

ENVIRONMENT & HEALTH

Received

MAY 1 4 2018

Air Permits Section

Mr. William Willets, PE Chief, Permitting Section, Division of Air Quality NC Department of Environmental Quality 1641 Mail Service Center Raleigh, NC 27699-1641

Re: Permit Modification for Classification as a PSD Minor Source Enviva Pellets Hamlet, LLC Hamlet, North Carolina Richmond County Permit No.: 10365R02 Facility ID: 7700096

Dear Mr. Willets:

Enclosed please find a North Carolina Department of Environment Quality (NC DEQ) permit application package for a permit modification to classify the Enviva Pellets Hamlet, LLC (Enviva) (NC DEQ Facility ID #7700096) in Richmond County as a Prevention of Significant Determination (PSD) minor source.

Enviva was initially permitted to construct a wood pellets manufacturing plant (referred to herein as "the Hamlet plant" or "the facility") under the authorization of PSD Permit No. 10365R00 issued by the North Carolina Department of Environment and Natural Resources (DENR), now the NC Department of Environmental Quality (NCDEQ), Division of Air Quality (DAQ) on March 29, 2016.¹ The plant is currently permitted to produce up to 537,625 oven-dried tons (ODT) per year of wood pellets utilizing up to 75% softwood on a 12-month rolling basis. Enviva has initiated onsite construction of the Hamlet plant but has not yet completed construction activities.

Enviva is submitting this permit modification application to reflect planned changes for the Hamlet plant since the submittal of the original construction permit application. These changes are being implemented to meet new customer softwood percentage and production rate demands and to incorporate significant emission reduction efforts to minimize emissions impacts associated with the project. Because of these changes, the Hamlet plant's potential emissions for all criteria pollutants will be less Date May 9, 2018

Ramboll 8235 YMCA Plaza Drive Suite 300 Baton Rouge, LA 70810 USA

T +1 225-408-2691 www.ramboll.com

R:\Projects\ENVIVA\2017 Projects\Hamlet Permit Fix\Deliverables\2018-05-09 Final\Enviva HAM permit application cover letter 2018-0509.docx 1/2

¹ Permit Nos. 10365R01 and 10365R02 were subsequently issued on April 7, 2017 and June 8, 2017, respectively.



than the PSD major source thresholds of 250 tpy and, thus, the facility will be classified as a PSD synthetic minor source. The facility will, however, continue to be classified as a major source under the Title V and hazardous air pollutant (HAP) programs. Therefore, this application is being submitted to modify the existing PSD permit to incorporate the proposed construction changes and to reclassify the permit as a PSD Synthetic Minor facility.

In addition to these physical design changes to the proposed construction, Enviva is proposing several updates to the previous PSD permit as part of this application.

As required, three (3) copies of the complete permit application package and an application processing fees in an amount of \$947 are enclosed. In addition, Enviva has submitted the required zoning determination documents to both the City of Hamlet and Richmond County departments.

Thank you for your prompt attention to this matter. If you have any questions regarding this request, please contact me at (225) 408-2691 or Kai Simonsen, Air Permit Engineer at Enviva, at (984) 789-3628.

Yours sincerely,

MX

Michael Carbon Managing Principal Air Sciences

D 225-408-2691 M 225-907-3822 mcarbon@ramboll.com

Enclosures: Permit Application including Appendices

R:\Projects\ENVIVA\2017 Projects\Hamlet Permit Fix\Deliverables\2018-05-09 Final\Enviva HAM permit application cover letter 2018-0509.docx 2/2

Prepared for Enviva Pellets Hamlet, LLC Richmond County, North Carolina

Prepared By Ramboll US Corporation Research Triangle Park, North Carolina

Project Number 1690006061

Date May 2018

APPLICATION FOR PERMIT MODIFICATION FOR CLASSIFICATION AS A PSD MINOR SOURCE ENVIVA PELLETS HAMLET, LLC





CONTENTS

1.	INTRODUCTION	1
2.	PROCESS DESCRIPTION	4
2.1	Green Wood Handling and Storage	4
2.2	Debarking, Chipping, Bark Hog, and Bark Fuel Storage Piles and Bin	4
2.3	Green Wood Hammermills	4
2.4	Dryer	5
2.5	Dried Wood Handling	5
2.6	Dry Hammermills	5
2.7	Hammermill Conveyors	6
2.8	Pellet Mill Feed Silo	6
2.9	Additive Handling and Storage	6
2.10	Pellet Press System and Pellet Coolers	6
2.11	Finished Product Handling and Loadout	7
2.12	Emergency Generator, Fire Water Pump Engine, and Diesel Storage Tanks	7
3. 3.1 3.2	POTENTIAL EMISSIONS QUANTIFICATION Green Wood Handling (IES-GWH) Green Wood Storage Piles (IES-GWSP-1 through 4) and Bark Fuel Storage Piles	8 8
3.3 3.4	(IES-BFSP-1 and 2) Debarker (IES-DEBARK-1) Bark Hog (IES-BARKHOG)	8 9 9
3.5	Chipper (IES-CHIP-1)	9
3.6	Bark Fuel Bin (IES-BFB)	10
3.7	Dryer (ES-DRYER) and Green Wood Hammermills (ES-GHM-1 through 3)	10
3.8	Dried Wood Handling (ES-DWH)	10
3.9	Dry Shavings Handling (IES-DRYSHAVE)	11
3.10	Dry Hammermills (ES-HM-1 through 8)	11
3.11	Peilet Cooler HP Fines Relay System (ES-PCHP) and Pellet Cooler LP Fines Relay System (ES-PCLP)	11
3.12	Dry Hammermill Conveying System (ES-HMC)	11
3.13	Pellet Mill Feed Silo (ES-PMFS)	11
3.14	Additive Handling and Storage (ES-ADD)	12
3.15 3.16 3.17 3.18 3.19 3.20	Pellet Press System and Pellet Coolers (ES-CLR-1 through 6) Pellet Dust Collection Transfer Bin (ES-PDCTB) Pellet Loadout Bins (ES-PB-1 through 2) and Finished Product Handling (ES-FPH) Emergency Generator (IES-GN) and Fire Water Pump Engine (IES-FWP) Diesel Storage Tanks (IES-TK-1 through 3) Payed Roads	12 12 13 13 13
4.	STATE AND FEDERAL PERMITTING APPLICABILITY	15
4.1	Federal Permitting Programs	15
4.2	North Carolina Permitting Program	16
5. 1 5.2 5.3 5.4	REGULATORY APPLICABILITY New Source Performance Standards National Emission Standards for Hazardous Air Pollutants Compliance Assurance Monitoring North Carolina Administrative Code	17 17 17 20 20

APPENDIX

Appendix A – Site Map Appendix B – Process Flow Diagram Appendix C – Potential Emissions Calculations

Appendix D - Permit Application Forms

ACRONYMS AND ABBREVIATIONS

AAL	Acceptable Ambient Level
AP-42	Compilation of Air Pollutant Emission Factors
bhp	brake horsepower
ВМР	Best Management Practice
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CI	Compression Ignition
со	Carbon Monoxide
DAQ	Division of Air Quality
DENR	Department of Environment and Natural Resources
FSC	Forest Stewardship Council
HAP	Hazardous Air Pollutant
hp	horsepower
ICE	Internal Combustion Engine
lb	Pound
MACT	Maximum Achievable Control Technology
MMBtu	Million British thermal units
NAAQS	National Ambient Air Quality Standards
NCAC	North Carolina Administrative Code
NCASI	National Council for Air and Stream Improvement
NCDEQ	North Carolina Department of Environmental Quality
NESHAP	National Emission Standards for Hazardous Air Pollutants
NNSR	Nonattainment New Source Review
NOx	Nitrogen Oxides (NO + NO2)
NSPS	New Source Performance Standards
NSR	New Source Review
NWS	National Weather Service
ODT	Oven Dried Tons
PEFC	Programme for the Endorsement of Forest Certifications
PM	Particulate Matter

Particulate Matter Less Than 2.5 Micrometers in Aerodynamic Diameter
Particulate Matter Less Than 10 Micrometers in Aerodynamic Diameter
Prevention of Significant Deterioration
Pollutant Specific Emission Unit
Reciprocating Internal Combustion Engine
Regenerative Catalytic Oxidizer
Regenerative Thermal Oxidizer
State Implementation Plan
Sulfur Dioxide
Sustainable Forestry Initiative
Toxic Air Pollutant
Thermal Catalytic Oxidizer
tons per hour
tons per year
US Environmental Protection Agency
Volatile Organic Compounds
Wet Electrostatic Precipitator

1. INTRODUCTION

Enviva Pellets Hamlet, LLC (Enviva) was initially permitted to construct a wood pellets manufacturing plant (referred to herein as "the Hamlet plant" or "the facility") in Richmond County, North Carolina under the authorization of Prevention of Significant Deterioration (PSD) Permit No. 10365R00 issued by the North Carolina Department of Environment and Natural Resources (DENR), now the NC Department of Environmental Quality (NCDEQ), Division of Air Quality (DAQ) on March 29, 2016.¹ The plant is currently permitted to produce up to 537,625 oven-dried tons (ODT) per year of wood pellets utilizing up to 75% softwood on a 12-month rolling basis. The plant will consist of the following processes: Log Chipper, Bark Hog, Green Wood Hammermills, Rotary Dryer, Dry Hammermills, Pellet Presses and Coolers, Product Loadout operations and other ancillary activities. Enviva has initiated onsite construction activities on the Hamlet plant but has not yet completed construction activities.

The Hamlet plant is currently permitted as a major source with respect to the Title V and New Source Review (NSR) permitting programs, because potential facility-wide emissions of one or more criteria pollutants were estimated to exceed the major source thresholds of 100 tons per year (tpy) and 250 tpy, respectively. Additionally, the plant is permitted as a major source of hazardous air pollutants (HAP) due to potential total HAP emissions and maximum individual HAP emissions estimated to exceed the major source threshold of 25 tpy, and 10 tpy, respectively.

Enviva is submitting this permit modification application to reflect planned changes for the Hamlet plant since the submittal of the original construction permit application. These changes are being implemented to meet new customer softwood percentage and production rate demands and to incorporate significant emission reduction efforts to minimize emissions impacts associated with the project. Because of these changes, the Hamlet plant's potential emissions for all criteria pollutants will be less than the PSD major source thresholds of 250 tpy and, thus, the facility will be classified as a PSD synthetic minor source. The facility will, however, continue to be classified as a major source under the Title V and HAP programs. Therefore, this application is being submitted to modify the existing PSD permit to incorporate the proposed changes and to reclassify the permit as a PSD Synthetic Minor facility.

The following summarizes the proposed physical changes and changes in the method of operation associated with the new plant design:

- Increase production rate from 537,625 ODT per year to 625,011 ODT per year by
 upgrading pellet dies with a new prototype while increasing the amount of softwood
 processed from a maximum of 75% to a maximum of 85%;
- Incorporate a permit condition that allows Enviva to operate either up to 625,011 ODT/yr at 85% softwood or at a higher production rate if the softwood percentage is lower such that the total facility-wide annual emissions stay below the potential to emit (PTE) emissions set forth in this application;
- Add a regenerative thermal oxidizer (CD-RTO-1) following the currently permitted Dryer wet electrostatic precipitator (CD-WESP) for volatile organic compound (VOC), HAP and particulate matter (PM) emissions control;

¹ Permit Nos. 10365R01 and 10365R02 were subsequently issued on April 7, 2017 and June 8, 2017, respectively.

- Install a third Green Wood Hammermill;
- Remove the Green Wood Hammermill cyclones from the permit and recirculate the exhaust to either the inlet of the Dryer furnace or directly to the WESP/RTO system (CD-WESP/CD-RTO-1) to reduce VOC, HAP and PM emissions;
- Following the six (6) Pellet Cooler product recovery cyclones, install either six (6) baghouses (CD-CLR-BH1 through 6) or one wet scrubber (CD-WSB) to reduce PM emissions;
- Add a regenerative catalytic oxidizer (CD-RCO), which can operate in thermal mode (as an RTO) for backup during catalyst cleaning, to control combined emissions of VOC, HAP and PM from the Pellet Coolers and Pellet Mills;
- Decrease the amount of wood that can bypass the Dry Hammermills from 25% to 15%;
- Incorporate construction of a baghouse (CD-HMC-BH) installed to control fugitive emissions that escape from the Hammermill Collection Conveyor (ES-HMC);
- Add an emission point for the Pellet Cooler Low Pressure (LP) Fines Relay System (ES-PCLP) and add a corresponding baghouse (CD-PCLP-BH);
- Remove the hammermill area (ES-HMA) emission point which will no longer be an emission point;
- Rename the Pellet Fines Bin (ES-PFB) and associated baghouse (CD-PFB-BV) as the Pellet Cooler High Pressure (HP) Fines Relay System (ES-PCHP) and associated baghouse (CD-PCHP-BH), respectively;
- Rename the Pellet Sampling Transfer Bin (ES-PSTB) to the Pellet Dust Collection Transfer Bin (ES-PDCTB);
- Change the number of Pellet Loadout Bins (ES-PB-1 to 8) from eight (8) to (2) bins (ES-PB-1 and 2);
- Remove the truck loadout station (ES-PL-1 to 3) emissions point because pellets will be loaded into closed top hopper rail cars that are entirely enclosed; and
- Add Additive Handling and Storage (ES-ADD) and associated baghouse (CD-ADD-BH) to for storage of a powder additive to be added during pelletizing.

In addition to these physical design changes, Enviva is proposing the following reconciliations to the previous PSD permit as part of this application:

- Update site emissions to reflect planned insignificant activities including:
 - Adding two storage piles for a total of four Green Wood Storage Piles (IES-GWSP-1 through 4);
 - o Adding Bark Fuel Storage Piles (IES-BFSP-1 and 2);
 - Reclassifying the Chipper (IES-CHIP-1) and Bark Hog (IES-BARKHOG) as insignificant activities instead of as permitted equipment (previously, ES-CHIP-1 and ES-BARKHOG, respectively); and
 - Adding Dry Shavings Handling (IES-DRYSHAVE) and storage silo to allow the facility to process dry shavings which will not require drying.

- Update HAP emission factors to reflect new testing data from other similar facilities.
- Bin vent filter (CD-BV) and bagfilter (CD-BF) descriptions have been changed to baghouse (CD-BH) to more accurately reflect planned control equipment to be utilized at the Hamlet plant. In addition, some control device nomenclature was updated to reference the equipment it controls to be consistent with nomenclature used for the other units in Enviva's permit (e.g. CD-DC-BF-3 is relabeled as CD-PDCTB-BH, and CD-DC-BV1 and CD-DC-BV2 are relabeled CD-DWH-BH1 and CD-DWH-BH2).
- Update the emergency generator rating to a proposed rating of 671 brake horsepower (bhp) instead of the proposed 536 bhp unit referenced in the initial PSD application.
- Update the Fire Pump Engine rating from 250 bhp to 131 bhp.
- Cyclones on the Dry Hammermills (ES-HM-1 to 8) and Dryer (ES-DRYER) will not be used as air pollution control devices but rather are used for product recovery. Therefore, CD-HM-CYC-1 through 8 and CD-DC1 through 4 for the ES-HM-1 through 8 and ES-DRYER, respectively, should be removed from the control device description in Section 1 of the Hamlet plant's permit.

A description of the process is provided in Section 2 and methodologies used to quantify potential emissions are summarized in Section 3. Section 4 describes the applicability of federal and state permitting programs. Section 5 includes a detailed applicability analysis of both federal and state regulations. Finally, the completed air permit application forms are included in Appendix D.

2. PROCESS DESCRIPTION

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 lifecycle CO₂/greenhouse gases, 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), Programme for the Endorsement of Forest Certification (PEFC), and Sustainable Biomass Program (SBP). 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. Enviva pays particular attention to: I and 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. A detailed description of Enviva's Responsible Wood Supply Program can be found at:

http://www.envivabiomass.com/sustainability/wood-sourcing/responsible-wood-supplyprogram/

The following sections provide a process description of proposed operations at the Hamlet plant. An area map and process flow diagram are provided in Appendices A and B, respectively.

2.1 Green Wood Handling and Storage

"Green" (i.e., wet) wood will be delivered to the plant via trucks as either pre-chipped wood or unchipped logs from commercial harvesting for on-site chipping. Purchased chips and bark will be unloaded from trucks into hoppers that feed conveyors (IES-GWH) that transfer the material to Green Wood Storage Piles (IES-GWSP-1 through 4) or to Bark Fuel Storage Piles (IES-BFSP-1 and 2). Conveyors transferring green wood chips will be enclosed.

Purchased chips will be screened prior to transfer to the Green Wood Storage Piles.

2.2 Debarking, Chipping, Bark Hog, and Bark Fuel Storage Piles and Bin

Logs will be debarked by the electric-powered rotary drum Debarker (IES-DEBARK-1) and then sent to the Chipper (IES-CHIP-1) to chip the wood to specification for drying. Bark from the Debarker and purchased bark/chips will be transferred to the Bark Hog (IES-BARKHOG) via conveyor for further processing.

Material processed by the Bark Hog will be transferred to the Bark Fuel Storage Piles (IES-BFSP-1 and 2) via conveyor. The primary Bark Fuel Storage Pile (IES-BFSP-1) will be located under a covered structure. The secondary Bark Fuel Storage Pile (IES-BFSP-2) will serve as overflow storage as needed. Following storage in the Bark Fuel Storage Piles (IES-BFSP-1 and 2), the bark will be transferred via a walking floor to a covered conveyor to a fully enclosed Bark Fuel Bin (IES-BFB) where the material will be pushed into the furnace.

2.3 Green Wood Hammermilis

Chipped wood used in pellet production will be further processed in the Green Wood Hammermills (ES-GHM-1, 2, and 3) to reduce material to the proper size. The facility is currently permitted to install two Green Wood Hammermills (ES-GHM-1 and 2) each with its own cyclone control device (CD-GHM-CYC1 and CD-GHM-CYC2). Enviva is now proposing to install three Green Wood Hammermills total, to remove the cyclones from the design, and to directly route the vent streams to either the inlet of the Dryer furnace (which is ultimately routed to WESP/RTO control system) or directly into the WESP/RTO control system (CD-WESP/CD-RTO-1) to control PM, VOC, and HAP emissions.

2.4 Dryer

Green wood will be conveyed to a single pass rotary Dryer system (ES-DRYER). Direct contact heat will be provided to the system via a 250.4 million British thermal unit per hour (MMBtu/hr) total heat input furnace that uses bark and wood chips as fuel. Green wood will be fed into the Dryer where the moisture content will be reduced to the desired level and routed to four (4) identical product recovery cyclones operating in parallel, which will capture dried wood for further processing. Emissions from the Dryer cyclones will be combined into a common duct which will include the proposed vent from the Green Hammermills (ES-GHM-1 through 3) and routed to a WESP (CD-WESP) for additional particulate, metallic HAP, and hydrogen chloride removal. As part of this application, Enviva is proposing to install a natural gas-fired RTO (CD-RTO-1) following the WESP to provide further PM, VOC, and HAP emissions control.

2.5 Dried Wood Handling

Dried materials from the Dryer product recovery cyclones will be conveyed to screening operations that remove smaller wood particles. Oversized wood will be diverted to the Dry Hammermills (ES-HM-1 through 8) for further size reduction prior to pelletization, each of which will be followed by a product recovery cyclone that is controlled by a baghouse. Smaller particles passing through the screens will bypass these hammermills and be pneumatically conveyed directly to the product recovery cyclones for the Dry Hammermills. Enviva estimates that approximately 15% of the total material leaving the Dryer will bypass the Dry Hammermills and be sent directly to the pelletizing operations. It should be noted that the current permit basis assumes 25% will bypass the Dry Hammermills.

There will be several other conveyor transfer points located between the Dryer and Dry Hammermills comprising the Dried Wood Handling (ES-DWH) emission source. These transfer points will be completely enclosed with only two (2) emission points that will be controlled by individual baghouses (CD-DWH-BH1 and 2).

As part of this application, Enviva is proposing to use purchased dry shavings to produce wood pellets in addition to green chips or logs, forgoing the drying process and thus lowering VOC and HAP emissions. The purchased dry shavings will be unloaded from trucks into a hopper that feeds material via enclosed conveyors to a bucket elevator that ultimately fills a silo. Each of these material transfer points will be entirely enclosed except for truck unloading (IES-DRYSHAVE). From the silo, the dry shavings will then be transferred via an enclosed screw conveyor to the Dry Hammermills for additional processing.

2.6 Dry Hammermills

Prior to pelletization, dried wood is reduced to the appropriate size using eight (8) Dry Hammermills operating in parallel (ES-HM-1 through ES-HM-8). Each Dry Hammermill will include a product recovery cyclone for capturing additional dried wood for further processing. Particulate emissions from each of the Dry Hammermills will be controlled using individual baghouses (CD-HM-BH1 through 8).

2.7 Hammermill Conveyors

The Hammermill Conveyors (ES-HMC) will transport material from the product recovery cyclones associated with the Dry Hammermills (ES-HM-1 through 8) to the pelletizing process. Emissions from the Hammermill Conveyors will be captured and controlled by the Hammermill Conveyor baghouse (CD-HMC-BH).

2.8 Pellet Mill Feed Silo

Sized wood from the Dry Hammermill product recovery cyclones will be transported by a set of conveyors to the Pellet Mill Feed Silo (ES-PMFS) prior to pelletization. Particulate emissions from the Pellet Mill Feed Silo will be controlled by a baghouse (CD-PMFS-BH).

2.9 Additive Handling and Storage

Additive will be used in the pellet production process to increase the durability of the final product. The additive will be added to sized wood from the Pellet Mill Feed Silo discharge screw conveyor prior to transfer to the Pellet Presses. The additive contains no hazardous chemicals or VOCs.

Bulk additive material will be delivered by truck and pneumatically unloaded into a storage silo (ES-ADD) equipped with a baghouse (CD-ADD-BH) to control emissions from air displaced during the loading of additive material to the silo. The additive will then be conveyed via screw conveyor from the storage silo to the milled fiber conveyor which transfers milled wood to the Pellet Presses.

2.10 Pellet Press System and Pellet Coolers

Dried processed wood will be mechanically compacted through pellet press dies. Exhaust from the Pellet Press System and Pellet Press conveyors will be vented through the Pellet Cooler aspiration material recovery cyclones and pollutant controls as described below, and then to the atmosphere. No resin or other chemical binding agents are needed for pelletization. As discussed in Section 1, Enviva is proposing to increase the permitted production rate from 537,625 ODT per year to 625,011 ODT per year by upgrading the design of the pellet dies to use a new prototype.

Formed pellets will be discharged into one of six (6) Pellet Coolers (ES-PCLR-1 through ES-PCLR-6) where cooling air will be passed through the pellets. At this point, the pellets will contain a small amount of wood fines which will be swept out with the cooling air and controlled utilizing either six (6) baghouses (CD-CLR-BH1 through 6), one on each cooler, or a single wet scrubber (CD-WSB). The exhaust from the baghouses or scrubber will then be sent to a natural gas-fired RCO (CD-RCO) for control of VOC, HAP, and PM. The RCO will also be able to operate in thermal mode during catalyst cleaning.

An aspiration system will be used to recirculate air for the pellet coolers. Emissions from the Pellet Cooler LP Fines Relay System (ES-PCLP) will be controlled by a baghouse (CD-PCLP-BH). A second aspiration system, referred to as the Pellet Cooler HP Fines Relay System (ES-PCHP), will pull collected fines from the Pellet Cooler screens and from the Pellet Cooler LP Fines Relay System baghouse to the associated baghouse (CD-PCHP-BH). From the collection system, the fines will be reintroduced to the Pellet Presses for re-use in the process.

The final product, wood pellets, will be transferred from the Pellet Coolers to the rail loadout operation via a conveyor that will be controlled by the Pellet Dust Collection Transfer Bin (ES-PDCTB) baghouse (CD-PDCTB-BH).

2.11 Finished Product Handling and Loadout

Final product will be conveyed to two storage bins (ES-PB-1 and ES-PB-2) that will feed a rail loadout station. At the rail loadout station, pellets will be gravity fed into closed top rail cars. Atmospheric emissions from pellet loadout will be minimal because dried wood fines will have been removed in the pellet screener, and a slight negative pressure will be maintained in the loadout building as a fire prevention measure to prevent any buildup of dust on surfaces within the building. This slight negative pressure will be produced via an induced draft fan that will exhaust to the Finished Product Handling baghouse (CD-FPH-BH). This baghouse will control emissions from Finished Product Handling (ES-FPH) and the two (2) Pellet Loadout Bins (ES-PB-1 to ES-PB-2). Rail car loading will be entirely enclosed because material will be loaded into closed top hopper cars.

2.12 Emergency Generator, Fire Water Pump Engine, and Diesel Storage Tanks

The plant will have a 671 brake horsepower (bhp) diesel-fired Emergency Generator (IES-GN) for emergency operations and a 131 bhp diesel-fired Fire Water Pump Engine (IES-FWP). Aside from maintenance and readiness testing, the generator and fire water pump engines will only be utilized for emergency operations.

Diesel for the emergency generator will be stored in a tank of up to 1,000 gallons capacity (IES-TK-1) and diesel for the fire water pump engine will be stored in a storage tank of up to 185 gallons capacity (IES-TK-2). The plant will also have a third diesel storage tank with a capacity of up to 5,000 gallons (IES-TK-3) for distributing diesel fuel to mobile equipment.

3. POTENTIAL EMISSIONS QUANTIFICATION

The following summarizes the data sources and calculation methodologies used in quantifying potential emissions from the Hamlet plant. Detailed potential emissions calculations are provided in Appendix C.

3.1 Green Wood Handling (IES-GWH)

Fugitive PM emissions will result from unloading purchased chips and bark from trucks into hoppers and transfer of these materials to storage piles via conveyors. Fugitive PM emissions from chip and bark transfer operations were calculated based on AP-42 Section 13.2.4, *Aggregate Handling and Storage Piles.*² Chip conveyors are completely enclosed; therefore, emissions were only quantified for the final drop points (i.e., from conveyor to pile). Bark conveyors will not be enclosed; however, due to the large size of this material any fugitive PM emissions occurring along the conveyor itself will be negligible. As such, emissions were only quantified for the final drop points (i.e., from conveyor to pile). Detailed potential emission calculations are included in Appendix C, Table 13.

Green wood and bark contain a high moisture content approaching 50 percent water by weight. Therefore, Green Wood Handling will have insignificant PM emissions. Per 15A NCAC 02Q .0503, Green Wood Handling (IES-GWH) is an insignificant activity, because potential uncontrolled PM emissions are less than 5 tpy.

3.2 Green Wood Storage Piles (IES-GWSP-1 through 4) and Bark Fuel Storage Piles (IES-BFSP-1 and 2)

Particulate emission factors used to quantify emissions from storage pile wind erosion for the four (4) Green Wood Storage Piles and two (2) Bark Fuel Storage Piles were calculated based on USEPA's *Control of Open Fugitive Dust Sources*.³ The number of days with rainfall greater than 0.01 inch was obtained from AP-42 Section 13.2.2, *Unpaved Roads*⁴, and the percentage of time that wind speed exceeds 12 miles per hour (mph) was determined based on the AERMOD-ready meteorological dataset for the Maxton National Weather Service (NWS) Station provided by DAQ⁵. The mean silt content of 8.4% for unpaved roads at lumber mills from AP-42 Section 13.2.2 was conservatively applied in the absence of site-specific data. The exposed surface area of the pile was calculated based on worst-case pile dimensions.

VOC emissions from storage piles were quantified based on the exposed surface area of the pile and emission factors from the National Council for Air and Stream Improvement (NCASI). NCASI emission factors range from 1.6 to 3.6 pounds (lb) VOC as carbon/acre-day; however, emissions were conservatively based on the maximum emission factor. Detailed potential emission calculations are included in Appendix C, Table 14.

² USEPA AP-42 Section 13.2.4, Aggregate Handling and Storage Piles (11/06).

³ USEPA *Control of Open Fugitive Dust Sources*, Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988.

⁴ USEPA AP-42 Section 13.2.2, Unpaved Roads (11/06).

⁵ Data provided via email to Aubrey Jones (Ramboll) by Matthew Porter (NC DAQ) on July 27, 2017.

Per 15A NCAC 02Q .0503, the Green Wood Storage Piles (IES-GWSP-1 through 4) and the Bark Fuel Storage Piles (IES-BFSP-1 and 2) are insignificant activities based on potential uncontrolled PM and VOC emissions each less than 5 tpy.

3.3 Debarker (IES-DEBARK-1)

PM emissions will occur as a result of log debarking. Potential PM emissions from debarking were quantified based on emission factors from EPA's *AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants* for Source Classification Code (SCC) 3-07-008-01 (Log Debarking).⁶ All PM was assumed to be larger than 2.5 microns in diameter. PM emissions from debarking will be minimal due to the high moisture content of green wood (~50%) and the fact that the debarking drum will be enclosed, except for the two ends where logs enter and material exits after debarking. A 90% control efficiency was applied for partial enclosure. Detailed potential emission calculations are included in Appendix C, Table 18.

The Debarker is considered an insignificant activity per 15A NCAC 02Q .0503 due to potential uncontrolled PM emissions less than 5 tpy.

3.4 Bark Hog (IES-BARKHOG)

Processing of bark by the Bark Hog will result in emissions of PM, VOC, and methanol. Particulate emission factors were not available in for this specific operation; therefore, potential PM emissions were quantified based on emission factors from EPA's *AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants* for log debarking (SCC 3-07-008-01).⁷ The Bark Hog is primarily enclosed and thus has minimal PM emissions. A 90% control efficiency was applied for partial enclosure. VOC and methanol emissions were quantified based on emission factors for log chipping from AP-42 Section 10.6.3, *Medium Density Fiberboard*.⁸ Detailed potential emission calculations are included in Appendix C, Table 12.

The Bark Hog is considered an insignificant activity per 15A NCAC 02Q .0503 due to potential uncontrolled emissions less than 5 tpy.

3.5 Chipper (IES-CHIP-1)

The Chipper will be located inside of a building; therefore, PM emissions will be negligible and were not quantified. The chipping process will also result in emissions of VOC and methanol. VOC and methanol emissions were quantified based on emission factors for log chipping from AP-42 Section 10.6.3, *Medium Density Fiberboard*.⁹ Detailed emission calculations are included in Appendix C, Table 11.

The Chipper is considered an insignificant activity per 15A NCAC 02Q .0503 due to potential uncontrolled emissions less than 5 tpy.

⁶ USEPA. Office of Air Quality Planning and Standards. AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants. EPA 450/4-90-003. March 1990.

⁷ Ibid.

⁸ USEPA AP-42 Section 10.6.3, Medium Density Fiberboard Manufacturing (08/02).

⁹ Ibid.

3.6 Bark Fuel Bin (IES-BFB)

Bark will be transferred from the Bark Fuel Storage Piles via a walking floor to a covered conveyor and then to the fully enclosed Bark Fuel Bin (IES-BFB). Due to complete enclosure of the Bark Fuel Bin, emissions from transfer of material into the bin were not explicitly quantified. Per 15A NCAC 02Q .0503, the Bark Fuel Bin is an insignificant activity due to potential uncontrolled PM emissions less than 5 tpy.¹⁰

3.7 Dryer (ES-DRYER) and Green Wood Hammermills (ES-GHM-1 through 3)

Exhaust from the Dryer and Green Wood Hammermills will be routed to a WESP/RTO control system for control of PM, VOC, and HAP. As shown in Appendix C, Table 4, potential emissions of PM, PM less than 10 microns in diameter (PM₁₀), PM less than 2.5 microns in diameter (PM_{2.5}), carbon monoxide (CO) and oxides of nitrogen (NO_X), including NO_X and CO emissions generated during thermal oxidation, are based on guaranteed pound per hour (lb/hr) emission rates provided by the RTO vendor. Potential emissions of sulfur dioxide (SO₂) were calculated based on an emission factor from AP-42 Section 10.6.2, *Particle Board Manufacturing*.¹¹ VOC emissions were calculated using an emission factor derived from stack testing conducted at Enviva and other similar wood pellet manufacturing facilities.

HAP and toxics air pollutant (TAP) emissions were calculated based on emission factors from several data sources including stack testing data from other similar facilities, emission factors from AP-42 Section 1.6, *Wood Residue Combustion in Boilers*¹², and NC DAQ's Wood Waste Combustion Spreadsheet¹³. HAP emissions from natural gas combustion by the RTO burners were calculated based on AP-42 Section 1.4, *Natural Gas Combustion*.¹⁴

Combustion of wood by the Dryer furnace and natural gas by the RTO burners will also result in emissions of GHG. The emissions were quantified based on emission factors from AP-42, Section 10.6.1 for a rotary dryer with an RTO control device. Enviva has conservatively calculated the CO_2 emissions using the higher hardwood emission factor because the dryer at the Hamlet facility will use a combination of hardwood and softwood.

3.8 Dried Wood Handling (ES-DWH)

As previously described in Section 2, ES-DWH will include conveyor transfer points located between the Dryer and Dry Hammermills with emissions controlled by two (2) baghouses (CD-DWH-BH-1 and 2). PM emissions from these baghouses were calculated based on manufacturer guaranteed exit grain loading rates and the maximum nominal exhaust flow rate of the baghouses. Detailed potential emissions calculations are provided in Appendix C, Table 5.

Additionally, the dried material may continue to emit VOC and HAP as it is transferred between the Dryer and Dry Hammermills due to the elevated temperature of the material.

¹⁰ Due to complete enclosure of the Bark Fuel Bin, emissions were not quantified.

¹¹ USEPA AP-42 Section 10.6.2, Particle Board Manufacturing (6/02).

¹² USEPA AP-42 Section 1.6, Wood Residue Combustion in Boilers (09/03).

¹³ NCDAQ Wood Waste Combustion Spreadsheet for a wood stoker boiler. Available online at: https://files.nc.gov/ncdeq/Air%20Quality/permits/files/WWC_rev_K_20170308.xlsx.

¹⁴ USEPA AP-42 Section 1.4, Natural Gas Combustion (07/98).

Potential VOC and HAP emissions were calculated based on NCASI dry wood handling emission factors.¹⁵ Potential emissions calculations are provided in Appendix C, Table 8.

3.9 Dry Shavings Handling (IES-DRYSHAVE)

Particulate emissions will occur during unloading of dry shavings from trucks and may also occur because of air displaced during silo loading. Potential emissions were calculated based on AP-42, Section 13.2.4, *Aggregate Handling and Storage Piles*.¹⁶ Dry shavings will be transferred into the new dry shavings silo via an enclosed bucket elevator. Because the actual transfer will be enclosed within the silo, a 90% control efficiency was applied for this material transfer point. Detailed potential emission calculations are provided in Appendix C, Table 17.

Per 15A NCAC 02Q .0503, Dry Shavings Handling (IES-DRYSHAVE) is considered an insignificant activity because potential uncontrolled PM emissions are less than 5 tpy.

3.10 Dry Hammermills (ES-HM-1 through 8)

The Dry Hammermills will generate PM, VOC, and HAP emissions during the process of reducing wood chips to the required size. PM emissions from the Dry Hammermills will be controlled using individual baghouses (CD-HM-BH-1 through 8). Particulate emissions from each baghouse were calculated using a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Appendix C, Table 5 summarizes the potential PM emissions from each Dry Hammermill baghouse.

VOC and HAP emissions were calculated based on stack testing data from comparable Enviva facilities as shown in Appendix C, Table 6.

3.11 Pellet Cooler HP Fines Relay System (ES-PCHP) and Pellet Cooler LP Fines Relay System (ES-PCLP)

As previously described in Section 2, an induced draft fan will be used to transfer dust generated from a number of enclosed transfer/handling sources around the Dry Hammermill Area to the Pellet Cooler HP Fines Relay System, controlled by a baghouse (CD-PCHP-BH). PM emissions from this baghouse, which will control emissions from ES-PCHP, were calculated based on a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Potential emission calculations are provided in Appendix C, Table 5. A second baghouse (CD-PCLP-BH) will control emissions from Pellet Cooler LP Fines Relay System (ES-PCLP) and PM emissions were calculated based on a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse.

3.12 Dry Hammermill Conveying System (ES-HMC)

Fugitive PM emissions that escape the Hammermill Collection Conveyor will be controlled by a baghouse (CD-HMC-BH). PM emissions from this baghouse were calculated based on a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Potential emission calculations are provided in Appendix C, Table 5.

3.13 Pellet Mill Feed Silo (ES-PMFS)

The Pellet Mill Feed Silo will be equipped with a baghouse (CD-PMFS-BH) to control PM emissions associated with silo loading and unloading operations. PM emissions are calculated

¹⁵ NCASI VOC Dry Wood handling factor based oriented-strand board operations.

¹⁶ USEPA AP-42 Section 13.2.4, Aggregate Handling and Storage Piles (11/06).

based on a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Potential emission calculations are provided in Appendix C, Table 5.

3.14 Additive Handling and Storage (ES-ADD)

An additive will be used in the pellet production process to increase the durability of the final product. Material will be pneumatically conveyed from the delivery trucks to the storage silo equipped with a baghouse (CD-ADD-BH). PM emissions from the baghouse were calculated based on an assumed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Detailed potential emissions calculations are provided in Appendix C, Table 5.

3.15 Pellet Press System and Pellet Coolers (ES-CLR-1 through 6)

Pellet Press and Pellet Cooler operations will generate PM, HAP, and VOC emissions during the forming and cooling of wood pellets. The Pellet Mill and Coolers will be equipped with either six (6) baghouses (CD-CLR-BH1 through 6) or a single wet scrubber (CD-WSB) for PM control, followed by an RCO (CD-RCO) for VOC and HAP control from the exhaust of the scrubber. The oxidizer will operate in thermal mode as an RTO during catalyst cleaning. PM emissions from the Pellet Press System (Pellet Mills) and Pellet Coolers were calculated based on a maximum exit grain loading rate and the maximum nominal exhaust flow rate for the proposed baghouses. If Enviva installs a wet scrubber in place of the six baghouses, the PM emissions are expected to be less than or equal to those estimated assuming the baghouses. Thus, PM emissions represented in this application are assumed to be the maximum PTE for the Pellet Mill and Coolers. Refer to Appendix C, Table 5 for detailed potential PM emissions calculations.

Uncontrolled VOC and HAP emissions at the outlet of the Pellet Cooler baghouses (CD-CLR-BH1 through 6) or wet scrubber (CD-WSB) were quantified based on stack testing data from comparable Enviva plants. This includes emissions from both the Pellet Mills and the Pellet Coolers. Controlled emissions were estimated based on a 95% control efficiency for the RCO. Operation in thermal mode will achieve the same control efficiency and will have no impact on the calculated emissions. NO_x and CO emissions resulting from thermal oxidation were calculated using AP-42 Section 1.4, *Natural Gas Combustion*¹⁷, and the maximum high heating value of the anticipated VOC constituents. Detailed calculations are provided in Appendix C, Table 7.

Emissions of criteria pollutants, HAP, and TAP from natural gas combustion by the RCO burners were estimated using emission factors from AP-42 Section 1.4. Potential GHG emissions from natural gas combustion were quantified based on emission factors from Subpart C of 40 CFR Part 98. Emissions were converted to carbon dioxide equivalent (CO₂e) based on Global Warming Potentials from Subpart A of 40 CFR 98.

3.16 Pellet Dust Collection Transfer Bin (ES-PDCTB)

PM emissions will occur during transfer of wood pellets into the Pellet Dust Collection Transfer Bin. Particulate emissions from the baghouse that controls the Pellet Dust Collection Transfer Bin (CD-PDCTB-BH) were calculated assuming a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Refer to Appendix C, Table 5 for detailed potential emission calculations.

¹⁷ USEPA AP-42 Section 1.4, Natural Gas Combustion (07/98).

3.17 Pellet Loadout Bins (ES-PB-1 through 2) and Finished Product Handling (ES-FPH)

PM emissions result from the transfer of finished product to the Pellet Loadout Bins. No emissions are anticipated for the transfer of pellets from the bins to rail cars because wood pellets will be loaded into closed top rail cars that are entirely enclosed. PM emissions from Finished Product Handling and the two (2) Pellet Loadout Bins will be controlled by a baghouse (CD-FPH-BH). Potential PM emissions from the baghouse were calculated based on a maximum exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Detailed potential emissions calculations are provided in Appendix C, Table 5.

3.18 Emergency Generator (IES-GN) and Fire Water Pump Engine (IES-FWP)

Operation of the Emergency Generator and Fire Water Pump will generate emissions of criteria pollutants, HAP, and GHG. Potential PM, NO_X, VOC, and CO emissions from operation of the Emergency Generator and Fire Water Pump Engine were calculated based on emission factors from their respective manufacturer specification sheets and the maximum horsepower rating of the engines. VOC emissions were calculated based on the manufacturer's emission factor for hydrocarbons. Potential SO₂ emissions were calculated based on the fuel sulfur restriction in NSPS Subpart IIII, and by assuming that all the sulfur present in the diesel fuel becomes SO₂ air emissions.¹⁸ Potential HAP emissions were quantified based on emission factors from AP-42 Section 3.3, *Stationary Internal Combustion Engines*.¹⁹ Annual potential emissions were conservatively calculated based on 500 hours per year.

Combustion of diesel fuel by the engines will also result in emissions of GHG. Potential GHG emissions from each engine were quantified based on emission factors from Subpart C of 40 CFR Part 98. Emissions were converted to CO₂e based on Global Warming Potentials from Subpart A of 40 CFR 98.

The Emergency Generator and Fire Water Pump Engine are considered insignificant activities pursuant to 15A NCAC 02Q .0503. Refer to Appendix C, Tables 9 and 10 for detailed potential emission calculations.

3.19 Diesel Storage Tanks (IES-TK-1 through 3)

The storage of diesel in on-site storage tanks will generate emissions of VOC. VOC emissions from the three (3) Diesel Storage Tanks were calculated using EPA's TANKS 4.0 software based on actual tank characteristics (e.g., orientation, dimensions, etc.) and potential annual throughput. VOC emissions from the storage tanks are below 5 tpy and thus, per 15A NCAC 02Q .0503 they are listed as insignificant sources in the permit. Refer to Appendix C, Table 16 for detailed potential emission calculations.

3.20 Paved Roads

Fugitive PM emissions will occur as a result of trucks and employee vehicles traveling on paved roads on the Hamlet plant property. Emission factors were calculated based on Equation 2 from AP-42 Section 13.2.1, *Paved Roads*²⁰ using the mean silt loading for quarries (8.2 g/m²) and 110 days with rainfall greater than 0.01 inch based on Figure 13.2.1-2. A 90% control efficiency was applied for water/dust suppression activities followed

¹⁸ Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(b) as required by NSPS Subpart IIII.

¹⁹ USEPA AP-42 Section 3.3, Stationary Internal Combustion Engines (10/96).

²⁰ USEPA AP-42 Section 13.2.1, Paved Roads (01/11).

by sweeping. This control efficiency is based on data from the *Air Pollution Engineering Manual* of the Air and Waste Management Association. Refer to Appendix C, Table 15 for detailed potential emissions calculations.

4. STATE AND FEDERAL PERMITTING APPLICABILITY

The Enviva Hamlet plant is potentially subject to numerous federal and state air quality permitting requirements. The following sections summarize the applicability of these requirements.

4.1 Federal Permitting Programs

The federal NSR permitting program includes requirements for construction of new sources, and modifications to existing sources, while the Title V Operating Permit Program includes requirements for operation of Title V major sources. The following sections discuss the applicability of these requirements to the Hamlet plant.

4.1.1 New Source Review

NSR is a federal pre-construction permitting program that applies to certain major stationary sources. The federal NSR permitting program is implemented in North Carolina pursuant to 15A NCAC 2D .0530 and 15A NCAC 2D .0531. The primary purpose of NSR is to support the attainment and maintenance of ambient air quality standards across the country. There are two distinct permitting programs under NSR. The particular program that applies depends on the ambient air quality in the geographic area in which the source is located. The two programs are nonattainment NSR (NNSR) (15A NCAC 2D .0531) and PSD (15A NCAC 2D .0530). Because NNSR and PSD requirements are pollutant-specific, a stationary source can be subject to NNSR requirements for one or more regulated NSR pollutants and to PSD requirements for the remaining regulated NSR pollutants.

NNSR permitting requirements apply to an existing stationary source located in an area where concentrations of a "criteria pollutant"²¹ exceed the National Ambient Air Quality Standard (NAAQS) for that pollutant. PSD permitting requirements apply to stationary sources located in an area where concentrations of criteria pollutants do not exceed a NAAQS.

The Hamlet plant is located in Richmond County which is classified as attainment or unclassifiable for all criteria pollutants.²² The Hamlet plant is currently permitted as a PSD major source because facility-wide potential emissions of one or more criteria pollutants have previously been estimated to exceed the major source threshold of 250 tpy. However, Enviva is submitting this application to incorporate recent design changes to the facility that will limit the Hamlet plant's potential emissions to less than the major source threshold of 250 tpy for all PSD-regulated pollutants (see Appendix C, Table 2). As a result, the facility will be classified as a synthetic minor source for PSD. A comparison of the current permitted PTE to the proposed PTE incorporating the changes proposed in this application is provided in Table 4.1.

²¹ The following are "criteria pollutants" under current NSR regulations: CO, nitrogen dioxide, SO₂, PM₁₀, PM_{2.5}, ozone (VOCs and NO_x), and lead.

State and Federal Permitting Applicability

^{22 40} CFR 81.334

Emissions Scenario	CO (tpy)	NO _x (tpy)	PM (tpy)	РМ ₁₀ (tpy)	PM _{2.5} (tpy)	SO ₂ (tpy)	VOC (tpy)	CO ₂ e (tpy)	Total HAPs (tpy)
Proposed PTE ¹	231	236	71	60	37	28	241	264,666	34
Previous PTE ²	231	220	178	101	58	27	606	229,961	83
Change in PTE	0.3	16	-107	-41	-21	0.1	-365	34,705	-49

Table 4.1. Change In Potential to Emit

¹ Proposed PTE (excluding fugitive emission sources) from Appendix C, Tables 2 and 3.

² Previous PTE from the January 20, 2015 PSD modification application for the facility.

In order to provide the plant with operational flexibility while still achieving this reduction in emissions, Enviva requests that a permit condition be added to the permit that allows Enviva to process either up to 625,011 ODT/yr at 85% softwood or to process a higher annual throughput with a lower softwood percentage such that the total facility-wide annual emissions stay below the proposed VOC PTE of 246 tpy listed in Table 4.1.

The CO and NO_x emissions at the facility are predominately from the Dryer, and the proposed RTO and RCO, and are independent of softwood percentage. As discussed in Section 3 and the associated Appendix C emission tables, these potential emissions are based on a maximum emission rate over 8,760 hrs/yr and thus, the CO and NO_x emissions would not exceed the PTE listed in Table 4.1 with an increase in throughput at a lower softwood content.

4.1.2 Title V Operating Permit Program

The federal Title V Operating Permit program is promulgated in 40 CFR 70 and is implemented in North Carolina via 15A NCAC 2Q .0500. The Hamlet plant is a major source with respect to the Title V Operating Permit Program, because facility-wide emissions of one or more criteria pollutants exceed the major source threshold of 100 tpy. Additionally, the plant is considered a major source of HAP due to total HAP emissions and maximum individual HAP emissions exceeding the major source thresholds of 25 tpy and 10 tpy, respectively. The proposed permit modifications will not change this status. Enviva will submit an application for an initial Title V operating permit within one year of commencing source operations pursuant to 15A NCAC 02Q .0507(a).

4.2 North Carolina Permitting Program

In addition to the Title V permitting requirements in 15 NCAC 02Q .0500, specific requirements for permitting of construction and operation of new and modified sources are included in 15A NCAC 02Q .0300, in accordance with North Carolina's State Implementation Plan (SIP). The proposed changes are subject to the permitting procedures under 15A NCAC 02Q .0300, and the required application forms are included as Appendix D.

5. **REGULATORY APPLICABILITY**

The Hamlet plant will be subject to federal and state air quality regulations. The following addresses all potentially applicable regulations.

5.1 New Source Performance Standards

New Source Performance Standards (NSPS) apply to new and modified sources and require sources to control emissions in accordance with standards set forth at 40 CFR Part 60. NSPS standards in 40 CFR Part 60 have been incorporated by reference in 15A NCAC 02D .0524.

5.1.1 40 CFR 60 Subpart A – General Provisions

All sources subject to a NSPS are subject to the general requirements under Subpart A unless excluded by the source-specific subpart. Subpart A includes requirements for initial notification, performance testing, recordkeeping, monitoring, and reporting. Subpart A is applicable because the Emergency Generator and Fire Water Pump Engine are subject to NSPS Subpart IIII.

5.1.2 40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

NSPS Subpart IIII applies to owners or operators of compression ignition (CI) internal combustion engines (ICE) manufactured after April 1, 2006 that are not fire pump engines, and fire pump engines manufactured after July 1, 2006. The 671 bhp Emergency Generator and 131 bhp Fire Water Pump Engine at the Hamlet plant will be subject to NSPS Subpart IIII. The Subpart IIII requirements were previously incorporated into the facility's permit. Under this application, the maximum rating of the Emergency Generator and Fire Pump Engine have been updated to reflect planned construction. Thus, the applicable requirements under Subpart IIII for the fire water pump will change.

5.2 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAP) regulate HAP emissions and are applicable to certain major and area sources of HAP. NESHAP can be found in 40 CFR Part 63 and have been incorporated by reference in 15A NCAC 02D .1111. As previously discussed, the Hamlet plant will be a major source of HAP due to facility-wide total HAP emissions exceeding 25 tpy and maximum individual HAP emissions exceeding 10 tpy.

5.2.1 40 CFR 63 Subpart A – General Provisions

All sources subject to a NESHAP are subject to the general requirements under Subpart A unless excluded by the source-specific subpart. Subpart A includes requirements for initial notification, performance testing, recordkeeping, monitoring, and reporting. The Hamlet plant has sources subject to Subparts B and ZZZZ of this part and thus, Subpart A is also applicable to these sources.

5.2.2 40 CFR 63 Subpart B – Requirements for Control Technology Determinations for Major Sources in Accordance with Clean Air Act Section 112(g)

Clean Air Act (CAA) Section 112(g)(2)(B) requires that a new or reconstructed stationary source that does not belong to a regulated "source category" for which a NESHAP has been promulgated must control emissions to levels that reflect "maximum achievable control technology" (MACT). Because Wood Pellet Manufacturing Plants are not a regulated source category under 40 CFR 63, the Hamlet plant was subject to 112(g) and underwent a case-

by-case MACT analysis pursuant to 40 CFR 63 Subpart B as part of the initial PSD construction permitting process. NC DAQ concluded that case-by-case MACT was use of a low HAP-emitting design for the Dryer (ES-DRYER) without the addition of add-on controls, and that the Hamlet plant was not subject to numeric HAP emission limits under Section 112(g).²³ Furthermore, while not required under case-by-case MACT, the plant is subject to other requirements that have the ancillary benefit of reducing HAP emissions such as a limitation on softwood to reduce VOC emissions. We also note that previous BACT requirements include a limitation on PM from the Dryer achieved through use of a WESP, that provides control of metallic and inorganic HAP emissions resulting from wood combustion in the furnace. Although BACT will no longer be applicable since the plant will now be a synthetic minor source with respect to PSD, Enviva is still proposing to install and operate the WESP.

5.2.2.1 Applicability of Section 112(g) to the Proposed Project

Enviva has initiated construction activities at the Hamlet plant but has not yet completed construction. The proposed permit modifications outlined in this application include changes to the wood pellet manufacturing process that will decrease total potential HAP emissions by approximately 126 tpy. As provided in §63.40(b), a case-by-case MACT evaluation is only required prior to the construction or reconstruction of a major source of HAP emissions.

The regulation defines "construct a major source" as the fabrication, erection, or installation of a **new greenfield site** emitting greater than the HAP major source thresholds, or of a new process or production unit at an existing site, provided the new process or production unit in and of itself emits above the HAP major source thresholds.²⁴ The rule further defines process or production unit as "any collection of structures and/or equipment that processes, assembles, applies, or otherwise uses material inputs to produce or store an intermediate or final product [bold emphasis added]."²⁵

Since Enviva has already commenced construction of the Hamlet plant under the currently effective PSD permit, the proposed project does not constitute construction of a greenfield site as defined in §63.41.

Furthermore, the proposed changes to the plant design do not constitute reconstruction of a major source. Per §63.41, reconstruction is defined as the replacement of components at an existing process or production unit such that the fixed capital cost of the new components exceeds 50% of that which would be required to construct a comparable new process or production unit. The "process or production unit" at the Hamlet plant is the collection of all equipment used to manufacture the wood pellet product. The fixed capital costs associated with the proposed project are significantly less than 50% of the fixed capital costs that would be required to construct a comparable new wood pellet manufacturing facility. As such, the project also does not constitute reconstruction of the process or production unit.

Based on this review, Enviva has concluded that the proposed project does not trigger a requirement to perform a new case-by-case MACT evaluation under Section 112(g), as the project does not constitute construction of a major source or reconstruction of the process or production unit.

²³ Air Quality Permit No. 10365R02, Section 2.1.A, Condition 4

²⁴ §63.41

²⁵ Ibid.

5.2.2.2 Impact of the Proposed Project on Existing Case-by-Case MACT

As part of the proposed project, Enviva is requesting an increase in the maximum amount of softwood that can be used from 75% up to a maximum of 85%. However, Enviva is also proposing to install an RTO to follow the WESP for the Dryer exhaust which will significantly reduce emissions of VOC and organic HAP. In addition, the exhaust stream from the Green Wood Hammermills (ES-GHM-1 to 3) will be routed to either the inlet of the Dryer furnace or directly to the WESP/RTO system (CD-WESP/CD-RTO-1), which will control VOC and organic HAP emissions from the Green Wood Hammermills. Furthermore, Enviva is proposing to install an RCO (with RTO backup) to control VOC and organic HAP emissions from the twelve (12) Pellet Mills and six (6) Pellet Coolers (ES-CLR-1 through 6). With the installation of the RTO and RCO, Enviva will surpass the level of control required under the original case-by-case MACT determination for the Hamlet plant and believes the intent of the proposed project.

Other sources of organic HAP emissions at the plant include the following: Log Chipper (IES-CHIP-1), the Bark Hog (IES-BARKHOG), Dried Wood Handling (ES-DWH), and eight (8) Dry Hammermills (ES-HM-1 through 8) as well as the Emergency Generator (IES-GEN) and Fire Water Pump (IES-FWP). For these sources, MACT was determined to be good process design and maintenance of equipment in accordance with manufacturer specifications and/or standard industry practices. Enviva is not requesting any modifications to the existing MACT determinations for these process sources.

5.2.3 40 CFR 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ applies to reciprocating internal combustion engines (RICE) located at a major or area source of HAP emissions. Emergency stationary RICE are defined in §63.6675 as any stationary RICE that operates in an emergency situation. These situations include engines used for power generation when a normal power source is interrupted, or when engines are used to pump water in the case of fire or flood. The Hamlet plant's Emergency Generator and emergency Fire Water Pump Engine will both be classified as emergency RICE under Subpart ZZZZ. Further, the engines will both be classified as new sources, as they will be constructed after June 12, 2006.

New and reconstructed emergency power engines with ratings of more than 500 bhp located at a major source of HAP emissions, including the plant's Emergency Generator, are subject to limited requirements under Subpart ZZZZ, in accordance with §63.6590(b)(1)(i). New or reconstructed CI engines with ratings less than or equal to 500 bhp located at a major source of HAP, including the plant's Fire Water Pump Engine, are only subject to the requirement to comply with the applicable provisions of NSPS Subpart IIII, per §63.6590(c)(7), and no further requirements apply under Subpart ZZZZ. The applicable requirements of this regulation have previously been incorporated into the facility's current permit and will not be impacted by the proposed permit changes.

5.2.4 40 CFR 63 Subpart DDDDD – NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters

Subpart DDDDD, also referred to as the Boiler MACT, provides emission standards for boilers and process heaters located at major sources of HAP emissions. The rule defines a process heater in §63.7575 as a device with the primary purpose of transferring heat <u>indirectly</u> to a

process materia! or to a heat transfer material for use in a process unit. The Hamlet plant's Dryer will be heated by a wood-fired furnace burner system; however, the furnace burner system will provide <u>direct</u> heating of the wood chips, not indirect. As such, Subpart DDDDD does not apply.

5.3 Compliance Assurance Monitoring

Compliance Assurance Monitoring (CAM) under 4D CFR 64 is applicable to emission units located at a Title V major source that use a control device to achieve compliance with an emission limit and whose pre-controlled emissions exceed the major source thresholds. A CAM plan is required to be submitted with the initial Title V operating permit application for emission units whose post-controlled emissions exceed the major source thresholds (i.e., large pollutant-specific emission units [PSEU]).²⁶ For emission units with post-controlled emissions below the major source thresholds, a CAM plan must be submitted with the first Title V permit renewal application.²⁷

The Dryer (ES-DRYER) and three (3) Green Wood Hammermills (ES-GHM-1 to 3) are each subject to a PM emission limit under 15A NCAC 02D .0515 and will utilize a WESP (CD-WESP) to meet this limit. However, combined, the Dryer and Green Wood Hammermill post-controlled PM emissions are below the major source threshold. The exhaust from both the Dryer and Green Wood Hammermills will be controlled by an RTO following the WESP; however, the RTO will not be installed to meet a specific emission limit but rather to reduce the plant's potential VOC emissions below the PSD major source threshold. Since the Hamlet plant will now be a synthetic minor PSD source, the current BACT limits will no longer be applicable and there is no other applicable VOC limit for the Dryer or Green Wood Hammermills. As such, a CAM plan is not required for VOC. A CAM plan for PM is required to be submitted for the Dryer and Green Wood Hammermills with the initial Title V permit renewal application.

The Pellet Coolers (ES-CLR-1 through 6) are also subject to a PM emission limit under 15A NCAC 02D .0515 and will utilize either six (6) individual baghouses or a wet scrubber to meet this limit. Post-controlled PM emissions will be below the major source threshold. An RCO (with RTO backup) will be installed to control VOC from the Pellet Mills and Pellet Coolers to reduce the facility-wide VOC PTE below the PSD major source threshold. Since the current VOC BACT limit will no longer be applicable and there is no other applicable VOC limit, a CAM plan is not required for VOC. A CAM plan for PM will be submitted for the Pellet Press System and Pellet Coolers (ES-CLR-1 through 6) with the initial Title V permit application.

All other emission units at the Hamlet plant have pre-controlled emissions below the major source threshold and/or do not use a control device as defined in §64.1. For those with control devices, the post-controlled emissions are below the major source threshold and thus, if CAM is applicable, it will not need to be addressed until the first Title V permit renewal application.

5.4 North Carolina Administrative Code

The Hamlet plant sources will be subject to regulations contained within 15A NCAC 02D and 02Q. Potentially applicable regulations are addressed in the following sections.

Regulatory Applicability

²⁶ §64.5(a) ²⁷ §64.5(b)

5.4.1 15A NCAC 02D .0504 Particulates from Wood Burning Indirect Heat Exchangers

15A NCAC 02D .0504 provides PM emission limits for <u>indirect</u> heat exchangers combusting wood. An indirect heat exchanger is defined as equipment used for the alteration of the temperature of one fluid by the use of another fluid in which the two fluids are not mixed. The Dryer will be heated by a wood-fired furnace burner system; however, the furnace burner system provides <u>direct</u> heating of the wood chips, not indirect. As such, this regulation does not apply.

5.4.2 15A NCAC 02D .0515 Particulates from Miscellaneous Industrial Processes

PM emissions from all emission sources subject to permitting are regulated under 15A NCAC 02D .0515. This regulation limits particulate emissions based on process throughput using the equation $E = 4.10 \times P^{0.67}$, for process rates (P) less than or equal to 30 tons per hour (tph) and $E=55 \times P^{0.11}$ -40 for process rates greater than 30 tph.

All emissions from PM sources at the Hamlet plant will either be negligible or controlled by cyclones, baghouses, a scrubber, or the WESP, and thus, are expected to comply with this requirement.

5.4.3 15A NCAC 02D .0516 Sulfur Dioxide Emissions from Combustion Sources

Emissions of SO₂ from combustion sources cannot exceed 2.3 pounds of SO₂ per MMBtu input. The Emergency Generator and Fire Water Pump will use ultra-low sulfur diesel, the Dryer furnace burner system will combust bark and wood chips, and the RTO and RCO will utilize natural gas, each of which contain low amounts of sulfur and will result in SO₂ emissions well below the limit of 2.3 lb/MMBtu.

5.4.4 15A NCAC 02D .0521 Control of Visible Emissions

For sources manufactured after July 1, 1971, visible emissions cannot exceed 20 percent opacity when averaged over a six-minute period except under the following conditions:

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

This rule applies to all processes at the facility that may have visible emissions.

5.4.5 15A NCAC 02D .0540 Particulate from Fugitive Dust Emission Sources

15A NCAC 02D .0540 requires a fugitive dust control plan be prepared if ambient monitoring or air dispersion modeling show violation or a potential for a violation of a PM NAAQS, or if NC DAQ observes excess fugitive dust emissions from the facility beyond the property boundary for six (6) minutes in any one hour using EPA Method 22. Previous dispersion modeling for the Hamlet plant did not show a violation or the potential for a violation of the PM₁₀ or PM_{2.5} NAAQS. As such, a fugitive dust control plan is not required at this time.

5.4.6 15A NCAC 02D .1100 Control of Toxic Air Pollutant Emissions

15A NCAC 02D .1100 outlines the procedures that must be followed if a TAP permit and associated modeling are required under 15A NCAC 02Q .0700. Under 15A NCAC 02Q .0704(d), a TAP permit application is required to include an evaluation of the TAP emissions from a facility's sources, excluding exempt sources listed in Rule .0702 of this Section.

15A NCAC 02Q .0702(a)(27)(B) exempts affected sources under 40 CFR Part 63. Case-by-Case MACT, required under Clean Air Act (CAA) Section 112(g)(2)(B), is carried out in Subpart B of 40 CFR 63; therefore, all sources subject to Case-by-Case MACT under Subpart B of 40 CFR 63 are exempt from the requirement to obtain a permit to emit air toxics under 15A NCAC 02Q .0702(a)(27)(B). All sources of TAP emissions at the Hamlet plant are either subject a source-specific NESHAP under 40 CFR 63 (i.e., Emergency Generator and Fire Pump Engine) or have previously undergone case-by-case MACT as required under 40 CFR 63 Subpart B. The proposed changes do not trigger a re-assessment of the previous caseby-case MACT determination, as discussed in Section 5.2.2. As such, a TAP permit and associated TAP evaluation and TAP modeling are not required.

Although not required, a TAP modeling analysis was performed as part of the permitting effort in January 2015 and the results demonstrated that the facility would not exceed any TAP ambient air standards. As part of this permit modification Enviva is proposing to reduce total TAP emissions from 31.6 tpy to 20.5 tpy. As such, Enviva believes additional TAP modeling is not warrantied.

5.4.7 15A NCAC 02Q .0700 Toxic Air Pollutant Procedures

As discussed in the previous section, total potential HAP emissions are significantly lower than estimated in the previous permit application. In addition, per 15A NCAC 02Q .0702(a)(27)(B), sources subject to 40 CFR 63 are exempt from the requirements to obtain a permit for TAP emissions.

(a) A permit to emit toxic air pollutants shall not be required under this Section for

(27)(B) an affected source under 40 CFR 63, as amended

Because the Enviva Hamlet plant is subject to NESHAP Part 63, Subpart B, which covers CAA 112(g) §63.40-§63.44 case-by-case MACT for the Hamlet plant, and Subpart ZZZZ which covers the Emergency Generator and Fire Water Pump Engine, all sources are exempt from air toxics review.

Application for Minor Source Permit Enviva Pellets Hamlet, LLC Richmond County, North Carolina

APPENDIX A AREA MAP



Application for Minor Source Permit Enviva Pellets Hamlet, LLC Richmond County, North Carolina

APPENDIX B PROCESS FLOW DIAGRAM

Application for Minor Source Permit Enviva Pellets Hamlet, LLC Richmond County, North Carolina

APPENDIX C POTENTIAL EMISSIONS CALCULATIONS

Table 1

Calculation Inputs Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Operational Data								
Green Hammermills, Dryers, Pellet Coolers								
Short-Term Throughput (ODT/hr)	80							
Annual Throughput (ODT/yr)	625,011							
Hours of Operation (hr/yr)	8,760							
Softwood Composition	85%							
Dry Hammermills								
Short-Term Throughput (ODT/hr)	68							
Annual Throughput (ODT/yr) ¹	531,259							
Hours of Operation (hr/yr)	8,760							
Softwood Composition	85%							

Notes:

^{1.} 85% of raw material is processed by the dry hammermills.



Table 2 Summary of Facility-wide Potential Emissions Enviva Pollets Hamlet, LLC Hamlet, Richmond County, North Carolina

Emission Unit ID	Source Description	Control Device 2D	Control Device Description	со (фу)	NO _X (tpy)	РМ (tpy)	PM ₁₀ (tpy)	PM _{2.0} (tpy)	50 ₂ (фу)	VOC (tpy)	СО ₂ в (tpy)
IES-CHIP-1	Log Chipping								1	1.6	
IES-BARKHOG	Bark Hog					D.23	D.13			0.28	
ES-DRYER	250.4 MMBtu/hr Wood-fired Direct Heat Drying System	CD-WESP	WEED, BTD	710	210	22	22		27	20	24.2 754
ES-GHM-1 through 3	Three (3) Green Wood Hammermills	CD-RTO-1	WESP; RTO	219	219	33	33	- 33	23	29	293,734
ES-HM-1 through S	Eight (8) Dry Hammermills	CD-HM-BH1 through 8	Eight (8) baghouses		-	18	18	0.31		135	8.00
FS-HMC	Hammermill Collection	CD-HMC-BH	One (1) baghouse			0.23	D.23	D.23			0.77
ES-PCHP	Pellet Cooler HP Fines Relay System	CD-PCHP-BH	One (1) baghouse			0.075	0.075	0.075			370
ES-PCLP	Pellet Cooler LP Fines Relay System	CD-PCLP-BH	One (1) baghouse		<u></u>	0,47	0.47	0.47		102	
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	One (1) baghouse			0.37	0.37	0.37			
ES-CLR-1 through 61	Six (6) Pellet Coolers	CD-CLR-1 through 6 (or CD-WSB) CD-RCO	Six (6) baghouses (one on each cooler) or wet scrubber: BCO	12	15	15	4.6	1.5	0.082	24	20,603
ES-DCTB	Pellet Dust Collection Transfer Bin	CD-PDCTB-BH	One (1) baghouse			0.45	0.45	0.45			
ES-FPH ES-PB-1 and 2	Finished Product Handling Two (2) Pellet Loadout Bins	CD-FPH-BH	One (1) baghouse			1.3	1.2	0.022			1000
ES-DWH	Dried Wood Handling Operations	CD-DWH-8H1 and 2	Two (2) baghouses		0.77	0.30	0.30	0.30	72	39	355
ES-ADD	Additive Handling and Storage	CD-AOD-BH	One (1) baghouse			D.15	D.15	0.15			822
tes-gwh	Green Wood Handling Operations	225			8122	D.077	0.036	0.0055			1.11
TES-TK 1	1,000 gallon Diesel Storage Tank									0.00058	
IES-TK-2	185 gallon Diesel Storage Tank	-				(++)		10.00		0.00015	
IES-TK-3	5,000 gallon Diesel Storage Tank					1992				0.0033	
LES-GWSP-1 through 4	Green Wood Storage Piles					13	6.7	1.0		6.9	
TES-BF5P-1 and 2	Bark Fuel Storage Piles			2 24 . 3		0.56	0.28	0.042	1	0.29	
IES-DRYSHAVE	Dry Shaving Material Handling		8777		1.070	0.054	0.025	0.0039		- 19	
IES DEBARK-1	Debarker					1.1	0.59				
IES-BFB ²	Bark Fuel Bin										
IES-GN	500 kW Diesel-fired Emergency Generator		673	0.14	2.5	D.0078	0.0079	0.0078	D.00056	1.7	179
TES-EWP	250 hp Diesel-fired Fire Water Pump			0.07	D.18	0.009	0.009	0.009	0.00048	0.01	50
- Paved Roads						16	3.2	0.78	i ii		
			Total Emissions:	231	236	100	70	39	28	248	264,666
		Tak	I Excluding Fugitives ¹ :	231	236	71	60	37	28	241	264,666
	250	25D	250	250	250	250	250	_			

Notas: The pellet coolers will be equipped with either six (6) baghouses (one on each cooler) or a single wet scrubber for PM control. The emissions are expected to be the same whether the scrubber or baghouses are installed. In addition, the pellet coolers will be equipped with an RCO for VOC control that will operate primarily in catalytic mode with thermal (RTO) mode as a backup. The RTO and RCO modes have the same control efficiency so there will be no impact on emissions during thermal mode usage. Bark is transferred from the primary Bark Fuel Storage Pile by walking floor to covered conveyors which transfer the bark into the fully enclosed Bark Fuel Bin. There are no emissions expected from transfer of material into the bin.

3. Fugitive emissions are not included in comparison against the major source threshold because the facility is not on the list of 28 source categories in 40 CFR 52.21.

Abbreviations:

ES - Emission Source IES - Insignificant Emission Source

CO - carbon monoxide

CO₃e - carbon dioxide equivalent

NO_x - nitrogen oxides

PM - particulate matter

PM10 - particulate matter with an aerodynamic diameter less than 10 microns

 $PM_{2,5}$ - perticulate matter with an aerodynamic diameter of 2.5 microns or less RTO - Regenerative Thermal Oxidizer

SO₂ sulfur dioxide

tpy - tons per year

VOC - volatile organic compounds WESP - Wet Electrostatic Precipitator

Table 3 Summary of Facility-wide HAP Emissions Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Pollutent	CD-RTO-1 ¹ (ФУ)	ES-HM-1 through 8 (tpy)	СD-RCO ² (107)	ES-DWH	IES-GN (tpy)	LES-FWP (tpy)	IES- BARKHOG (tpy)	IES-CHIP-1 (tpy)	Total HAP (tpy)
Acetaldehyde	1.6	2.4	0.13		9.02-04	1.8E-04			4.3
Acetophenone	1.85-07	12				122			1.8E-07
Acrolein	1.0	2.9	U.79		1.12-04	2.1E-05			4.7
Antimony and compounds	6.3E-04				547)	(are)			6.3E-04
Arsenic and compounds	1.8E-03		2.7E-05		**				1.8E-03
Benzene	D.23		2.9E-04		1.1E-03	2.1E-04			0.23
Benzo(a)pyrene	1.4E-04		1.6E-07		2.2E-07	4.3E-08			1.4E-04
Bervllium metal	8.9E-05		1.6E-06						9.16-05
Butadiene, 1.3-			1		4.6E-05	9.0E-06			5.5E-05
Cadmium Metal	4.8E-04		1.5E-04						5.35-04
Carbot betrachloride	2 5E-03								2.5E-03
Chlorine	0.87		-14						0.87
Chlorobenzegg	1.8E-03								1.8E-03
Chlorofurm	1 SE 03								1.55-03
Chromium M	4 75-04		1.95-04						6.6E-04
Chromium-Other compounds	1.45-03		1.72 04						1.45-03
Cobalt comeaunds	5 35-04		1 25-05						5 4E-04
Dishlarahanana	1.65-04		1.55-04						3.35-04
Oichleashbara 1.2	1.65-03		1.00-04						1.65-03
Dichlorenane, 1,2	1.00-03								1.00 03
Dictionaphapane, 1,2-	1.65-03				**				0.05.06
Dintrophenol, 2,4-	9.95-06								3.92-00
Di(2-ethylnexyl)phthalate	2.02-00								2.02-00
Ethyl benzene	1./E-03								1.72-03
Formaldehyde	0.94	Z.1	0.50	0.26	1.46-03	4.7E-04			3.6
Hexane	0.25		0.25						0.49
Hydrochloric acid	2.1								2.1
Lead and lead compounds	3.9E-03		6.9E-05				**		4.08-03
Manganese and compounds	0.13		5.2E-05		**				0.127
Mercury, vapor	3.1E-04		3.66-05						3.5E-04
Methanol	2.1	1.4	3.8	0.61			5.7E-02	0.31	8.2
Methyl bromide	8.2E-04								8.2E-04
Methyl chloride	1.3E-03								1.3E-03
Methylene chloride	1.5E-02	**							1.6E-02
Naphthalene	5.4E-03		8.4E-05		1.0E-04	1.9E-05			5.6E-03
Nickel metal	2.96-03		2.9E-04						3.2E-03
Nitrophenøl, 4-	6.DE-06								6.0E-06
Pentachiorophenol	5.56-05								5.6E-05
Perchlomethylene	4.2E-02								0.042
Phenol	1.3	1.1	0.39						2.8
Phosphorus metal, yellow or white	2.1E-03			**)	2.1E-03
Polychlorinated biphenyls	4.5E-07]					4.5E-07
Propionaldehyde	0.45	5.0	0.17						5.6
Selenium compounds	2.3E-04		3.3E-06						2.3E-04
Styrene	0.10		**						0.10
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	4.7E-10								4.7E-10
Toluene	2.1E-03		4.7E-04		4.8E-04	9.4E-05			3.2E-03
Total PAH (POM)	0.14		9.6E-05	1	2.0E-04	3.9F/D5			0.14
Trichloroethane, 1,1,1-	3.4E-02								3.4E-02
Trichloroethylene	1.6E-03				+*	1490		(1.6E-03
Trichlaraphenol, 2,4,6	1.2E-05				352				1.2E-05
Vinyl chloride	9.9E-04								9.9E-04
Xylene	1.4E-03				3.3E-04	6.5E-05			1.8E-03
Total HAP Emissions ⁷ (tpy)	11	15	6.0	0.87	4.5E-03	8.9E-04	0.06	3.12-01	34
Maximum Individual HAP (tpy)	Hydrochloric acid	Propionaldehyde	Methanol	Methanol	Formaldehyde	Formaldehyde	Methanol	Mathanol	Methanol
Maximum Individual HAP Emissions (tpy)	2.1	5,0	3.8	0.61	1.45-03	2.78-04	0.06	3.1E-01	8.2

hammernilis (ES-GIM-1 through 3). A Includes emissions at outlet of RCO stack as well as the HAP combustion emissions resulting from NG by the RCO burners. RCO controls emissions from the pellet coolers and pellet mill (ES-CLR-1 through 6). The pellet coolers will be equipped with an RCO that will operate primarily in catalytic mode with thermal (RTO) mode as a backup. The RTO and RDO modes have the same control efficiency so there will be no impact on emissions during thermal mode usage.

Because benzo(a)pyrene and naphthalene emissions were presented individually and as components of total PAH emissions, the total HAP emissions presented here do not match the sum of all pollutant emissions to avoid double counting benzo(a)pyrene and naphthalene emissions.

RTO - regenerative thermal oxidizer

Addrewitions: HAP - hazardous air pollutant REO regenerative catalytic exidizer

tpy - tons per year

RAMBOLL
Table 4 Potential Emissions at Outlet of RTO-1 Stack ES-DRYER and ES-GHM-1 through 3 **Enviva Pellets Hamlet, LLC** Hamlet, Richmond County, North Carolina

Calculation Basis	
Hourly Throughput	80 ODT/hr
Annual Throughput	625,011 ODT/yr
Hourly Heat Input Capacity	250.4 MMBtu/hr
Annual Heat Input Capacity	2,193,504 MMBtu/yr
Hours of Operation	8,760 hr/yr
Number of RTO Burners	4 burners
RTO Burner Rating	8 MMBtu/hr
RTO Control Efficiency	95%

Potential Criteria Pollutant and Greenhouse Gas Emissions

Poliutant	Controlled Emission	Units	Emissions at RTO-1 Outlet ¹		
	Factor		(lb/hr)	(tpy)	
CO	50	lb/hr ²	50	219	
NOx	50	lb/hr ²	50	219	
SO ₂	0.025	lb/MMBtu ³	6.3	27	
VOC	D.12	Ib/ODT ¹	10	39	
PM/PM ₁₀ /PM _{2.5} (Filterable + Condensable)	7.6	lb/hr ²	7.6	33	
CO2	780	Ib/ODT ⁵	62,400	243,754	

Notes: 1. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) are routed to a WESP and then RTO for control of VOC, HAP, and particulates.

 ²⁷ Emission rate based on data provided by RTO vendor (Lundberg) and include thermal emissions from the use of the RTO.
 ³⁸ No emission factor is provided in AP-42, Section 10.6.2 for SO₂ for rotary dryers. Enviva has conservatively calculated SO₂ emissions based on AP-42, Section 1.6 - Wood Residue Combustion in Boilers, 09/03.

* VOC emission factor based on source test results from similar Enviva facilities.

5. Emission factor for CO₂ from AP-42, Section 10.6.1 for rotary dryer with RTO control device. Enviva has conservatively calculated the CO₂ emissions using the hardwood emission factor because the dryer at Hamlet uses a combination of hardwood and softwood and the hardwood emission factor is greater than the softwood emission factor.



Table 4 Potential Emissions at Outlet of RTO-1 Stack ES-DRYER and ES-GHM-1 through 3 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Polential har and har Emilaions		HAR NO TAR NOC Emiss	Emission	Ibelia	Friday	Pote	ntial	
Pollutant	НАР	NC TAP	AOC	Factor	Units	Footnote	(ib/br)	(tray)
Riomass Source				1			(10) 111	(4977
A setal debudo	v	1 V I	V	1 5 75 02	I IN/ODT	1	0.46	1.0
Acetaidenyde	I	1 Y	T Y	3.76-03		1	0.40	1.0
Acrotein	r N	P P	Ý	3.2E-03	10/0DT	1	0.20	1.0
Formaldenyde	ř.		Y	3.0E-03	B/ODT	1	0.24	0.92
Methanol	ľ	iN .	Y	0.0E-03			0.55	2.1
Phenol	ř	Y I	Ý	4.1E-03		1	0.33	1.3
Propionaldehyde	<u> </u>	N	Y	1.4E-0.3	10/0D1	1	0.12	0.45
Acetophenone	<u>Y</u>	N	Ý	3.2E-09	ID/MMBCU	1	4.0E-08	1.8E-07
Antimony and compounds	<u>Y</u>	N	<u>N</u>	7.9E-06	JD/MMBtu	2,4	1.4E-04	6.3E-04
Arsenic	<u>Y</u>	Y	N	2.2E-05	Ib/MMBtu	2,4	4.0E-04	1.7E-03
Benzene	<u>Y</u>	Y	Y	4.2E-03	ID/MMBtu	2,3	5.3E-02	0.23
Benzo(a)pyrene	Y	Y	Y	2.6E-06	Ib/MMBtu	2,3	3.3E-05	1,4E-04
Beryllium	Y	Y	Ņ	1.1E-06	Ib/MMBtu	2,4	2.0E-05	8.7E-05
Cadmium	Y	Y	N	4.1E-06	1b/MMBtu	2,4	7.4E-05	3.3E-04
Carbon tetrachloride	Y	Y	Y	4.5E-05	Ib/MMBtu	2,3	5.6E-04	2.5E-03
Chlorine	Y	Υ	N	7.9E-04	lb/MMBtu	2	0.20	0.87
Chlorobenzene	Υ	Y	Y	3.3E-05	lb/MMBtu	2,3	4.1E-04	1.8E-03
Chloroform	Y	Y	Y	2.8E-05	lb/MMBtu	Z,3	3.5E-04	1.5E-03
Chromium VI	_3	Y	N	3.5E-06	Ib/MMBtu	2,4,5	6.4E-05	2.8E-04
Chromium–Other compounds	Y	N	N	1.8E-05	lb/MMBtu	2,4	3.2E-04	1.4E-03
Cobalt compounds	Y	N	N	6.5E-06	lb/MMBtu	2,4	1.2E-04	5.2E-04
Dichloroethane, 1.2-	Y	Y	Y	2.9E-05	lb/MMBtu	2,3	3.6E-04	1.6E-03
Dichloropropane, 1.2-	Y	N	Y	3.3E-05	lb/MMBtu	2.3	4.1E-04	1.8E-03
Dinitrophenol, 2.4-	Y	N	Y	1.8E-07	lb/MMBtu	2.3	2.3E-06	9.9E-06
Di(2-ethylbexyl)phthalate	Ý	Y	Y	4.7E-08	b/MMBtu	2.3	5.9E-07	2.6E-06
Ethyl benzene	Ŷ	N	Y	3.1E-05	lb/MMBtu	2.3	3.9E-04	1.7E-03
Hexachlorodibenzo-p-dioxin, 1.2.3.6.7.8-	N	Y	Y	1.8E-11	lb/MMBtu	2.3	2.2E-10	9.8E-10
Hydrochloric acid	Y	Y	N	1.9E-02	lb/MMBtu	2.6	0.48	2.1
Lead and lead compounds	Y	N	N	4.8E-05	b/MMBtu	2,4	8.7E-04	3.8E-03
Manganese and compounds	Y	Y	N	1.6E-03	lb/MMBtu	2.4	2.9E-02	0.13
Mercury, vapor	Ŷ	Y	N	3.5E-06	lb/MMBtu	2.4	6.4E-05	2.8E-04
Methyl bromide	Y	N	Y	1.5E-05	lb/MMBtu	2.3	1.9E-04	8.2E-04
Methyl chloride	Ŷ	N	Y	2.3E-05	lb/MMBtu	2.3	2.9E-04	1.3E-03
Methyl ethyl ketone	N	Y	Y	5.4E-06	lb/MMBtu	2.3	6.8E-05	3.0E-04
Methylene chloride	Y	Ý	Ý	2.9E-04	lb/MMBtu	2.3	3.6E-03	1.6E-02
Nanhthalene	Ý	N	Y	9.7E-05	b/MMBtu	2.3	1.2E-03	5.3E-03
Nickel metal	Ý	Y I	Ň	3.3E-05	Ib/MMBtu	2.4	6.0E-04	2.6E-03
Nitrophenol 4-	Y	N	Y	1.1E-07	Ib/MMBtu	2.3	1.4E-06	6.0E-06
Pentachloronbenol	Y	Y	N	5.1E-08	lb/MMBtu	2	1.3E-05	5.6E-05
Perchloroethylene	v	v 1	N	3.8E-05	Ib/MMBtu	2	9 5E-03	4 2E-02
Phosphorus metal vellow or white	v	N	N	2 76-05	Ib/MM8tu	24	4 9E-04	2.1E-03
Polychlorinated binhenvis	Y Y	Y I	Y	8.7E-09	Ib/MMBtu	2.3	1.0E-07	4.5E-07
Polycyrlic Organic Matter	Y	N	N	1.3E-04	Ib/MMBtu	7	3.1E-02	0.14
Selenium comnounds	Y	N	N	2 8E-06	Ib/MMBtu	24	5 1E-05	2 2E-04
Sturene	v	- v	V V	1.96-03	Ib/MMBtu	23	2 4E-02	0 10
Tetrachlaradibenza_n_dioxin_2.3.7.9	v	- v	v	8.6E-12	h/MMBtu	2,2	1 1E-10	4 7E-10
Teluano	v		- ·	2.05-05	Ib/MMBhu	73	2.95.04	1.65.03
Trichlomethane 1.1.1.	v	Ý Ý	N	3 1E-05	Ib/MMBtu	7	7 8E-03	3 4E-02
Trichloroothylong	v		Y	3.06-05	Ib/MMBtu	23	3.8E-04	1.6E-02
Trichlorofluoromethane	N	- v	v	4 15-05	Ib/MM8+0	2,5	5.1E-04	2 2E-03
Trichlorophenol 2.4.6	V	N	v	2.200	h/MMBtu	2,3	2 8E-07	1 25-06
Viewi chlorido	T V		v v	1 00 00	Ib/MMOr.	2,2	2.0E-07	0 DE 04
Vilyi Chonde	T V		v	1 1.00-00	IL/MMR	2.3	2.36-04	1.45-03
Aviene	T.	1 1	Tabal fi	2,5E-05	10/14141010	2.3	3.16-04	90.05
			Totar H	IAP Emission	s (related t	o biomass)	2.0	11.2



Table 4 Potential Emissions at Outlet of RTO-1 Stack E\$-DRYER and ES-GHM-1 through 3 Enviva Peliets Hamlet, LLC Hamlet, Richmond County, North Carolina

	K	1		Emission			Pote	ntial
Pollutant	HAP NC TAP	VOC Factor		Units	Footnote	Emis	SIONS	
				14000			(lb/hr)	(tpy)
Natural Gas Source								
2-Methylnaphthalene	Y	N	Y	2.4E-05	Ib/MMscf	7	7.5E-07	3.3E-06
3-Methylchloranthrene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
7,12-Dimethylbenz(a)anthracene	Y	N	Y	1.6E-05	Ib/MMscf	7	5.0E-07	2.2E-06
Acenaphthene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Acenaphthylene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Acetaldehyde	Y	Y	Y	1.5E-05	lb/MMscf	7	4.8E-07	2.1E-06
Acrolein	I Y	Y	Y	1.8E-05	Ib/MMscf	7	5.6E-D7	2.5E-06
Ammonia	N	Y	N	3.2	Ib/MMscf	7	0.10	0.44
Anthracene	Y	N	Y	2.4E-06	lb/MMscf	7	7.5E-08	3.3E-07
Arsenic	Y	Y	N	2.0E-04	lb/MMscf	7	6.3E-06	2.7E-05
Benz(a)anthracene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Benzene	Y	N	Y	2.1E-03	lb/MMscf	7	6.6E-05	2.9E-04
Benzo(a)pyrene	Y	Y	Y	1.2E-06	lb/MMscf	7	3.8E-08	1.6E-07
Benzo(b)fluoranthene	Y	N	Y	1.8E-06	Ib/MMscf	7	5.6E-08	2.5E-07
Benzo(g,h,i)perylene	Y	N	Y	1.2E-06	Ib/MMscf	7	3.8E-08	1.6E-07
Benzo(k)fluoranthene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.58-07
Beryllium	Y	Y	N	1.2E-05	lb/MMscf	7	3.8E-07	1.68-06
Cadmium	Y	Y	N	1.1E-03	Ib/MMscf	7	3.5E-D5	1.5E-04
Chromlum VI	Y	N	N	1.4E-03	Ib/MMscf	7	4.4E-05	1.9E-04
Chrysene	Y	N	Y	1.8E-06	Ib/MMscf	7	5.6E-08	2.58-07
Cobalt	Y	N	N	8.4E-05	Ib/MMscf	7	2.6E-06	1.28-05
Dibenzo(a,h)anthracene	Y	N	Y	1.2E-06	Ib/MMscf	7	3.8E-08	1.6E-07
Dichlorobenzene	Y	Y	Y	1.2E-03	Ib/MMscf	7	3.8E-05	1.6E-04
Fluoranthene	Y	N	Y	3.0E-06	Ib/MMscf	7	9.4E-08	4.1E-07
Fluorené	Y	N	Y	2.8E-06	lb/MMscf	7	8.8E-08	3.8E-07
Formaldehyde	Y	Y	Y	7.5E-02	Ib/MMscf	7	2.4E-03	1.0E-02
Hexane	Y	Y	Y	1.8	lb/MMscf	7	5.6E-02	0.25
Indeno(1,2,3-cd)pyrene	Y Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Lead	Y	N	N	5.0E-04	Ib/MMscf	7	1.6E-05	6.9E-05
Manganese	Υ	Y	N	3.8E-04	lb/MMscf	7	1.2E-05	5.2E-05
Mercury	Y	Y	N	2.6E-04	lb/MMscf	7	8.2E-06	3.6E-05
Naphthalene	Y	N	Y	6.1E-04	Ib/MMscf	7	1.9E-05	8.4E-05
Nickel	Y	Y	N	2.1E-03	Ib/MMscf	7	6.6E-05	2.9E-04
Phenanthrene	Y	N	Y	1.7E-05	Ib/MMscf	7	5.3E-07	2.3E-06
Pyrene	Y	N	Y	5.QE-06	lb/MMscf	7	1.6E-07	6.9E-07
Selenium	Y	N	N	2.4E-05	lb/MMscf	7	7.5E-07	3.3E-06
Toluene	Y	Y	Y	3.4E-03	lb/MMscf	7	1.1E-04	4.7E-04
			Total HAP	Emissions (n	elated to n	atural gas)	0.059	0.25
			Total TAP	Emissions (r	elated to n	atural gas)	0.16	0.70

Notes:

¹- Emission factor derived based on stack testing data from comparable Enviva facilities.

² Emission factors (criteria and HAP/TAP) for wood combustion in a stoker bailer from NCDAQ Wood Waste Combustion Spreadsheet/AP-42, Fifth Edition, Volume 1, Chapter 1.6 - Wood Residue Combustion in Boilers, 09/03.

³. The control efficiency of 95% for the RTO is applied to all VOC hazardous and toxic pollutants for those emission factors that are not derived from Enviva stack test data.

⁴ The control efficiency of the wet electrostatic precipitator (WESP) for filterable particulate matter is applied to all metal hazardous and toxic pollurants. Actual design filterable efficiency is estimated to 96.4%, but 92.75% is assumed for toxics permitting.

5. Chromium VI is a subset of chrome compounds, which is accounted for separately as a HAP. As such, Chromium VI is only calculated as a TAP.

^{5.} The WESP employs a caustic solution in its operation in which hydrochloric acld will have high water solubility. This caustic solution will neutralize the acid and effectively control it by 90%, per conversation on October 18, 2011 with Steven A. Jaasund, P.E. of Lundberg Associates, a manufacturer of WESPs.

² Emission factors for natural gas combustion are from NCDAQ Natural Gas Combustion Spreadsheet and AP-42, Fifth Edition, Volume 1, Chapter 1.4 - Natural Gas Combustion, 07/98 for small boilers. The emission factors for acetaldehyde, acrolein, and ammonia are cited in the NCDAQ spreadsheet as being sourced from the USEPA's WebFIRE database.

Abbreviations:

CAS - chemical abstract service	N ₂ O - nitrous oxide
CH ₄ - methane	ODT - oven dried tons
CO - carbon monoxide	PM - particulate matter
CO2 - carbon dioxide	PM ₁₀ - particulate matter with an aerodynamic diameter less than 10 microns
CO2e - carbon dioxide equivalent	PM _{2.5} - particulate matter with an aerodynamic diameter of 2.5 microns or less
HAP - hazardous air pollutant	RTO - regenerative thermal oxidizer
hr – hour	SO ₂ - sulfur dioxide
kg - kilogram	TAP - toxic air pollutant
lb - pound	tpy - tons per year
MMBtu - Million British thermal units	VOC - volatile organic compound
NC - North Carolina	WESP - wet electrostatic precipitator
NO _x - nitrogen oxides	yr - year



Table 5 Summary of Potential Emissions from Baghouses Envive Peliates Hamlet, LLC Hamlet, Richmond County, North Carolina

		1		Exhaust	Exit Grain	Basticulate	Readiation			Potential I	Emissions		
Emission Unit	Revene Description	Control	Control Device	Flow Rate ¹	Loading	Faitualete	Furthemore Speciation		M	PM	19	PM _{2.1}	
ID	adurte Description	Devica ID	Description	(cfm)	(gr/d)	PN10 (% of PM)	PM _{2.5} (% of PM)	(lb/hr]	(149¥)	(lb/hr)	(tpy)	(ib/hr)	(tpy)
ES-HM-1	Dry Hammermill	CD HM BH1	One (1) paghouse ^{1, 1}	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	8.7E-03	0.038
ES-HM-Z	Dry Hammermill	CD-HM-BH2	One (1) baghouse ^{2, 3}	15,000	0.064	100%	1.7%	0.51	2.3	0.51	2.3	8.7E D3	8E0.0
ES-HM-3	Dry Hammermill	CD-11M-B113	One (1) padhouse ^{2, 3}	15,000	0.0Ç4	100%	1.7%	0.51	2.3	0.51	2.3	.8.7E-03	BE0.0
ES-HM-4	Dry Kammermill	CD-HM-BH4	One (1) padhouse ^{3, 5}	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	8.7E-03	0.038
ES-HM-5	Ory Hammermill	CD-HM-BH5	One (1) paghouse ^{2, 3}	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	8.7E-03	0.038
ES-HM-6	Dry Hammermill	CD-HM-BH6	One (1) paghouse ^{1, 3}	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	8.7E-03	0.038
ES-HM-7	Dry Kammermill	CD-HM-BH7	One (1) pathouse ^{2, 3}	15,000	0.00%	100%	1.7%	0.51	2.3	0.51	2.3	8.7E+D3	0.038
ES-HM-B	Dry Hammermill	CD-HM-BH8	One (1) baghouse ^{2, 3}	15,000	0.004	100%	1.795	0.51	2.3	0.51	2.3	B.7E-03	BE0.0
ES-HMG	Hammermill Collection Conveyor	CD-HMC-BH	One (1) paghouse ^{2,4}	1,500	0.004	100%	100%	0.051	0.23	0.051	0.23	0.051	0.23
ES-PCHP	Pallet Cooler HP Fines Relay System	CD-PCHP-BH	One (1) baghouse ^{2, 6}	SDD	C.004	100%	100%	0.017	0.075	0.017	0.075	0.017	0.075
ES-PCLP	Pellet Copier LP Fines Relay System	CO-PCLP-BH	One (1) pashouse"	3,102	6.004	100%	100%	0.11	0.47	0.11	0.47	0.11	0.47
ES-PMFS	Pellet Mill Feed Slip	CD-PMFS-BH	One (1) baghouse"	2,444	C.004	100%	100%	0.084	D.37	0.084	0.37	0.084	0.37
ES-C.R-1	Pellet Cooler	CD-CLR-8H1	One (1) bagnouse*	15,000	0.004	26.1%	3.2%	0.51	2.3	0.13	0.59	0.016	0.072
ES-CLR-2	Pellet Cooler	CD-CLR-BH2	One (1) baghouse	15,000	C.004	26.1%	3.2%	0.51	2.3	0.13	0.59	0.016	0.072
ES CLR 3	Pollet Cooler	CO-CLR-BH3	One (1) bagnouse ⁵	15,000	0.004	26.1%	3.2%	0.51	2.3	0.13	0.59	0.016	0.072
ES-C.R-4	Pellet Copler	CD-CLR-BH4	One (1) baghouse	15,000	0.004	26.1%	3.2%	0.51	2.3	0.13	0.59	0.016	0.072
ES-CLR-5	Pellet Capier	CO-CLR-BH5	One (1) bagnouse	15,000	C.004	26.1%	3.2%	0.51	2.3	0.13	0.59	0.016	0.072
ES-C.R-6	Pellet Copler	CD-CLR-BH6	One (1) bagnouse*	15,000	G.004	25.1%	3.2%	0.51	2.3	0.13	0.59	0.016	0.072
ES-DCTB	Pellet Oust Collection Transfer Bin	CD-PDCTB-BH	One (1) baghouse ^{2, 4}	3,000	0.004	100%	100%	0.10	0.45	0.10	0.45	0.10	0.45
ES-FPH ES-PB-1 and 2	Finished Product Handling Two (2) Pellet Loedout Bins	CD-FPH-BH	One (1) baghouse ^{3,6}	8,500	0.004	91%	1.795	0.29	٤.3	0.27	1.2	5.0E-D3	0.022
CC DURL	Dried Wood Handling Operations	CD-DWH-BH1	One (1) beghouse ^{2, 2}	1,000	0.004	100%	100%	0.034	D.15	0.034	0.15	0.034	0.15
ES-DIVH	(conveyors)	CO-DWH-BH2	One (1) baghouse ^{2,4}	1,000	0.064	100%	100%	0.034	0.15	0.034	0.15	0.034	D.15
ES-ADD	Additive Handling and Storage	CD-ADD-BH	One (1) bachouse ^{2,4}	1,000	0,064	100%	100%	0.034	C.15	0.034	0.15	0.034	0.15

Motiva:

 Control device flow rate (cfm) based on updated emission point data provided by Enviva on 3/16/18.
 Control device flow rate (cfm) based on updated emission point data provided by Enviva on 3/16/18.
 No speciation data is available for PM₁₀. Therefore, it is conservatively assume to be equal to total PM.
 Dry Hammernillis and finished product handling PM₂₁ speciation based on April 2014 Envive Southampton PM₂₁ speciation tests.
 No speciation data is available for PM₁₀. Therefore, it is conservatively assumed to be eque to total PM.
 Exit flow rate provided by Enviva. Exit grain loading assumed to be the same as for other baghouses at the facility. A single wet scrubber may be used in place of the six (6) baghouses for PM control. The emissions are expected to be the same whether the scrubber or baghouses are installed. Baghouse or scrubber emissions are expected will exhaust through CO-RED.
 Einshed product handling PM₁₂ speciation based on emission factors for wet wood combustion controlled by a mechanical separator from AP 42, Section 1.6 Wood Residue Combust on in Boilers, 09/03. Because the particle size of particulate matter from finished product handling is anticicated to be larger than flyash, this factor is be leved to be a conservative indicator of speciation.

Abbreviations: cf - cubic feet cfm - cubic feet per minute ES - Emission Sources

165 - Enignificant Emission Source gr - grain hr - hour

Ib - pound PM - particulate matter PM₃₀ - particulate matter with an aerodynamic diameter less than 50 microns or less the matter with an aerodynamic diameter of 2.5 microns or less $\text{PM}_{2.5}$ - particulate matter with an aerodynamic diameter of 2.5 microns or less thy - tons per year

Page 7 of 21

RAMBOLL

Table 6 Dry Hammermill Potential VOC and HAP Emissions ES-HM-1 through 8 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis

Hourly Throughput	68 ODT/hr
Annual Throughput	531,259 ODT/yr
Hours of Operation	8,760 hr/yr

Potential VOC and HAP Emissions

Pollutant	CAS No.	NC TAP	voc	Emission Factor ¹	Potential Emissions		
				(Ib/ODT)	(lb/hr)	(tpy)	
Acetaldehyde	75-07-0	Y	Y	0.0091	0.62	2.4	
Acrolein	107-02-8	Y	Y	0.011	0.73	2.9	
Formaldehvde	50-00-0	Y	Y	0.0080	0.55	2.1	
Methanol	67-56-1	N	Y	0.0052	0.35	1.4	
Phenol	108-95-2	Y	Y	0.0041	0.28	1.1	
Propionaldehyde	123-38-6	N	Y	0.019	1.3	5.0	
			Total HA	P Emissions	3.8	15	
			Total TA	P Emissions	2.2	8.5	
Total VOC]	Y	0.51	35	135	

Notes:

¹ Emission factors are based on stack testing data from comparable Enviva facilities.

Abbreviations:

- CAS chemical abstract service HAP - hazardous air pollutant
- hr hour
- lb pound
- NC North Carolina

ODT - oven dried tons TAP - toxic air pollutant tpy - tons per year VOC - volatile organic compound yr - year



Table 7 Potential VOC and HAP Emissions at Outlet of RCO Stack ES-CLR-1 through 6 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis	
Hourly Throughput	80 ODT/hr
Annual Throughput	625,011 ODT/yr
Hours of Operation	8,760 hr/yr
Number of Burners	4 burners
RCO/RTO Burner Rating	8 MMBtu/hr
RCO/RTO Control Efficiency	95%

Pellet Cooler and Pellet Mill Potential Process VOC and HAP Emissions

Pollutant	CAS NO. NC TAP		voc	Uncontrolled Emission Factor ¹	Emissions at RCO Outlet ²		
				(Ib/ODT)	(lb/hr)	(tpy)	
Acetaldehyde	75-07-0	Y	Y	0.0084	0.034	0.13	
Acrolein	107-02-8	Y	Y	0.050	0.20	0.79	
Formaldehyde	50-00-0	Y	Y	0.031	0,12	0.49	
Methanol	67-56-1	N	Y	0.24	0.96	3.8	
Phenol	108-95-2	Y	Y	0.025	0.10	0.39	
Propionaldehvde	123-38-6	N	Y	0.011	0.043	0.17	
Total HAP Emissions						5.7	
Total TAP Emissions						1.8	
Total VOC			Y	1.5	6.0	23	

Notes:

 $^{\rm 1}$ Emission factors were derived based on stack testing data from comparable Enviva facilities.

² A 95% control efficiency is applied to the potential emissions for the RCO. The pellet coolers will be equipped with an RCO that will operate primarily in catalytic mode with thermal (RTO) mode as a backup. The RTO and RCO modes have the same control efficiency so there will be no impact on emissions during thermal mode usage.

Thermal Generated Potential Criteria Pollutant Emissions

Maximum high heating value of VOC constituents
Uncontrolled VOC emissions
Heat input of uncontrolled VOC emissions

1.8E-02 MMBtu/lb 467 tons/yr 17,284 MMBtu/yr

Pollutant	Emission	11-14-	Potential Emissions		
	Factor	Units	(lb/hr)	(tpy)	
СО	8.2E-02	lb/MMBtu ¹	0.16	0.71	
NOx	9.8E-02	lb/MMBtu ¹	0.19	0.85	

Natural Gas Combustion Potential Criteria Pollutant and Greenhouse Gas Emissions

Bollutant	Emission	Unite	Potential Emissions		
Fondtant	Factor	Units	(lb/hr)	(tpy)	
CO	8.2E-02	lb/MMBtu ¹	2.6	12	
NOx	9.8E-02	lb/MMBtu ¹	3.1	14	
SO ₂	5.9E-04	Ib/MMBtu ¹	1.9E-02	8.2E-02	
voc	5.4E-03	lb/MMBtu ¹	0.17	0.76	
РМ	7.5E-03	lb/MMBtu ¹	0.24	1.0	
PM10	7.5E-03	lb/MMBtu ¹	0.24	1.0	
PM _{2.5}	7.5E-03	ib/MMBtu ¹	0.24	1.0	
CO ₂	66.9	kg/MMBtu ²	4,716	20,666	
CH4	1.0E-03	kg/MMBtu ²	7.1E-02	0.31	
N ₂ O	1.0E-04	kg/MMBtu ²	7.1E-03	3.1E-02	
CO ₂ e			4,722	20,683	



Table 7 Potential VOC and HAP Emissions at Outlet of RCO Stack ES-CLR-1 through 6 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Natural Gas Combustion Potential HAP and TAP Emissions

Pollutant	НАР	NC TAP	voc	Emission	Units	Footnote	Potential	Emissions
				Factor			(lb/hr)	(tpy)
Natural Gas Source								
2-Methylnaphthalene	Y	N	Y	2.4E-05	lb/MMscf	3	7.5E-07	3.3E-06
3-Methylchloranthrene	Y	N	Y	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
7,12-Dimethylbenz(a)anthracene	Y	N	Y	1.6E-05	lb/MMscf	3	5.0E-07	2.2E-06
Acenaphthene	Y	N	Y	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
Acenaphthylene	Y	N	Y	1.8E-06	b/MMscf	3	5.6E-08	2.5E-07
Acetaldehyde	Y	Y	Y	1.5E-05	lb/MMscf	3	4.8E-07	2.1E-06
Acrolein	Y	Y	Y	1.8E-05	lb/MMscf	3	5.6E-07	2.5E-06
Ammonia	N	Y	N	3.2	lb/MMscf	3	0.10	0.44
Anthracene	Y	N	Y	2.4E-06	b/MMscf	3	7.5E-08	3.3E-07
Arsenic	Y	I Y	N	2.0E-04	lb/MMscf	3	6.3E-06	2.7E-05
Benz(a)anthracene	Y	N	Y	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
Benzene	Y	N	Y	2.1E-03	lb/MMscf	3	6.6E-05	2.9E-04
Benzo(a)pyrene	Y	Y	Y	1.2E-06	lb/MMscf	3	3.8E-08	1.6E-07
Benzo(b)fluoranthene	Y	N	Ý	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
Benzo(g,h,i)perylene	Y	N	Y	1.2E-06	lb/MMscf	3	3.8E-08	1.6E-07
Benzo(k)fluoranthene	Y	N	Y	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
Beryllium	Y	Y	N	1.2E-05	lb/MMscf	3	3.8E-07	1.6E-06
Cadmium	Y	Y	N	1.1E-03	lb/MMscf	3	3.5E-05	1.5E-04
Chromium VI	Y	N	N	1.4E-03	Ib/MMscf	3	4.4E-05	1.9E-04
Chrysene	Y	N	Y	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
Cobalt	Y	N	N	8.4E-05	lb/MMscf	3	2.6E-06	1.2E-05
Dibenzo(a,h)anthracene	Y	N	Y	1.2E-06	lb/MMscf	3	3.8E-08	1.6E-07
Dichlorobenzene	Y	Y	Y	1.2E-03	lb/MMscf	3	3.8E-05	1.6E-04
Fluoranthene	Y	N	Y	3.0E-06	lb/MMscf	3	9.4E-08	4.1E-07
Fluorene	Y	N	Y	2.8E-05	lb/MMscf	3	8.8E-08	3.8E-07
Formaldehyde	Y	I Y	Y	7.5E-02	lb/MMscf	3	2.4E-03	1.0E-02
Hexane	Y	Y	Y	1.8	lb/MMscf	3	5.6E-02	0.25
Indeno(1,2,3-cd)pyrene	Y	N	Y	1.8E-06	lb/MMscf	3	5.6E-08	2.5E-07
Lead	Y	N	N	5.0E-04	lb/MMscf	3	1.6E-05	6.9E-05
Manganese	Y	Y	N	3.8E-04	lb/MMscf	3	1.2E-05	5.2E-05
Mercury	Y	Y	N	2.6E-04	lb/MMscf	3	8.2E-06	3.6E-05
Naphthalene	Y	N	Y	6.1E-04	lb/MMscf	3	1.9E-05	8.4E-05
Nickel	Y	Y	N	2.1E-03	lb/MMscf	3	6.6E-05	2.9E-04
Phenanathrene	Ý	N	Y	1.7E-05	lb/MMscf	3	5.3E-07	2.3E-06
Pyrene	Y	N	Ŷ	5.0E-06	Ib/MMscf	3	1.6E-07	6.9E-07
Selenium	Y	N	N	2.4E-05	b/MMscf	3	7.5E-07	3.3E-06
Toluene	Ý	Y	Y	3.4E-03	lb/MMscf	3	1.1E-04	4.7E-04
3-Methylchloranthrene Y N Y 1.8E-06 ib/MMscf 3 5.6E-02 2.2E-07 C12-Dimethylben/alpathacene Y N Y 1.6E-05 ib/MMscf 3 5.0E-07 2.2E-07 Acenaphthylene Y N Y 1.8E-06 ib/MMscf 3 5.6E-03 2.5E-07 Acenalehyde Y Y Y 1.5E-05 ib/MMscf 3 5.6E-07 2.5E-07 Acenalehyde Y Y Y 1.8E-05 ib/MMscf 3 4.8E-07 2.1E-06 Armonia N Y N N 3.5E-07 3.5E-07 3.5E-07 Arstenic Y N Y 2.0E-04 bi/Mscf 3 6.3E-07 2.7E-05 3.5E-07 3.5E-07 Benzale Y N Y 2.1E-06 bi/Mscf 3 5.6E-08 2.5E-07 Benzalo (b/itoranthene Y N Y 2.1E-05 bi/Mscf 3 5.6E-08								
			Total 1	AP Emissions	natural oas c	ombustion)	0.16	0.70

Notes:

Emission factors from AP-42, Section 1.4 - Natural Gas Combustion, 07/98. Emission factors converted from Ib/MMscf to Ib/MMBtu based on assumed heating value of 1,020 Btu/scf for natural gas per AP-42 Section 1.4.
 Emission factors for natural gas combustion by the burners obtained from Table C-1 and C-2 of 40 CFR Part 98 and Global Warming Potentials from

Table A-1.

3- Emission factors for natural gas combustion are from NCDAQ Natural Gas Combustion Spreadsheet and AP-42, Fifth Edition, Volume 1, Chapter 1.4 -Natural Gas Combustion, 07/98 for small boilers. The emission factors for acetaldehyde, acrolein, and ammonia are cited in the NCDAQ spreadsheet as being sourced from the USEPA's WebFIRE database.

Abbreviations:

CAS - chemical abstract service	RCO - regenerative catalytic oxidizer
HAP - hazardous air pollutant	RTO - regenerative thermal oxidizer
hr - hour	TAP - toxic air pollutant
lb - pound	tpy - tons per year
NC - North Carolina	VOC - volatile organic compound
ODT - oven dried tons	уг - уваг



Table 8 Dried Wood Handling Potential Emissions ES-DWH Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis

Hourly Throughput ¹	80 ODT/hr
Annual Throughput ¹	625,011 ODT/yr

Potential Criteria Pollutant Emissions

Pollutant	Emission Factor	Potential Emissions ¹			
	(Ib/ODT)	(lb/hr) (tpy)			
Formaldehyde	8.4E-04	0.067	0.26		
Methanol	2.0E-03	0.16	0.61		
1	otal HAP Emissions	0.22	0.87		
VOC as carbon ²	0.10	8.1	32		
VOC as propane ³	0.12	9.9	39		

Notes:

^{1.} Hourly and annual throughputs assumed to be the same as dry hammermill throughput.

- ^{2.} Emission factors derived from NCASI's Wood Products Database (February 2013) for dry wood handling operations at an OSB mill, mean emission factors. The emission factors were converted from Ib/MSF (3/8") to Ib/ODT using the typical density and moisture content of an OSB panel.
- ^{3.} VOC as propane = $(1.22 \times VOC \text{ as carbon}) + \text{formaldehyde}$.

Abbreviations:

hr - hour lb - pound ODT - oven dried tons tpy - tons per year VOC - volatile organic compound yr - year



Table 9 **Emergency Generator Potential Emissions** IES-GN Enviva Pelleta Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis

Engine Output	500 kW
Horsepower Rating	671 brake hp
Diesel Heating Value	19,300 Btu/ib
Hours of Operation	500 hr/yr
Conversion factor	2,545 Btu/hr/hp
Hourly Fuel Consumption	31.9 gal/hr ¹
Energy Input	4.37 MMBtu/hr ²

Notes:

^{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.

Potential Criteria Pollutant Emissions

Bollutant	Emission	Unite	Potential E	missions
Pendlant	Factor	Quints	(lb/hr)	(toy)
CO ²	0.39	g/np-hr	0.58	0.14
NO _X ²	6.65	g/hp-hr	9.8	2.5
SO ₂ ³	15	ppmw	2.7E-03	6.6E-04
VOC ²	0.01	lb/hp-hr	6.7	1.7
PM ²	0.021	g/hp-hr	3.1E-02	7.8E-03
PM10 ²	0.021	g/hp-hr	3.1E-02	7.8E-03
PM252	0.021	g/hg-hr	3.1E-02	7.8E-03
CO2	74.0	kg/MMBtu ⁴	713	178
CH4	3.0E-03	kg/MMBtu ⁴	2.9E-02	7.2E-03
N ₂ O	6.0E-04	kg/MMBtu ⁴	5.8E-03	1.4E-03
COre			715	179

Notes: ¹· NSPS allows for only 100 hrs/yr of non-emergency operation of these engines. Potential emissions for the emergency generator are conservatively based on 500 hr/yr.

². Emission factors for Particulate Matter (TSP/PM₁₀/PM₁₀), Nitrous Oxide (NO_x), Volatile Organic Matter (VOC), and Carbon Monoxide (CO) obtained from generator's spec sheet. The generator's spec sheet does not include an emission factor for VOC so the hydrocarbon (HC) emission factor was used as a surrogate for VOC.

^{3.} Sulfur content in accordance with Year 2013 standards of 40 CFR 80.510(a) as required by NSPS Subpart IIII.

⁴ Emission factors from Table C-1 and C-2 of 40 CFR Part 98 and Global Warming Potentials from Table A-1.

Potential HAP Emissions

Pollutant	CAS No.	NC TAP	VOC	Emission Factor ¹	on Potential Emis	
				(lb/hp-hr)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Ŷ	5.37E-06	3.6E-03	9.0E-04
Acrolein	107-02-8	Y T	Ŷ	6.48E-07	4.3E-04	1.1E-04
Benzene	71-43-2	Y	Y	6.53E-06	4.4E-03	1.1E-03
Benzo(a)pyrene ³	50-32-8	Y	Y	1.32E-09	8.8E-07	2.2E-07
1,3-Butadiene	106-99-0	Y	Y	2.74E-07	1.8E-04	4.6E-05
Formaldehyde	50-00-0	Y	Y	8.26E-06	5.5E-03	1.4E-03
Naphthalene ³	91-20-3	N	Y	5.94E-07	4.0E-04	1.0E-04
Total PAH (POM)		N	Y	1.18E-D6	7.9E-04	2.0E-D4
Toluene	108-88-3	Y	Y	2.86E-06	1.9E-03	4.8E-04
Xylene	1330-20-7	Y I	Y	2.00E-06	1.3E-03	3.3E-04
			Total	HAP Emissions	1.8E-02	4.5E-03
			Total	TAP Emissions	1.7E-02	4.3E-03

Nates:

Emission factors obtained from AP-42 Section 3.3 - Stationary Internal Combustion Engines, 10/96, Table 3.3-2.

² NSPS allows for only 100 hrs/yr of non-emergency operation of these engines. Potential emissions for the emergency generator are conservatively based on 500 hr/yr.

³ Benzo(a)pyrene and naphthalene are included as HAPs in Total PAH.

Abbreviations:

CQ - carbon dioxide CO2 - carbon dioxide CO2 - carbon dioxide CO2 - carbon dioxide CO2 - carbon dioxide g - gram gal - gallon HAP - hazardous air pollutant hp - horsepower hr - hour kg - kilogram kW - kilogram kW - kilogram	$\begin{split} NG_{K} - nitrogen oxides \\ NC - North Carolina \\ N_{2}O - nitrous oxide \\ ODT - oven dried tons \\ PAH - polycyclic aromatic hydrocarbon \\ PM - particulate matter \\ PM_{10} - particulate matter with an aerodynamic diameter less than 10 microns \\ PM_{2,5} - particulate matter with an aerodynamic diameter of 2.5 microns or less \\ POM - palycyclic organic matter \\ SO_{2} - sulfur dioxide \\ TAP - toxic air pollutant \\ try - tons per year \\ VOC - volatile organic compound \\ yr - year \end{split}$
---	---

Table 10 Fire Pump Potential Emissions IES-FWP Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis					
Engine Output	0.10 NW				
Horsepower Rating	131 brake hp				
Diesel Density ¹	7.1 lb/gai				
Hours of Operation	500 hr/yr				
Hourly Fuel Consumption	9 gal/hr ¹				
Energy Input	1.23 MMBtu/hr ²				

Notes: ¹ Diesel density from AP-42 Section 3.4 - Large Stationary Diesel and All Stationary Dual-fuel Engines, 10/96, Table 3.4-1, footnote a.

 2 Energy calculated on a fuel consumption basis, using an energy factor of $0.137\ \text{MMBtu/gal}.$

Potential Criteria Pollutant Emissions

Pollutant	Emission	Emission	Potential E	missions ¹
	Factor	Units	(lb/hr)	(tpy)
CO ²	1.3	g/kW-hr	0.28	7.0E-02
NDx'	3.4	g/kW-hr	0.72	0.18
50 ₂ 3	15	ppmw	1.9E-03	4.8E-04
VOC ²	0.15	g/kW-hr	3.2E-02	8.1E-03
PM ²	0.17	g/kW-hr	3.7E-02	9.26-03
PM10 ²	0.17	g/kW-hr	3.7E-02	9.2E-03
PM2 52	0.17	g/kW-hr	3.7E-02	9.2E-03
CO2	74	kg/MMBtu ⁴	201	50
CH4	3.0E-03	kg/MMBtu ⁴	8.2E-03	2.0E-03
N20	6.0E-04	kg/MMBtu ⁴	1.6E-03	4.1E-04
CO-e			202	50

Notes:

1- NSPS allows for only 100 hrs/yr of non-emergency operation of these engines. Potential emissions for the fire pump are conservatively based on 500 hr/yr.

² Emissions factors for PM/PM₁₀/PM_{2.5}, NO_X, hydrocarbons, and CO obtained from generator's spec sheet.

⁹ Sulfur content in accordance with Year 2013 standards of 40 CFR 80.510(a) as required by NSPS Subpart IIII.

4- Emission factors from Table C-1 and C-2 of 40 CFR Part 98 and Global Warming Potentials from Table A-1.

Pollutant	CAS No.	NC TAP	NC TAP VOC	Emission Factor ¹	Potential Emissions ²	
				(lb/hp-hr)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Y	5.4E-06	7.0E-04	1.8E-04
Acrolein	107-02-8	Y	Y	6.5E-07	8.5E-05	2.1E-05
Benzene	71-43-2	Y	Y	6.5E-06	8.6E-04	2.1E-04
Benzo(a)pyrene	50-32-8	Y	Y	1.3E-09	1.7E-07	4.3E-08
1 3-Butadiene	106-99-0	Y	Ý	2.7E-07	3.6E-05	9.0E-06
Formaldehyde	50-00-0	Y	Y	8.3E-06	1.1E-03	2.7E-04
Naphthalene	91-20-3	N	Y	5.95-07	7.8E-05	1.9E-05
Total PAH (POM)3		N	Y	1.2E-06	1.5E-04	3.9E-05
Toluene	108-88-3	Y	Y	2.9E-06	3.8E-04	9.4E-05
Xylene	1330-20-7	Y	Ý	2.0E-06	2.6E-04	6.SE-05
			Total	HAP Emissions	3.6E-03	8.9E-04
			Total	TAP Emissions	3.4E-03	8.5E-04

Notes:

- Emission factor obtained from NCDAQ Internal Combustion (Small Gasoline and Diesel Engines) Spreadsheet/AP-42 Section 3.3 -Stationary Internal Combustion Engines, 10/96, Table 3.3-2.

2. NSPS allows for only 100 krs/yr of non-emergency operation of these engines. Potential emissions for the fire pump are conservatively based on 500 hr/yr.

³ The PAH emission factor includes all the PAH compounds listed in AP-42. Emissions for naphthalene and benzo(a)pyrene are also calculated separately. For the purposes of calculating total HAP emissions, the naphthalene and benzo(a)pyrene are not included separately to avoid double counting these emissions.

Abbreviationa: Btu CAS CH₄

Btu - British thermal unit	MMBtu - Million British thermal units
CAS - chemical abstract service	NO _x - nitrogen oxides
CH4 - methane	NC - North Carolina
CO - carbon monoxide	N ₂ O - nitrous oxide
CO2 - carbon dioxide	ODT - oven dried tons
CO ₂ e - carbon dioxide equivalent	PAH - polycyclic aromatic hydrocarbon
g - gram	PM - particulate matter
gal - gallon	PM ₁₀ - particulate matter with an aerodynamic diameter less than 10 microns
HAP - hazardous air poliutant	$PM_{2.5}$ - particulate matter with an aerodynamic diameter of 2.5 microns or less
hp - horsepower	POM – polycyclic organic matter
hr - hour	SO ₂ - sulfur dioxide
ko - kilogram	TAP - toxic air pollutant
kW - kilowatt	tpy - tons per year
1b - pound	VOC - volatile organic compound
MW - megawatt	yr - year



Table 11 Log Chipper Potential Emissions IES-CHIP-1 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis

	275 ton/hr, wet
Houriy Infoughput	138 ODT/hr
Annual Throughput	625,011 ODT/yr

Potential Criteria Pollutant Emissions

Dollutant	Emission Eactor	Potential Emissions ¹					
Fondtant	Emission Factor	(lb/hr)	(tpy)				
THC as carbon ²	4.1E-03 lb/ODT	0.56	1.3				
VOC as propane ³	5.0E-03 lb/ODT	0.69	1.6				
Methanol ²	1.0E-03 lb/ODT	0.14	0.31				

Notes:

¹ Hourly chipper throughput data provided by Enviva (email from Kai Simonsen dated 12/21/17).

- ² Emission factor obtained from available emissions factors for chippers in AP-42 Section 10.6.3, Medium Density Fiberboard, 08/02, Table 7 and Section 10.6.4, Hardboard and Fiberboard, 10/02, Table 9. Emission factors for THC and methanol are the same across all three tables.
- ^{3.} Emission factor for VOC as propane is from AP-42, Section 10.6.3., Medium Density Fiberboard, 08/02, Table 7.

Abbreviations:

hr - hour Ib - pound ODT - oven dried tons THC - total hydrocarbon tpy - tons per year yr - year



Table 12 Bark Hog Potential Emissions IES-BARKHOG Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis

	50 ton/hr, wet
Hourly Throughput ¹	25 ODT/hr
	113,638 ODT/yr
Annual Inroughput	227,277 ton/yr, wet
Approx. Moisture Content ¹	50% of total weight

Potential Criteria Pollutant Emissions

Bollutant	Emission Eactor	Potential E	missions1
Ponutant	Emission Factor	(lb/hr)	(tpy)
THC as carbon ³	4.1E-03 lb/ODT	0.10	0.23
VOC as propane ⁴	5.0E-03 lb/ODT	0.13	0.28
Methanol ³	1.0E-03 lb/ODT	2.5E-02	5.7E-02
TSP⁵	2.0E-02 lb/ton	0.10	0.23
PM 10 ⁵	1.1E-02 ib/ton	5.5E-02	0.13

Notes:

- ^{1.} Hourly bark hog throughput data and approximate moisture content provided by Enviva (email from Kai Simonsen dated 12/21/17).
- ^{2.} Maximum throughput assumes bark hog usage is proportional to the amount of log chipping that occurs for maximum pellet ODT and maximum 75% purchase of green wood from logs.
- ^{3.} Emission factor obtained from available emissions factors for chippers in AP-42 Section 10.6.3, Medium Density Fiberboard, 08/02, Table 7 and Section 10.6.4, Hardboard and Fiberboard, 10/02, Tables 7 and 9. Emission factors for THC and Methanol are the same across all three tables.
- ^{4.} Emission factor for VOC as propane is from AP-42, Section 10.6.3., Medium Density Fiberboard, 08/02, Table 7.
- ⁵ Particulate matter emission factors from the USEPA document titled AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants. Source Classification Code 3-07-008-01 (Log Debarking). All PM is assumed to be larger than 2.5 microns. PM emissions are assumed to be controlled due to the bark hog being partially enclosed (assumed 90% control).

Abbreviations:

hr - hour lb - pound ODT - oven dried tons THC - total hydrocarbon tpy - tons per year yr - year



Table 13 Green Wood Handling IE9-GWH Enviva Pollets Hamlet, LLC Hamlet, Richmond County, North Carolina

Source	Transfer Activity ¹	Number of Drop	Number Moisture Emission of Drop Content ² Factor ²		PM ₁₀ Emission Factor ³	PM _{2.5} Emission Factor ³	Potential Throughput ⁴		Potential PM Emissions ⁵		Potential PM ₁₀ Emissions ⁵		Potential PM _{2.5} Emissions ⁶	
		Points	(%)	(lb/ton)	(lb/ton)	(lb/ton)	(tph)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(ib/hr)	(tpy)
· · · · · · · · · · · · · · · · · · ·	Purchased Bark/Fuel Chips Transfer to Outdoor Storage Area	1	48%	5.0E-05	2.4E-05	3.6E-06	25	81,640	1.2E-03	2.0E-03	5.9E-04	9.6E-04	8.9E-D5	1.5E-04
	Purchased Wood Chips to Outdoor Storage Area	4	42%	6.0E-05	2.8E-05	4.3E-06	69	312,505	1.6E-02	3.7E-02	7.8E-03	1.8E-02	1.2E-D3	2.7E-03
E2-CWH	Processed Wood Chips to Outdoor Storage Area	2	42%	6.0E-05	2.8E-05	4.3E-06	138	312,505	1.6E-02	1.9E-02	7.8E-03	8.9E-03	1.2E-03	1.3E-03
	Chip Truck Dump to Dumpers	2	42%	6.0E-05	2.8E-05	4.38-06	69	317,505	8.2E-03	1.96-02	3.9E-03	8.9E-03	5.9E-04	1.3E-03
<u> </u>	11010/05						Total F	missions:	4.2E-02	7.72-02	2.0E-02	3.6E-02	3.0E-03	5.5E-03

0.74

0.35

0.053

where: E = emission factor (lb/ton)

k - particle size multiplier (dimensionless) for PM

 λ = particle size multiplier (dimensionless) for PM $_{10}$

k = particle size multiplier (dimensionless) for PM_{2.5}

U = mean wind speed (mph)

7.85 U = mean wind speed (mpn) 7.85 - Throughputs represent dry weight of materials, calculated based on listed material molecure contents. Hourly purchased bark throughput based on bark hog hourly throughput. Hourly purchased wood ship throughput based on weight of onlys delivered to the facility. Hourly processed wood chip throughput based on log chipping hourly throughput.

Abbreriations:

barrenations; hr - hour Ib - pound PM - particulate matter PM₃₀ - particulate matter with an aerodynamic diameter less than 10 m/crons PM₃₀ - particulate matter with an aerodynamic diameter of 2.5 microns or tess top - tons per year yr - year

Page 16 of 21

RAMBOLL

Table 14 Storage File Wind Erosion IES-GWSP-1 through -4, and IES-BFSF-1 and -2 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Source	Description	PN Emission I	actor	VOC Emissio	VOC Emission Factor ³ ,		VOC Emission Factor ³		VOC Emission Factor ³		VOC Emission Factor ³		VOC Emission Factor ³		VOC Emission Factor ³		VOC Emission Factor ³		VOC Emission Factor ³		VOC Emission Factor ³		Emission Factor ³		ission Factor ³		C Emission Pactor ³		DC Emission Factor ³		VOC Emission Factor ³ ,		VOC Emission Factor ³		C Emission Factor ³		mission Factor ³		Plie Length	Pile Height	Outer Surface Area of Pile ³	Poterni Emis:	itat PM Hona	Potenti Emis	al PM10 sions	Potenti Emis	al PM _{a.s} sions	Potent Emissi proc	lons as														
		(Ib/day/scre)	(Ib/hr/ft ²)	(lb/day/acre)	(lb/hr/ht2)	(n)	(ft)	(2)	(ft ²)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(Epy)	(lb/hr)	(1py)																																														
IES-GW5P-1	Green Wood Storage Pile No. 1	8.6	8.26-05	3.6	3.40-06	100	310	30	66,720	0.55	2.4	0.27	1.2	D.041	0.18	0.28	1.2																																														
IES-GWSP-2	Green Wood Storage Pile No. 2	8.5	8.25-06	3.6	3.4E-06	100	310	30	66,720	D.35	2.4	0.27	1.2	0.041	0.18	0.2B	1.2																																														
IES-GWSP-3	Green Wood Storage Pile No. 3	8.5	8.23-06	3.6	3.6 3.4E-06		310	30	120,000	0.99	4.3	0.49	2.2	0.074	0.32	0.5D	Z.2																																														
IES-GWSP-4	Green Wood Storage Pile No. 4	8.5	8.25-06	3.6	3.4E-06	220	310	30	120,000	0.99	4.3	0.49	2.2	0.074	0.32	0.5D	2.2																																														
IES-BFSP-1	Bark Fuel Storage Pile No. 1	8 .6	8.25-06	3.6	3.4E-D6	60	100	15	12,960	Q.11	0.47	0.053	0.23	8-0E-03	0.035	0.054	C.24																																														
IES-BFSP-2	Bark Fuel Storage Pile No. 2	8.6	B.25-06	3.5	3.4E-06	25	25	15	2.550	0.021	0.092	0.010	0.046	1.65-03	6.9E-03	0.011	D.047																																														
								Т	ctal Embasiona:	3.2	14	1.5	7.0	0.24	1.1	1.6	7.2																																														

where:

Notes:
³¹ TSP emission factor based on U.S. HM. Control of Open Fugitive Dust Sources. Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988, Page 4-17.

 $E = 1.7 \left(\frac{s}{1.5} \sqrt{\frac{(365-p)}{235}} \sqrt{\frac{1}{15}} \right) (b \text{ day avec})$

- s, sit content of wood chips (%):
- s sit content (%) for lumber sawmills (mean) from AP-42, Section 13.2.2 Unpaved Roade, 11/05, Table 13.2.2-1

8.4

 where:
 s, sit content of woold drips (%):
 8.4
 s - dit content (%) for lumber sammilis (maan) from AP-42, Section 13.2.2 - Unpaved Reads, 11/05, Table 13.2.2-1

 p, number of days with rainfail graster than 0.01 inch:
 10
 Basec on AP-42, Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.1-2.

 r (time that wind exceeds 5.36 m/s - 12 mph) (%):
 12.5
 Basec on AP-42, Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.1-2.

 PM₃₂/TSP ratio:
 PM₃₂/TSP ratio:
 50%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.1-2.

 PM₃₂/TSP ratio:
 PM₃₂/TSP ratio:
 50%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.1-2.

 PM₃₂/TSP ratio:
 PM₃₂/TSP ratio:
 50%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.

 PM₃₂/TSP ratio:
 PM₃₂/TSP ratio:
 50%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.

 PM₃₂/TSP ratio:
 PM₃₂/TSP ratio:
 50%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.

 PM₃₂/TSP ratio:
 PM₃₂/TSP ratio:
 7.5%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.

 PM₃₂/TSP ratio:
 7.5%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.

 PM₃₂/TSP ratio:
 7.5%
 Section 13.2.2- Unpaved Reads, 11/06, Figure 13.2.2-1.
 Section 13.2.

From Labor to grade bay. Environmental to a construction of the propose is construction.
* The surface area is calculated as [2+#1+.2*W+H-_W] + 20% to consider the sloping size edges. Length and width based on proposed size design with a conservative reight.
* Environmental to the carbon part year by the following formula:
tons C/year = 5 acces 365 days * 1.6 to C/acce-day / 2000 lipton
Emission factor converted from as carbon to as presame by uniplying by 1.22.

Abbreviations: EPA - Environmenta: Protection Agency EPA - Environmenta: Protection Agency % - feac ft² - square feet 1b - sound mph - miles per hour NC - North Carolina NCASI - Netional Council for Air and Stream Improvement, Irc.

- PM particulate matter $PM_{10} particulate matter with an Asyndynamic diameter less than 1D microris <math display="block">PM_{21} particulate matter with an aerodynamic diameter of 2.5 microris or lass type tors per year <math display="block">TSP tors per year \\TSP tors per year \\VCC volatile organic compound$

Page 17 of 21

RAMBOLL

Table 15 Polentis: Fugitive PM Emissions from Paved Roads Envive Pellets Hamlet, LLC

	flamhel,	Lichmood	County,	North	Carolina	
--	----------	----------	---------	-------	----------	--

Yehicle Activity	Distance Traveled per Reundtrip ¹	Tripe Per	Deily VPIT	Eventa Per Yaur	Truck Weight	Truck	Truck Weight	Annual VHT	Emission Factor ³	Emission Factor	Emission Fector ^a	Potent Emise	ial PN itoms	Petenti Emier	il PM	Potentia Emiss	ni PM≥a niona
	(R)	Day		(days)	(16)	(16)	(ten)		(M/VHT)	(III/VHT)	(IE/VNT)	(th/day)	(tpy)	(D/day)	(tpy)	(lb/day)	(199)
Logs Delivery to Crane Storage Area	9,000	47	80	365	40,45D	102,540	35.8	29,241	2.7	0.53	0.13	21	3.9	4.Z	0.78	1.0	D.19
Logs Delivery to South Log Storage Area	11,700	31	69	.365	40,480	102,540	35.8	25,089	2.7	0.53	D.13	15	3.3	3.6	0.67	0.89	D.16
Logs Delivary to North Log Starage Area	8,475	14	23	365	40,450	107,540	35.8	3,261	2.7	0.53	D.13	6.0	1.1	1.2	0.22	0.29	3.4E-02
Chips/Hog Fuel Dailvery	8,475	94	151	365	40,960	101,440	35.6	55,071	2.6	0.53	D.13	40	7.3	4.0	1.5	2.0	D.36
Pellet Truck Delivery to Pellet Londout Area (Truck Back-up)	9,075	60	103	10	40,480	102,540	35.8	1,031	2.7	0.53	D.13	27	0.14	5.5	2.76 02	1.3	6.7E-03
Palint Truck Delivery to Pellet Londout Area (Normal Operations)	900	2	0.34	COE	40,480	102,540	35.8	1.02	2.7	0.53	0.13	9.0E+02	1.4E-02	1.6E-02	2.7E-03	4,45-03	8,/E-04
Employee Car Parking	2,250	75	32	365	4,000	4.000	2.0	11.665	0.14	0.028	6.9E-03	0.45	8.2E-02	#.9E-02	1.6E-62	2_2E-D2	4.0E-03
										Tota	Eminatoral	113	16	23	3.2	5.6	0.76

 Netces:

 ¹ Distance traveled per round trip was estimated based on trock route and site layout.

 ² Disij trip courts beted on original permit application actimation.

 ² Emission factors calculated based on Equation 7 from AP-42 Section 13.2.1 - Paved Roads, D1/11.

 where:
 E-aminimation

where: E = omission factor (fb(ton) k = particle size multiplier (dimensionless) for PM 0.011 k = particle size multiplier (dimensionless) for PM 0.022 k = particle size multiplier (dimensionless) for PM₃ 0.0025 k = particle size multiplier (dimensionless) for PM₃ 0.00054 SL - mean read surface sill load ing from AP-42 Table 13.2.1-3 for quarties (q/m³) 0.2 P - No. days with rainfall greater than 0.001 for 10 Per AP-42, Sactor 13.2.1, Figure 13.2.1-2 (Richmend Gounty, NC). * Potential emissions calculated from appropriate emission frame than 0.001 for water / dust suppression activities followed by sweaping. Par Table 3 in: Chapter 4 of the Air Sollution Engineering Menval, Air and Weste Management Association, page 141. Cortrol efficiency (%) = 95-0.2637V, where V is the number of vehicle packes since application of water.

by - tons per yeèr yr - year VMF - vehicle miles traveled VGC - volatile organic compound

Abbre-detiens; R - feet M - nourd M - gentrolate matter M - gentrolate matter M - gentrolate matter M - gentrolate matter with an aerodynamic diameter less than 10 microns PM - gentrolate matter with an aerodynamic diameter of 2.5 microns or less

Page 10 of 21

RAMBOLD

Table 16 Diesel Storage Tanks IES-TK-1 through 3 Enviva Pellete Hamlet, LLC Hamlet, Richmond County, North Carolina

		Design	Working	Tank Dim	ensions ⁵		Th	· · · · · · · · · · · · · · · · · · ·	NOC Emissions ⁴		
Source ID	Description	Volume ¹	Volume ²	Diameter	Length	Orientation	Inroughput	Turnovers	VOC Em	Issions	
		(gal)	(gal)	(ft)	(ft)		(gal/yr)		(lb/hr)	(tpy)	
IES-TK-1	Emergency Generator Fuel Storage Tank ²	1,000	500	5.3	6	Horizontal	15,958	31.9	1.3E-04	5.8E-04	
IES-TK-2	Fire Pump Fuel Storage Tank ²	185	93	3.3	3.3	Horizontal	4,500	48.6	3.7E-05	1.6E-04	
IES-TK-3	Mobile Fuel Diesel Storage Tank	5,000	2,500	6.0	23.7	Horizontal	200,000	80.0	7.6E-04	3.3E-03	
							Tota	Emissions:	9.3E-04	4.1E-03	

Notes:

¹¹ Conservative design specifications.

². Throughput for IES-TK-1 and IES-TK-2 based on fuel consumption provided by Enviva and 500 hours of operation per year. Throughput for IES-TK-3 provided by Enviva.

* Emissions calculated using EPA TANKS 4.0 software. A minimum tank length for the TANKS program of 5 feet was used to estimate the emissions for IES-TK-2.

^{5.} IES-TK-3 length was estimated based on the capacity of the tank and the diameter.

Abbreviations: EPA - Environmental Protection Agency ft - feet gal - gallon lb - pound

γr - year VOC - volatile organic compound

Page 19 of 21

RAMBOLL

². Working volume conservatively assumed to be 50% of tank design volume because tanks will not be full at all times.

Table 17 Dry Shaving Material Handling IES-DRYSHAVE Envive Pallets Hemiat, LLC Hamim, Richmond County, North Carolina

Bource	Transfer Activity		Material Moisture Content ¹	PM Emission Factor ²	PM ₁₀ Emission Factor ²	PN _{2.6} Emission Factor ²	Po' Three	Potential Potenti Throughpue ^{3,4} Entis		M4 Isi sions	Potential PM ₁₀ Emissions		Potential PM _{2.5} Emissions	
		Points	(%)	(lb/ton)	(lb/ton)	(lb/ton)	(kph)	(kpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
IEE DOVEMANTE	Dry Shaving Material Handling - Truck dump to truck dumper	1	10%	4.5E-04	2.16-64	3.2E-05	25	219,000	1.1E-02	4.9E-02	5.3E-03	2.3E-02	8.0E-04	3.5E-03
ALC- ANT STIALE	Dry Shaving Material Handling - Bucket elevator to silo ⁵	1	10%	4.5E-04	2.1E-C4	3.2E-05	25	219,000	1.1E-03	4.9E-03	5.36-04	2.36-03	8.CE-05	3.5E-04
							Total	Contraction	1.25-02	5.45-02	5.86-03	2.5E-01	8.85-04	3.96-03

Notes: L Melaure: context for dry shavings based on information provided by Enviva. 4 Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Mandling and Storage Piles, Equation 13.2.1, (11/06). where: E = emission factor (Lg/ton)

E - Ennissian meter (mytal)
k = particle size multiplier (dimensionless) for PM
k = particle size multiplier (dimensionless) for (264

k = particle size multiplier (dimensionless) for PM ₃₀	D.35
k = particle size multiplier (dimensionless) for PM ₂₅	0.053
U = mean wind ageed (main)	7.85

7.55
 3. Houriy throughput based on a maximum transfer rate of 100 ton/hr of dry shaving materia.
 4. Annual throughput based on a dry shaving detremes per week and a maximum storage capacity of 1360 tons for the dry shaving material storage silo.
 5. Bucket elevator to silo material handling transfer point emissione account for a 90% control efficiency due to the endosed nature of the silo (San Diago County, 1993).

0.74

Abbreviations: hr.hour ID-pound PM - particulate matter PM - particulate matter with an aerodynamic diameter less than 10 microns PM₂₀ - particulate matter with an aerodynamic diameter of 2.5 microns or less tpy - toop per year y' - year

Seferance: Sen Diego County, 1993. Cement & Fly Ash Storage Sios. June 7. Available online at: https://www.sandiegocounty.gov/content/dam/dd/apcd/PDF/Toxics. Program/APCD_sio1.pdf.

90% Control efficiency for bucket elevator to sile drop 25 tons/hr, max mum hourly transfer rate 600 tons/day, maximum dally throughput 365 dayatyear

Page 20 of 21

RAMBOLL

Table 18 Debarker Potential Emissions IES-DEBARK-1 Enviva Pellets Hamlet, LLC Hamlet, Richmond County, North Carolina

Calculation Basis

Hourly Throughput ¹	275 ton/hr	
Annual Throughput ¹	1,078,143 ton/yr	

Potential Criteria Pollutant Emissions

Source	Pollutant Emission Fact		Potential I	missions
		(lb/ton)	(lb/hr)	(tpy)
TEC DEDADIU 1	TSP ²	2.0E-02	0.55	1.1
ILS-DEDARK-I	PM10 ²	1.1E-02	0.30	0.59

Notes:

- ^{1.} Hourly bark hog throughput data provided by Enviva (email from Kai Simonsen dated 12/21/17). Annual throughput of logs delivered for debarking, as reported for log chipping. Per 12/21/17 email from Enviva, 2 tons of green material is needed for every 1 ODT of pellets, and 1.15 times that amount for purchased logs. At most, Enviva would purchase 75% of the needed logs with the remaining 25% of green material coming from purchased chips.
- ^{2.} Particulate matter emission factors from the USEPA document titled AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants. Source Classification Code 3-07-008-01 (Log Debarking). All PM is assumed to be larger than 2.5 microns in diameter. PM emissions are assumed to be controlled due to the debarker being partially enclosed (assumed 90% control).

Abbreviations:

hr - hour lb - pound ODT - oven dried tons tpy - tons per year yr - year



Application for Minor Source Permit Enviva Pellets Hamlet, LLC Richmond County, North Carolina

APPENDIX D PERMIT APPLICATION FORMS



MAY 1 4 2018

FORM A
GENERAL FACILITY INFORMATION

Air Darmite Saction

DEV/ISED	00/22/18
and the second s	100122/10

REVISED 09/2	2/16		NCDEQ	Division of Air Qualit	ly - Application	for Air Permit to	Construct/Operate	FUI F	aunus c	
1.62		1436 E. 7	NOTE- APPLIC	ATION WILL NOT	BE PROCES	SED WITHOU	T THE FOLLOW	ING:	NST BE	
	Local Zoning Consist only)	tency Determination	on (new or modificat	len 🔽	Appropriate	Number of Copies	of Application	27	Application Fe	e (if required)
	Responsible Official//	Authorized Conta	et Signature	2	P.E. Seal (i	(beniuper)				
				GENE	RAL INFOR	MATION	Lot of the second s	27575	1211187	
Legal Corpora	ite/Owner Name:	Enviva Pell	lets Hamlet, LLC							
Site Name:	Enviva Pellets Hamle	et, LLC								
Site Address (S	911 Address) Line 1;	1125 Nort	h NC Highway 177			-				
Site Address L	ine 2:									
City:	Hamlet					State:	North Carolina			
Zlp Code:			28345			County:	Richmond			
				CONT	ACTINFOR	MATION				
Responsible (Official/Authorized Cont	act:				Invoice Contact:				
Name/Title:	Steve Reeves, EVP and	d CFO - Accountin	ę			Name/Title:	Joe Harrell, Corporat	e EHS Manage	r	
Mailing Addres	s Line 1: 7200 Wisco	onsin Avenue				Malling Address L	ine 1: 142 NC Rol	rte 561 East		
Mailing Addres	is Line 2:					Mailing Address L	Ine 2:			
City: Bethes	sda Si	tate: MD	Zip Coo	le: 208	14	City: Ahoskie	State	. NC	Zin Code:	77910
Primary Phone	No.: (240)	482-3787	Fax No			Primary Phone Ne	12521 370-3	181	Fax No.:	27320
Secondary Pho	one No.:					Secondary Phone	No.:			
Email Address:	Steve.Reeves@enviva	abiomass.com				Email Address:	Joe.Harrell@envivabl	lomass.com	1	
Facility/Inspec	ction Contact:					Permit/Technica	Contact:			
Name/Title:	Kai Simonsen, Alr Perr	mit Engineer				Name/Titla	Kai Simonsen Air Per	mit Fnainear		
Malling Addres	s Line 1: 4242 Six Fo	rks Road. Suite 1	.050			Mailing Address L	ine 1: 4242 Six Fo	orks Road, Suli	e 1650	
Mailing Addres	s Line 2:					Mailing Address I	ine 2:	11 165 FEB-40) 040		
City: Raleigi	h Si	tata: NC	Ziu Cod	ie: 276	09	City: Raleigh	Stote	. NC	Zin Coder	37600
Primary Phone	No.: (919) 428-0	789	Fax No :			Primary Phone No	01010 0.855 (010)	780	Ear No :	27009
Secondary Pho	ane No.:					Secondary Phone	No :	203	T dos 1907.	
Email Address:	Kai.Simonsen@envlva	blomass.com	1.			Email Address:	Kai.Simonsen@envlv:	ablomass com		
			- 5. 1- 1 - 1 - 1	APPLICAT	ON IS BEIN	MADE FOR				in a service and a service of the
New N	Ion-parmitted Facility/Gre	enfield	J Modification	n of Facility (permitted)		Renewal *	Title V	C Renewic	I Noo-Title V	
Name	Change 🔲 Own	nership Change	Administrat	tive Amendment		Renewal	with Modification	The form		
			FACILITY	CLASSIFICATION	AFTER API	LICATION (CI	neck Only One)		10.055	
-	General		Smali		Prohi	bitory Smell	Synth	atic Minor	17	Title V
				FACILITY (F	Plant Site) IN	FORMATION		100 - 11	13	V CONTRACTOR STATE
Describe nature	e of (plant site) operation((s):								
Wood pellet ma	anufacturing facility									
						Facility ID No. 770	0095			
Primary SIC/NA	AICS Code: 2499 [Wood P	roducts, not elses	where classified!			Current/Previous	Vir Permit No. 103658	02	Expiration Date	03/28/2021
Facility Coordin	lates:	Latit	ude: 34 degrees, 56	minutes, 2.4 seconds		Longitude: 79 deg	rees. 38 minutes, 3.3	seconds		
Does this appl	lication contain confide	ntial 🗖			***ff yes, pl	ase contact the I	AQ Regional Office	prior to subm	nitting this appli	cation.***
data?			YES 💟	NO	(See Instru	ctions)				
72 (SH 1).		III BARA	PI	ERSON OR FIRM	THAT PREP	ARED APPLIC	ATION	1010		
Parson Name:	Michael Carbon					Firm Name: Ramb	of US Corporation			
Mailing Address	s Une 1: 8234 YMCA Plaza	a Drive				Mailing Address I	ine 2 [.]			
City: Baton Rou	ige		State: LA			Zip Code: 70810			County	
Phone No.:	(225) 408-2691		Fax No.:			Email Address: m	arhon@ramball.com		Tessaud,	
MI STATE	STREET STREET	1	SIGNATU	RE OF RESPONSI	BLE OFFICI	ALIAUTHORIZ	ED CONTACT	A		
Name (typed):	Steve Reeves	1				Tille: EVP and CF	0 - Accounting			
X Signature(Bl	ue Ink):	1/	100			Date:	11	101		
	/	17	FVI				Mar	118		
	/		At	tach Additional	Sheets As	Necessary				Page 1 of

FORM A (continued, page 2 of 2) GENERAL FACILITY INFORMATION

VISED 09/2/18 NCDEO/Division of Air Quality - Application for Air Permit to Construct/Operate	A
SECTION AA1 - APPI ICATION FOR NON-TITLE V PERMIT RENEWAL	
Company name, increasing and the assignment of additional section of the assignment	
There have been no incumcations to whightaily permitted racinly or the operations and enter multi-volut equile of the permitted racinly of the operation of Acceleration of Ac	
If yes, have you already submitted a Risk Manage Plan (RMP) to EPA?	
Did you attach a current emissions inventory?	
If no, did you submit the inventory via AERO or by mail? 🔲 Via AERO 🗌 Mailed Date Mailed:	
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 idenlifies and describes all emissions units at the above subject facility, except where such units are exempled under the	
North Carolina Tille V regulations al 15A NCAC 2Q .0500;	
(2) The current air quality permit cits all applicable requirements and provides the method or methods for determing compliance with the applicable	
requirements;	
(3) In encountry is currently in compliance, and shall continue to comply, with all applicable requirements. (Note: As provided under ISA NAAA 24, US12 control to the participation of the partici	
(A) For applicable requirements that become effective during the removed point 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 AAS- APPLICATION FOR NAME CHANGE	
New Facility Name:	
Former Facility Name:	
A setting to the setting of the setting of the set of the set of the set of the set of the setting of the setti	
An ortical raciny name change is requested as described above for the air permit memories on page 1 or mis form. Complete the other sections if mere have been monificalized to the drives the drivest the drivest the air permit and size to the last permit was issued and if ther has been an ownership change.	
internice to be any new promittee working and working require an unique promit and units and the rest particle and t	
SECTION AA4- APPLICATION FOR AN OWNERSHIP CHANGE	
By this application we hereby request transfer of Air Quality Permit Nofrom the former owner to the new owner as described below.	
e transfer of permit responsibility, coverage and liability shall be effective	
Vilty 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 ihat would require an air quality permit since the last permit was issued.	
Sinnaure of New (Buyer) Resignabile Official/Authorized Contact (as tuned on name 1):	
X Signatura (Blue Ink)	
Date:	
New Facility Name:	
Former Facility Name:	
Signature of Formar (Seller) Responsible Official/Authorized Contact:	
Name (typed or print):	
Title:	
M Chan-Land (Direction)	
A 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	a
SECTION AA5- APPLICATION FOR ADMINISTRATIVE AMENDMENT	The second House
Describe the requested administrative amendment here (attach additional documents as necessary):	
Attach Additional Shoata As Necessary	Dage 1 of 3
Attach Auditional Directs As necessary	Fage 2 UI 2

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REV/SED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate A2						
EMISSION SOURCE LISTING: New, Modified, Previously Unpermitted, Replaced, Deleted						
EMISSION SOURCE	EMISSION SOURCE	CONTROL DEVICE	CONTROL DEVICE			
ID NO.	DESCRIPTION	ID NO.	DESCRIPTION			
走进 医弗兰	Equipment To Be ADDED By This Application	tion (New, Previously Unp	ermitted, or Replacement)			
EV.CHM.2	Green Wood Hemmonially	CD-WESP	Wet Electrostatic Precipitator			
E3-0IIM-3	dieen wood nammerinni	CD-RTO-1 (new)	Regenerative Thermal Oxidizer			
ES-HMC	Hammermill Collection Conveyor	CD-HMC-BH	Baghouse			
ES-DWH	Dried Wood Handling Operations	CD-DWH-BH-1 through 2	Baghouses (operating in parallel)			
ES-ADD	Additive Handling and Storage	CD-ADD-BH	Baghouse			
	Existing Permitted Equipment	To Be MODIFIED By Thi	s Application			
FE CHINE 1 showed 2		CD-WESP	Wet Electrostatic Precipitator			
E3-GRM-1 (nrough 2	Two (2) Green wood hammermuis	CD-RTO-1 (new)	Regenerative Thermal Oxidizer			
EC DOVED	Green Wood Direct-Fired Rotary Dryer System	CD-WESP	Wet Electrostatic Precipitator			
ES-DRYER		CD-RTO-1 (new)	Regenerative Thermal Oxidizer			
ES-HM-1 through 8	Eight (8) Dry Hammermills	CD-HM-BH-1 through 8	Baghouses (one per hammermill)			
ES-PCHP	Pellet Cooler High Pressure Fines Relay System	CD-PCHP-BH	Baghouse			
ES-PCLP	Pellet Cooler Low Pressure Fines Relay System	CD-PCLP-BH	Baghouse			
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	Baghouse			
ES-CLR-1 through 6	Six (6) Pellet Coolers	CD-CLR-1 through 6 or CD- WSB (new)	Baghouses or Wet Scrubber			
		CD-RC0 (new)	Regenerative Catalytic Oxidizer with thermal mode backup			
ES-PDCTB	Pellet Dust Collection Transfer Bin	CD-PDCTB-BH	Baghouse			
ES-FPH	Finished Product Handling		Beskeue			
ES-PB-1 through 2	Two (2) Peilet Loadout Bins	CD-FFII-BII	pafironse			
	Equipment To Be DE	LETED By This Applicat	ion			
ES-PL-1 through 3	Three (3) Fellet Mill Loadouts					
'S-HMA	Hammermill Area					
S-CHIP-1	Log Chipping (now listed on Form D4 as IES-CHIP-1)					
ES-BARKHOG	Bark Hog (now listed on Form D4 as IES-BARKHOG)					
ES-GN	Emergency Generator (now listed on Form D4 as IES-GN)					
ES-FWP	Fire Water Pump (now listed on Form D4 as IES-FWP)					

	112(r) APPLICABIL	ITY INFORMATION	A 3			
your facility subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Federal Clean Air Act?						
If No, please specify in detail how your facility avoided applicabil	ity:	The Hamlet plant will not store any regulated substan	ces in excess of their			
threshold quantities, as determined under §68.115.	9					
If your facility is Subject to 112(r), please complete the following:						
A. Have you already submitted a Risk Management Plan (RI	MP) to EPA Pursuant to 40 CF	R Part 68.10 or Part 68.150?	,			
Yes No Specify required RMP s	ubmittal date:	If submitted, RMP submittal date:				
B. Are you using administrative controls to subject your facili	ty to a lesser 112(r) program s	standard?				
Yes No If yes, please specify:						
C. List the processes subject to 112(r) at your facility:	C					
PROCESS DESCRIPTION	PROCESS LEVEL (1, 2, or 3)	HAZARDOUS CHEMICAL	MAXIMUM INTENDED INVENTORY (LBS)			
	t					

FORM D1 FACILITY-WIDE EMISSIONS SUMMARY

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate D1							
CRITERIA AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE							
		EXPECTE EMIS	D ACTUAL SIONS	POTENTIAL E	MISSIONS	POTENTIA	
	(AFTER CO	UNTROLS/	(BEFORE CO	NTROLS/		JUNTROLS /	
	LIMITA		LIMUAT	UNS}		ATIONS	
		San Em	ission Calculat	ions in Annond	yr iv C		nsryi
PARTICULATE MATTER (PM)		See Chi		Тана и Арреац	IX C		
PARTICULATE MATTER < 10 MICRONS (FM10))						-
	5/						
VOLATILE ORGANIC COMPOUNDS (VOC)				1			
GREENHOUSE GASES (GHG) (SHORT TONS)				1			
OTHER							
HAZARDOUS	AIR POLLUT	ANT EMISSION	S INFORMATI	ON - FACILITY	WIDE		
		EXPECTE	DACTUAL				
		EMIS	SIONS	POTENTIAL E	MISSIONS	POTENTIA	L EMISSIONS
		(AFTER C	ONTROLS /	(BEFORE CO	NTROLS /	(AFTER C	CONTROLS /
		LIMITA	TIONS)	LIMITATI	ONS)	LIMIT	ATIONS)
HAZARDOUS AIR POLLUTANT EMITTED	CAS NO.	tor	is/yr	tons/	уг	to	ns/yr
		See Em	ission Calculat	ions in Append	ix C		
		-					
		-					
TOXIC AIL	POLLUTANT	EMISSIONS IN	FORMATION	- FACILITY-WI)Ê	1000 1000	T. S. Partillan, 199
INDICATE DEDUESTED ACTUAL EMISSIONS	AFTER CONTROL	S / IMITATION		BOVE THE TOY			TE /TEED) IN
154 NCAC 20.0711 MAY REQUIRE AIR OISPE	RSION MODELIN	IG. USE NETTIN	G FORM D2 IF N	ECESSARY.	ÇI ÇIMIL		
					Modeling	Required ?	
TOXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Yes	No	
		See Emission	Calculations i	n Appendix C			
COMMENTS							

FORM D4

EXEMPT AND INSIGNIFICANT ACTIVITIES SUMMARY

REVISED 09/22/16

NCDEQ/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	BASIS FOR EXEMPTION OR
BESONI HON OF EMISSION SOUNDE	INTE	
1. Green Wood Handling Operations IES-GWH	Varies	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
2. Bark Hog IES-BARKHOG	25 ODT/hr	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
3. Emergency Generator Diesel Fuel Storage Tank IES-TK1	1,000 gallons	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
4. Firewater Pump Engine Diesel Fuel Storage Tank IES-TK2	185 gallons	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
5. Mobile Sources Diesel Fuel Storage Tank IES-TK3	5,000 gallons	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
6. Green Wood Storage Piles IES-GWSP-1 through 4	N/A	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
7. Bark Fuel Storage Piles IES-BFSP-1 and 2	N/A	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
8. Dry Shaving Material Handling IES-DRYSHAVE	25 tons/hr	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
9. Debarker JES-DEBARK-1	275 tons/hr	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
). Bark Fuel Bin IES-BFB	N/A	15A NCAC 02Q .0503(8)-negligible emissions, see Appendix C
11. Diesel-Fired Emergency Generator IES-GN	671 bhp	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
12. Diesel-Fired Fire Water Pump IES-FWP	131 bhp	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
13. Log Chipping IES-CHIP-1	138 ODT/hr	15A NCAC 02Q .0503(8)-low emissions, see Appendix C

		TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION
RE\	VISED 09/22/16	NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate D5
(PROVIDE DETAILED TECHNICAL CALCULATIONS TO SUPPORT ALL EMISSION, CONTROL, AND REGULATORY EMONSTRATIONS 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 BALANCES, AND/OR C BEFORE AND, WHERE MATERIAL BALANCE (SOURCE (EMISSION INFORMATION) (FORM B and B1 through B9) - SHOW CALCULATIONS USED, INCLUDING EMISSION FACTORS, MATERIAL OTHER METHODS FROM WHICH THE POLLUTANT EMISSION RATES IN THIS APPLICATION WERE DERIVED. INCLUDE CALCULATION OF POTENTIAL E APPLICABLE, AFTER CONTROLS. CLEARLY STATE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFERENCES AS NEEDED TO SUPPORT CALCULATIONS.
в	SPECIFIC EMISSION S SOURCES AND THE F WITH APPLICABLE RE PROVIDE JUSTIFICAT STANDARDS (NSPS), I REGULATIONS WHICH REGULATIONS. INCLU CALCULATIONS.	COURCE (REGULATORY INFORMATION)(FORM E2 - TITLE V ONLY) - PROVIDE AN ANALYSIS OF ANY REGULATIONS APPLICABLE TO INDIVIDUAL AGLITY AS A WHOLE. INCLUDE A DISCUSSION OUTING METHODS (e.g. FOR TESTING AND/OR MONITORING REQUIREMENTS) FOR COMPLYING GULATIONS, PARTICULARLY THOSE REGULATIONS LIMITING EMISSIONS BASED ON PROCESS RATES OR OTHER OPERATIONAL PARAMETERS. ON FOR AVOIDANCE OF ANY FEDERAL REGULATIONS (REVENTION OF SIGNIFICANT DETERIORATION (PSD), NEW SOURCE PERFORMANCE NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), TITLE V), INCLUDING EXEMPTIONS FROM THE FEDERAL I WOULD OTHERWISE BE APPLICABLE TO THIS FACILITY. SUBMIT ANY REQUIRED INFORMATION TO DOCUMENT COMPLIANCE WITH ANY JDE EMISSION RATES CALCULATED IN ITEM "A" ABOVE, DATES OF MANUFACTURE, CONTROL EQUIPMENT, ETC. TO SUPPORT THESE
С	CONTROL DEVICE AN LISTED ON SECTION ((e.g. OPERATING CON PERFORMANCE OF TI THIS FACILITY. DETA PERFORMED.	ALYSIS (FORM C and C1 through C3) - PROVIDE A TECHNICAL EVALUATION WITH SUPPORTING REFERENCES FOR ANY CONTROL EFFICIENCIES C FORMS, OR USED TO REDUCE EMISSION RATES IN CALCULATIONS UNDER ITEM "A" ABOVE. INCLUDE PERTINENT OPERATING PARAMETERS IDITIONS, MANUFACTURING RECOMMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS APPLICATION) CRITICAL TO ENSURING PROPER HE CONTROL DEVICES). INCLUDE AND LIMITATIONS OR MALFUNCTION POTENTIAL FOR THE PARTICULAR CONTROL DEVICES AS EMPLOYED AT IL PROCEDURES FOR ASSURING PROPER OPERATION OF THE CONTROL DEVICE INCLUDING MONITORING SYSTEMS AND MAINTENANCE TO BE
D	PROCESS AND OPER OPERATIONAL, OR OT APPROPRIATE. LIST REGULATIONS.	ATIONAL COMPLIANCE ANALYSIS - (FORM E3 - TITLE V ONLY) - SHOWING HOW COMPLIANCE WILL BE ACHIEVED WHEN USING PROCESS, THER DATA TO DEMONSTRATE COMPLIANCE. REFER TO COMPLIANCE REQUIREMENTS IN THE REGULATORY ANALYSIS IN ITEM "B" WHERE ANY CONDITIONS OR PARAMETERS THAT CAN BE MONITORED AND REPORTED. TO DEMONSTRATE COMPLIANCE WITH THE APPLICABLE
E	PROFESSIONAL ENG PROFESSIONAL ENG 'SOURCES AND I	NEERING SEAL - PURSUANT TO 15A NCAC 2Q.0112 "APPLICATION REQUIRING A PROFESSIONAL ENGINEERING SEAL," IGINEER REGISTERED IN NORTH CAROLINA SHALL BE REQUIRED TO SEAL TECHNICAL PORTIONS OF THIS APPLICATION FOR MODIFICATIONS OF EXISTING SOURCES. (SEE INSTRUCTIONS FOR FURTHER APPLICABILITY).
	I, Russell Kemp	attest that this application for Enviva Pellets Hamlet, LLC
		has been reviewed by me and is accurate, complete and consistent with the information supplied
	in the engineering plans been preparad in accom materials under my sea 215.6A and 143-215.6E include a fine not to exc	An 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 dance with the applicable regulations. Although certain portions of this submittal package may have been developed by other professionals, inclusion of these i 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- any person who knowingly makes any false statement, representation, or certification in any application shall be guilty of a Class 2 misdemeanor which may eed \$10,000 as well as civil penalties up to \$25,000 per violating CCCVCO
	(PLEASE USE BLUE II	NK TO COMPLETE THE FOLLOWING) PLACE NORTH CAROLINA SEAL HERE
	NAME:	Russell Kemp, MS, PE Air Permits Section
	DATE:	04 APRIL 2018
	COMPANY:	REUS Engineers, P.C.
	ADDRESS:	1600 Parkwood Circle, Suite 310, Atlanta, GA 30339
	TELEPHONE:	(678) 388-165 M. Alexandre 19628
	SIGNATURE:	- Innin lel lel
	PAGES CERTIFIED:	Forms B, B1, B6, B9, C1, C2, C3, C4
		Appendix C with emission calculations
		Application Narrative
		(IDENTIFY ABOVE EACH PERMIT FORM AND ATTACHMENT
		THAT IS BEING CERTIFIED BY THIS SEAL)
		Attach Additional Sheets As Necessary

FORM D5

FORM B SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

.EVISED 09/22/16		NCDEQ/Division	of Air Quality - J	Application fo	or Air Permit to	a Construct/O	perate		В	
EMISSION SOURCE DESCR	RIPTION:				EMISSION SOURCE ID NO: ES-GHM-1, 2, 3					
Green Wood Hammermills					CONTROL DEVICE ID NO(S): CD-WESP, CD-RTO-1					
OPERATING SCENARIO	1 OF	1			EMISSION P	OINT (STACK)	ID NO(S) EP	-1		
DESCRIBE IN DETAIL THE E	MISSION SOURCE PR	OCESS (ATTACH	FLOW DIAGRA	M):	Lindotort		10 HO(0). EI			
Green wood chips are proc	essed in the green woo	od hammermills.								
	•									
TY	PE OF EMISSION SOU	RCE (CHECK AND	COMPLETE A	PPROPRIATE	FORM B1-B9	ON THE FOL		ES):		
Coal,wood,oil, gas, other	burner (Form B1)		Woodwork	ting (Form B4)		Manuf.	of chemicals/co	atings/inks (Fo	rm 87)	
Int.combustion engine/ger	nerator (Form 82)	[Coating/fin	ishing/printing	(Form B5)		tion (Form B8)	. .	,	
Liquid storage tanks (For	m B3)		Storage sil	Storage silos/bins (Form B6)						
START CONSTRUCTION DA	ATE: TBD			DATE MANUE	ACTURED: 1	IBD				
MANUFACTURER / MODEL	NO.: TBD		1	EXPECTED C	P. SCHEDUL	E: _24 HR/D	AY _7 DA	Y/WK 52_ V	VK/YR	
IS THIS SOURCE SUBJECT	TO?	ISPS (SUBPARTS)	?):		NESH.	AP (SUBPART	Supbart B,	Section 112(g	<u>,</u>	
PERCENTAGE ANNUAL TH	ROUGHPUT (%): DEC-	FEB 25% MA	R-MAY 25%	JUN-AUG 25	% SEP-NO	V 25%				
	CRITERIA /	AIR POLLUTAN	IT EMISSION	VS INFORM	ATION FOI	R THIS SOL	IRCE			
			SOURCE OF	EXPECTE	D ACTUAL	1	POTENTIAL	EMISSIONS		
			EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	AFTER CONT	ROLS / LIMITS)	
AIR POLLUTANT EMITTED			FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
PARTICULATE MATTER (PM	A)		See Emission	Calculations	in Appendix	c	1			
PARTICULATE MATTER<10	MICRONS (PMID)							1		
PARTICULATE MATTER<2.5	MICRONS (PM2.5)						1	1	1	
SULFUR DIOXIDE (SO2)								1		
NITROGEN OXIDES (NOx)					1				1	
CARBON MONOXIDE (CO)										
VOLATILE ORGANIC COMP	OUNDS (VOC)							1	1	
LEAD								1		
THER					1					
	HAZARDOUS	AIR POLLUTA	ANT EMISSIC	ONS INFOR	MATION F	OR THIS SC	URCE		1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 - 1990 -	
1			SOURCE OF	EXPECTE	EXPECTED ACTUAL POTENTIAL EMIS			EMISSIONS		
		1	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONT	ROLS / LIMITS)	
HAZARDOUS AIR POLLUTA	NT	CAS NO.	FACTOR	ib/hr	tons/yr	lb/hr	tons/yr	ib/hr	tons/yr	
			See Emission	Calculations	іл Appendix (ć				
							1			
	TOXIC AI	R POLLUTANT	EMISSIONS	INFORMA	TION FOR	THIS SOUR	CE	i enstinië		
			SOURCE OF	EXPE	CTED ACTUA		AFTER CONT	ROLS / LIMITA	TIONS	
			EMISSION			1				
TOXIC AIR POLLUTANT		CAS NO.	FACTOR	lb	/hr	lb.	/day	<u> </u> !b	/yr	
			See Emission	Calculations	in Appendix (ç				
								ļ		
								<u> </u>		
			1					1	_	
Attachments: (1) emissions calcul	ations and supporting docur	nentation; (2) indicate	all requested state	and federal enk	orceable permit li	mits (e.g. hours o	of operation, emis	sion rates) and de	ascribe 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 09/22/16 NCDEQ/Division of Air Quality -	Application	for Air Permit to Construct/Op	perate	B9				
EMISSION SOURCE DESCRIPTION:		EMISSION SOURCE ID NO:	ES-GHM-1, 2, 3					
		CONTROL DEVICE ID NO(S): CD-WESP, CD-RTO-1						
OPERATING SCENARIO:1 OF1	_	EMISSION POINT (STACK) ID NO(S): EP-1						
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM Green wood chips are processed in the green wood hammermill): s.							
MATERIALS ENTERING PROCESS - CONTINUOUS PROC	CESS	MAX. DESIGN	REQUESTED C	APACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/HR)	LIMITATION(U	NIT/HR)				
Green Wood	ton/hr	40	N/A					
MATERIALS ENTERING PROCESS - BATCH OPERATI	ON	MAX. DESIGN	REQUESTED C	APACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (UNI	T/BATCH)				
	ļ							
MAXIMUM DESIGN (BATCHES / HOUR):								
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/	YR):						
FUEL USED: N/A	TOTAL MAX	KIMUM FIRING RATE (MILLION	I BTU/HR): N/A					
MAX. CAPACITY HOURLY FUEL USE: N/A	REQUESTE	D CAPACITY ANNUAL FUEL U	JSE: N/A					
COMMENTS:								

FORM B SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16	NCI	DEQ/Division o	of Air Quality - A	Application for	Air Permit to	Construct/Ope	erate		B
EMISSION SOURCE DESCRI	PTION:			EMISSION SOURCE ID NO: ES-DRYER					
Green Wood Direct-Fired Rot	tary Dryer System				CONTROL DE	VICE ID NO(S)	CD-WESP. C	D-RTO-1	
OPERATING SCENARIO	1 OF 1				EMISSION PO	INT (STACK) I	D NO(S): EP-1		
DESCRIBE IN DETAIL THE FI	MISSION SOURCE PROCES	S (ATTACH FI	OW DIAGRAM);					
Green wood is conveyed to a	rotary dryer system. Direc	t contact heat	is provided to t	/· he system via	a 250.4 MMBt	u/hr burner sy	stem. Air emi:	ssions are con	trolled
utilizing a wet electrostatic p	recipitator (WESP) for partic	culate remova	. VOC and orga	anic-HAP emis	sions will be o	ontrolled by a	regenerative l	thermal oxidize	er (RTO).
	PE OF EMISSION SOURCE	(CHECK AND	COMPLETE A	PPROPRIATE	FORM B1-B9 C	N THE FOLL	WING PAGES	5);	
Coal wood oil gas other h	umer (Form B1)	, on Long And	. Woodworki	no (Form B4)	••••••	Manuf, o	f chemicals/coa	tinas/inks (For	n B7)
Int combustion onging/gam	unter (Form 82)		Coation/fini	shina/nrintina f	Form B5)		on (Form B8)		
Liquid storage lanks (Form	(B3)		Storage sile	s/bins (Form B	6)	Dother (Fe	om B9)		
START CONSTRUCTION DA	TE: TRD	L		DATE MANUE	ACTURED: TE	3D	,		
MANUEACTURER / MODEL N				EXPECTED O	P. SCHEDULE	24 HR/DA	Y 7 DAY	WK 52 W	(YR
IS THIS SOURCE SUBJECT I	TOZ NSPS	(SUBPARTS?)		LIG LOTED O	V NESHA	P (SUBPARTS	Subpart B. S	ection 112(a)	
DERCENTACE ANNUAL THE		25% MAR-M	AV 25% JUN	AUG 25%	SEP-NOV 259	<u>6</u>		(0)	
ENGENTAGE ANNOAE INIT	CRITERIA AIR	POLLUTAN	TEMISSION	IS INFORM	ATION FOR	THIS SOU	RCE	- E & C	
				EXPECTE	DACTUAL		POTENTIAL	EMISSIONS	
			EMISSION		COLS / LIMITS)	(REFORE CON	ROLS (1)MITS)	AFTER CONT	ROLS / LIMITS)
			FACTOR	h/br	tone/vr	h/hr	tons/vr	b/hr	tons/vr
DAPTICIII ATE MATTED (DM)		See Emission	Calculations i	n Annandix C	1.411	Los Ro y		in the provide state of the sta
PARTICULATE MATTER (PM			Gee Cillission	Carculations	T Appendix O				
DARTICULATE MATTER-25									
NITROCEN OVIDES (NOA)									
NITROGEN OXIDES (NOX)									
					· · · · · · · · · · · · · · · · · · ·				
VOLATILE ORGANIC COMPC						-			
-OTHER	HAZARDOUS AN	POLITA	MT PHUSSI	WS INFOR	MATION PC	18 THE SO	UNCE		
1		I	SOURCE OF	EXPECTE			POTENTIAL	EMISSIONS	
			ENICSION	INSTED CONT		POTENTIAL ENISSIONS			POLS / LIMITS)
	NT	CASNO	FACTOR	h/br	tonshar	(BEFORE CON	tons/vr	lb/hr	tons/vr
HAZARDOOS AIR POLLUTA		CASINO.	See Emission	Calculations i	n Annendix C	10,111	concorp.		currory.
			Oce Emission	Calculations	in Appendix O				
							-		
			<u> </u>						-
			1 1						
	TOYIC MIR P	OLIUTANT	EMISSIONS	INFORMA	TION FOR 1	THIS SOUR	CE	Same	
	I WARD PUTCE								
			SOURCE OF	EXPE	CTED ACTUA	L EMISSIONS	AFTER CONTI	ROLS / LIMITA	HONS
			EMISSION		h				. h
TOXIC AIR POLLUTANT CAS NO.			FACTOR	L 15	/hr	lb/	day		муг
			See Emission	Calculations i	n Appendix C				
						-			
		1						I	

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 thes 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

FORM B1

N	EMISSI	ON S	OURCE (W	OOD, CO	AL, OIL,	GAS, C	THER F	UEL-I	FIRE	D BURNER)
REVISED 09/	22/16		NCDEQ/Division	n of Air Quality	- Applicatio	on for Air P	ermit to Cor	struct/O	perate		B1
EMISSION SC	OURCE DESCRIPT	FION: 0	Green Wood Dire	ct-Fired Rotar	y Dryer	EMISSION	SOURCE ID	NO: E\$	-DRYE	R	
aystem						CONTROL DEVICE ID NO(S): CD-WESP, CD-RTO-1					
OPERATING	SCENARIO:	1 OF 1				EMISSION	POINT (STA	(CK) ID N	O(S):	EP-1	
DESCRIBE U	SE: PROC	ESS HE	EAT []SPACE HEAT	-		ELEÇT	RICAL G	ENERA	TION	
		INUOUS	s use 🔤 🗌	STAND BY/E	MERGENCY		OTHEF		UBE):		
HEATING ME	CHANISM:		INDIRECT	<u>~</u>	DIRECT						
MAX. FIRING	RATE (MMBTU/H	our):	250.4								
		THE T		WOO	DD-FIRED	BURNER	R		"ne"		
WOOD TYP	PE: DARK	~	WOOD/BARK		DOD	DRY V	WOOD			OTHER (DESCR	(IBE):
PERCENT MO	PERCENT MOISTURE OF FUEL: 20 to 50%										
UNCONTROLLED WITH FLYASH REINJECTION											
FUEL FEED N	ETHOD: N/A			EAT TRANSP	ER MEDIA:		STEAN	I 🗹 AIR		THER (DESCRIBE	Ξ)
		T=1		COA	AL-FIRED	BURNER	2				
TYPE OF BO.	ILER		IF OTHER DESC	RIBE:							
PULVERIZED	OVERFEED STO	KER	UNDERFEEI) STOKER	5	SPREADER	STOKER		FL		
U WET BED				🗆 инса	ONTROLLE	D			CIRCULATING		
DRY BED		ED		ED	🗌 FLYA	ASH REINJECTION					
						LYASH REI	NJECTION				
				OIL/O	AS-FIRE		R				
TYPE OF BO											
TYPE OF FIR	ING:	NORM		GENTIAL		IOX BURNE	ERS		NO LO	W NOX BURNER	
				OTHER	FUEL-FIR	RED BUR	NER		nd.		128 Text
TYPE(S) OF I	=UEL:										
TYPE OF BO	LER:	UTILIT		JSTRIAL	Сомм	IERCIAL			INSTIT	UTIONAL	
TYPE OF FIR	ING:		TYPE(\$) OF	CONTROL(S)	(IF ANY):						
	=	- 8	FUEL U	SAGE (INC	LUDE STA	ARTUP/B	ACKUP F	UELS)	91 a 182		i texu
					MAXIM	IUM DESIG	IN			REQUESTED	CAPACITY
FUE	EL TYPE		UNITS		CAPAC	ITY (UNIT/H	HR)			LIMITATION (UNIT/HR)
Bark/	Wet Wood		tons			40					
· 옷 4월 - 2011	SPACE A	FU	EL CHARACT	ERISTICS (COMPLE	TE ALL T	HAT ARE	APPL	CABL	.E)	
					SPECIFIC		SULF	UR CONT		ASH C	ONTENT
	FUEL TY	PE			BTU CONTE	NT	(% E	BY WEIG	-IT)	(% BY	WEIGHT)
	Bark/Wet V	Vood		Nor	ninal 4,200 E	BTU/Ib	_	0.011			
SAMPLING P	ORTS, COMPLIAN	IT WITH	H EPA METHÓD	1 WILL BE INS	TALLED ON	THE STAC	KS 🔽	YES		<u> </u>	10
COMMENTS:											

CONTROL DEVICE (Electrostatic Precipitator) **C2** NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate EVISED 09/22/16 CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-DRYER and CONTROL DEVICE ID NO: CD-WESP ES-GHM-1 through 3 EMISSION POINT (STACK) ID NO(S): EP-1 POSITION IN SERIES OF CONTROL: NO. 1 OF 2 UNITS MANUFACTURER: MODEL NO. TBD Lundberg **OPERATING SCENARIO: OPERATING SCENARIO:** P.E. SEAL REQUIRED (PER 2Q.0112)? NO _1___0F ___1_ 5 YES DESCRIBE CONTROL SYSTEM: Emissions from the Dryer and Green Wood Hammermills are initially controlled by the WESP through a common duct for additional PM, metallic HAP, and HCI removal. EQUIPMENT SPECIFICATIONS GAS DISTRIBUTION GRIDS: 1 YES IT NO DRY 2 TYPE: 🕗 WET SINGLE-STAGE TWO-STAGE TOTAL COLLECTION PLATE AREA (FT²): TBD NO. FIELDS TBD NO, COLLECTOR PLATES PER FIELD: TBD COLLECTOR PLATE SIZE (FT): LENGTH: TBD WIDTH: TBD SPACING BETWEEN COLLECTOR PLATES (INCHES): TBD TOTAL DISCHARGE ELECTRODE LENGTH (FT): TBD GAS VISCOSITY (POISE): TBD NUMBER OF DISCHARGE ELECTRODES: TBD NUMBER OF COLLECTING ELECTRODE RAPPERS: TBD PARTICLE MIGRATION VELOCITY (FT/SEC): TBD MAXIMUM INLET AIR FLOW RATE (ACFM): TBD MINIMUM GAS TREATMENT TIME (SEC): TBD BULK PARTICLE DENSITY (LB/FT³): TBD CORONA POWER (WATTS/1000 CFM): TBD FIELD STRENGTH (VOLTS) CHARGING: COLLECTING: TBD ELECTRICAL USAGE (KW/HOUR): TBD CLEANING PROCEDURES: RAPPING PLATE VIBRATING WASHING OTHER OPERATING PARAMETERS PRESSURE DROP (IN. H20): MIN WARNING ALARM? YES NO NO MAX RESISTIVITY OF POLLUTANT (OHM-CM): TBD GAS CONDITIONING: YES NO TYPE OF AGENT (IF YES): INLET GAS TEMPERATURE (°F): TBD OUTLET GAS TEMPERATURE (°F): TBD VOLUME OF GAS HANDLED (ACFM): TBD INLET MOISTURE PERCENT: TEDMIN TED MAX **POWER REQUIREMENTS** IS AN ENERGY MANAGEMENT SYSTEM USED? 🔲 YES 🗌 NO FIELD NO. NO. OF SETS CHARGING EACH TRANSFORMER (kVA) EACH RECTIFIER Ky Ave/Peak Ma Dc POLLUTANT(S) COLLECTED: PM / PM₁₀ / PM_{2.5} BEFORE CONTROL EMISSION RATE (LB/HR); CAPTURE EFFICIENCY: 4 % CONTROL DEVICE EFFICIENCY: % % % % CORRESPONDING OVERALL EFFICIENCY: % % % EFFICIENCY DETERMINATION CODE: TOTAL AFTER CONTROL EMISSION RATE (LB/HR): See calculations in Appendix C DESCRIBE STARTUP PROCEDURES: PARTICLE SIZE DISTRIBUTION Refer to previous submittal. SIZE WEIGHT % CUMULATIVE (MICRONS) OF TOTAL % DESCRIBE MAINTENANCE PROCEDURES: 0-1 Refer to previous submittal. 1-10 10-25 DESCRIBE ANY AUXILIARY MATERIALS INTRODUCED INTO THE CONTROL 25-50 SYSTEM 50-100 >100 TOTAL = 100 DESCRIBE ANY MONITORING DEVICES, GAUGES, OR TEST PORTS AS ATTACHMENTS: PLC COMMENTS: ATTACH A DIAGRAM OF THE TOP VIEW OF THE ESP WITH DIMENSIONS (include at a minimum the plate spacing and wire spacing and indicate the electrode type), AND THE RELATIONSHIP OF THE CONTROL DEVICE TO ITS EMISSION SOURCE(S):

FORM C2

Attach Additional Sheets As Necessary

ach Auditional Sheets As Necessa

FORM C3 CONTROL DEVICE (THERMAL OR CATALYTIC)

REVISED 09/22/16 NCDEQ/	REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate C:										
AS REQUIRED BY 15A NCAC 2Q .0112, THIS I	ORM MUST BE SEA	LED BY A PROFESS	ONAL ENGINE	ER (P.E.) LICENSED IN	NORTH CA	ROLINA.					
CONTROL DEVICE ID NO: CD-RTO-1	CONTROLS EI	VISSIONS FROM WHI	CH EMISSION \$	SOURCE ID NO(S): ES-I	DRYER, ES	GHM-1 through 3					
EMISSION POINT (STACK) ID NO(S): EP-1	POSITION IN S	SERIES OF CONTROL	S	NO. 2	OF	UNITS					
MANUFACTURER: Lundberg	MOI	DEL NO: TBD									
OPERATING SCENARIO:											
1OF1											
TYPE AFTERBURNER Z REGENERATIVE	E THERMAL OXIDATI		RATIVE THER	MAL OXIDATION	CATALY	TIC OXIDATION					
EXPECTED LIFE OF CATALYST (YRS): TBD	METHOD OF D	DETECTING WHEN CA	TALYST NEED	S REPLACMENT: TBD							
CATALYST MASKING AGENT IN AIR STREAM 🔄 HALOGEN 🔄 SILICONE 🔄 PHOSPHOROUS COMPOUND 🔄 HEAVY METAL											
TYPE OF CATALYST: TBD CATALYST VOL (FT ³): TBD VELOCITY THROUGH CATALYST (FPS): TBD											
SCFM THROUGH CATALYST: TBD											
DESCRIBE CONTROL SYSTEM, INCLUDING RELATION	TO OTHER CONTRO	L DEVICES AND SOU	RCES, AND AT	FTACH DIAGRAM OF SY	STEM:						
Emissions leaving the WESP will enter the RTO prior to	being emitted to the	e atmosphere.									
POLLUTANT(S) COLLECTED:	VOC	-				÷					
BEFORE CONTROL EMISSION RATE (LB/HR):		_									
CAPTURE EFFICIENCY:		_%	%	%		%					
CONTROL DEVICE EFFICIENCY:	95	%	%	%		<u>%</u>					
CORRESPONDING OVERALL EFFICIENCY:		%	%	%		<u> </u>					
EFFICIENCY DETERMINATION CODE:				Y							
TOTAL AFTER CONTROL EMISSION RATE (LB/HR) :	See calculatio	ns in Appendix C			a						
PRESSURE DROP (IN. H ₂ O); MIN MAX T	BD	OUTLET TEMPERA	TURE (°F):	TBD MIN	TBD	MAX					
INLET TEMPERATURE (°F): MIN MAX T	BD	RESIDENCE TIME (SECONDS): TH	D							
INLET AIR FLOW RATE (ACFM): TBD (SCFM): T	BD	COMBUSTION TEN	PERATURE (°F): TBD							
COMBUSTION CHAMBER VOLUME (FT ³): TBD		INLET MOISTURE (CONTENT (%):	TBD							
% EXCESS AIR: TBD		CONCENTRATION	(ppmv)	TBD_INLET	TBD	OUTLET					
AUXILIARY FUEL USED: Natural Gas		TOTAL MAXIMUM F	IRING RATE (M	AILLION BTU/HR): 32							
DESCRIBE MAINTENANCE PROCEDURES:											
тво											
DESCRIBE ANY AUXILIARY MATERIALS INTRODUCED I	NTO THE CONTROL	SYSTEM:									
N/A											
COMMENTS:											

FORM B SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

EMISSION SQURCE DISCOPTION: EMISSION SQURCE DISCOPTION: EMISSION SQURCE DISCOPTION: EMISSION SQURCE TO NO. E3-MIA-1 through 8 COMMAD DEVICE DISCOPTION: EMISSION SQURCE TO NO. E3-MIA-1 through 8 COMMAD DEVICE DISCOPTION: EMISSION SQURCE TRACESS (ATTACH FLOW DIAGRAM): Dired materials are reduced to the appropriate size needed for prelistation using eight harmermills. TYPE OF EMISSION SQURCE (CHECK AND COMPLETE APPROPRIATE FORM 81-89 ON THE FOLLOWING PAGES): Contracting and intermet (Form B1) Conterprinter size needed for prelistation using eight harmermills. TYPE OF EMISSION SQURCE (CHECK AND COMPLETE APPROPRIATE FORM 81-89 ON THE FOLLOWING PAGES): Contracting and intermet (Form B1) Conterprinter size needed for prelistation using eight harmermills. TYPE OF EMISSION SQURCE (CHECK AND COMPLETE APPROPRIATE FORM 81-89 ON THE FOLLOWING PAGES): Conterprinter size needed for prelistation using eight harmermills. TYPE OF EMISSION SQURCE (CHECK AND COMPLETE APPROPRIATE FORM 81-89 ON THE FOLLOWING PAGES): Conterprinter size needed for prelistation using eight harmermills. START CONSTRUCTION DATE: TB0 DATE MANUFACTURED: TB0 DATE MANUFACTURED: TB0 DATE MANUFACTURED: TB0 DATE MANUFACTURED: TB0 START CONSTRUCTION DATE: TB0 DATE MANUFACTURED: TB0 START CONSTRUCTION DATE: TB0 DATE MANUFACTURED: TB0 START CONSTRUCTION DATE:	REVISED 09/22/16	NCDE	O/Division o	f Air Quality - /	Application fr	or Air Permit (to Construct/()nerate	,	В
Eight (Brannermills Extraction 2007ce (L) / Voice	EMISSION SOURCE DESC	RIPTION:			-ppilotion it				wayyah 0	
OFERATING SCENARIO	Eight (8) Hammermills					CONTROL				
Descence in or FAILTHE EWISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM 91-89 ON THE FOLLOWING PAGES): TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM 91-89 ON THE FOLLOWING PAGES): Coal,word,oil, gas, dire humer (Form B7) Coal,word,oil, gas, dire humer (Form B2) Coal,word,oil, gas, gas, gas, gas, gas, gas, gas, gas	OPERATING SCENARIO	1 OF	1			EMISSION P	OINT (STACK	UD NO(S) E	P-2 through 9	,
Dried materials are reduced to the appropriate size needed for polletization using eight hummermills. Image: transmitted in the appropriate size needed for polletization using eight hummermills. Image: transmitted in the appropriate size needed for polletization using eight hummermills. Image: transmitted in the appropriate size needed for polletization using eight hummermills. Image: transmitted in the appropriate size needed for polletization (form B1) Image: transmitted in the appropriate size needed for polletization (form B2) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed for polletization (form B3) Image: transmitted in the appropriate size needed size needed for polletization (form B4) Image: transmitted in the appropriate size needed size needed size needed sintermitted (form B4) Image: tran	DESCRIBE IN DETAIL THE		CESS (ATTAC		RAM).	LIVIDOION			r-z nabagn s	
TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES); Coal,wood, oil, gas, dither burner (Form B1) Woodworking (Form B4) Indicatation (Form B3) Link combusion angine-generation (Form B3) Storings isolabilities (Form B3) DATE MANUFACTURENT B1 DATE MANUFACTURENT NO. TBD DATE MANUFACTURENT B1 DATE MANUFACTURENT B1 DATE MANUFACTURENT B1 Stinis SOURCE SUBJECT OTO NSPS (SUBPART S7); Impendix (Form B3) Section 112(g) PERCENTAGE ANNUAL THROUGHPUT (%) DEC-FEB 25%, MARMAY 25%, JUNANIX 25%, SEPROV 25%, GRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE PERTICULATE MATTER (MD CONS (PMm)) AIR POLLUTANT EMISSION Section 112(g) PERCENT ACT (AN TERNE (SUBPART S7%, MARMAY 25%, JUNANIX 25%, SEPROV 25%, GRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE (JUNAN) AIR POLLUTANT EMISSIONS (PMm) See Emission Calculations in Appendix C Formacy, Markay, JUNANIX 25%, GRITERIA CONTINUE (JUNAN) PARTICULATE MATTER-IS MURCINAS (PMm) See Emission Calculations in Appendix C Formacy, Markay, JUNANIX 25%, SERONOV 25%, JUNANIX 25%, MARMAY, JUNANIX 25%, SERONOV 25%, JUNANIX 25%, MARMAY, JUNANIX 25%, SERONOV 25%, JUNANIX 25%, MARMAY, JUNANIX 25%, SERONOV 25%, JUN	Dried materials are reduce	d to the appropriate size of	eeded for ne	letization usin	α einht hamr	nermills				
TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): Codi/word.oil.gae.dtmt butner (Form B1) Codi/word.oil.gae.dtmt butner (Form B2) Codi/windliching/form B3) Codi/windliching/form B3 Codi/windliching/form/form B3 Codi/w										
TYPE OF EMISSION SOURCE (CHECK AND COMPLETE APROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): Cal, word, all, gaa, other borner (Form B1) Cal, word, and gaa, other borner (Form B2) Cal, word, and gaa, other B2) Cal, word, and an and and										
□ Coal, wood, eil, gas, other humer (Form B7) □ Woodworking (Form B4) □ Manud, al chemicabicoalignialis (Form B7) □ Int.combustion enginegeneator (Form B2) □ Coalignificating/printing □ Coalignification (Form B3) □ Coalignification (Form B4) □ Coalignification (Form B4)<	TYP	E OF EMISSION SOURCE (CHECK AND	COMPLETE A	PPROPRIATI	FORM B1-B	ON THE FO		GES):	
Int.combustion enginelgenerator (Form B2) Coating/initialing/printing (Form B3) Coating/initialing/pr	Coal wood oil cas othe	r burner (Form B1)	oneontrate	Woodwork	cing (Form B 4	1		of chemicals/c	oatings/inks (F	orm B7)
Liquid stanzge tarks (Form B3) Storage sikos/bits (Form B4) Control Control START CONSTRUCTION DATE: TB0 DATE: MAURACTURED: TB0 DATE: MAURACTURED: TB0 DATE: MAURACTURED: TB0 START SOURCE SUBJECT TO? NSPS (SUBPARTST): INESHAF (SUBPART SUPPART SUPPA	Int combustion engine/or	enerator (Form B2)			aishina/ariatin	7 g (Eorm 85)		tion (Form B8))	cim Dry
ATE CONSTRUCTION DATE: TBD DATE MANUFACTURED: TBD DATE MANUFACTURES CONTROLS / LMRTS) DATE MATER: TB MARCH MATER: TB MARCH MATER: TBM MARCH MARCH MATER: TBM MARCH MARCH MARCH MARCH MARCH MARCH MATER: TBM MARCH MARCH MATER: TBM MARCH MARCH MARCH MARCH MARCH MA	Liquid storage tanks (Fo	m B3)		Storage si	los/bins (Forn	1 B6)	Other (Form B9)	,	
MANUFACTURER / MODEL NO.: TBD EXPECTED OP. SCHEDULE 24. HRUDAY 7 DAYWK 52 WKYR ST HIS SOURCE SUBJECT TG7 NSPS (SUBPARTST): Z NESHAP (SUBPART Subpart E, Section 112(g) PERCENTAGE ANNUAL THROUGHPUT (%). DECFEB 25% MARMAY 25% JUN-AUG 25% SEP-NOV 25% CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EXPECTED ACTUAL PARTICULATE MITTED SOURCE OF EXPECTED ACTUAL PARTICULATE MITTER (PM) PARTICULATE MITTER (PM) See Emission Calculations in Appendix C (Artex controcs / LMT5) SULFUR DIDXNDE (S02) SULFUR DIDXNT SULFUR DIDXNE SULF	START CONSTRUCTION [DATE: TBD			DATE MANU	FACTURED	TBD			
IS THIS SOURCE SUBJECT TO? STHIS SOURCE SUBJECT TO? STHIS SOURCE SUBJECT TO? SPECTOR A REVEAL A REV	MANUEACTURER / MODE				EXPECTED	OP SCHEDU	150 HR/		AV/M/K 52	WKMR
PERCENTAGE ANNUAL THROUGHPUT (%). DEC-FED 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 26% CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE EXPECTED ACTUAL POTENTIAL EMISSIONS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE PARTICULATE MATTER: 0 MICRONS (PMin) See Emission Calculations in Appendix C ATTER (PM) SEE Emission Calculations in Appendix C ATTER CONTROLS / LIMITATIONS ATTER (PM) ATTER (P	IS THIS SOURCE SUBJEC		SUBPARTS	7\·		V NESH		C Subpart B	Section 112(a	
CAREMINES MINISCI ALTR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SURCE OF EXPECTED ACTUAL POTENTIAL EMISSIONS APTROQUATE MATTERY APTROQUATE GOOP APTROQUATE COMPOUNDS (VOC) APTROQUATE COMPOUNDS (VOC) APTROQUATE COMPOUNDS (VOC) APTROQUATE COMPOUNDS (VOC) APTROQUATE ANT EMISSIONS INFORMATION FOR THIS SOURCE APTROQUATE ANT EMISSIONS INFORMATION FOR THIS SOURCE APTROQUATE COMPOUNDS (VOC) APTROQUATE ANT EMISSIONS INFORMATION FOR THIS SOURCE APTROQUATE COMPOUNDS (VOC) APTROQUATE AUTOR AND A APTROPHILITY APTROQUATE COMPOUNDS (VOC) APTROPHILITY	PERCENTAGE ANNUAL T	HROUGHPUT (%): DEC.EE	B 25% MA	R-MAY 25%	IUN-AUG 3	5% SEP.M	N/ 25%	Jupan D,	Section 112(g	
SOURCE OF EMISSION EXPECTED ACTUAL FACTOR POTENTIAL EMISSIONS AIR POLLUTANT EMITTED FACTOR INFORMATION SOURCE/UMPS) (BFORE CONTROLS / LMRTS) (BFORE CONTROLS / LM		CRITERIA AIR P	OLLUTAN	TEMISSION	IS INFORM	ATION FO	OR THIS SC	RCE		
Boundary Control Defection Defection Defection Part Restore and a standards AIR POLLUTANT EMITTED FACTOR Ib/hr tons/yr Ib/h				SOURCE OF	EVPECTO	DACTUAL		POTENTIAL	EMIRCIONE	
AIR POLLUTANT EMITTED Instruct				EMISSION	LAFECTE	DACTURE	INFEROME DOM	FUTENTIAL		
MICHOLO ANT EMATTER (PM) Influe Influe <thinflue< th=""> <thinflue< th=""></thinflue<></thinflue<>				EACTOR	AFTER GUINT	ROLS/LIMITS)	(BEFORE CON	topotur	AFTER CONT	ROLS/LIMITS)
ANTICUCATE MATTER-25 MICRONS (PMr.g) PARTICULATE ORGANIC COMPOUNDS (VOC) PARTICULATE MISSIONS INFORMATION POR THIS SOURCE PARTICULATE MISSIONS INFORMATION FOR THIS SOURCE PARTICULATE MISSION PARTICULATE MISSIONS INFORMATION FOR THIS SOURCE / IMPR.g) PARTICULATE MISSIONS INFORMATION FOR THIS SOURCE PARTICULATE PARTICULATIONS INFORMATION FOR THIS SOURCE PARTICULATIONS PARTICULATION FOR THIS SOURCE FOR THIS SOURCE FOR THIS PARTICULATIONS PARTICULATION FOR THIS PARTICULATION FOR THIS PARTICULATIONS PARTICULATION FOR TH	PARTICULATE MATTER	2 DKA)		PACIOR See Emission	Calculation	c in Appondix		tons/yr	JO/TE	tonstyr
NUMBER Control Control <thcontrol< th=""> <thcontrol< th=""> <thco< td=""><td>PARTICULATE MATTER</td><td></td><td></td><td>See chiissio</td><td>Calculation</td><td>s in Appendix</td><td></td><td></td><td></td><td></td></thco<></thcontrol<></thcontrol<>	PARTICULATE MATTER			See chiissio	Calculation	s in Appendix				
TOXICOUNCE INTERCED INTERCED INTERCED ACREDIN MONOXIDE (CO) CARBON MONOXIDE (CO) CAR	PARTICULATE MATTER				-		-			
Out Of ONCOUNCY Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. CARBON MONOXIDES (NOC) Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. CARBON MONOXIDES (NOC) Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. CARBON MONOXIDES (NOC) Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. CARBON MONOXIDES (North Constraints of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. CARBON MONOXIDES (North Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image. Image: Constraint of the second state and federal enforcestic partial image: Constraint of the second state and federal enforcestic partial image. <td>SULEUR DIOXIDE (SO2)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td><u> </u></td> <td></td>	SULEUR DIOXIDE (SO2)								<u> </u>	
ARBON MONOXIDE (CO) VOLATILE ORGANIC COMPOUNDS (VOC) EAD JTHER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE EMISSION EMISSION CAS NO. FACTOR Ib/rr tons/yr lb/hr tons/yr lb/hr tons/yr lb/hr tons/yr See Emission Calculations in Appendix C CAS NO. FACTOR ID CAS INFORMATION FOR THIS SOURCE CAS NO. FACTOR Ib/rr tons/yr lb/hr tons/yr	NITROGEN OXIDES (NOV)								+	
OVECTIVE ORGANIC COMPOUNDS (VOC) EAD JTHER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE EVISSION HAZARDOUS AIR POLLUTANT CAS NO. FACTOR See Emission Calculations in Appendix C TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE TOXIC AIR POLLUTANT CAS NO. FACTOR OF EMISSION TOXIC AIR POLLUTANT CAS NO. FACTOR OF EMISSION TOXIC AIR POLLUTANT CAS NO. FACTOR DI	CARBON MONOVIDE (CO)				-				<u> </u>	
AZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE HAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT HAZARDOUS AIR POLLUTANT CAS NO. FACTOR TOXIC AIR POLLUTANT CAS NO. FACTOR CA	VOLATILE ORGANIC COM									
INTER HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE SOURCE OF EMISSION SOURCE OF EMISSION OTENTIAL EMISSIONS HAZARDOUS AIR POLLUTANT CAS NO. FACTOR EMISSION (AFTER CONTROLS / LMITS) (AFTER CONTROLS / LMITS) HAZARDOUS AIR POLLUTANT CAS NO. FACTOR Ib/hr tons/yr Ib/hr tons/yr Ib/hr tons/yr HAZARDOUS AIR POLLUTANT CAS NO. FACTOR I <td< td=""><td>FAD</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	FAD									
HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SQURCE BOURCE OF EMISSION EXPECTED ACTUAL POTENTIAL EMISSIONS HAZARDOUS AIR POLLUTANT CAS NO. FACTOR Ib/hr tons/yr Ib/hr Ib/	THER				0			-	<u>+</u>	
KAZARDOUS AIR POLLUTANT SOURCE OF EMISSION EXPECTED ACTUAL POTENTIAL EMISSIONS HAZARDOUS AIR POLLUTANT CAS NO. FACTOR Ib/hr tons/yr Ib/hr		HAZARDOUS AIR	POLLUTA	NT EMISSK	ONS INFOI	RMATION	OR THIS S	OURCE		
Link Excession Excession<			1	SOURCE OF	EXPECTE	D ACTUAL		POTENTIAL	EMISSIONS	
HAZARDOUS AIR POLLUTANY CAS NO. FACTOR Ib/hr Ions/yr Ib/hr Ions/yr Ib/hr Ions/yr See Emission Calculations in Appendix C I				EMISSION	(AFTER CONTROLS / LIMITS)		(BEFORE CONTROLS / LIMITS)			
Open of the instruction of the instruct	HAZARDOUS AIR POLLUT	ΆΝΥ	CASNO	FACTOR	lh/hr	tons/ar	lb/br	tonshr	lb/hr	tonstvr
Image: Construction of the problem				See Emission	Calculation	s in Appendix	r C	Lonor Ji		(chidi ji
Image: State of the state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe						1				
Image: Section of the section of th							1			-
TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EMISSION FACTOR B/hr Ib/hr									1	<u> </u>
TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE TOXIC AIR POLLUTANT OF EMISSION FACTOR EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS See Emission Calculations in Appendix C Image: Control of the second se				1			1			1
TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS TOXIC AIR POLLUTANT OF EMISSION EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS See Emission Calculations in Appendix C Ib/hr Ib/day OF Emission Calculations in Appendix C OF Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe			1							
TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS TOXIC AIR POLLUTANT CAS NO. FACTOR EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS See Emission Calculations in Appendix C See Emission Calculations in Appendix C See Emission Calculations in Appendix C Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe			1							
TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE OF EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS TOXIC AIR POLLUTANT CAS NO. FACTOR EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS See Emission Calculations in Appendix C Ib/hr Ib/day Ib/yr See Emission Calculations in Appendix C Image: Control of the second										
OF EMISSION FACTOR EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS TOXIC AIR POLLUTANT CAS NO. FACTOR Ib/hr Ib/hr Ib/day Ib/yr See Emission Calculations in Appendix C Image: Calculation of the second of the sec	있는 이스백 관망	TOXIC AIR PO	LLUTANT	EMISSIONS	INFORMA	TION FOR	THIS SOU	RCE		同時間に対
TOXIC AIR POLLUTANT CAS NO. FACTOR Ib/hr Ib/day Ib/yr Image: Solution of the second se			1	OF	EVDE					
TOXIC AIR POLLUTANT CAS NO. FACTOR Ib/hr Ib/day Ib/yr Image: See Emission Calculations in Appendix C				EMISSION	EAPE	JIEU ACTUA	LEMISSIONS	AFTERCONT	ROLS / LIMIT /	ATIONS
See Emission Calculations in Appendix C Image: Constraint of the second secon	TOXIC AIR POLLUTANT		CAS NO.	FACTOR	lb	/br	lb/	day	lb	/yr
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe				See Emission	1 Calculation	s in Appendix	c C			
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe										
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe										
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe										
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe										
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe										
Attachments: (1) emissions calculations and supporting documentation; (2) indicate all requested state and federal enforceable permit limits (o.g. hours of operation, emission rates) and describe										
	Attachments: (1) emissions calc	ulations and supporting documer	nlation; (2) indic:	ate all requested s	state and federa	l enforceable pe	rmit limits (o.g. h	ours of operation	i, emission rates) and describe

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

FORM B9 EMISSION SOURCE (OTHER)

REVISED 09/22/16 NCDEQ/Division of Air Quality -	Application fo	or Air Permit to Construct/Ope	rate	B9				
EMISSION SOURCE DESCRIPTION:		EMISSION SOURCE ID NO: ES-HM-1 through B						
Eigni (8) Hammermills		CONTROL DEVICE ID NO(S): CD-HM-BH-1 through 8						
OPERATING SCENARIO:1 OF1	_	EMISSION POINT (STACK) ID NO(S): EP-2 through 9						
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):							
Dried materials are reduced to the appropriate size needed for p	elletization us	ing eight hammermills.						
MATERIALS ENTERING PROCESS - CONTINUOUS PRO	CESS	MAX. DESIGN	REQUESTED	CAPACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)				
Dried Wood	ODT	68						
MATERIALS ENTERING PROCESS - BATCH OPERAT	ION	MAX. DESIGN	REQUESTED	CAPACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (UI	NIT/BATCH)				
MAXIMUM DESIGN (BATCHES / HOUR):								
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/Y	R):						
FUEL USED: N/A	TOTAL MAX	MUM FIRING RATE (MILLION E	TU/HR): N/A					
MAX. CAPACITY HOURLY FUEL USE: N/A	REQUESTED	CAPACITY ANNUAL FUEL US	E: N/A					
COMMENTS:								

FORM C1 CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 NCDEQ/Dir	vision of Air Quality	Application	on for .	Air Permit to (Constru	ct/Operat	e		C'
CONTROL DEVICE ID NO: CD-HM-BH-1 through 8 CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HM-1 through 8									
EMISSION POINT (STACK) ID NO(S): EP-2 through 9	POSITION IN SEF	RES OF CO	ONTRO	DLS		NO	. 1 OF	1 UN	ITS
OPERATING SCENARIO:									
1OF1		P.E. SEA	l req	UIRED (PER 2	q .0112)? 🔽	YES		NO
Eight (8) baghouses are utilized for emission contro	ol on the eight dry ha	ummermiti	cyclar	ics. There are	: 8 iden	lical dry l	nammermill b	aghouse	slacks.
POLLUTANTS COLLECTED:		РМ	_	PM ₁₀		PM _{2.5}			
BEFORE CONTROL EMISSION RATE (LE/HR):			_	A 	-				
CAPTURE EFFICIENCY:			- 56		%		%	%	
CONTROL DEVICE EFFICIENCY;		~99.9	%	~99.9	%	~99.9	%	%	
CORRESPONDING OVERALL EFFICIENCY:			%		%		_%	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
EFFICIENCY DETERMINATION CODE:			-						
TOTAL AFTER CONTROL EMISSION RATE (LB/HR)		See calcu	lation	s in Appendix	c				
PRESSURE DROP (IN H ₂ 0): MIN: MAX:TBD	GAUGE?	YES							
BULK PARTICLE DENSITY (LB/FT*): TBD INLET TEMPERATURE (*F): TBD									
	V GRAFT	OUTLET	TEMP:	ERATURE ("F)	TED				
INLET AIR FLOW RATE (ACFM): 15,000 each		FILTER L	PERA	TING TEMP (E): N/A		C (1) 1 TOD		
NO. OF COMPARTMENTS: TBD NO. OF BAGS		NI: IBU			DIANE	TED OF			
	ALE AREA PER CAL		FT-p	160	DIAME	TERUE	BAG (IN.): TBI		
		ALLO, THE			COLAL.	<u> </u>	WOVEN	[] ==	
	FURCEDIPUSIT	/E		FILTER MA	ERIAL.	CLACO1			
	CONIE					FAR	NULL GALL DI		
	SUNIC	LADÓE						70	
	SIMPLE BAG COI				(9110	RONAJ	UP TO IA		70
	RING BAG COLL	APSE			-	0-1		Unknov	vn
LI OTHER: DESCRIBE INCOMING AIR STREAM				-		0.05	P		
The air stream contains wood dust particles. Large	r particles are remo	ved by the	upstre	am cyclone		0-20			
for product recovery.						-3-30 1.100			_
						100			
					<u> </u>	100			100
								<u> </u>	
ON A GEDADATE DAGE, ATTAOU & DIAODANA OLG		NELIDIOS				TE EUR			
COMMENTS:						- en ser he rodis			

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16	NC	DEQ/Division	of Air Quality - /	Application I	or Air Permit to	Construct/O	perate		В
EMISSION SOURCE DESCR	RIPTION:				EMISSION SOURCE ID NO: ES-CLR1 through 6				
Pellet Coolers					CONTROL D	EVICE ID NO	S): CD-CLR-1	through 6 (or 4	CD-WSB), CD-
					RCO				
OPERATING SCENARIO	OF	_1			EMISSION P	OINT (STACK)	ID NO(S): EP	-10	
DESCRIBE IN DETAILTHE I	EMISSION SOURCE PROC	ESS (ATTACH	FLOW DIAGRA	AM):					
Six (6) Pellet Coolers follow	the pellet presses to coo	I the newly for	med pellets do	wn to an acc	eptable storag	e temperature	a .		
TY	PE OF EMISSION SOURCE	CHECK AND	COMPLETE A	PPROPRIAT	E FORM B1-B9	ON THE FOL	LOWING PAGE	S):	
Coal, wood, oil, gas, other	burner (Form B1)		Woodwork	ting (Form B4	-)	Manuf.	of chemicals/co	atings/inks (Fo	rm B7)
L Int.combustion engine/ge	nerator (Form B2)		Coating/fin	nishing/printin	g (Form B5)	Incinera	ition (Form B8)		
Liquid storage tanks (For	m B3)		Storage sit	los/bins (Forr	n B6)	Jother (i	Form B9)		
START CONSTRUCTION DA	ATE: TBD			DATE MANU	JFACTURED: 1	rbd			
MANUFACTURER / MODEL	NO.: TBD			EXPECTED	OP. SCHEDUL	E: _24 HR/D	DAY _7_ DA	Y/WK _52	NKAR
IS THIS SOURCE SUBJECT	TO?	S (SUBPARTS)	?):		NESH	AP (SUBPART	Subpart B,	Section 112(g)	
PERCENTAGE ANNUAL TH	ROUGHPUT (%): DEC-FEE	3 25% MAR	-MAY 25% JI	UN-AUG 25	% SEP-NOV	25%			
	CRITERIA AIR	POLLUTAN	T EMISSION	IS INFORI	NATION FO	R THIS SO	URCE		
			SOURCE OF	EXPECT	CTED ACTUAL POTENTIAL EMISSION CONTROLS (LIMITS) (REFORE CONTROLS (LIMITS) (AFTER C				
			EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTI	ROLS / LIMITS)
AIR POLLUTANT EMITTED			FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
PARTICULATE MATTER (PI	M)		See Emission	Calculation	s in Appendix	<u>c</u>			
PARTICULATE MATTER<10	MICRONS (PM ₁₀)								
PARTICULATE MATTER<2.	5 MICRONS (PM _{2.5})				1				
SULFUR DIOXIDE (SO2)					ļ	ļ			
NITROGEN OXIDES (NOx)					·				
CARBON MONOXIDE (CO)									
VOLATILE ORGANIC COMP	OUNDS (VOC)								
EAD					4		ļ		
JTHER								J	
	HAZARDOUS AI	POLLUIA	NI EMISSI	MS INFO	RMA IION F	OR THIS S	OURCE		
			SOURCE OF EXPE		EXPECTED ACTUAL		POTENTIAL	EMISSIONS	
			EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTI	ROLS / LIMITS)
HAZARDOUS AIR POLLUTA	ANT	CAS NO.	FACTOR	ib/hr	tons/yr	Ib/hr	tans/yr	lb/hr	tons/yr
			See Emission	Calculation	s in Appendix	<u>c</u>			
						l			
						<u> </u>			
					-				
A	TOYIC ARD D	VILLITANT	EMICRICHIC	IANG ADAL	TION FOR	THE ONIN	905		
*	TOAR ART	JELOIANI	LINISSICIUS		4110H FQR	11110 3001	TOE	A DECEMBER OF A	
			SOURCE OF	EXP	ECTED ACTUA	L EMISSIONS	AFTER CONTI	ROLS / LIMITA	TIONS
TOXIC AIR POLLUTANT		CAS NO.	FACTOR		b/hr	lh	(dav	Ib.	(v r
			See Emission	Calculation	s in Appendix :	C			
			1			Ī			
			1 1					i	
		-							
Attachments: (1) emissions calcu	lations and supporting documer	tation: (2) indica	le all requested st	ate and federal	enforceable perm	nit limits (e.a. hou	urs of operation, e	mission rales) ar	nd describe how
these are monitored and with what	at frequency; and (3) describe a	ny monitoring de	vices, gauges, or t	est ports for thi	s source.			,	

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

FORM B9 EMISSION SOURCE (OTHER)

REVISED 09/22/16 NCDEQ/Division of Air Quality	Application f	or Air Permit to Construct/Ope	rate	B9				
EMISSION SOURCE DESCRIPTION:		EMISSION SOURCE ID NO: ES-CLR1 through 6						
r ellet oodiels		CONTROL DEVICE ID NO(S): WSB), CD-RCO	CD-CLR-1 through	6 (or CD-				
OPERATING SCENARIO:1 OF1		EMISSION POINT (STACK) ID	NO(S): EP-10					
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM	1):		• •					
Six (6) Pellet Coolers follow the pellet presses to cool the newly	formed pelle	ts down to an acceptable stora	ige temperature.					
MATERIALS ENTERING PROCESS - CONTINUOUS PRO	CESS	MAX. DESIGN	REQUESTED	CAPACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/HR)	LIMITATION(U	JNIT/HR)				
Dried Wood	ODT	80						
MATERIALS ENTERING PROCESS - BATCH OPERAT	ION	MAX. DESIGN	REQUESTED	CAPACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (UN	IT/BATCH)				
MAXIMI IM DESIGN (BATCHES / HOUR)	1							
REQUESTED LIMITATION (BATCHES / HOUR)	BATCHESA	(R):						
	TOTAL MAX							
MAX. CAPACITY HOURLY FUEL USE: N/A	REQUESTE	D CAPACITY ANNUAL FUEL US	F: N/A					
COMMENTS:								
0.01								
FORM C8								

CONTROL DEVICE (WET PARTICULATE SCRUBBER)								

REVISED 09/22/16 NCDE	Q/Division of A	ir Quality -	Applicatio	on for A	vir Perr	nit to	Constr	uct/O	perate		C8
CONTROL DEVICE ID NO: CD-WSB	CONTROLS E	MISSIONS	FROM WH	HICH E	MISSIC	ON SC	URCE	ID NO	D(S): ES-CLI	R1 through	6
EMISSION POINT ID NO(S): EP-10	POSITION IN	SERIES OI	F CONTRO	LS:	NO.	1	OF	2	UNITS		
OPERATING SCENARIO:											
1OF2		P.E. SEAL	NEEDED	(PER 2	2Q .011	2)?	🗹 YE	S		NO	
DESCRIBE CONTROL SYSTEM: Control system for PM is to be determined. O the pellet cooler exhaust may be controlled b	ne scrubber ma y six (6) individ	ny be used ual baghou	to capture uses. The e	bulk P exhaus	'Memi tgasv	ssion vili th	s from en be p	six (6 assec	i) pellet coo 1 to CD-RCC	lers. Alterna D.	atively,
POLLUTANT(S) COLLECTED:			PM			PM10			PM _{2.5}		
BÉFORE CONTROL EMISSION RATE (LB/HR)	:	-								-	
CAPTURE EFFICIENCY:		3. 		%			%			%	
CONTROL DEVICE EFFICIENCY:		-		95 %			95 %		95	%	
CORRESPONDING OVERALL EFFICIENCY:		-		%			%			%	
EFFICIENCY DETERMINATION CODE:										• •	
TOTAL AFTER CONTROL EMISSION RATE (L	B/HR):	-	See calcula	ations	In App	endix	С				
PRESSURE DROP (IN. H ₂ 0): <u>TBD</u> MIN	TBD_MAX										
INLET TEMPERATURE (°F): TBD MIN	MAX	OUTLET T	EMPERAT	URE (°	۲ F	TBD	MIN		TBD_MAX		
INLET AIR FLOW RATE (ACFM): TBD		MOISTUR	E CONTEN	NT : INL	.ET	TBD	%	OL	JTLET <u>TB</u>	<u>D</u> %	
THROAT VELOCITY (FT/SEC): TBD		THROAT	TYPE:			ED	[] v/	ARIABLE		
TYPE OF SYSTEM TBD		TYPE OF	PACKING	USED	F ANY	:					
ADDITIVE LIQUID SCRUBBING MEDIUM: TBD		PERCENT	RECIRCU	LATED	: TBD						
MINIMUM LIQUID INJECTION RATE (GAL/MIN): TBD										
MAKE UP RATE (GAL/MIN): TBD FC	OR ADDITIVE (G	al/Min): Ti	BD								
DESCRIBE MAINTENANCE PROCEDURES:							PART	ICLE	SIZE DIGTR	IBUTION	
					(SI2 MICR	ZE ONS1	V	VEIGHT %	CUMUL	ATIVE
					È	0-	.1	+			
DESCRIBE ANY MONITORING DEVICES, GAU	JGES, TEST PO	RTS, ETC:			-	1-1	10				
						10-	25				-
						25-	50				
						50-	100	_			
					-	>1	00		DTAL - 100		
ATTACH A DIAGRAM OF THE RELATIONSHIF	OF THE CONT	ROL DEVIC	E TO ITS I	EMISSI	ION SC	DURC	E(S):				
COMMENTS:											

REVISED 09/22/16 NCDE	Q/Division of Alr Quality	Applicatio	n for A	Air Permit to	Constru	ict/Opera	te	
CONTROL DEVICE ID NO: CD-CLR-1 through	h 6 CONTROLS EMIS	SIONS FR	OM WI	HICH EMISS	SION SOL	IRCE ID I	NO(S): ES-CLR	t-1 through 6
EMISSION POINT (STACK) ID NO(S): EP-10	POSITION IN SEF	RIES OF CO	NTRO	LS		NO.	1 OF	2 UNITS
OPERATING SCENAR	10:							
2OF2		P.E. SEAL REQUIRED (PER 2q.0112)? VES NO						
DESCRIBE CONTROL SYSTEM: Control system for PM is to be determined. S cooler would vent to one dedicated baghous The exhaust gas will then be passed to CD-R	Six (6) identical baghouse e in this scenario. Altern CO.	s may be u atively, the	sed to comb	capture bu ined pellet r	lk PM em cooler ex	issions f haust ma	irom six (6) pell sy be controlled	et coolers. Each I by one scrubber
POLLUTANTS COLLECTED:		РМ	_	PM ₁₀	PI	M _{2,5}		
BEFORE CONTROL EMISSION RATE (LB/HR);		-					_
CAPTURE EFFICIENCY:			%		%		%	%
CONTROL DEVICE EFFICIENCY:		~99.9	%	~99.9	%	-99.9	%	%
CORRESPONDING OVERALL EFFICIENCY:			-%		%		%	<u> </u>
EFFICIENCY DETERMINATION CODE:			_					
TOTAL AFTER CONTROL EMISSION RATE (I	_B/HR):	See calcu	lation	s in Append	lix C			
PRESSURE DROP (IN H ₂ 0): MIN: MAX:	TBD GAUGE?	YES		NO NO				
BULK PARTICLE DENSITY (LB/FT ³): TBD		INLET TE	MPER	ATURE (°F)	: TBD			
POLLUTANT LOADING RATE: 0.004 🛄 LB/		OUTLET	TEMPE	ERATURE (°F) TBD			
INLET AIR FLOW RATE (ACFM): 15,000 per b	aghouse	FILTER C	PERA	TING TEMP	(°F): TB	D		
NO, OF COMPARTMENTS: TBD NO. O	F BAGS PER COMPARTM	ENT: TBD			LENGTH	I OF BAG	G (IN.): TBD	
NO. OF CARTRIDGES: TBD FILTER	R SURFACE AREA PER C	ARTRIDGE	(FT ²):	TBD	DIAMET	ER OF B	AG (IN.): TBD	
TOTAL FILTER SURFACE AREA (FT2): TBD	AIR TO CLOTH F	ATIO: TBD						
DRAFT TYPE: INDUCED/NEGATIVE	FORCED/POSITI	VE		FILTER M	ATERIAL	: []	WOVEN L	FELTED
DESCRIBE CLEANING PROCEDURES						PART	ICLE SIZE DIST	RIBUTION
AIR PULSE	SONIC				SI	ZE	WEIGHT %	CUMULATIN
REVERSE FLOW	SIMPLE BAG CO	LLAPSE			(MICF	RONS)	OF TOTAL	%
MECHANICAL/SHAKER	RING BAG COLL	APSE			0	-1	U	nknown
OTHER:					1-	10		
DESCRIBE INCOMING AIR STREAM:	miccione from the collect	coolare wi	ll be d	untert to the	10	-25		
RCO.	anissions from the pener	COOLETS WI	ii be ui		25	-50		
					50-	100		
					>1	00		
							то	TAL = 100
ON A SEPARATE PAGE ATTACH A DIAGRA	M SHOWING THE RELAT	IONSHIP O	FTHE	CONTROL	DEVICE :		MISSION SOUF	RCE(S):
COMMENTS:		. Shorin U		Southor				///-

FORM C3 CONTROL DEVICE (THERMAL OR CATALYTIC)

REVISED 09/22/16 NCDEQ/D	vision of Air Qua	ality - Application fo	r Air Permit to Cor	struct/Operate		C3
AS REQUIRED BY 15A NCAC 2Q .0112, THIS F	ORM MUST DE S	EALED BY A PROP	ESSIONAL ENGINE	ER (P.E.) LICENSED I	N NORTH CA	ROLINA.
CONTROL DEVICE ID NO: CD-RCO (new)	CONTROLS	EMISSIONS FROM	WHICH EMISSION	SOURCE ID NO(S): ES	S-CLR-1 throu	igh 6
EMISSION POINT (STACK) ID NO(S): EP-10 (new)	POSITION IN	N SERIES OF CONT	ROLS	NO. 2	_OF2	UNITS
MANUFACTURER: Lundberg	М	ODEL NO: TBD				
OPERATING SCEMARIO:	·					
1OF1						
TYPE AFTERBURNER REGENERATIVE	THERMAL OXIDA		UPERATIVE THEF	MAL OXIDATION	CATALY	TIC OXIDATION
EXPECTED LIFE OF CATALYST (YRS): TBD	METHOD OF	DETECTING WHE	N CATALYST NEED	S REPLACMENT: TB	,	
CATALYST MASKING AGENT IN AIR STREAM	HALOGEN	SILICONE	PHOSP	HOROUS COMPOUND		HEAVY METAL
SUL	FUR COMPOUND		ER (SPECIFY) TB	D		NONE
TYPE OF CATALYST: TBD CATALYST	r vol (FT ^s): TBD	VELOC	CITY THROUGH CA	TALYST (FPS): TBD		
SCFM THROUGH CATALYST: TBD						
DESCRIBE CONTROL SYSTEM, INCLUDING RELATION 1	O OTHER CONTR	ROL DEVICES AND	SOURCES, AND A	TTACH DIAGRAM OF \$	SYSTEM:	
Emissions leaving the six (6) baghouses (or wet scrubb	er) will enter the F	RCO (with thermal r	node backup) prior	to being emitted to th	ne atmospher	8.
				-		
POLLUTANT(S) COLLECTED:	VOC					
BEFORE CONTROL EMISSION RATE (LB/HR):		<u> </u>				
CAPTURE EFFICIENCY;		%	%	%	-	%
CONTROL DEVICE EFFICIENCY:	95	%	%	%	-	%
CORRESPONDING OVERALL EFFICIENCY:		%	%	%		<u>%</u>
EFFICIENCY DETERMINATION CODE:						
TOTAL AFTER CONTROL EMISSION RATE (LB/HR) :	See calculat	ions in Appendix C			5	
PRESSURE DROP (IN, H2O): MIN MAX TE	3D	OUTLET TEMP	ERATURE (°F):	TBD_MIN	TBD	MAX
INLET TEMPERATURE (°F); MIN MAX TE	3D	RESIDENCE T	ME (SECONDS): TI	3D		
INLET AIR FLOW RATE (ACFM): TBD (SCFM): TI	3D	COMBUSTION	TEMPERATURE (°I	=): TBD		
COMBUSTION CHAMBER VOLUME (FT ³): TBD		INLET MOISTU	RE CONTENT (%):	TBD		
% EXCESS AIR: TBD	_	CONCENTRAT	ION (ppmv)	TBD_INLET	TBD	OUTLET
AUXILIARY FUEL USED: Natural Gas		TOTAL MAXIM	JM FIRING RATE (I	MILLION BTU/HR): 32		
DESCRIBE MAINTENANCE PROCEDURES:						
TBD						
DESCRIBE ANY AUXILIARY MATERIALS INTRODUCED IN	TO THE CONTRO	DL SYSTEM:				
N/A						
COMMENTS:						

FORM B SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16	N	ICDEQ/Division o	f Air Quality - J	Application f	or Air Permit (to Construct/	Operate		В
EMISSION SOURCE DESC	RIPTION:				EMISSION S	OURCE ID N	D: ES-HMC (n	iew)	-
Hammermill Collection Co	nveyor				CONTROL	EVICE ID NO	(S): CD-HMC-	-BH (new)	
OPERATING SCENARIO	1(DF 1			EMISSION P	OINT (STACK	OID NO(S): E	P-11 (new)	
DESCRIBE IN DETAILTHE Conveying system for ma	EMISSION SOURCE F terial from the dry ham	PROCESS (ATTAC imermills.	CH FLOW DIAG	RAM):			,		
TYP	E OF EMISSION SOUR	CE (CHECK AND	COMPLETE A	PPROPRIAT	E FORM B1-B	9 ON THE FO	LLOWING PA	GES):	
Coal,wood,oil, gas, othe	r burner (Form B1)	,	Woodword	king (Form B4	1)	Manuf,	of chemicals/c	oatings/inks (F	form B7)
Int.combustion engine/g	enerator (Form B2)		Coating/fi	nishina/printin	g (Form B5)		ation (Form B8)	1	
Liquid storage tanks (Fo	rm B3)		Storage si	ilos/bins (Forn	n B6)	Other (Form B9)	r	
START CONSTRUCTION I	DATE: TBD			DATE MANU	FACTURED:	TBD			
MANUFACTURER / MODE	L NO.: TBD			EXPECTED	OP. SCHEDU	LE: 24 HR	DAY 7 D	AY/WK 52	WK/YR
IS THIS SOURCE SUBJEC		SPS (SUBPARTS	(?):		D NESH	AP (SUBPAR	TS?):		
PERCENTAGE ANNUAL T	HROUGHPUT (%): DE	C-FEB 25% MA	R-MAY 25%	JUN-AUG	25% SEP-NO	OV 25%			-
	CRITERIA AI	R POLLUTAN	T EMISSION	S INFORM	MATION FC	R THIS SC	URCE	2000	915 25
			SOURCEOE	EXPECTE	DACTUAL	T	POTENTIAL	EMISSIONS	
			EMISSION		DOLO (LIMITO)	(REFORE CON			
AIR POLI LITANT EMITTER	,		EACTOR	(AFTER CONT	tons/ur	(BEFURE CON	tons/umits)	(AFTER CONT	ROLS/LIMITS)
PARTICULATE MATTER /	264\		PACTOR ISon Emission	Coloulation	in Appendix		toris/yi		torisiyi
PARTICULATE MATTER			Jaee Emission		Is in Appendo	<u> </u>			<u>+</u>
PARTICULATE MATTER							<u> </u>	<u> </u>	<u> </u>
						<u> </u>			<u>+</u>
NITROCEN OVIDES (NOV)							<u> </u>		
CARRON MONOVIDE (00)						<u> </u>			
VOLATILE OBCANIC COM									
LEAD	POUNDS (VOC)					ł			
JEAD JEAD						+			
	HATABOOUS		AT ENICON	ONE INCOL	DALATION (OUDOF	-	CONTRACTOR OF
	nacano003/	HIN FOLLOIA	AVI EMISSR	JINS INFO		UK IMa a	BUURCE		and the second second
			SOURCE OF	EXPECTE	DAGIUAL		POTENTIAL	EMISSIONS	
	TANT.	040.00	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	AFTER CONTI	ROLS/LIMITS)
HAZARDOUS AIR POLLU		CAS NO.	FACTUR	id/nr	tons/yr	ib/nr	tons/yr	lib/n/	tons/yr
		-							
									<u> </u>
	YOMO AIR	DOLLUZANZ	FILICOLONI	ALEO DIA	TION FOR	THE COL	1005		
	IUXIC AIR	POLLUTANI	EMISSIONS	INFORMA	ATIONFOR	THIS SOL	IRGE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
			OF EMISSION	EXPE	CTED ACTUAI	LEMISSIONS	AFTER CONT	ROLS / LIMITA	
TOXIC AIR POLLUTANT		CAS NO.	FACTOR	lt)/hr	lb.	/day	lb	/yr
N/A									
					_				
Attachments: (1) emissions calc how these are monitored and wi	ulations and supporting doo th what frequency; and (3) o	umentation; (2) indica lescribe any monitori	ate all requested ang devices, gauge	state and federa es, or test ports	I enforceable pe for this source.	nmit limits (e.g.)	ours of operation	i, emission rates) and describe

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

FORM B9 EMISSION SOURCE (OTHER)

REVISED 09/22/16 NCDEQ/Division of Air Quality -	Application f	or Air Permit to Construct/Ope	erate	B9				
EMISSION SOURCE DESCRIPTION:		EMISSION SOURCE ID NO: E	S-HMC (new)					
Hammermill Collection Conveyor		CONTROL DEVICE ID NO(S):	CD-HMC-BH (new)				
OPERATING SCENARIO:1 OF1		EMISSION POINT (STACK) ID NO(S): EP-11 (new)						
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAI	M):							
Dust from the dry hammermill collection conveyor is vented to	a baghouse ((CD-HMC-BH1) to control parti	cluate matter emis	sions.				
MATERIALS ENTERING PROCESS - CONTINUOUS PRO	CESS	MAX. DESIGN	REQUESTED	CAPACITY				
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)				
Dried Wood	ODT	68						
N								
MATERIALS ENTERING PROCESS - BATCH OPERAT	ION	MAX. DESIGN	REQUESTED	CAPACITY				
ТҮРЕ	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (U	NIT/BATCH)				
			,,					
	1							
	1							
MAXIMUM DESIGN (BATCHES / HOUR):	1							
REQUESTED LIMITATION (BATCHES / HOUR)		(8):						
	TOTAL MAY							
MAX_CAPACITY HOURLY FUEL USE: N/A								
	Incaolorei							

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate C1											
CONTROL DEVICE ID NO: CD-HMC-BH (new	N)	CONTROLS EMIS	SIONS FR	омw	HICH EMISS	SION SOU	RCE ID	NO(S):	ES-HMC	(new)	
EMISSION POINT (STACK) ID NO(S): EP-11	(new)	POSITION IN SEP	RIES OF CO	ONTRO	DLS		NO.	1 (DF 1	UNITS	
OPERATING SCENA	RIO:										
1OF1	_		P.E. SEA	L REQ	UIRED (PER	R 2g .0112)	? 🔽	YES		NO	
DESCRIBE CONTROL SYSTEM: This baghouse controls particulate from the	dry ha	mmermill conveyin	g system.								
POLLUTANTS COLLECTED:			РМ	_	PM ₁₀	PM	2.5			_	
BEFORE CONTROL EMISSION RATE (LB/HF	R):			-						_	
CAPTURE EFFICIENCY:				_%		_%		%		_%	
CONTROL DEVICE EFFICIENCY:			~99.9	-%	~99.9	%	-99.9	%		_%	
CORRESPONDING OVERALL EFFICIENCY:				%		- %		%		_%	
EFFICIENCY DETERMINATION CODE:				-						-	
TOTAL AFTER CONTROL EMISSION RATE (LB/HR):		See calcu	lation	s in Append	lix C					
PRESSURE DROP (IN H ₂ 0): MIN: MAX	: TBD	GAUGE?	YES								
BULK PARTICLE DENSITY (LB/FT*): TBD			INLET TE	MPER	ATURE ("F)	: TBD	_	_			_
POLLUTANT LOADING RATE: 0.004	HR	GR/FT-	OUTLET	TEMPI	ERATURE (F) TBD					
INLET AIR FLOW RATE (ACFM): 1,500			FILTER O	PERA	TING TEMP	(°F): N/A					
NO. OF COMPARTMENTS: TBD NO. C	F BAGS	S PER COMPARTM	ENT: TBD			LENGTH	OF BAG	G (IN.): T	80		
	R SURF	ALE AREA PER G	ARTRIDGE	(FT):	TBD	DIAMETE	ROFE	AG (IN.)			
TOTAL FILTER SURFACE AREA (FT): TBD		AIR TO CLUTH R	ATIO: TBD				()				
	:	FORCED/POSITIN	/E		FILTERM	ATERIAL:	Dema	WOVE		FELIED	-
DESCRIBE CLEANING PROCEDURES		1000 C 1000				<u> </u>	PARI	RULE SH	CE DISTIN	NOTION	
		SUNIC	14005			\$IZ	E		GHT %		ATIVE
		SIMPLE BAG COL	LAPSE			(MICRO	JNS)		TOTAL	<u>%</u>	
		RING BAG COLLA	PSE			0-1			Unk	T	
DESCRIBE INCOMING AIR STREAM:						1-1					
The air stream contains wood dust particule	5.					25.5	.u .n				
						50-1	00				
						>10	0				
							*		TOTA	L = 100	
								_	1017	- 100	
ON A SEPARATE PAGE, ATTACH A DIAGRA	M SHO	WING THE RELATI		FTHE	CONTROL		DITSE	MISSIO	N SOURC	E(S):	
COMMENTS:											

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDI	/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate								
EMISSION SOURCE DESCRIPTION:	EMISSION SOURCE ID NO: ES-PMFS								
Pellet Mill Feed Silo				CONTROL D					
OPERATING SCENARIO 1 OF	1			EMISSION P	OINT (STACK) ID NO(S): E	P-12		
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO A pellet press silo stores dried ground wood prior to	CESS (ATTAC a transport to	H FLOW DIAG	RAM): ses.		, , , , , , , , , , , , , , , , , , ,	, ,			
TYPE OF EMISSION SOURCE	CHECK AND	COMPLETE A	PPROPRIAT	E FORM B1-B	9 ON THE FO	LLOWING PA	GES}:		
Coal,wood,oil, gas, other burner (Form B1)		Woodwark	king (Form B4	1)	Manuf.	of chemicals/c	oatings/inks (F	orm B7)	
Int.combustion engine/generator (Form B2)		Coating/fir	nishina/printin	a (Form B5)		ation (Form B8))		
Liquid storage tanks (Form B3)		Storage si	los/bins (Forr	n B6)	Dther (I	Form B9)	, ,		
START CONSTRUCTION DATE: TBD			DATE MANU	FACTURED:	TBD				
MANUFACTURER / MODEL NO.: TBD			EXPECTED	OP. SCHEDUL	E: 24 HR/	DAY 7 D	AY/WK 52	WK/YR	
IS THIS SOURCE SUBJECT TO?	S (SUBPARTS	7):		NESH	AP (SUBPART	TS?):			
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-EE	B 25% MA	R-MAY 25%	JUN-AUG	25% SEP-NO	₩ (000.1.1.1.)\/ 25%				
CRITERIA AIR P	OLLUTAN	T EMISSION	IS INFOR	MATION FO	R THIS SC	WACE			
		SOURCE OF	EVDECT	DACTUAL		POTENTIAL	EMICONO		
		EMISSION	CAFEG TE	DAGIOAL	(PERONE CON				
		EACTOR	(AFTER CON	topolar	(BEFORE CON	tonoke	AFTER CONT	RULS/LIMITS)	
		FACTOR	DVRF Celevieties	tons/yr		tons/yr	10/Ttr	tansryr	
		See Emission	1 Calculation	is in Appendix		ł		 	
						-			
						ļ		h	
CARBON MONOXIDE (CO)					<u> </u>				
VULATILE ORGANIC COMPOUNDS (VOC)									
LEAD				<u> </u>		l			
JTHER									
HAZAKDOUS AIK	POLLUIA	NIEMISSA	MS MFO	RIVATION	OR THIS S	OURCE		AT SHEET - SHE	
	1	SOURCE OF	EXPECTE	ED ACTUAL		POTENTIAL	EMISSIONS		
	1	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONT	ROLS / LIMITS)	
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
N/A	ļ								
	<u> </u>								
	ļ								
	1								
TOXIC AIR PO	LLUTANT	EMISSIONS	INFORM/	ATION FOR	THIS SOU	IRCE			
		OF	EXPE	CTED ACTUAL	EMISSIONS	AFTER CONT	ROLS / LIMIT/	ATIONS	
TOXIC AIR POLLUTANT	CAS NO.	FACTOR	lt	/hr	lb/	day	lb	/yr	
N/A									
					Ì		1		
			_						
	ntation: (2) indice	te all requested a	tate and foders	al enforceable ne	mit limits (e.a. h	ours of operation	emission rales) 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

FORM B6 EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 09/22/16 NCDEQ/E)ivision of Air Quality - Aj	plication	n for Air Permit to (Construct/Operate	B6		
EMISSION SOURCE DESCRIPTION: Pell	et Mill Feed Silo		EMISSION S	OURCE ID NO: ES-PMFS			
			CONTROL E	DEVICE ID NO(S): CD-PMFS-BH			
OPERATING SCENARIO:	OF		EMISSION P	POINT(STACK) ID NO(S): EP-12			
DESCRIBE IN DETAIL THE PROCESS (AT A pellet mill feed silo stores dried ground	TACH FLOW DIAGRAM): d wood prior to transport	to the p	ellet presses,				
MATERIAL STORED: Dried ground wood		_	DENSITY OF MATE	ERIAL (LB/FT3): TBD			
CAPACITY CUBIC FEET							
DIMENSIONS (FEET) HEIGHT: 70	LENGTH:	WIDTH: HEIGHT:					
ANNUAL PRODUCT THROUGHPUT (TONS) ACTUAL: MAXIMUM DESIGN CAPACITY:							
PNEUMATICALLY FILLED	MECHANIC	CALLY PI	ILLED	FILLED FROM			
BLOWER COMPRESSOR OTHER:	BELT CONVEYOR BELT CONVEYOR BUCKET ELEVATO	OR OR		RAILCAR TRUCK STORAGE PILE OTHER:			
NO. FILL TUBES: MAXIMUM ACFM:							
MATERIAL IS UNLOADED TO: Pellet Mill/	Presses						
BY WHAT METHOD IS MATERIAL UNLOA	DED FROM SILO?						
MAXIMUM DESIGN FILLING RATE OF MA	TERIAL (TONS/HR): TBD						
MAXIMUM DESIGN UNLOADING RATE OF	MATERIAL (TONS/HR):	TBD					
COMMENTS:							

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16	NCDEQ/Divisi	on of Air Quality -	Applicatio	n for	Air Permit to	o Cons	truct/Dpe	rate			C1
CONTROL DEVICE ID NO: CD-PMFS	TROL DEVICE ID NO: CD-PMFS-BH CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-PMFS										
EMISSION POINT (STACK) ID NO(S):	EP-12	POSITION IN SEF	IES OF C	ONTR	OLS		NO	. 1	OF	1 UNITS	
OPERATING S	CENARIO:										
10F	_1		P.E. SEA	REC	UIRED (PEF	R 2q .01	12)? 🔽	YES		NO NO	
DESCRIBE CONTROL SYSTEM: A baghouse is used to create a sligh silo. The baghouse is sized to offset	t negative pres t the air displac	sure on the Pellet ement created by	Mill Feed : the materi	Silo. al fee	The baghous d to the silo	se coli	ects dust	from th	ne air volur	ne present i	in the
POLLUTANTS COLLECTED:			РМ	_	P M 10	_	PM _{2.5}	_		_	
BEFORE CONTROL EMISSION RATE	(LB/HR):			-		-		_		<u>.</u>	
CAPTURE EFFICIENCY:				%		%		-*		~%	
CONTROL DEVICE EFFICIENCY:			-99.9	- %	-99.9	%	~99.9	-*		%	
CORRESPONDING OVERALL EFFICI	ENCY:			%		%		-*		_%	
EFFICIENCY DETERMINATION CODE	Ē			-		-		-		_	
TOTAL AFTER CONTROL EMISSION	RATE (LB/HR):		See calcu	lation	ns in Append	lix C					
PRESSURE DROP (IN H ₂ 0): MIN:	MAX: TBD	GAUGE?	✓ YES	_	D NO						
BULK PARTICLE DENSITY (LB/FT ³):	TBD		INLET TE	MPER	RATURE (°F)	: TBD					
POLLUTANT LOADING RATE: 0.004	LE/HR	GR/FT ³	OUTLET .	TEMP	'ERATURE (°	'F) TBI	2				_
INLET AIR FLOW RATE (ACFM): 2,44	4		FILTER C	PERA	TING TEMP	(°F): 1	I/A			_	
NO. OF COMPARTMENTS: TBD	NO. OF BAGS	PER COMPARTME	ENT: TBD			LENG	TH OF BA	G (IN.)	TBD		_
NO. OF CARTRIDGES: TBD	FILTER SURF	ACE AREA PER CA	RTRIDGE	: (FT°)): TBD	DIAM	ETER OF	BAG (II	N.): TBD		
TOTAL FILTER SURFACE AREA (FT); 780	AIR TO CLOTH R	ATIO: TBD					1			
		FORCED/POSITIV	۲E		FILTERM	ATERI			EN 🔽	FELTED	
DESCRIBE CLEANING PROCEDURE	S (T)						PAR	IJULE 2	SIZE DISTR		
		SUNIC SIMPLE PAC COL				0.0	SIZE		EIGHT %	GUMUL W	ALIVE
		SIMPLE PAG COL	LAPSE			(141)	CRUNS		- TUTAL	70	,
	L]	RING BAG CULLA	PSE			<u> </u>	1.10	+	Qn	Known	
DESCRIBE INCOMING AIR STREAM:	· · · ·					<u> </u>	10-25	1			_
The air stream contains wood dust p	articulate emis	sions.					25-50	1		1	_
						5	0-100	1			
							>100	\mathbf{t}		1	
								-	TOT	AL = 100	
ON A SEPARATE PAGE, ATTACH A D COMMENTS:	DIAGRAM SHOV	VING THE RELATION	ONSHIP O	FTHE	CONTROL	DEVIC	E TO ITS	EMISSI	ON SOURC	CE(S):	
	Λ 1	ach Addition	al Shoo	te A	s Nocoes	ani					

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDEC)/Division of	Air Quality - A	Application i	or Air Permit	to Construct/	Operate		В
EMISSION SOURCE DESCRIPTION: Pellet Cooler Hi	P Fines Rela	y System		EMISSION \$	SOURCE ID N	O: ES-PCHP		
				CONTROL E	EVICE ID NO	(S): CD-PCH	2-BH	
OPERATING SCENARIO1OF	1			EMISSION F	POINT (STAC	() ID NO(S); E	P-13	
DESCRIBE IN DETAILTHE EMISSION SOURCE PROC Fine pellet material from the hammermill pollution c which is controlled by a baghouse.	CESS (ATTA ontrol syste	CH FLOW DIA m and screeni	GRAM): ng operatio	n is collected	in the pellet (ooler high pr	essure fines r	elay system
TYPE OF EMISSION SOURCE (C	HECK AND	COMPLETE A	PPROPRIAT	E FORM B1-B	9 ON THE FO	LLOWING PA	GES):	
Coal,wood,oil, gas, other burner (Form B1)		Woodwor	king (Form B	4)	Малиf.	of chemicals/	coatings/inks (l	Form B7)
Int.combustion engine/generator (Form B2)		Coating/fi	nishing/printi	ing (Form B5)	Inciner	ation (Form B8)	
Liquid storage tanks (Form B3)		Storage s	ilos/bins (Fo	rm B6)	Other (Form B9)		
START CONSTRUCTION DATE: TBD			DATE MAN	UFACTURED:	TBD			
MANUFACTURER / MODEL NO.: TBD			EXPECTED	OP. SCHEDU	LE: 24_HR	DAY 7	DAY/WK 52	WK/YR
IS THIS SOURCE SUBJECT TO?	(SUBPARTS	\$?):		NESH	AP (SUBPAR	TS?):		_
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE	B 25% M	AR-MAY 25%	JUN-AUG	25% SEP-	NOV 25%			
CRITERIA AIR PO	LLUTAN	T EMISSION	IS INFOR	MATION FO	OR THIS SO	DURGE		
		SOURCE OF	EXPECT		1	POTENTIAL	EMISSIONS	
		EMISSION	(AFTER CON	TROLS (LIMITS)	IBEEORE CON	TROUS /LIMITS)	(AFTER CONT	
		FACTOR	Jb/br	tops/ur	Ib/br	tonefur	lb/br	tops/ur
		See Emission	n Calculatio	no in Annondi	1 10/11	tons/yi	10/11	torisiyi
		See Emission		I Appendi				
					ļ			
VOLATILE ORGANIC COMPOUNDS (VOC)					-			
EAD								
OTHER HAZADOOUS AID I		NTEMIOCH	NAID HANGO		-	OUDCE		
TIAZARDOUS AIR I	OLLUIA	NI EMISSI	AND PAILO		ORMANSK	SOURCE		
		SOURCE OF	EXPECT	ED ACTUAL		POTENTIAL	EMISSIONS	
		EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTR	ROLS / LIMITS)
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
N/A					ļ			
					L			
					ļ			
					L			
					1			
TOXIC AIR POL	LUTANT	EMISSIONS	MPORM	ATION FOR	R THIS SOL	IRCE		
		OF EMISSION	EXPE	CTED ACTUAL	EMISSIONS	AFTER CONT	ROLS / LIMIT/	ATIONS
TOXIC AIR POLLUTANT	CAS NO.	FACTOR		b/hr	lb/	day	lb/	yr
N/A								
Atlachments: (1) emissions calculations and supporting docume describe how these are monitored and with what frequency; and	ntation; (2) indi (3) describe a	cate all requested	state and fed lices, gauges,	eral enforceable or lest ports for ti	permit limits (e.ç his source.	, hours of opera	tion, emission ra	tes) and

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 09/22/16 NO	DEQ/Divisio	n of Air Quality - App	lication	1 for A	ir Permit to C	onstru	:t/Operate	3	E	36
EMISSION SOURCE DESCRIPTION	N: Pellet Coc	ler HP Fines Relay S	ystem		EMISSION SO	OURCE	ID NO: E	S-PCHP	-	
					CONTROL DI	EVIĈE I	D NO(S):	CD-PCHP-BH		
OPERATING SCENARIO:	1	OF1_		_	EMISSION PO	OINT(S	TACK) ID	NO(S): EP-13		
DESCRIBE IN DETAIL THE PROCE Fine pellet material from the ham fines relay system which is contro	ESS (ATTACH merrnill pollut olled by a bag	FLOW DIAGRAM): ion control system a house.	and scre	gninee	operation is	collect	ed in the	pellet cooler high	pressu	Ine
MATERIAL STORED: Fine pellet n	naterial			DENS	TY OF MATE	RIAL (LI	B/FT3): T	BD		
CAPACITY CUBIC	C FEET: TBD			TONS	:	``				
DIMENSIONS (FEET) HEIGI	HT:	DIAMETER: TBD	(OR)	LENG	TH:	WIDT-	1:	HEIGHT:		
ANNUAL PRODUCT THROUGH	PUT (TONS)	ACTUAL:			MAXIMUM DE	ESIGN (r: TBD		
PNEUMATICALLY FILLED	PILLED MECHANICALLY FILLED						E St.	FILLED FROM	s du liñ	18.1
OMPRESSOR OTHER: NO. FILL TUBES: TBD		BELT CONVEYOR BUCKET ELEVATOR OTHER:	R R				RAILCAR TRUCK STORAG OTHER:	R BE PILE Conveyor		
MAXIMUM ACFM: TBD									_	
MATERIAL IS UNLOADED TO:										
BY WHAT METHOD IS MATERIAL	UNLOADED F	ROM SILO?								
MAXIMUM DESIGN FILLING RATE	OF MATERIA	L (TONS/HR):								
MAXIMUM DESIGN UNLOADING R	ATE OF MAT	ERIAL (TONS/HR):							_	
COMMENTS:										

REVISEU 09/22/16 NC	DEQ/Division of Air	Quality - App	lication f	or Air Permit	ta Construct	Operat	6		
CONTROL DEVICE ID NO: CD-PCHP-BH	CONTROLS EN	ISSIONS FRO	OM WHIC	HEMISSION	SOURCE ID I	10(S):	ES-PCHP		
MISSION POINT (STACK) ID NO(S): EP-13	POSITION IN \$	ERIES OF CO	NTROLS			NO.	1 OF	1 UN	ITS
OPERATING SCENARIO:									
1OF1		P.E. SEAL R	EQUIRE) (PER 2q .01	12)?	⊡⊂∎	S		NO
PESCRIBE LOWINGL STSTEM?	ir that occurs when	wood enters	or exits t	he pellet cool	er high press	ure fin	es relay syst	em.	
POLLUTANTS COLLECTED:		РМ	_	PM ₁₀	PM	2.5			
SEFORE CONTROL EMISSION RATE (LB/HR);						_			
APTURE EFFICIENCY:			- %		%	%		%	
ONTROL DEVICE EFFICIENCY:		~99.9	%	99.9	_% _9	9.9 %		%	
ORRESPONDING OVERALL EFFICIENCY:		-	-%		_%	%		%	
FFICIENCY DETERMINATION CODE:			-11	<u></u>			S		
OTAL AFTER CONTROL EMISSION RATE (LB/HR):		See calculat	ions in A	ppendix C			8	<u>/s</u>	
RESSURE DROP (IN H ₂ 0): MIN: MAX: TBD	GAUGE?	✓YES		NO					
ULK PARTICLE DENSITY (LB/FT ⁴): TBD		INLET TEMP	ERATUR	E (°F): TBD					
OLLUTANT LOADING RATE: 0.004	IR GR/FT	OUTLET TER	MPERAT	JRE (°F) TBD					
VLET AIR FLOW RATE (ACFM): 500		FILTER OPE	RATING	TEMP (°F): N	A				
IO. OF COMPARTMENTS: TBD NO. OF	BAGS PER COMP/	ARTMENT: TB	D		LENGTH O	FBAG	(IN.): TBD		
IO. OF CARTRIDGES: TBD FILTER	SURFACE AREA P	ER CARTRIDO	GE (FT ²):	TBD	DIAMETER	OF BA	G (IN.): TBD		
OTAL FILTER SURFACE AREA (FT ²): TBD	AIR TO CLOTH	RATIO: TBD							
RAFT TYPE: INDUCED/NEGATIVE	FORCED/POSI	TIVE		FILTER MAT	FERJAL:	E wo	OVEN	FEL	TED
ESCRIBE CLEANING PROCEDURES:						PAP	RTICLE SIZE	DISTRIBUT	ION
AIR PULSE	SONIC				SIZE		WEIGHT 9	%	CUMULATIVE
REVERSE FLOW	SIMPLE BAG C	OLLAPSE			(MICRON:	S)	OF TOTAL	L	%
MECHANICAL/SHAKER	RING BAG COL	LAPSE			0-1			Unknown	1
OTHER:					1-10				
ESCRIBE INCOMING AIR STREAM:	r particla	mug d hr + +		avel en -	10-25				
ne an aireann cuntains wood dust pibliticuids. Larg	n particles are rem	oved by the U	pstream	cycionę.	25-50				
					50-100				
					>100				
								TOTAL = 1	00
IN A SEPARATE PAGE, ATTACH A DIAGRAM SHOW	ING THE RELATION	NSHIP OF THE	CONTR	OL DEVICE T		ON SO	URCE(S):	TOTAL = 1	00

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NC	DEQ/Division	of Air Quality - Ap	oplication for	Air Permit to	Construct/O	perate	-	В
EMISSION SOURCE DESCRIPTION: Pellet Cooler	LP Fines Rela	y System		EMISSION S		O' ES-PCI P		
1				CONTROL	DEVICE ID NO	D(S): CD-PCI	P-BH	_
OPERATING SCENARIO 1 0	- 1			EMISSION	OINT (STAC		FP_14	
DESCRIBE IN DETAILTHE EMISSION SOURCE PE	OCESS (ATT	CH FLOW DIAGE	RAM):		ONT (OTAG	()101(0(0).1	L/-I+	
Six (6) Pellet Coolers follow the pellet presses to	cool the newly	formed pellets d	own to an ac	ceptable stor	age temperat	ure. The reci	culation for t	he pellet
coolers in the pellet cooler low pressure fines relation	iy system) is c	ontrolled by a ba	ghouse.					
TYPE OF EMISSION SOURC	E (CHECK ANI	COMPLETE AP	PROPRIATE	FORM B1-B9	ON THE FOL	LOWING PAG	GES):	
Coal,wood,oil, gas, other burner (Form B1)		Woodworking	(Form B4)		Manuf.	of chemicals/	coatings/inks (Form B7)
Int.combustion engine/generator (Form B2)		Coating/finish	ning/printing (F	Form B5)	Inciner	ation (Form Ba	3)	
Liquid storage tanks (Form B3)		Storage silos	/bins (Form Bi	6)	Dther (Form B9)		
START CONSTRUCTION DATE: TBD		•	DATE MANU	JFACTURED:	TBD			
MANUFACTURER / MODEL NO.: TBD			EXPECTED	OP. SCHEDU	LE: 24 HR	DAY 7	DAY/WK 52	WKYR
IS THIS SOURCE SUBJECT TO?	S (SUBPARTS	5?):		NESH	IAP (SUBPAR	TS?):		
PERCENTAGE ANNUAL THROUGHPUT (%): DEC	FEB 25% N	IAR-MAY 25%	JUN-AUG 25	% SEP-NO	V 25%			
CRITERIA AIR	POLLUTA	TEMISSION	SINFORM	ATION FOI	R THIS SO	URCE		
		SOURCE OF	EXPECTE	DACTUAL	Ι	POTENTIAL	EMISSIONS	
		EMISSION	(AFTER CONT	ROLS/LIMITS)	(BEFORE CON		(AFTER CONT	
AIR POLLUTANT EMITTED		FACTOR	lb/hr	tops/vr	lb/hr	tons//r	lb/br	tops/ur
PARTICULATE MATTER (PM)		See Emission C	alculations Ir	Annendiy C	1971ii	Contory	IDITI	toritoryi
PARTICULATE MATTER<10 MICRONS (PM18)			I	I				
PARTICULATE MATTER<2.5 MICRONS (PMas)				<u> </u>	-	-		
SULFUR DIOXIDE (SO2)								
NITROGEN OXIDES (NOX)				1				
CARBON MONOXIDE (CO)								
VOLATILE ORGANIC COMPOUNDS (VOC)								
LEAD								
OTHER								
HAZARDOUS	RPGHUT	NT EMISSION	NS INFOR	MATION FO	D TINC C	NIDCE		
		SOURCE OF	EVDECTE	DACTUAL	241 11190 10	DOTENTIAL	ENICEIONIO	
	1	ENISSION	LAFECTE	DACTUAL		PUTENTIAL	EMISSIONS	
HAZARDOUS AIR POLITIANT	CASNO	EACTOR	AFTER CONT	ROLS/LIMITS)	(BEFORE CON	ROLS / LIMITS)	(AFTER CONT	ROLS / LIMITS)
N/A	GAS NO.	FACTOR	10/m	tonsryr	IDITIF	tons/yr	ID/nr	tons/yr
	+							
	-							
				-				
	ł							
	+							
TOVONDO	A REPORT	FILISSIANS	131-63-77778	CONTROPS				
HOALO AILANA	CARONAINA	MENIOS IUNSY	RIECAULAU.	NON MEURA	110000	CE		
		SOURCE OF	EXPEC	TED ACTUAL	EMISSIONS	AFTER CONT	ROLS / LIMIT	ATIONS
TOXIC AIR POLLUTANT	CAS NO.	FACTOR	lb	/hr	jb/i	dav	l lb/	vr
N/A						,		<i>.</i>
					-			
Attachments: (1) emissions calculations and supportion docur	nentation: (2) indi-	cate all requested etc	te and federal r	nforceable nom	hit limite (e.e. be	ure of operation	ominging miss	and describe
how these are monitored and with what frequency; and (3) de	scribe any monito	ring devices; gauges,	, or test ports for	r this source.		ore or operation	, emiaai¢i n a(e a,	and describe

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

FORM B9 EMISSION SOURCE (OTHER)

EMISSION SOURCE DESCRIPTION: Pellet Cooler LP Fines Relay		ior Air Permit to constructor	perate	<u>B9</u>
	y System	EMISSION SOURCE ID NO:	ES-PCLP	
		CONTROL DEVICE ID NO(S):	CD-PCLP-BH	
OPERATING SCENARIO:1 OF1		EMISSION POINT (STACK)	DNO(S): EP-14	
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM) Six (6) Pellet Coolers follow the pellet presses to cool the newly recirculation for the pellet coolers in the pellet cooler low pressu): formed pelle ure fines rela	ets down to an acceptable sto ay system is controlled by a b	orage temperature. aghouse.	The
MATERIALS ENTERING PROCESS - CONTINUOUS PROC	E8\$	MAX. DESIGN	REQUESTED	CAPACITY
ТҮРЕ	UNITS	CAPACITY (UNIT/HR)	LIMITATION	UNIT/HR)
Pellet Cooler Exhaust		3,102 CFM		
MATERIALS ENTERING PROCESS - BATCH OPERATIC	NC	MAX. DESIGN	REQUESTED	CAPACITY
TYPE	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (U	NIT/BATCH)
MAXIMUM DESIGN (BATCHES / HOUR):				
REQUESTED LIMITATION (BATCHES / HOUR): (BATCHES/Y	(R):		
FUEL USED: N/A	TOTAL MAX	MUM FIRING RATE (MILLION	BTU/HR): N/A	
MAX. CAPACITY HOURLY FUEL USE: N/A	REQUESTED	CAPACITY ANNUAL FUEL U	SE: N/A	

REVISED 09/22/16	NCDEQ/Division	n of Air Quality - Appl	ication for Air I	Permit to Con	struct/Opera	te	
CONTROL DEVICE ID NO: CD-PCLP-BH	CONTR	OLS EMISSIONS FRO	WHICH EMI	SSION SOUR	E ID NO(S):	ES-PCLP	
MISSION POINT (STACK) ID NO(S):	EP-14 POSITIC	ON IN SERIES OF CO	NTROLS		NO.	1 UNITS	
OPERATING SCENA	RID:	102.					
10F1	_	P.E. SEAL R	EQUIRED (PER	2q .0112)?		ES .	NO
The baghouse collects dust from displacem	ent of air that occurs	s when wood enters o	or exits the pell	let coolers.			
POLLUTANTS COLLECTED:		PM	PM ₁₀		PM ₂₅		
BEFORE CONTROL EMISSION RATE (LB/HR):						
APTURE EFFICIENCY:			.%	%	%		*
ONTROL DEVICE EFFICIENCY:		-99.9	%	.99.9 %	~99.9 %		%
ORRESPONDING OVERALL EFFICIENCY:			%	%	%		%
FFICIENCY DETERMINATION CODE:			2				
OTAL AFTER CONTROL EMISSION RATE (I	B/HR):	See calculation	ons in Append	ix C		-	
RESSURE DROP (IN H ₂ 0): MIN: MAX:	TBD GAU	IGE? VES	N	0			
ULK PARTICLE DENSITY (LB/FT'): TBD		INLET TEMPE	ERATURE (°F):	TBD			
ULET AID ELOW DATE (AGEN) A 400		OUTLET TEM	IPERATURE (°F	TBD			
O OF COMPARTMENTS: TRD		FILTER OPER	VATING TEMP	(°F): N/A			
	NU. OF BAGA PER	COMPARTMENT: TEL	J	LENG	STH OF BAG	(JN.): TBD	
OTAL FILTER SURFACE AREA (FT ²): TBD	AIR TO (CLOTH BATIO: TRD		DIAM	ETER OF BA	G (IN.): TBD	
			EU T			50 /E M	
ESCRIBE CLEANING PROCEDURES:		#FOAITIVE	PILI	ERMATERIAL		JVEN	
	ESONIC					WEIGHT N	CUMULATE
	Esimple	BAG COLLAPSE		(MIC			CUMULATIN
				(Ivar			70
	Danie de	O OULDAPOE			1.10		Unknown
ESCRIBE INCOMING AIR STREAM:					0.25		
ne air stream contains wood dust particule:	s. Larger particles a	re removed by the up	stream cyclon	e	5-20 15-50		
					0-100		
					>100		
							OTAL - 102
NA SEPARATE PAGE, ATTACH A DIAGRAN DMMENTS:	A SHOWING THE RE	LATIONSHIP OF THE	CONTROL DEV		MISSION SO	URCE(S)	

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDE	Q/Division of	Air Quality - /	Application i	for Air Permit	to Construct	/Operate	·	В
EMISSION SOURCE DESCRIPTION: Pellet Dust Col	lection Trans	sfer Bin		EMISSION	SOURCE ID N	O ES-PDCT	3	
				CONTROL	DEVICE ID NO	VSV CD-PST	, 3_RU	
OPERATING SCENARIO 1 OF	1			EMISSION	POINT (STAC	KUD NO(S): E	P.15	
DESCRIBE IN DETAILTHE EMISSION SOURCE PRO Pelletized wood is transferred from the pellet coole pellet dust collection transfer bin baghouse.	CESS (ATTA rs to the truc	CH FLOW DIA k loadout ope	(GRAM): rations via c	conveyor. Emi	issions from	this conveyor	are controlled	d by the
TYPE OF EMISSION SOURCE (CHECK AND	COMPLETE A	PPROPRIAT	E FORM B1-E	39 ON THE FO	LLOWING PA	GES):	
Coal,wood,oil, gas, other burner (Form B1)		Woodwor	king (Form B	(4)	Manuf	of chemicals/	coatings/inks (Form 87)
Int.combustion engine/generator (Form B2)		Coating/fi	inishing/printi	ng (Form B5)		ation (Form B	3) 3)	
Liquid storage tanks (Form B3)		Storage s	ilos/bins (For	rm B6)	Other	(Form B9)	· · ·	
START CONSTRUCTION DATE: TBD			DATE MANU	JEACTURED:	TBD			
MANUFACTURER / MODEL NO.: TBD			EXPECTED	OP SCHEDU	IE: 24 HE		DAVANK 52	WKIND
IS THIS SOURCE SUBJECT TO?	S (SUBPARTS	(2):	a a a di Lo	NESI		DTS21:	DATATIC _JZ	mont
PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FE	B 25% M	AB-MAY 25%	JUN-AUG	25% SEP-	NOV 25%	(10: <u>}</u>		-
CRITERIA AIR PI	OLLUTAN	EMSSIO	VS INFOR	MATION FO	OR THIS SA	DURCE	T TUNES	
		SOURCE OF	EXPECT			DOTENTIAL	ENIPEIONE	
		EMISSION		ED ACTUAL		POTENTIAL	EMISSIONS	
AIR POLLUTANT EMITTED		EACTOR	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTR	ROLS / LIMITS)
		PACTOR Res Emileois	jo/nr	tons/yr	l ib/nr	tons/yr	Ib/hr	tons/yr
PARTICULATE MATTER (PM)		See Emissio	n Calculatio	ns in Append.				
					<u> </u>			
VOLATILE ORGANIC COMPOUNDS (VOC)								
EAD								
DIHER								
HAZARDOUS AIR	POLLUTAI	NT EMISSIC	ons info	RMATION I	OR THIS	SOURCE		
		SOURCE OF	EXPECTE	ED ACTUAL		POTENTIAL	EMISSIONS	
		EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CONTR	OLS / LIMITS)
HAZARDOUS AIR POLLUTANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
N/A								
TOXIC AIR POL	LUTANTE	MISSIONS	INFORM/	ATION FOR	THIS SOL	IRCE		
		OF EMISSION	EXPEC	TED ACTUAL	EMISSIONS	AFTER CONTI	ROLS / LIMITA	TIONS
TOXIC AIR POLLUTANT	CAS NO.	FACTOR	lb-	/hr	lb/	dav	JEA	UT.
N/A					15,	uay	127	<u>,</u>
		-						
							-	
Attachments: (1) emissions calculations and numerics desured	nation: (2) to a	into all is success						
describe how these are monitored and with what frequency; and	(3) describe an	y monitoring dev	ices, gauges, c	eral enforceable or test ports for th	permit limits (e.g iis source,	I. nours of operat	ion, emission rab	es) and

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 09/22/16	NCDEO/Divini-		diante	. f	in Dan - 11 (D.C.
		A O-No Min Quality - App	nication	1 TOP A	r Permit to C		80
EMISSION SOURCE DESCRI	IFTION: Pellet Dus	t collection Transfel	r Uin	s.	EMISSION S	DURCE ID NO: ES-PDCTB	
		05 1	-	_	CONTROL DI	EVICE ID NO(S): CD-PDCTB-BH	
OPERATING SCENARIO:			_	-	EMISSION PO	DINT(STACK) ID NO(S): EP-15	
Pelletized wood is transferre controlled by the pellet dust	collection transfer	oolers to the truck lo	padout	operat	ions via conv	eyor. Emissions from this conveyor	are
MATERIAL STORED: Fine pe	allet material			DENS	TY OF MATE	RIAL (LB/FT3): TBD	
CAPACITY	CUBIC FEET:			TONS:			
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: TBD	(OR)	LENG	TH:	WIDTH: HEIGHT:	
CAPACITY CUBIC FEET: DIMENSIONS (FEET) HEIGHT: DIAMETER: TBD (4 ANNUAL PRODUCT THROUGHPUT (TONS) ACTUAL: PNEUMATICALLY FILLED MECHAMICALL BLOWER SCREW CONVEYOR COMPRESSOR [7]					MAXIMUM DE	SIGN CAPACITY: TBD	
PNEUMATICALLY FIL	ANNUAL PRODUCT THROUGHPUT (TONS) ACTUAL: MAXIMUM PREUMATICALLY FILLED MECHANICALLY FILLED					FILLED FROM	
BLOWER		SCREW CONVEYOR	२				
	2	BELT CONVEYOR					
		BUCKET ELEVATOR	ર			STORAGE PILE	
		OTHER:				OTHER: Conveyor	
NO. FILL TUBES: TBD							
MAXIMUM ACFM: TBD							
MATERIAL IS UNLOADED TO):						
BY WHAT METHOD IS MATEI	RIAL UNLOADED F	ROM SILO?					
MAXIMUM DESIGN FILLING F		(TONS/HR): TBD					
MAXIMUM DESIGN UNLOADI	NG RATE OF MATE	RIAL (TONS/HR): TE	ספ				
COMMENTS:							

EMISSION POINT (STACK) ID NO(S):	гв-вн	CONTROLS EMIS	SSIONS FROM V	SION SOURCE ID NO(S): ES-PDCTB					
, , , , , , , , , , , , , , , , , , , ,	EP-15	POSITION IN SEI	RIES OF CONTR	OLS		NQ.	1 OF	1 UNITS	
OPERATING F	CENARIO:								
1OF	_1		P.E. SEAL REC	UIRED (PEF	3 20 .0112)?	2	/ES	T NO	
JESCRIBE CONTROL SYSTEM: A baghouse is used to create a sligh present in the bin and is sized to off:	t negative pre- set the air disp	ssure on the Pellet	Dust Collection by the material f	Transfer Bil eed to the bi	n. The bagh in.	IDUSƏ CI	ollects dust fro	m the air volum	
POLLUTANTS COLLECTED:			РМ	PM ₁₀	PM ₂	5		_	
3EFORE CONTROL EMISSION RATE	(L8/HR):							_	
CAPTURE EFFICIENCY:			<u></u> %		%	<u> </u>		%	
CONTROL DEVICE EFFICIENCY:			~99.9 %	~99.9	%9	99.9 %	/o	%	
CORRESPONDING OVERALL EFFICI	ENCY:		%		%	9	4	<u>%</u>	
EFFICIENCY DETERMINATION CODE	E:							_	
JOTAL AFTER CONTROL EMISSION	RATE (LB/HR)	:	See calculation	in Append	lix C				
PRESSURE DROP (IN H20): MIN:	MAX: TBD	GAUGE?	VES	NO					
BULK PARTICLE DENSITY (LB/FT2):	TBD		INLET TEMPER	ATURE (°F):	TBD				
POLLUTANT LOADING RATE: 0.004	LB/HR	GR/FT'	OUTLET TEMP	ERATURE (°	F) TBD				
NLET AIR FLOW RATE (ACFM): 3,00	0		FILTER OPERA	TING TEMP	(°F): N/A				
IO. OF COMPARTMENTS: TBD	NO. OF BAG	S PER COMPARTM	ENT: TBD		LENGTH C	F BAG	(IN,): TBD		
VU, OF CARTRIDGES: TBD	FILTER SUR	ACE AREA PER C	ARTRIDGE (FT ²)	: TBD	DIAMETER	OFBA	G (IN.): TBD		
OTAL FILTER SURFACE AREA (FT): TBD	AIR TO CLOTH R	ATIO: TBD						
	GATIVE [7	FORCED/POSITI	VE	FILTERM	ATERIAL:			FELIED	
	3 F ~1	00110				PARTIC	ALIC CHERE BAD ITS	ABUTION	
		SUNIC	4005		SIZE		WEIGHT %	CUMULATIN	
		SIMPLE BAG COI	LLAPSE		(MICROI	NS}	OF TOTAL	%	
		RING BAG COLU	APSE		0-1	_	Uni	known	
					1-10	_			
The air stream contains wood dust p	oarticulate emi	ssions.			10-25				
					25-50	-			
					50-100	-			
					>100				
							1017	n⊑ — 100	

SPE	CIFIC EMISSION	SOURCE	INFORM	ATION (F	REQUIRE	D FOR A	L SOUR	CES)		
REVISED 09/22/16	NCC	EQ/Division o	of Air Quality -	Application f	or Air Permit t	o Construct/C	perate	,	В	
EMISSION SOURCE DESC Finished Product Handling	RIPTION: g/Pellet Loadout Bins				EMISSION S	OURCE ID NO	D: ES-FPH, E S (S): CD-FPH-F	5-PB-1 and 2		
OPERATING SCENARIO	1 OF	1			EMISSION P	OINT (STACK		2.16		
DESCRIBE IN DETAILTHE	EMISSION SOURCE PRO	CESS (ATTAC	H FLOW DIAG	RAM):	EMIODIOITT		/10 NO(3). EI	-10		
Pelletized product is conv controlled by a baghouse.	eyed to one of two pellet l	loadout bins (I	ES-PB-1 and 2) that feed en	closed rail ca	rs. Emissiona	from the pelle	x loadout bin	is are	
ТҮР	E OF EMISSION SOURCE	(CHECK AND	COMPLETE A	PPROPRIATI	FORM B1-B	ON THE FO		ES):		
Coal,wood,oil, gas, other	burner (Form B1)		Woodwor	king (Form 84)	Manuf.	of chemicals/co	batings/inks (F	orm B7)	
Int.combustion engine/ge	enerator (Form B2)		Coating/fi	nishing/printing	g (Form B5)	Incinera	tion (Form B8)			
Liquid storage tanks (For	m B3)		Storage s	ilos/bins (Fom	1 B6)	🔽 Other (F	Form B9)			
START CONSTRUCTION D	ATE: TBD			DATE MANU	FACTURED:	TBD				
MANUFACTURER / MODEL	NO.: TBD			EXPECTED	OP. SCHEDUI	E: 24 HR/	DAY 7 D	AY/WK 52	WK/YR	
IS THIS SOURCE SUBJECT	TO?	S (SUBPARTS	?):			AP (SUBPART	(S?):			
PERCENTAGE ANNUAL TH	ROUGHPUT (%): DEC-FE	B 25% MA	R-MAY 25%	JUN-AUG 2	5% SEP-NO	V 25%				
	CRITERIA AIR	POLLUTAN	T EMISSIO	VS INFORM	ATION FO	R THIS SO	URCE	1	the states	
	· · · · ·		SOURCE OF	EXPECTE	D ACTUAL	1	POTENTIAL	EMISSIONS		
				(AFTER CONT	POLS / ILLITS	(REFORE CON	TROLE ALLINET	AFTER CONTROLS (IM		
AIR POLI UTANT EMITTED	OLLUTANT EMITTED		FACTOR	lb/br	topphe	BEFORE COM	torphys	(AFTER CONT	ROLS/ LIMITS	
PARTICULATE MATTER (P	RTICULATE MATTER (PM)		Sao Emissio	Celculation	in Appondix		LOITS/YI	idinir	tons/yr	
PARTICULATE MATTER<10	MICRONS (PM)		Gee Linissio							
PARTICULATE MATTER<2	5 MICRONS (PM-4)									
	5 MIG/(C/40 (1 M2.5)									
CARRONI MONOVIDE (ROX)										
VOLATILE ODDANUD COM					<u> </u>			<u> </u>		
VOLATILE ORGANIC COMP	POUNDS (VOC)							L		
OTHER										
	HAZARDOUS AIF	RPOLLUTA	NTEMISSI	ONS INFOR	RMATION F	OR THIS S	OURCE			
			SOURCE OF	EXPECTE	DACTUAL		POTENTIAL	EMISSIONS		
			EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	ROLS / UMITS)	(AFTER CONT	ROLS / LIMITS)	
HAZARDOUS AIR POLLUT	ANT	CAS NO.	FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	
N/A										
	TOXIC AIR PC	DLLUTANT	EMISSIONS	INFORMA	TION FOR	THIS SOUR	RCE			
			SOURCE OF	EXPEC	CTED ACTUAL	EMISSIONS	AFTER CONT	ROLS / LIMITA	ATIONS	
FOXIC AIR POLLUTANT		CAS NO.	FACTOR	lb	/hr	lb/d	daγ	lb	/vr	
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 09/22/16 NCDEQ/Division of Air Quality -	Application f	or Air Permit to Construct/Ope	erate	B9
EMISSION SOURCE DESCRIPTION: Finished Product Handling)	EMISSION SOURCE ID NO: E	S-FPH	
		CONTROL DEVICE ID NO(S):	CD-FPH-BH	
OPERATING SCENARIO:1 OF1		EMISSION POINT (STACK) ID	NO(S): EP-16	
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM	A);			
Collection of transfer points, pellet screening operations, and p	ellet conveyi	ng.		
MATERIALS ENTERING PROCESS . CONTINUOUS PRO	C208	MAY DESIGN	REQUESTED	
TYPE	UNITS	CAPACITY (UNIT/HR)		
Wood Pellets	ODT	80	Cantorna	oninning
10001 (1000	001	00		
MATERIALS ENTERING PROCEESS - BATCH OPERAT	KON LINUTO	MAX. DESIGN	REQUESTED	CAPACITY
	UNITS	CAPACITY (UNIT/BATCH)	LIMITATION (U	NIT/BATCH)
MAXIMUM DESIGN (BATCHES / HOUR):				
REQUESTED LIMITATION (BATCHES / HOUR):	(BATCHES/	(R):		
FUEL USED: N/A	TOTAL MAX	MUM FIRING RATE (MILLION I	BTU/HR): N/A	
MAX. CAPACITY HOURLY FUEL USE: N/A	REQUESTED	CAPACITY ANNUAL FUEL US	E: N/A	
COMMENTS:				

	FO	RM B6			
E	MISSION SOURCE	E (STORA)	GE SILO/B	INS)	
REVISED 09/22/16 NCDEQ/I	Division of Air Quality - App	lication for Air	r Permit to Cons	truct/Operate	B 6
EMISSION SOURCE DESCRIPTION: Two	o (2) Pellet Loadout Bins	E	EMISSION SOUP	RCE ID NO: ES-PB1 and 2	
			CONTROL DEVIC	CE ID NO(S): CD-FPH-BH	
OPERATING SCENARIO:	_10F1	E	EMISSION POIN	T(STACK) ID NO(S): EP-16	
DESCRIBE IN DETAIL THE PROCESS (AT Pellet loadout bins are used to store pell	TTACH FLOW DIAGRAM): lets for shipping. Pellets a	re then loaded	from the bins in	to closed top hopper rail cars.	
MATERIAL STORED: Pellet Product		DENSIT	TY OF MATERIA	L (LB/FT3): TBD	
CAPACITY CUBIC FEET	<u>r:</u>	TONS:			
DIMENSIONS (FEET) HEIGHT:	DIAMETER: TBD	(OR) LENGT	H: WI	DTH: HEIGHT:	
ANNUAL PRODUCT THROUGHPUT (TO	ONS) ACTUAL:	M	MAXIMUM DESK	SN CAPACITY: 80 ODT/hr	
PNEUMATICALLY PILLED	MECHANICA	ALLY FILLED		FILLED PRON	
BLOWER B	SCREW CONVEYOR BELT CONVEYOR BUCKET ELEVATOR OTHER:	R 		RAILCAR TRUCK STORAGE PILE OTHER: Conveyor	
MAXIMUM DESIGN FILLING RATE OF MA	TERIAL (TONS/HR):				
MAXIMUM DESIGN UNLOADING RATE OF	F MATERIAL (TONS/HR):				
COMMENTS:					

ONTROL DEVICE ID NO: CD-FBH-BH	CONTRO	LS EMISSIONS FROM	WHICH EMIS	SION SOURCI	ID NO(S):	S-FPH, ES	-PB-1 and 2	
MISSION POINT (STACK) ID NO(S): EP	-16 POSITION	IN SERIES OF CONT	ROLS	_	NO.	1 OF	1 U	NITS
OPERATING SCHNARIO								
1 OF 1	<	PE SEAL REC	UIRED (PER 2	n 011217	59	s		NÔ
ESCRIBE CONTROL SYSTEM:					E.			
nis lagnouse controis particulate from the firm	ned product nand	lling pellet conveyers	and screens.					
OLLUTANTS COLLECTED:		PM	PM ₁₀)	PM _{2.5}			
EFORE CONTROL EMISSION RATE (LB/HR):								
APTURE EFFICIENCY:		%		%	%		%	I
ONTROL DEVICE EFFICIENCY:		<u>99.9</u> %	<u>، </u>	-99.9 %	<u>~99.9</u> %			1
ORRESPONDING OVERALL EFFICIENCY:		%	<u> </u>		~%		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	9
FFICIENCY DETERMINATION CODE:								
OTAL AFTER CONTROL EMISSION RATE (LB/H	R):	See calculation	ıs in Appendix	c		<u>.</u>		
RESSURE DROP (IN H ₂ 0): MIN: MAX: TBI	D GAUG	SE? VES	N	0	Warning A	larm 🔽	Yes	
ULK PARTICLE DENSITY (LB/FT ³): TBD		INLET TEMPER	RATURE (°F): 1	rbd				
OLLUTANT LOADING RATE: 0.004	.B/HR B/FT	OUTLET TEMP	'ERATURE (°F)	TBD				
ILET AIR FLOW RATE (ACFM): 8,500		FILTER OPERA	ATING TEMP (°	F): N/A				
O. OF COMPARTMENTS: TBD NO	OF BAGS PER C	OMPARTMENT: TBD		LEN	STH OF BAG	(IN.): TBD		
O. OF CARTRIDGES: TBD FIL	TER SURFACE AF	REA PER CARTRIDGE	(FT ²); TBD	DIAN	IETER OF BA	G (IN.): TBI	D	
OTAL FILTER SURFACE AREA (FT ²): TBD	AIR TO CI	LOTH RATIO: TBD						
RAFT TYPE: INDUCED/NEGATI	VE CORCEDI	POSITIVE	FILT	ER MATERIAL	: 🗆	OVEN	📝 FE	ELTED
ESCRIBE CLEANING PROCEDURES:				178	PA	RTICLE SIZ	E DISTRIBL	JTION
AIR PULSE	SONIC				SIZE	WEIGHT	F %	CUMULATI
REVERSE FLOW	SIMPLE B	AG COLLAPSE		(MI	CRONS)	OF TOT	AL	%
	ERING BAC	G COLLAPSE		7	0-1		Unknow	with
OTHER:					1-10			
ESCRIBE INCOMING AIR STREAM:					10-25			
he air stream contains wood dust particules.					25-50			
				5	0-100			
					>100			
							τ <u>ητ</u> αι =	100
							I GIAL	.44
IN A SEPARATE PAGE, ATTACH A DIAGRAM SI OMMENTS:	Howing the rel	ATIONSHIP OF THE C	ONTROL DEV	ICE TO ITS EI	AISSION SOL	IRCE(S):		

SPECIFIC EMISSION	SOURCE	INFORM.	ATION (REQUIRE	D FOR	ALL SOU	RCES)		
REVISED 09/22/16 NCDE	Q/Division of	Air Quality • A	Application 1	for Air Permit	to Construc	t/Operate	,		В
EMISSION SOURCE DESCRIPTION:				EMISSION S	OURCE ID	NO: ES-DWH		-	
Dried Wood Handling				CONTROL D	EVICE ID N	O(S): CD-DW	/H-BH-1 and	2	
OPERATING SCENARIO	DF 1			EMISSION F	OINT (STAC	CK) ID NO(S):	EP-17 and	18	
DESCRIBE IN DETAILTHE EMISSION SOURCE F	ROCESS (AT	TACH FLOW	DIAGRAM):	1					
There are several transfer points comprising em completely enclosed with only two (2) emission (ission source points that are	ES-DWH that controlled by	are located	between the baghouses (C	dryer and dr D-DWH-BH-	ry hammenmil -1 and 2).	lls. These so	urces a	are
TYPE OF EMISSION SOURCE (CHECK AND		PPROPRIAT		39 ON THE I	FOLLOWING I	PAGES): Incollogation	o (Eer-	071
Det combustion angina (seventes (Form B2)				34) : (E BC)			rcoalungarink	s (Form	D()
Director busiler enginergenerator (Form B2)		Storage 6	nishing/print silos/biog (Eq	mg (Form 55)	Incine	Fallon (Form B /Form B9)	io)		
		Storages				(Point Ba)	_		
START CONSTRUCTION DATE: TBD			DATE MAN	UFACTURED:	IBD				
MANUFACTURER / MODEL NO.: TBD			EXPECTED	OP. SCHEDU	JLE: _24 F	IR/DAY7_	_DAY/WK	<u>_52_ v</u>	4K/YR
IS THIS SOURCE SUBJECT TO?	PS (SUBPART	\$?):		NESH	AP (SUBPA	RTS?):			_
PERCENTAGE ANNUAL THROUGHPUT (%): DE	C-FEB 25%	MAR-MAY 2	5% JUN-A	UG 25% SE	P-NOV 25	%			_
CRITERIA AIR P	OLLUTANI	EMISSION	ns infor	MATION F	OK THIS :	SOURCE	10070	01.201	10 P
		SOURCE OF	EXPECT	ED ACTUAL		POTENTIAL	EMISSION	s	
		EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	ITROLS / LIMITS)	AFTER CON	ITROLS / I	LIMITS)
AIR POLLUTANT EMITTED		FACTOR	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tor	ns/yr
PARTICULATE MATTER (PM)	See Emissio	n Calculatio	ons in Append	ix C					
PARTICULATE MATTER<10 MICRONS (PM10)									
PARTICULATE MATTER<2.5 MICRONS (PM2.5)						1			
SULFUR DIOXIDE (SO2)				1		1			
NITROGEN OXIDES (NOx)									
CARBON MONOXIDE (CO)						1	1	1	
VOLATILE ORGANIC COMPOUNDS (VOC)				1		1			
LEAD				1		1		+	
OTHER								+	
HAZARDOUS AIR	POLLITA	TEMISSI	ONS INFO	PMATION	FOR THIS	SOURCE	Section Distant	Contraction of	in the second second
	I	kounce of	EVDECT	D ACTUAL	CONCUMPTION OF	DOTENTIAL	EUISSION		
		SOURCE OF	EXPECT	ED ACTUAL		PUTENTIAL	EMISSION	5	
		EMISSION	(AFTER CON	TROLS / LIMITS)	(BEFORE CON	ITROLS / LIMITS)	(AFTER CON	ITROLS / L	LIMITS)
HAZARDOUS AIR POLLUTANT	GAS NO.	FACTOR	lb/hr	tons/yr	1b/hr	tons/yr	ib/hr	tor	ns/yr
N/A								<u> </u>	
								-	
					l			-	
TOXIC AIR PO	LLUTANT	MISSIONS	INFORM	ATION FOR	R THIS SC	DURCE			
		OF	EXPEC	TED ACTUAL	EMISSIONS	AFTER CON	TROLS / LIN	ITATIO	NS
TOXIC AIR POLLUTANT	CAS NO	FACTOR		ə/hr	lb	/dav	1	lbfyr	
N/A	- Und HV.	1100000		with .	U.	, and y		ory:	
					-				
									_
						-			
					2				_
Atlachments: (1) emissions calculations and supporting dor describe how these are monitored and with what frequency.	umentation; (2) i and (3) describe	ndicate all reque	sted state and devices, gaug	federal enforcea es, or test ports f	ble permit limit or this source.	ts (e.g. hours of	operation, emi	ssion rati	ės)

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

FORM B9 EMISSION SOURCE (OTHER)

 Application 	for Air Permit to Construct/Ope	erate	B9		
EMISSION SOURCE DESCRIPTION: Dried Wood Handling					
			di 2		
PERATING SCENARIO:1 OF1			18		
M): ES-DWH that pints that are	are located between the dryer controlled by individual bagho	and dry hammerm uses (CD-DWH-BH	ills. These -1 and 2).		
CESS	MAX. DESIGN	REQUESTED	CAPACITY		
UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)		
ODT	80				
	MAX. DESIGN CAPACITY (UNIT/BATCH)	REQUESTED	CAPACITY NIT/BATCH)		
		-			
BATCHES	YR):				
REQUESTE					
REQUESTE	D CAPACITT ANNUAL FUEL OF				
	Application M): ES-DWH that ints that are ICES6 UNITS ODT UNITS	Application for Air Pernit to Construct/ope EMISSION SOURCE ID NO(S): EMISSION POINT (STACK) ID M): ES-DWH that are located between the dryer sints that are controlled by individual bagho ICESS MAX. DESIGN UNITS CAPACITY (UNIT/HR) ODT 80 ICESS MAX. DESIGN UNITS CAPACITY (UNIT/HR) ICESS MAX. DESIGN UNITS CAPACITY (UNIT/HR) ICESS MAX. DESIGN ICESS MAX. DE	Application for Air Permit to Construct/operate EMISSION SQURCE ID NO: ES-DWH CONTROL DEVICE ID NO(S): CD-DWH-BH-1 an EMISSION POINT (STACK) ID NO(S): EP-17 and M): ES-DWH that are located between the dryer and dry hammerm sints that are controlled by individual baghouses (CD-DWH-BH UNITS CAPACITY (UNIT/HR) LIMITATION(ODT 80 DOT 80		

REVISED 09/22/16 NC	DEQ/Division of Air	Quality - Appl	ication f	or Air Permit to	Construct/Ope	rate		C
CONTROL DEVICE ID NO: CD-DWH-BH-1 and 2	CONTROLS EN	ISSIONS FRO	OM WHIC	CH EMISSION \$	OURCE ID NO(S); ES-DWH		
EMISSION POINT (STACK) ID NO(S): EP-17 &	18 POSITION IN S	ERIES OF CO	NTROLS	;	NO	. 1 OF	1 UI	NITS
OPERATING SCENARIO:								
1OF1		P.E. SEAL F	EQUIRE	D (PER 2q.011	2)? 🔽	YES		NQ
DESCRIBE CONTROL SYSTEM: Two (2) baghouses are used to create a slight negativ handling.	ê prêssure on the di	riød wood har	ndling. T	he baghouses (collecte dust fr	om the air volu	nme present	in the dried wood
POLLUTANTS COLLECTED:		РМ	_,	PM ₁₀	PM _{2.5}			
BEFORE CONTROL EMISSION RATE (LB/HR):				. <u> </u>		- 10		
CAPTURE EFFICIENCY:			→%		%	%	%	
CONTROL DEVICE EFFICIENCY:		-99.9	_%	~99.9	% -99.9	%	%	
CORRESPONDING OVERALL EFFICIENCY:			~		%	.%	%	
EFFICIENCY DETERMINATION CODE:			-8	ī		<u>-</u>		
TOTAL AFTER CONTROL EMISSION RATE (LB/HR):		See calculat	tions in a	Appendix C	8	- 9 <u>-</u>		
PRESSURE DROP (IN H ₂ 0): MIN: MAX: TBD	GAUGE?	TYES		NO				
BULK PARTICLE DENSITY (LB/FT ²): TBD		INLET TEMP	PERATU	RE (°F): TØD				
POLLUTANT LOADING RATE: 0.004	PR/FT*	OUTLET TE	MPERAT	URE (°F) TBD				
INLET AIR FLOW RATE (ACFM): 1,000		FILTER OPE	RATING	TEMP (°F): N/A	<u>۸</u>			
NO. OF COMPARTMENTS: TBD NO. OF	BAGS PER COMPA	RTMENT: TBD			LENGTH OF B	AG (IN.): TBD		
NO. OF CARTRIDGES: TBD	SURFACE AREA PE	RCARTRIDG	E (FT ²): '	TBD	DIAMETER OF	BAG (IN.): TBI	0	
TOTAL FILTER SURFACE AREA (FT*): TBD	AIR TO CLOTH	RATIO: TBD						
	FORCED/POST	TME		FILTER MATE	RIAL:	WOVEN	I FE	LTED
DESCRIBE CLEANING PROCEDURES:	_					PARTICLE SU	E DISTRIBU	TION
					SIZE	WEIGH	т%	CUMULATIVE
	SIMPLE BAG C	OLLAPSE			(MICRONS)	OF TO	FAL,	%
MECHANICAL/SHAKER	RING BAG COL	LAPSE			0-1		Unknov	vn
OTHER:					1-10			
DESCRIBE INCOMING AIR STREAM: The air stream contains additive dust narticles					10-25			
the un stream somethis additive dast parasies.					25-50			
					50-100			
					>100			
							TOTAL =	100
ON A SEPARATE PAGE, ATTACH A DIAGRAM SHOWI) COMMENTS:	IG THE RELATIONS	HIP OF THE C	ONTRO	L DEVICE TO IT	S EMISSION S	DURCE(S):		

	un orun	ין ויעווא					
EQ/Division of	Air Quality - A	Application f	or Air Permit	to Construct	t/Operate		В
			EMISSION S	SOURCE ID N	NO: ES-ADD		
*			CONTROL	DEVICE ID N	O(S): CD-ADE	D-BH	
OF1			EMISSION F	POINT (STAC	K) ID NO(S):	EP-19	
PROCESS (AT and pneumatic or which transfi	FACH FLOW ally unloaded ars milled wo	DIAGRAM): I into a stora ed to the Pel	age silo. The llet Presses.	additive will Emissions f	then be conv rom additive h	eyed via scr nandling are	rew conveyo controlled
(CHECK AND	OMPLETE A	PPROPRIAT	E FORM B1-	B9 ON THE F	OLLOWING	PAGES):	
	Woodwo	rking (Form B	34)	Manuf	of chemicals/	coatings/inks	s (Form B7)
	Coating/f	inishing/printi	ing (Form 85)	Incine	ration (Form Ba	8)	
	Storage a	silos/bins (Fo	rm B6)	Other	(Form B9)		
		DATE MAN	UFACTURED:	TBD			
		EXPECTED	OP. SCHEDU	JLE: _24 H	R/DAY7_	DAY/WK	52WK/YF
SPS (SUBPART	S?):		NESH	AP (SUBPA)	RTS?):		
EC-FEB 25%	MAR-MAY 2	5% JUN-A	UG 25% SI	EP-NOV 25	%		
POLLUTAN	EMISSIO	VS INFOR	MATION F	DR THIS S	SOURCE		
	SOURCE OF	EXPECTE	D ACTUAL		POTENTIAL	EMISSION	5
	EMISSION	(AFTER CONT	ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS)	(AFTER CON	TROIS / LIMITS)
	FACTOR	lh/hr	tons/vr	lb/hr	tons/vr	lh/hr	tons/vr
_	See Emissic	n Calculatio	ns in Append	liv C	Lonior y		earriery.
	COV LINCON				<u> </u>		-
			-	2			1
			1				
			1				
			+	-			
			ł		<u> </u>		
DOILLITA	TEMICON	ONSUNEO	PMATION	EOD THIS	SOURCE		1
CACE COMAN	LI EMISSI	JAS INFO	AMATION	ron mis	SOURCE		
	SOURCE OF	EXPECTE	ED ACTUAL		POTENTIAL	EMISSION	5
	EMISSION	(AFTER CONT	(ROLS / LIMITS)	(BEFORE CON	TROLS / LIMITS}	(AFTER CON	TROLS / LIMITS)
CAS NO.	FACTOR	ID/III	tons/yr	lib/nr	tons/yr	id/nr	tons/yr
							-
							-
_							
					L		
							1
JELUTANT E	MISSIONS	INFORM	ATION FO	R THIS SC	URCE		
	OF EMISSION	EXPEC.	TED ACTUAL	EMISSIONS	AFTER CONT	ROLS / LIM	ITATIONS
CAS NO.	FACTOR	lt	/hr	lb	/day		b/yr
	T						
			_				
	CAS NO. CAS N	DEQ/Division of Air Quality - A OF 1 PROCESS (ATTACH FLOW c and pneumatically unloaded or which transfers milled wood CHECK AND COMPLETE A Woodwo Cotating/i Storage s SPS (SUBPARTS?): EC-FEB 25% MAR-MAY 2 POLLUTANT EMISSION SOURCE OF EMISSION FACTOR See Emissic SOURCE OF EMISSION FACTOR SOURCE OF EMISSION FACTOR OULLUTANT EMISSION CAS NO. FACTOR OF EMISSION CAS NO. FACTOR OF EMISSION CAS NO. FACTOR OF EMISSION CAS NO.	DEQ/Division of Air Quality - Application f OF 1 PROCESS (ATTACH FLOW DIAGRAM): c and pneumatically unloaded into a store or which transfers milled wood to the Pel CHECK AND COMPLETE APPROPRIAT Woodworking (Form E Coating/finishing/printi Coating/finishing/printi Coating/finishing/printi Storage silos/bins (For DATE MANY EC-FEB 25% MAR-MAY 25% JUN-A POLLUTANT EMISSIONS INFOR SOURCE OF EXPECTED SOURCE OF EXPECTOR Bolt SOURCE OF EXPECTOR Buhssion (AFTER control FACTOR Buhssion CAS NO. FACTOR Buhssion CAS NO. FACTOR OF EMISSION CAS NO. FACTOR OF EMISSION CAS NO. FACTOR	IEQ/Division of Air Quality - Application for Air Permit EMISSION S COF 1 EMISSION S CORCESS (ATTACH FLOW DIAGRAM): t and pneumatically unloaded into a storage silo. The or which transfers milled wood to the Pellet Presses. I(GHECK AND COMPLETE APPROPRIATE FORM B1-1 Woodworking (Form B4) Coating/finishing/printing (Form B5) Storage silos/bins (Form B6) DATE MANUFACTURED: EXPECTED OP. SCHEDU SPS (SUBPARTS?): NESP SOURCE OF EXPECTED ACTUAL EMISSION (Arter controls / LIMITs) FACTOR Ib/hr SOURCE OF EXPECTED ACTUAL EMISSION FACTOR Ib/hr tons/yr See Emission Calculations in Append SOURCE OF EXPECTED ACTUAL POLLUTANT EMISSIONS INFORMATION SOURCE OF EXPECTED ACTUAL EMISSION FACTOR Ib/hr tons/yr See Emission Calculations in Append EXPECTED ACTUAL CAS NO. FACTOR EXPECTED ACTUAL OF EXPECTED ACTUAL CAS NO.	IEQ/Division of Air Quality - Application for Air Permit to Construct EMISSION SOURCE ID N OF 1 EMISSION SOURCE ID N COF 1 EMISSION POINT (STAC PROCESS (ATTACH FLOW DIAGRAM): and pneumatically unloaded into a storage silo. The additive will or which transfers milled wood to the Pellet Presses. Emissions f (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE F (SUBPARTS?): NESHAP (SUBPARTS?) (SUBPARTS?): NESHAP (SUBPARTS?) SOURCE OF EXPECTED ACTUAL EXPECTED ACTUAL EMISSION (AFTER CONTROLS / LIMITS) (BEFORE CONTROLS / LIMITS) (CAS NO. FACTOR Ib/hr (CAS NO.	IEQ/Division of Air Quality - Application for Air Permit to Construct/Operate EMISSION SOURCE ID NO: ES-ADD CONTROL DEVICE ID NO(S): CD-ADI OF	IEQ/Division of Air Quality - Application for Air Permit to Construct/Operate EMISSION SOURCE ID NO(S): CD-ADD-BH OF 1 EMISSION POINT (STACK) ID NO(S): EP-19 PROCESS (ATTACH FLOW DIAGRAM): c and pnoumatically unloaded into a storage silo. The additive will then be conveyed via score which transfers milled wood to the Pelid Presses. Emissions from additive handling are or which transfers milled wood to the Pelid Presses. Emissions from additive handling are control woodworking (Form B4) [CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): [Contingfinishing/printing (Form B5) Contingfinishing/printing (Form B5) [CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): [Contingfinishing/printing (Form B5) Contendition and the pelide wood to the Pelide Presses. [CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): [Contendition (Form B5) Contendition and the pelide Presses. [CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): Contendition (Form B5) Chematical (Contendition B) [Check AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): Chematical (Contendition B) Chematical (Contendition B) [CHECK AND COMPLETE APPROPRIATE FORM B1-B9 ON THE FOLLOWING PAGES): Chematical (Contendition B) Contendition B1 Contenditin the pelide Page Page Page Page Page Page

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) **B**6 REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate EMISSION SOURCE DESCRIPTION: Additive Handling and Storage EMISSION SOURCE ID NO: ES-ADD CONTROL DEVICE ID NO(S): CD-ADD-BH OF OPERATING SCENARIO: 1 EMISSION POINT(STACK) ID NO(S): EP-19 DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM): Bulk additive material will be delivered by truck and pneumatically unicaded into a storage sito. The additive will then be conveyed via screw conveyor from the storage silo to the milled fiber conveyor which transfers milled wood to the Pellet Presses. Emissions from additive handling are controlled by a baghouse. MATERIAL STORED: Additive DENSITY OF MATERIAL (LB/FT3): TBD CUBIC FEET: CAPACITY TONS: DIAMETER: TBD (OR) LENGTH: DIMENSIONS (FEET) HEIGHT: WIDTH: HEIGHT: ANNUAL PRODUCT THROUGHPUT (TONS) ACTUAL: MAXIMUM DESIGN CAPACITY: TBD PNEUMATICALLY FILLED MECHANICALLY FILLED FILLED FROM BLOWER SCREW CONVEYOR RAILCAR COMPRESSOR BELT CONVEYOR TRUCK OTHER: BUCKET ELEVATOR OTHER: Conveyor NO. FILL TUBES: TBD MAXIMUM ACFM: TBD MATERIAL IS UNLOADED TO: BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO? Conveyed via screw conveyor to the milled fiber conveyor which transfers milled wood to the Pellet Presses. MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): COMMENTS:

REVISED 09/22/16 NCDE	Q/Division of Air	Quality - Appli	cation t	or Air Permit t	o Construct/0	Operate		
CONTROL DEVICE ID NO: CD-ADD-BH	CONTROLS EM	ISSIONS FRO	M WHI	H EMISSION	SOURCE ID N	10(S): E	S-ADD	
EMISSION POINT (STACK) ID NO(S): EP-19	POSITION IN SERIES OF CONTROLS			;	NO. 1 OF			1 UNITS
OPERATING SCENARO:								
		P.E. SEAL R	EQUIRE	D (PER 2q.01	12)?	VES	5	
DESCRIBE CONTROL SYSTEM: The silo baghouse will control air displaced by the loade	addītive.							
POLLUTANTS COLLECTED:		РМ	_	PM ₁₀	PM	2.5		
BEFORE CONTROL EMISSION RATE (LB/HR):			_				2	
CAPTURE EFFICIENCY:			ж_		%	%		<u>%</u>
CONTROL DEVICE EFFICIENCY:		99.9	- [%]	99.9	% 99). <u>9</u> %	8	%
CORRESPONDING OVERALL EFFICIENCY:			%	-	%	%	ā	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
EFFICIENCY DETERMINATION CODE:		<u> </u>	-					
TOTAL AFTER CONTROL EMISSION RATE (LB/HR):		See calculat	ions in	Appendix C	-			
RESSURE DROP (IN H ₂ 0): MIN: MAX: TBD	GAUGE?	YES		NO				
		INLET TEMP	PERATU	RE ("F): TBD				
POLLUTANT LUADING RATE: 0.004	[↓pR/P]	OUTLET FE	MPERA	URE ("F) TBD		_		
	CS DED COMDAS	FILTER OPE	RATING	TEMP ("F): N		- 040 (N N TOO	
IO OF CARTRIDGES: TRB			E /ET21.	100	DIAMETER	- BAG (I		
			e (*):	ТВО	DIAMETER	UF BAG	s (INL): TBD	
	EORCED/POST				ERIAL.	Ewo		
	FURGEDIFUSI			FILTER MA	ERIAL:			
	CONIC				0.75	TAK		
					UICDON!	E1	OF TOTAL	COMULATI
	BING DAG OCI	UNDOC			(MICKON,	5)	OFICIAL	70
	RING BAG COL	LAPSE			[]-1	_		Jinknown
ESCRIBE INCOMING AIR STREAM:					10.95			
he air stream contains wood dust particules.					95_50	-		
					50-100	_		
					>100	-		_
							Τ/	DTAL = 100
) N A SEPARATE PAGE, ATTACH A DIAGRAM SHOWING	THE RELATIONS	HIP OF THE O	ONTRO		TS EMISSION	I SOLIRA	CE(S):	
COMMENTS:	THE RELATIONS		ONTRU	L DEVICE TO I	10 EMISSION	1 SOUR	J⊏(ð):	

Figure 2. Process Flow Diagram Enviva Pellets Hamlet, LLC – Richmond County, NC

