3.3E-03	4.9E-04
DP2	ES-DWH	Dryer Outfeed Conveyors to Silo Feed/Silo Bypass	Enclosed	Reduction to 2 mph mean wind speed	7.77	57,425	1.0E-03	4.9E-04	7.4E-05
DP3	ES-DWH	Silo Bypass/Dryer Silo to Conveyor Hammermill Surge Bin	Enclosed	Reduction to 2 mph mean wind speed	44.04	325,407	5.9E-03	2.8E-03	4.2E-04
DP4	ES-DWH	Conveyor to Hammermill Surge Bin Drop into HM Surge Bin	Enclosed	Reduction to 2 mph mean wind speed	44.04	325,407	5.9E-03	2.8E-03	4.2E-04
DP5	ES-PP	Drop Emissions from Pellet Presses to Pellet Press Collection Conveyors	Enclosed	Reduction to 2 mph mean wind speed	51.06	377,317	2.9E-02	1.4E-02	2.1E-03
						TOTAL	**4.9E-02**	**2.3E-02**	**3.5E-03**

Note:

[1] The listing of open transfer points may not be inclusive of all transfer points downstream of the dryer. Even if a few additional points may exist, the potential emission of the insignificant activity emission source group ES-DWH is well below the 5 tpy threshold for significant emissions. Fugitive emissions are not included in facility-wide PTE because the Northampton Pellet Mill does not belong to one of the listed 28 source categories.

[2] Max hourly rates based upon ODT production rate and moisture content at that part of the process.

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

where: E = emission factor (lb/ton)

k = particle size multiplier (dimensionless) for PM	0.74	
k = particle size multiplier (dimensionless) for PM_{10}	0.35	
k = particle size multiplier (dimensionless) for $PM_{2.5}$	0.053	
U = mean wind speed (mph)	2.00	
	Dryer Exit	Pellet Press Exit
M = material moisture content (%)	17	6
E for PM (lb/ton) =	3.6E-05	1.5E-04
E for PM_{10} (lb/ton) =	1.7E-05	7.3E-05
E for $PM_{2.5}$ (lb/ton) =	2.6E-06	1.1E-05

TABLE B-15
GREEN WOOD HANDLING DROP POINT EXAMPLE EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

ID	Emission Source Group	Transfer Activity	Type of Operation	Number of Drop Points	PM Particle Size Multiplier (dimensionless)	PM_{10} Particle Size Multiplier (dimensionless)	$PM_{2.5}$ Particle Size Multiplier (dimensionless)	Mean Wind Speed (U) (mph)	Material Moisture Content (M)[1] (%)	PM Emission Factor[2] (lb/ton)	PM_{10} Emission Factor[2] (lb/ton)	$PM_{2.5}$ Emission Factor[2] (lb/ton)	Potential Throughput (tpy)	PM Emissions (tpy)	PM_{10} Emissions (tpy)	$PM_{2.5}$ Emissions (tpy)
GDP1	ES-GWH	Purchased Bark Transfer to Outdoor Storage Area	Batch Drop	1	0.74	0.35	0.053	6.3	48%	3.73E-05	1.76E-05	2.67E-06	0	0.00E+00	0.00E+00	0.00E+00
GDP1	ES-GWH	Drop Points via Conveying from Bark Pile to Dryer	Batch Drop	4	0.74	0.35	0.053	6.3	48%	3.73E-05	1.76E-05	2.67E-06	135,602	2.56E-03	1.21E-03	1.83E-04
GDP2	ES-GWH	Transfer Purchased Wood Chips (Wet) to Outdoor Storage	Batch Drop	1	0.74	0.35	0.053	6.3	48%	3.73E-05	1.76E-05	2.67E-06	275,859	1.30E-03	6.14E-04	9.32E-05
GDP2	ES-GWH	Drop Points via Conveying from Chip Pile to Dryer	Batch Drop	5	0.74	0.35	0.053	6.0	48%	3.51E-05	1.66E-05	2.51E-06	611,058	1.36E-02	6.42E-03	9.70E-04
		Total Emissions												**1.74E-02**	**8.24E-03**	**1.25E-03**

1. Average moisture content for logs, bark, and wood chips (wet) based on material balance provided by design engineering firm (Mid-South Engineering).

2. Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06).

where: E = emission factor (lb/ton)

k = particle size multiplier (dimensionless) for PM 0.74

k = particle size multiplier (dimensionless) for PM_{10} 0.35

k = particle size multiplier (dimensionless) for $PM_{2.5}$ 0.053

U = mean wind speed (mph) 6.3

M = material moisture content (%)

3. PM_{10} control efficiency of 74.7% applied for three-sided enclosed structure with 50% porosity per Sierra Research *"Final BACM Technological and Economic Feasibility Analysis"*, report prepared for the San Joaquin Valley Unified Air Pollution Control District (3/03). The control efficiency is assumed equivalent for PM_{10} and $PM_{2.5}$ emissions.

4. These green wood handling emissions are representative of the fugitive emissions at the site. Note there may be multiple drop points for each type but as shown these emissions will be negligible.

TABLE B-16
TANKS EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Tank ID	Tank Description	Volume[1] (gal)	Tank Dimensions		Orientation	Throughput (gal/yr)	Turnovers[(3)]	TANKS 4.0 VOC Emissions	
			Diameter (ft)	Height/Length (ft)				(lb/yr)	(tpy)
TK01	Emergency Generator Fuel Oil Tank[2]	2,500	6	12	Vertical	379	0.152	1.45	7.25E-04
TK02	Fire Water Pump Fuel Oil Tank[2]	500	3	10	Horizontal	192	0.385	0.31	1.55E-04
							TOTAL	**1.76**	**8.80E-04**

Note:

[1] Conservative design specifications.

[2] Throughput based on fuel consumption based on engine horsepower (BHP), conversion to fuel usage (gal/hr), and engine operating hours.

[3] Tanks Program Calculations are performed with a minimum 1 turnover per year as a conservative measure.

TABLE B-17
POTENTIAL GHG EMISSIONS FROM COMBUSTION SOURCES (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Operating Data:

Dryer Heat Input	1139054.86	MMBtu/yr
Emergency Generator Output	350	bhp
Operating Schedule	22	hrs/yr
No. 2 Fuel Input	16.7	gal/hr[1]
Energy Input	2.282	MMBtu/hr[2]
Fire Water Pump Output	300	bhp
Operating Schedule	13	hrs/yr
No. 2 Fuel Input	14.3	gal/hr[1]
Energy Input	1.956	MMBtu/hr[2]

Emission Unit ID	Fuel Type	Emission Factors from Table C-1 (kg/MMBtu)[3]			Tier 1 Emissions (metric tons)				
		CO2	CH4	N2O	CO2	CH4	N2O	Total CO2e biomass deferral [4]	Total CO2e
ES-DRYER	Wood and Wood Residuals	9.38E+01	3.20E-02	4.20E-03	117,773	40	5	2,479	120,252
ES-GN	No. 2 Fuel Oil (Distillate)	7.40E+01	3.00E-03	6.00E-04	4	1.63E-04	3.25E-05	4	4
ES-FWP	No. 2 Fuel Oil (Distillate)	7.40E+01	3.00E-03	6.00E-04	2	8.24E-05	1.65E-05	2	2

[1] Fuel consumption calculated using a factor of 0.0476 gal/hr-hp. Advanced Environmental Interface, Inc. (1998). General Permits for Emergency Engines. INSIGHTS, 98-2, 3.

[2] Energy calculated on a fuel consumption basis, using an energy factor of 0.137 MMBtu/gal.

[3] Emission factors from Table C-1 and C-2 of GHG Reporting Rule. Emission factors for methane and N2O already multiplied by their respective GWPs of 21 and 310.

[4] As per NC DAQ Biomass Deferral Rule 15A NCAC 02D .0544, CO2 emissions from bioenergy and other biogeneic sources are not applicable towards PSD and Title V permitting. Therefore CO2 emissions form the dryer are not included in the Total CO2e biomass deferral column.

TABLE B-18
GREEN WOOD STORAGE PILES FUGITIVE EMISSIONS (12/2012 - 11/2013)
ENVIVA PELLETS AHOSKIE

Emission Unit ID	Description	TSP Emission Factor [1] (lb/day/acre)	TSP Emission Factor [1] (lb/hr/ft^2)	VOC Emission Factor [3] (lb/day/acre)	VOC Emission Factor [3] (lb/hr/ft^2)	Width (ft)	Length (ft)	Height (ft)	Outer Surface Area of Storage Pile (ft^2)	PM Emissions (tpy)	PM_{10} Emissions (tpy)	$PM_{2.5}$ Emissions (tpy)	VOC as Carbon Emissions (tpy)	VOC as alpha-Pinene Emissions[5] (tpy)
GWSP1	Green Wood Pile No. 1	3.71	3.55E-06	3.60	3.44E-06	100	400	10	60,000	0.933	0.467	0.070	0.90	1.03
GWSP2	Green Wood Pile No. 2	3.71	3.55E-06	3.60	3.44E-06	200	400	10	110,400	1.717	0.859	0.129	1.67	1.90
Total										**2.651**	**1.325**	**0.199**	**2.57**	**2.93**

1. TSP emission factor based on U.S. EPA *Control of Open Fugitive Dust Sources* . Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988, Page 4-17.

where:

s, silt content of wood chips (%):	4.8	s - silt content(%) for lumber sawmills (minimum), from AP-42 Table 13.2.2-1
p, number of days with rainfall greater than 0.01 inch:	120	Based on AP-42, Section 13.2.2, Figure 13.2.1-2.
f (time that wind exceeds 5.36 m/s - 12 mph) (%):	9.8	Based on meteorological data averaged for 2007-2011 for Northampton, NC.
PM_{10}/TSP ratio:	50%	PM_{10} is assumed to equal 50% of TSP based on U.S. EPA *Control of Open Fugitive Dust Sources* , Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988.

$$E = 1.7\left(\frac{s}{1.5}\right)\left(\frac{(365-p)}{235}\right)\left(\frac{f}{15}\right)(\text{lb/day/acre})_{\%}$$

$PM_{2.5}$ is assumed to equal 7.5 % of TSP U.S. EPA Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors. November 2006.

2. The surface area is calculated as [2*H*L+2*W*H+L*W] + 20% to consider the sloping pile edges. Length and width based on proposed site design with a conservative height.

3. Emission factors obtained from NCASI document provided by SC DHEC for the calculation of fugitive VOC emissions from Douglas Fir wood storage piles. Emission factors ranged from 1.6 to 3.6 lb C/acre-day. Enviva chose to employ the maximum emission factor for purposes of conservatism.

4. Emissions are calculated in tons of carbon per year by the following formula:

*tons C/year = 5 acres * 365 days * 1.6 lb C/acre-day / 2000 lb/ton*

Emission factor converted from as carbon to as alpha-pinene by multiplying by 1.14.

APPENDIX B.2

Enviva Pellets Ahoskie, LLC

December 2013 – November 2014

Baseline Emissions Calculations

TABLE B-1
FACILITY-WIDE CRITERIA POLLUTANT SUMMARY (12/2013 - 11/2014)
ENVIVA PELLETS AHOSKIE

Source Description	Unit ID	CO (tpy)	NOx (tpy)	TSP (tpy)	PM-10 (tpy)	PM-2.5 (tpy)	SO2 (tpy)	Total VOC (tpy)	CO_{2e} biomass defferal (tpy)	CO_{2e} (tpy)
Dryer System	ES-DRYER	31.50	130.51	17.47	17.47	17.47	15.34	106.51	2,670.10	129,547.41
Emergency Generator	ES-EG	0.03	0.03	0.00	0.00	0.00	0.0000	0.0001	4.89	4.89
Fire Water Pump	ES-FWP	0.01	0.02	0.00	0.00	0.00	0.0000	0.0000	2.68	2.68
Dry Wood Hammermills	ES-CHM-1 thru 4	-	-	30.03	30.03	30.03	-	8.07	-	-
Hammermill 5	ES-HAF	-	-	12.20	12.20	12.20	-		-	-
Pellet Mill Feed Silo	ES-PMFS	-	-	0.82	0.82	0.82	-	-	-	-
Dried Wood Day Silo	DWDS	-	-	0.82	0.82	0.82	-	-	-	-
Pellet Presses and Coolers	ES-CLR1 thru -6	-	-	56.78	56.78	56.78	-	24.23	-	-
Dried Wood Handling	ES-DHW, ES-PP	-	-	0.05	0.02	0.00	-	-	-	-
Diesel Storage Tanks	TK1 & TK2	-	-	-	-	-	-	8.80E-04	-	-
	Total PSD Emissions	**31.54**	**130.55**	**118.18**	**118.15**	**118.13**	**15.34**	**138.80**	**2,677.67**	**129,554.98**
Fugitive (Non-PSD Sources)										
Chipper and Re-chipper	ES-CHIP - 1	-	-	-	-	-	-	0.35	-	-
Green Hammermill	ES-CHIP - 2	-	-	-	-	-	-	0.70	-	-
Bark Hog	IES-BARK	-	-	-	-	-	-	0.18	-	-
Green Wood Handling	ES-GWS	-	-	0.02	0.01	0.00	-	-	-	-
Green Wood Piles	ES-GWSP1	-	-	2.65	1.33	0.20	-	2.93	-	-
	Total Facility Emisions:	**31.54**	**130.55**	**120.84**	**119.49**	**118.33**	**15.34**	**142.96**	**2,677.67**	**129,554.98**

TABLE B-2
FACILITYWIDE HAP EMISSIONS SUMMARY (12/2013 - 11/2014)
ENVIVA PELLETS AHOSKIE

Description	Dryer (tpy)	ES-HM1 thru 5 (tpy)	ES-CLR1 thru 6 (tpy)	ES-EG (tpy)	ES-FWP (tpy)	ES-BARK (tpy)	ES-CHP-1 (tpy)	ES-CHP-2 (tpy)	Total (tpy)
1,3-Butadiene	-	-	-	1.25E-06	6.87E-07	-	-	-	1.94E-06
Acetaldehyde	1.64E+00	0.00E+00	0.00E+00	2.46E-05	1.35E-05	-	-	-	1.64E+00
Acrolein	0.00E+00	5.17E-01	0.00E+00	2.97E-06	1.62E-06	-	-	-	5.17E-01
Benzene	-	-	-	2.99E-05	1.64E-05	-	-	-	4.63E-05
Formaldehyde	3.07E+00	0.00E+00	2.25E-01	3.79E-05	2.07E-05	-	-	-	3.29E+00
m-,p-Xylene	-	-	-	9.15E-06	5.01E-06	-	-	-	1.42E-05
Methanol	2.41E+00	4.31E-01	4.51E-01	-	-	0.04	0.08	0.15	3.55E+00
Propionaldehyde	2.85E-01	0.00E+00	0.00E+00	-	-	-	-	-	2.85E-01
Toluene	-	-	-	1.31E-05	7.18E-06	-	-	-	2.03E-05
Total PAH (POM)	0.00E+00	-	-	5.39E-06	2.95E-06	-	-	-	8.34E-06
TOTAL HAP	**7.40**	**0.95**	**0.68**	**0.000**	**0.000**	**0.04**	**0.08**	**0.15**	**9.29**

TABLE B-4
ROTARY DRYER -CRITERIA POLLUTANT EMISSIONS (12/2013 - 11/2014)
ENVIVA PELLETS AHOSKIE

Dryer Inputs

Annual Dried Wood Throughput of Dryer	**300,018**	ODT/year
Max. Hourly Dried Wood Throughput of Dryer	43.00	ODT/hr
Burner Heat Input	175.3	MMBtu/hr
Percent Hardwood	90.0%	
Percent Softwood	10.0%	
Max Potential Annual Heat Input:	**1227104**	**MMBtu/yr**

Criteria Pollutant Calculations:

Pollutant	Biomass Emission Factor (lb/ODT)	Units	Emission Factor Source	Emissions (tpy)
CO	0.21	lb/ODT	Title V Application [1]	31.5
NO_X	0.87	lb/ODT	Stack Testing [2]	130.5
Total TSP	0.116	lb/ODT	Calculated from Guaranteed WESP Specifications [3]	17.5
Total PM_{10}	0.116	lb/ODT	Calculated from Guaranteed WESP Specifications [3]	17.5
Total $PM_{2.5}$	0.116	lb/ODT	Calculated from Guaranteed WESP Specifications [3]	17.5
SO_2	0.025	lb/MMBtu	AP-42, Section 1.6 [5]	15.3
VOC as alpha-pinene	0.710	lb/ODT	Stack Testing[4]	106.5
VOC as alpha-pinene	0.710	lb/ODT	Stack Testing[4]	106.5
Lead	0.00	N/A	N/A	0.0

Note:

[1] CO emission factor obtained from 2012 Title V Application.

[2] NOx emission factor obtained from 2012 Title V Application.

[3] WESP Outlet Air Flowrate 81,509 dSCF
PM Grain Loading 0.008 gr/dSCF
Emissions: 652.07 gr/min
0.093 lb/min
5.59 lb/hr
Dryer Capacity Basis: 48.00 ODT/hr
Calculated PM Emission Factor: 0.116 lb/ODT

Although the vendor estimated emissions to include condensibles, additional condensibles from wood combustion AP-42, Section 1.6 were included. The vendor only provided the filterable fraction of particulate matter in the emission factors. Enviva has conservatively calculated the condensible fraction based upon the heat input of the dryer burners using an emission factor for wood combustion from AP-42, Section 1.6.

[4] VOC emission factors are calculated from the Northampton October 2013 stack test.

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

TABLE B-5
ROTARY DRYER -HAP AND TAP WOOD COMBUSTION EMISSIONS (12/2013 - 11/2014)
ENVIVA PELLETS AHOSKIE

Calculation Inputs:

Annual Composition and Throughput

Throughput ODT/yr	300,018
Hardwood Composition	90%
Softwood Composition	10%

Emission Calculations:

Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	VOC (Yes/No)	Emission Factor Comparison				Weighted Emission Factor[3]		Emissions
					AP-42 Calculated Direct wood-fired, hardwood factors		AP-42 Green, Direct wood-fired softwood factors				
					Emission Factor (lb/ODT)	Reference	Emission Factor (lb/ODT)	Reference	Anuual EF (lb/ODT)	EF Source	(tpy)
Acetaldehyde	75-07-0	Yes	Yes	Yes	3.83E-03	[1,2]	7.50E-02	[1]	1.09E-02	AP-42	1.64E+00
Acrolein	107-02-8	Yes	Yes	Yes	0.00E+00	[1,2,4]	0.00E+00	[1,4]	0.00E+00	AP-42	0.00E+00
Formaldehyde	50-00-0	Yes	Yes	Yes	7.15E-03	[1,2]	1.40E-01	[1]	2.04E-02	AP-42	3.07E+00
Methanol	67-56-1	Yes	No	Yes	5.62E-03	[1,2]	1.10E-01	[1]	1.61E-02	AP-42	2.41E+00
Propionaldehyde	123-38-6	Yes	No	Yes	6.64E-04	[1,2]	1.30E-02	[1]	1.90E-03	AP-42	2.85E-01
										Total HAPs	**7.40**

Notes:

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

[2] To account for hardwood emissions since no HAP/TAP emission factors are given for direct hardwood-fired, factors were conservatively calculated by multiplying AP-42 Section 10.6.2-3 HAP factors for green, direct softwood fired by the ratio of the VOC emission factors for hardwood to softwood drying (0.24/4.7).

[3] Short-term and annual emissions based on worst case processing of 10% softwood.

[4] Through testing at other Enviva facilities Acrolein and Phenol are typically not evident in the emissions stream.

TABLE B-7
HAMMERMILLS - VOC, HAP, AND TAP EMISSIONS (12/2013 - 11/2014)
ENVIVA PELLETS AHOSKIE

Calculation Inputs:

Total Plant Throughput ODT/yr	300,018
% of Total Throughput to the Hammermills	85%

via AHO test for Dry Hammermill pre-screener bypass

Annual Composition and Throughput

Hammermills Throughput ODT/yr	255,015
Hardwood Composition	90%
Softwood Composition	10%

Emission Calculations:

Pollutant	CAS Number	HAP (Yes/No)	NC TAP (Yes/No)	VOC (Yes/No)	Emission Factor – Stack Tests: Emission Factor (lb/ODT)	Emission Factor – Stack Tests: Reference	Emission Factor: Annual EF (lb/ODT)	Emission Factor: EF Source	Emissions (tpy)
VOC and Alpha Pinene	N/A	N/A	N/A	N/A	0.063	[1]	0.06	Stack Test	8.07
Acetaldehyde	75-07-0	Yes	Yes	Yes	0.0000	[3]	0.0000	Stack Test	0.00E+00
Acrolein	107-02-8	Yes	Yes	Yes	0.0041	[3]	0.0041	Stack Test	5.17E-01
Formaldehyde	50-00-0	Yes	Yes	Yes	0.0000	[3]	0.0000	Stack Test	0.00E+00
Methanol	67-56-1	Yes	No	Yes	0.0034	[3]	0.0034	Stack Test	4.31E-01
Propionaldehyde	123-38-6	Yes	No	Yes	0.0000	[3]	0.0000	Stack Test	0.00E+00
								Total VOC	**8.07**
								Total HAPs	**0.95**

Notes:

[1] VOC emissions from Enviva Ahoskie July 2013 stack testing

[2] HAP & TAP emission factors obtained from Enviva Amory October 2013 Stack Testing as a conservative measure (60% softwood).