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ENVIRONMENT
& HEALTH

North Carolina Department of Environment Quality
Raleigh Regional Office
William Willets, PE
Chief, Permitting Section
1641 Mail Service Center
Raleigh, North Carolina 27699-1641

Received
MAR 19 2018
Air Permits Section

Re: PSD Permit Modification for the Softwood Expansion Project at Enviva Pellets Sampson, LLC
Faison, North Carolina
Sampson County
Permit No.: 10386R3
Facility ID: 8200152

Dear Mr. Willets:

Date March 16, 2018

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

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Enclosed please find a North Carolina Department of Environment Quality (NC DEQ) Prevention of Significant Deterioration (PSD) permit modification application package for the proposed Softwood Expansion Project at Enviva Pellets Sampson, LLC (Enviva) (NC DEQ Facility ID #8200152) in Sampson County.

Enviva constructed a wood pellets manufacturing plant (referred to herein as "the Sampson plant" or "the facility") under the authorization of PSD Permit No. 10386R00 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 November 17, 2014.[1] The plant began operation on October 3, 2016 and 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 consists of a log Chipper, Green Wood Hammermills, Bark Hog, rotary Dryer, Dry Hammermills, Pellet Presses and Coolers, Product Loadout operations and other ancillary activities.

Enviva is submitting this PSD permit modification application to reflect modifications to the equipment and operations at the Sampson plant as part of a proposed Softwood Expansion Project. The Softwood Expansion Project is 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

[1] Permit Nos. 10386R01, 10386R02 and 10386R03 were subsequently issued on January 6, 2015, January 27, 2016 and April 7, 2017.

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project. In addition to the Softwood Expansion Project, Enviva is proposing several updates to reconcile the permit with as-built changes.

As required six (6) copies of the complete PSD permit application package and an application processing fees in an amount of $14,359 are enclosed. Additional, Enviva has submitted the required zoning determination documents to both Town of Faison and Sampson 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,

Michael Carbon
Managing Principal
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Received
MAR 19 2018
Air Permits Section

Enclosures: Permit Application including Appendices

Prepared for
Enviva Pellets Sampson, LLC
Sampson County, North Carolina

Prepared By
Ramboll US Corporation
Research Triangle Park, North Carolina

Project Number
1690006877

Date
March 2018

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MAR 19 2018
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APPLICATION FOR PSD PERMIT MODIFICATION FOR SOFTWOOD EXPANSION PROJECT

ENVIVA PELLETS SAMPSON, LLC

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CONTENTS

APPENDIX

ACRONYMS AND ABBREVIATIONS

AAL	Acceptable Ambient Level
AP-42	Compilation of Air Pollutant Emission Factors
AQRV	Air Quality Related Values
bhp	brake horsepower
BMP	Best Management Practice
BPIP	Building Profile Input Program
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CI	Compression Ignition
CO	Carbon Monoxide
DAQ	Division of Air Quality
DENR	Department of Environment and Natural Resources
FLM	Federal Land Managers
FSC	Forest Stewardship Council
ft^3	cubic foot
g	gram
GEP	Good Engineering Practice
gr	grain
HAP	Hazardous Air Pollutant
ICE	Internal Combustion Engine
lb	Pound
kW	kilowatt
MACT	Maximum Achievable Control Technology
MERP	Modeled Emission Rates for Precursors
MMBtu	Million British thermal units
NAAQS	National Ambient Air Quality Standards
NCAC	North Carolina Administrative Code
NCASI	National Council for Air and Stream Improvement
NC DAQ	North Carolina Division of Air Quality
NC DEQ	North Carolina Department of Environmental Quality

NED	National Elevation Dataset
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMHC	Non-methane Hydrocarbons
NNSR	Nonattainment New Source Review
NO_X	Nitrogen Oxides ($NO + NO_2$)
NSPS	New Source Performance Standards
NSR	New Source Review
NWS	National Weather Service
O_3	Ozone
ODT	Oven Dried Tons
PEFC	Programme for the Endorsement of Forest Certifications
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter Less Than 2.5 Micrometers in Aerodynamic Diameter
PM_{10}	Particulate Matter Less Than 10 Micrometers in Aerodynamic Diameter
ppmw	parts per million by weight
PRIME	Plume Rise Modeling Enhancements
PSD	Prevention of Significant Deterioration
PSEU	Pollutant Specific Emission Unit
RICE	Reciprocating Internal Combustion Engine
RTO	Regenerative Thermal Oxidizer
SAAQS	State Ambient Air Quality Standards
SER	Significant Emission Rates
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SFI	Sustainable Forestry Initiative
TAP	Toxic Air Pollutant
TCO	Thermal Catalytic Oxidizer
tph	tons per hour
tpy	tons per year
TSP	Total Suspended Particulate
EPA	US Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	Volatile Organic Compounds

WESP	Wet Electrostatic Precipitator

1. INTRODUCTION

Enviva Pellets Sampson, LLC (Enviva) constructed a wood pellets manufacturing plant (referred to herein as "the Sampson plant" or "the facility") in Sampson County, North Carolina under the authorization of Prevention of Significant Deterioration (PSD) Permit No. 10386R00 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 November 17, 2014.[1] The plant began operation on October 3, 2016 and 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 consists of a log Chipper, Green Wood Hammermills, Bark Hog, rotary Dryer, Dry Hammermills, Pellet Presses and Coolers, Product Loadout operations and other ancillary activities.

The Sampson plant is a major source with respect to the Title V Operating Permit Program and New Source Review permitting programs because facility-wide emissions of one or more criteria pollutants exceed the major source thresholds of 100 tons per year (tpy) and 250 tpy, respectively. Additionally, the plant is considered a major source of hazardous air pollutants (HAP) due to total HAP emissions and maximum individual HAP emissions exceeding the major source threshold of 25 tpy, and 10 tpy, respectively. In September 2017, Enviva applied for an application to obtain an initial Title V operating permit for the Sampson plant pursuant to 15A North Carolina Administrative Code (NCAC) 02Q .0507(a). The initial Title V permit application incorporated all equipment permitted for construction under Enviva's PSD permit with the exception of the eighth (8th) Dry Hammermill. Enviva only installed seven (7) of the eight (8) Dry Hammermills permitted under PSD Permit No. 10386R03.

Enviva is submitting this PSD permit modification application to reflect modifications to the equipment and operations at the Sampson plant as part of a proposed Softwood Expansion Project. The Softwood Expansion Project is 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. The following summarizes the proposed physical changes and changes in the method of operation associated with the Softwood Expansion Project:

- Increase permitted production rate from 537,625 ODT per year to 657,000 ODT per year by upgrading pellet dies with a new prototype;
- Increase the amount of softwood processed from 75% to a maximum of 100%;
- Add a regenerative thermal oxidizer (CD-RTO) following the current Dryer wet electrostatic precipitator (CD-WESP) for volatile organic compound (VOC), hazardous air pollutants (HAP) and particulate matter (PM) emissions control;
- Remove the Green Wood Hammermill bin vents/baghouses and recirculate the exhaust to either the inlet of the Dryer furnace or directly to the WESP/RTO system (CD-WESP/CD-RTO) to reduce VOC, HAP and PM emissions;
- Install a baghouse (CD-PSTB-BH) to control the Pellet Sampling Transfer Bin (ES-PSTB) PM emissions;

[1] Permit Nos. 10386R01, 10386R02 and 10386R03 were subsequently issued on January 6, 2015, January 27, 2016 and April 7, 2017.

- Install the eighth Dry Hammermill (ES-HM-8), associated product recovery cyclone, and baghouse (CD-HM-BH-8);
- Decrease the amount of wood that can bypass the Dry Hammermills from 25% to 15%;
- Add Dry Shavings Handling (IES-DRYSHAVE) and storage silo to allow the facility to process dry shavings which will not require drying;

In addition to the above Softwood Expansion Project changes, Enviva is proposing the following permit reconciliations as part of this application:

- Update site emissions to reflect existing insignificant activities including:
    - Green Wood Storage Piles (IES-GWSP-1 through 4) which replace the permitted Green Wood Storage Pile 1 and 2 (IES-GWSP-1 and 2);
    - Green Wood Handling (IES-GHW) material transfer points (i.e., transfer of chips from trucks);
    - Bark Fuel Storage Piles (IES-BFSP-1 and 2); and
    - Additive Handling (IES-ADD).
- Incorporation of a new baghouse (CD-HMC-BH) installed to control fugitive emissions that escape from the Dry Hammermill Conveying System (ES-HMC) which was previously approved by NC DAQ.
- Updates to HAP emission factors to reflect new testing data from the Sampson plant and other similar facilities.
- Update the emergency generator rating to the as-built rating of 689 brake horsepower (bhp) instead of the proposed 536 bhp unit referenced in the initial PSD application.
- Bin vent filter (CD-BF) and bagfilter (CD-BF) descriptions have been changed to baghouses (CD-BHs) to more accurately reflect control equipment utilized at the Sampson plant.
- Cyclones on the Dry Hammermills (ES-HM-1 to 8) and Dryer (ES-DRYER) are not 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 Sampson 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 the Best Available Control Technology (BACT) analysis. Section 6 includes a detailed applicability analysis of both federal and state regulations, Section 7 discusses the air dispersion modeling analysis, and Section 8 includes the Additional Impacts Assessment.

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 carbon dioxide, mercury, arsenic and lead. The company is dedicated to improving the environmental profile of energy generation while promoting sustainable forestry in the southeastern United States. Enviva holds certifications from the Forest Stewardship Council (FSC), Sustainable Forestry Initiative (SFI) and the Programme for the Endorsement of Forest Certifications (PEFC). Enviva requires that all suppliers adhere to state-developed "Best Management Practices" (BMPs) in their activities to protect water quality and sensitive ecosystems. In addition, Enviva is implementing an industry leading "track and trace" system to further ensure that all fiber resources come from responsible harvests. Enviva pays particular attention to: land use change, use and effectiveness of BMPs, wetlands, biodiversity, and certification status. All of this combined ensures that Enviva's forestry activities contribute to healthy forests both today and in the future. The following sections provide a process description of operations at the Sampson 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 is delivered to the plant via trucks as either pre-chipped wood or unchipped logs from commercial thinning for on-site chipping. Purchased chips and bark are 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 are enclosed.

Purchased chips are screened and oversized chips undergo additional chipping as needed prior to transfer to the Green Wood Storage Piles.

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

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

Purchased bark delivered by trucks as well as bark produced by the Debarker and processed by the Bark Hog are transferred to the Bark Fuel Storage Piles (IES-BFSP-1 and 2) via conveyor. The primary Bark Fuel Storage Pile (IES-BFSP-1) is located under a covered structure. The secondary Bark Fuel Storage Pile (IES-BFSP-2) serves as overflow storage as needed. Following storage in the Bark Fuel Storage Piles (IES-BFSP-1 and 2), the bark is transferred via a walking floor to covered conveyor to a fully enclosed Bark Fuel Bin (IES-BFB) where the material is pushed into the furnace.

2.3 Green Wood Hammermills

Chipped wood is further processed in the Green Wood Hammermills (ES-GHM-1, 2, and 3) to reduce material to proper size. Each Green Wood Hammermill currently has a baghouse installed (CD-GHM-BH-1 through 3). Enviva is proposing to remove these baghouses and directly recirculate the vent streams to either the inlet of the Dryer furnace (which is ultimately routed to the WESP/RTO control system) or directly into the WESP/RTO control system (CD-WESP/CD-RTO) to control PM, VOC, and HAP emissions.

2.4 Dryer

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

2.5 Dried Wood Handling

Dried materials from the Dryer product recovery cyclones are conveyed to screening operations that remove smaller wood particles. Smaller particles passing through the screens are diverted to the Dry Hammermill Discharge Conveyor, while oversized wood is diverted to the Dry Hammermills (ES-HM-1 through 8) for further size reduction prior to pelletization. As part of the Softwood Expansion Project, Enviva is proposing to reduce the amount of material that will bypass the Dry Hammermills from 25% to 15%. Dust generated from transfer operations around the screening operation is diverted to the Dry Hammermill Area filtration system (ES-HMA), which is described in Section 2.7.

There are several other conveyor transfer points comprising emission source ES-DWH that are located between the Dryer and Dry Hammermills. These sources are completely enclosed with only two (2) emission points that are controlled by individual baghouses (CD-DWH-BH-1 and 2).

As part of the Softwood Expansion Project, 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. 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 with the exception of truck unloading. 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 seven (7) Dry Hammermills operating in parallel (ES-HM-1 through ES-HM-7). Each Dry Hammermill includes a product recovery cyclone for capturing additional dried wood for further processing. Particulate emissions from each of the seven (7) existing Dry Hammermills are controlled using seven (7) individual baghouses (CD-HM-BH1 through 7). As noted in Section 1, Enviva is proposing to install an eighth Dry Hammermill (ES-HM-8), associated product recovery cyclone, and baghouse (CD-HM-BH-8) as part of the Softwood Expansion Project.

2.7 Hammermill Area

An induced draft fan is used to transfer dust generated from a number of enclosed transfer/handling sources around the Dry Hammermill Area (ES-HMA) to the Pellet Fines Bin (ES-PFB) controlled by a baghouse (CD-PFB-BH). Sources controlled by the baghouse on the Pellet Fines Bin include, but are not limited to, the following:

- Dry Hammermill infeed and distribution transfer;
- Dry Hammermill cyclone and baghouse drop out;
- Pellet cooler transfer (particulate emissions from pellet cooler cyclones large enough to drop out of entrainment) and pellet screening;
- Dry Hammermill pre-screen feeder emissions;
- Pellet screen fines cyclone; and
- Pellet fines bin emissions.

Per previous approval from NC DAQ, a new baghouse (CD-HMC-BH) was installed to control fugitive emissions that escape from the Dry Hammermill Conveying System (ES-HMC). However, in this application, Enviva proposes that the baghouse exhaust be routed to atmosphere instead of being re-circulated due to vibration issues causing reliability concerns.

2.8 Pellet Mill Feed Silo

Sized wood from the Dry Hammermill product recovery cyclones is 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 are controlled by a baghouse (CD-PMFS-BH).

2.9 Pellet Press System and Pellet Coolers

Sized wood from the Dry Hammermills is mechanically compacted through pellet press. Exhaust from the Pellet Press System and Pellet Press conveyors are vented through the cooler aspiration cyclones and then to the atmosphere. No resin or other chemical binding agents are needed for pelletization. As discussed in Section 1, Enviva is proposing as part of the Softwood Expansion Project to increase the permitted production rate from 537,625 ODT per year to 657,000 ODT per year by upgrading the pellet dies with a new prototype.

Formed pellets are discharged into one of six (6) Pellet Coolers (ES-PCLR-1 through ES-PCLR-6). Cooling air is passed through the pellets. At this point, the pellets contain a small amount of wood fines which are swept out with the cooling air and are controlled utilizing six (6) cyclones operating in parallel prior to discharge to the atmosphere (CD-CLR-1 to 6). The recirculation exhaust on the Pellet Coolers (ES-PCR) is routed to a baghouse (CD-PCR-BH) that collects the fines from the cyclones so it can be transferred to be reused in the process.

Pelletized wood is transferred from the Pellet Coolers to the truck loadout operation via a conveyor that is controlled by the Pellet Sampling Transfer Bin (ES-PSTB) baghouse (CD-PSTB-BH).

2.10 Additive Handling

Additive is used in the pellet production process to increase the durability of the final product. This dry powder additive is added to sized wood from the Dry Hammermills prior to transfer to the Pellet Presses. The dry powder contains no hazardous chemicals or VOC materials.

Additive supersacks are stored inside of a warehouse at the Sampson plant. A single supersack is delivered to the additive building at a time. Inside the building, the supersack is lifted by a brace crane and placed over a hopper. The supersack is clamped to the throat of the hopper and the rip cord on the supersack is then pulled to empty the supersack into the hopper. The contents of the hopper then discharge into an incline auger which transfers sized wood to the Pellet Presses.

2.11 Finished Product Handling and Loadout

Final product is conveyed to four (4) Pellet Loadout Bins (ES-PB-1 through ES-PB-4) that feed the two (2) truck loadout stations (ES-PL-1 and ES-PL-2). At each of the two (2) truck loadout stations, pellets are gravity fed into trucks through a covered chute that automatically telescopes upward during the loadout process to maintain constant contact with the product as it is loaded to prevent emissions. Atmospheric emissions from pellet loadout are minimal because dried wood fines have been removed in the pellet screener, and a slight negative pressure is maintained in the loadout building as a fire prevention measure to prevent any buildup of dust on surfaces within the building. Slight negative pressure is produced via an induced draft fan that exhausts to the Finished Product Handling baghouse (CD-FPH-BH). This baghouse controls emissions from Finished Product Handling (ES-FPH), the four (4) Pellet Loadout Bins (ES-PB-1 through ES-PB-4) and Truck Loadout Operations (ES-PL-1 and ES-PL-2). Trucks are covered immediately after loading.

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

The plant currently has a 689 bhp diesel-fired Emergency Generator (IES-EG) 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 are only utilized for emergency operations.

Diesel for the Emergency Generator is stored in a tank of up to 2,500 gallons capacity (IES-TK-1) and diesel for the Fire Water Pump is stored in a storage tank of up to 1,000 gallons capacity (IES-TK-2). A third diesel storage tank (IES-TK-3) with a capacity of 2,500 gallons is also located on-site.

3. POTENTIAL EMISSIONS QUANTIFICATION

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

3.1 Green Wood Handling (IES-GWH)

Fugitive PM emissions 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 are not enclosed; however, due to the larger size of this material, fugitive PM emissions occurring along the conveyor itself are 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 has insignificant PM emissions. Per 15A NCAC 02Q .0503, Green Wood Handling (IES-GWH) is included on the insignificant activities list 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 EPA'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 Fayetteville National Weather Service (NWS) Station provided by DAQ for use in the dispersion modeling analysis.[5] 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. Exposed surface area of the pile was calculated based on worst-case pile dimensions provided by Enviva.

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.

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[2] U.S. EPA AP-42 Section 13.2.4 *Aggregate Handling and Storage Piles*, (11/06).

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

[4] U.S. EPA 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 May 12, 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 less than 5 tpy.

3.3 Debarker (IES-DEBARK-1)

PM emissions 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 are minimal due to the high moisture content of green wood (~50%) and the fact that the debarking drum is enclosed, with the exception of the two ends where logs enter and material exits subsequent to 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 results in emissions of PM, VOC, and methanol. Particulate emission factors were not available 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. 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 is located inside of a building; therefore, PM emissions are negligible and were not quantified. The chipping process also results 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.

3.6 Bark Fuel Bin (IES-BFB)

Bark is transferred from the Bark Fuel Storage Piles via a walking floor to covered conveyor to the fully enclosed Bark Fuel Bin (IES-BFB). Due to complete enclosure of the Bark Fuel

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[6] U.S. EPA. 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] U.S. EPA AP-42 Section 10.6.3 *Medium Density Fiberboard Manufacturing*, (8/02).

[9] Ibid.

Bin, emissions from transfer of bark 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 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 the existing WESP and new RTO for control of PM, VOC, and HAP. As shown in Appendix C, Table 4, potential emissions of PM, PM_{10}, PM less than 2.5 microns in diameter ($PM_{2.5}$), carbon monoxide (CO) and oxides of nitrogen (NO_X) were based on guaranteed pound per hour (lb/hr) emission rates provided by the RTO vendor, TSI, Inc. Potential emissions of sulfur dioxide (SO_2) 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 based on 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 the Sampson plant and other similar facilities, emission factors from AP-42 Section 1.6, *Wood Residue Combustion in Boilers*[12], and NC DAQ's Wood Waste Combustion Spreadsheet[13]. HAP emissions from propane/natural gas combustion by the RTO burners were calculated based on the South Coast Air Quality Management District's (SCAQMD) Air Emissions Reporting (AER) Tool[14].

Combustion of wood by the Dryer furnace and propane/natural gas by the RTO burners will also result in emissions of greenhouse gases (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 Sampson uses a combination of hardwood and softwood.

3.8 Dried Wood Handling (ES-DWH)

As previously described in Section 2, ES-DWH includes 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 as it is transferred between the Dryer and Dry Hammermills due to the elevated temperature of the material. Potential VOC emissions were calculated based on NCASI dry wood handling emission factors.[15] Potential VOC emission calculations are provided in Appendix C, Table 8.

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

[11] U.S. EPA AP-42 Section 10.6.2 *Particle Board Manufacturing*, (6/02).

[12] 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] South Coast Air Quality Management District's (SCAQMD) Air Emissions Reporting (AER) Tool. Available online at: http://www3.aqmd.gov/webappl/help/newaer/index.html

[15] NCASI VOC Dry Wood handling factor based on > 50 % southern pine at three oriented-strand board facilities, from NCASI factor ID VOC-OSB-Uog-DWMH-Spine.

3.9 Dry Shavings Handling (IES-DRYSHAVE)

Particulate emissions will occur during unloading of dry shavings from trucks and may also occur as a result 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 enclosed bucket elevator. Since 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-DHM-1 through 8)

The Dry Hammermills generate PM, VOC, and HAP emissions during the process of reducing wood chips to the required size. PM emissions from the Dry Hammermills are controlled using individual fabric filters (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.[17]

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

3.11 Hammermill Area (ES-HMA) and Pellet Fines Bin (ES-PFB)

As previously described in Section 2, an induced draft fan is used to transfer dust generated from a number of enclosed transfer/handling sources around the Dry Hammermill Area to the Pellet Fines Bin which is controlled by a baghouse (CD-PFB-BH). PM emissions from this baghouse, which controls emissions from ES-HMA and ES-PFB, 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.

3.12 Dry Hammermill Conveying System (ES-HMC)

Fugitive PM emissions that escape the Dry Hammermill Conveying System (ES-HMC) will be controlled by a new 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. Refer to Appendix C, Table 5.

3.13 Pellet Mill Feed Silo (ES-PMFS)

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

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[16] U.S. EPA AP-42 Section 13.2.4 *Aggregate Handling and Storage Piles*, (11/06).

[17] Note, although Enviva submitted the original PSD application for eight Dry Hammermills, only seven were installed which is reflected in the recently submitted initial Title V permit application. This PSD permit modification includes the eighth Dry Hammermill which Enviva now plans to install.

3.14 Pellet Press System and Pellet Coolers (ES-CLR-1 through 6) and Pellet Cooler Recirculation (ES-PCR)

Pellet Press and Pellet Cooler operations generate PM, HAP, and VOC emissions during the production of wood pellets. VOC and HAP emissions at the outlet of the Pellet Cooler cyclones (CD-CLR-1 through 6) were quantified based on stack testing data from comparable Enviva plants. This specifically includes emissions from the Pellet Press System (Pellet Mills) and Pellet Coolers.

As described previously in Section 2, the recirculation exhaust on the Pellet Coolers is routed to a baghouse (CD-PCR-BH). Emissions from the Pellet Cooler cyclones (CD-CLR-1 through 6) and Pellet Cooler Recirculation baghouse (CD-PCR-BH) were both calculated based on the maximum exit grain loading rate and the maximum nominal exhaust flow rate. Refer to Appendix C, Tables 5 and 7 for detailed potential emission calculations.

3.15 Additive Handling (IES-ADD)

A dry powder additive is used in the pellet production process to increase the durability of the final product. As all material transfer points associated with Additive Handling are completely enclosed within the additive building, PM emissions from Additive Handling are negligible and were not explicitly quantified. There are no HAPs or VOC materials present in the dry powder. Additive Handling is considered an insignificant activity per 15A NCAC 02Q .0503 because potential PM emissions are less than 5 tpy.

3.16 Pellet Sampling Transfer Bin (ES-PSTB)

PM emissions occur during transfer of pelletized wood into the Pellet Sampling Transfer Bin. Particulate emissions from the baghouse that controls the Pellet Sampling Transfer Bin (CD-PSTB-BH-3) were calculated assuming a manufacturer guaranteed exit grain loading rate and the maximum nominal exhaust flow rate of the baghouse. Refer to Appendix C, Tables 5 for detailed potential emission calculations.

3.17 Pellet Loadout Bins (ES-PB1 through 4), Finished Product Handling (ES-FPH), and Pellet Mill Loadouts (ES-PL-1 and 2)

PM emissions occur during transfer of finished product to the Pellet Loadout Bins and during transfer of pellets from the bins to trucks. PM emissions from Finished Product Handling, the four (4) Pellet Loadout Bins, and the two (2) Pellet Loadout operations are all controlled by a single 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-EG) and Fire Water Pump (ES-FWP)

Combustion of diesel fuel by the Emergency Generator and Fire Water Pump generates emissions of criteria pollutants, HAP, and GHG. Potential PM, NO_x, and CO emissions from the Emergency Generator and Fire Water Pump were calculated based on emission factors from their respective manufacturer specification sheets and the maximum horsepower rating of the engines. Potential SO_2 emissions were calculated based on the fuel sulfur restriction in NSPS Subpart IIII.[18] Potential VOC and HAP emissions were quantified based on emission

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

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 also results in emissions of GHG. Potential GHG emissions from each engine were quantified based on emission factors from Subpart C of 40 Code of Federal Regulations (CFR) Part 98 – *Mandatory Greenhouse Gas Reporting*. Emissions were converted to carbon dioxide equivalent based on Global Warming Potentials from Subpart A of 40 CFR 98.

The Emergency Generator and Fire Water Pump are considered insignificant activities pursuant to 15A NCAC 02Q .0503.

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

The storage of diesel in on-site storage tanks generates emissions of VOC. VOC emissions from the three (3) Diesel Storage Tanks were calculated using EPA's TANKS 4.0 software based on the 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.

3.20 Paved Roads

Fugitive PM emissions occur as a result of trucks and employee vehicles traveling on paved roads on the Sampson 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/m^2) and 110 days with rainfall greater than 0.01 inch based on Figure 13.2.1-2. Trip counts and roundtrip distances were provided by Enviva. A 90% control efficiency was applied for water/dust suppression activities followed by sweeping. This control efficiency is based on the *Air Pollution Engineering Manual* of the Air and Waste Management Association. Refer to Appendix C, Table 15 for detailed potential emissions calculations.

[19] U.S. EPA AP-42 Section 3.3 - *Stationary Internal Combustion Engines*, (10/96).

[20] U.S. EPA AP-42 Section 13.2.1 – *Paved Roads*, (01/11).

4. STATE AND FEDERAL PERMITTING APPLICABILITY

The Enviva Sampson plant is subject to federal and state air quality permitting requirements. The following sections summarize potentially applicable federal and state permitting programs.

4.1 Federal Permitting Programs

The federal New Source Review (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 facilities considered major sources. The following sections discuss applicability of these federal permitting programs to the proposed modifications at the Sampson plant.

4.1.1 New Source Review

NSR is a federal pre-construction permitting program applicable to certain 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 specific ambient air quality standards across the country. There are two distinct permitting programs under NSR, with the applicable program for a stationary source dependent 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 for each "criteria pollutant"[21] for which the geographic area in which the source is located has been designated pursuant to Section 107 of the federal Clean Air Act (CAA) as a "nonattainment area" for not attaining relevant National Ambient Air Quality Standards (NAAQS). PSD permitting requirements apply to an existing stationary source for each criteria pollutant for which the geographic area in which the source is located has been designated as unclassifiable or attainment with respect to relevant NAAQS. PSD permitting requirements also apply to certain stationary sources regardless of location for each regulated NSR pollutant that is not a criteria pollutant (e.g., fluorides, hydrogen sulfide, and sulfuric acid mist).

The Sampson plant is located in Sampson County which is classified as attainment or unclassifiable for all regulated pollutants.[22] The Sampson plant is an existing major source with respect to the PSD permitting program because facility-wide potential emissions of one or more regulated pollutants exceed the major source threshold of 250 tpy.

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[21] The following are "criteria pollutants" under current NSR regulations: CO, nitrogen dioxide, SO_2, PM_{10}, $PM_{2.5}$, ozone (VOCs and NO_x), and lead.

[22] https://www3.epa.gov/airquality/greenbook/anayo_nc.html

4.1.2 Prevention of Significant Deterioration

The purpose of the PSD regulatory program is to prevent significant deterioration of air quality in geographic areas where air quality meets applicable NAAQS. PSD permitting is required for any one of the following three scenarios in Sampson County.

- The construction of a new "major stationary source." Excluding GHGs, a new stationary source is a major stationary source if the source is one of the 28 source categories listed in the relevant PSD regulations and it emits, or has the potential to emit, 100 tons per year (tpy) or more of any regulated PSD pollutant, or if the source is not one of the 28 listed source categories but it emits, or has the potential to emit, 250 tpy or more of any regulated PSD pollutant. With respect to GHGs, a new stationary source is a major stationary source if the source is one of the 28 source categories listed in the relevant PSD regulations and it emits, or has the potential to emit, 100 tpy or more of GHGs and 100,000 tpy or more of CO_2e, or if the source is not one of the 28 listed source categories but it emits, or has the potential to emit, 250 tpy or more of GHGs and 100,000 tpy or more of CO_2e. Because of the *Utility Air Regulatory Group v. Environmental Protection Agency et al.* (United States Supreme Court 2014) (hereinafter "UARG v. EPA") decision, if the construction of a new stationary source would be "major" for GHGs only, then PSD permitting would not be required for such a new source.

- The modification of an existing minor stationary source if the change would constitute a major stationary source by itself, with the major stationary source criteria being the same as indicated above. As a result of UARG v. EPA, if the modification of an existing minor stationary source would constitute a major stationary source for GHGs only, then PSD permitting would not be required for such modification.

- A "major modification" of an existing major stationary source. A major modification is "any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a regulated NSR pollutant, and a significant net emissions increase of that pollutant from the major stationary source [...]."[23]

As discussed previously the Sampson plant is an existing major stationary source. Therefore, PSD permitting requirements would apply to the plant only if a PSD "major modification" occurs at the plant. As described in Section 1 of this document, Enviva is proposing several physical changes and changes in the method of operation at the Sampson plant as part of the Softwood Expansion Project. The following discussion documents the PSD applicability analysis for the proposed Softwood Expansion Project. As summarized below and in Table 4.1, the proposed Softwood Expansion Project was determined to be subject to PSD review for PM and VOC.

[23] Due to *UARG v. EPA*, if the modification of an existing major stationary source would be "major" for GHGs only, then PSD permitting would not be required for such modification.

4.1.2.1 Project-Impacted Emission Units

Consistent with the PSD regulations, when estimating the emissions increases for a project the permittee must identify any new emission units proposed to be installed as part of the project and any existing emission units anticipated to be impacted by the project. Emissions increases must be estimated for all existing emission units anticipated to be impacted by the project, regardless of whether a particular emission unit is being physically modified. All emission sources at the Sampson plant will potentially be impacted by the proposed project with the exception of Emergency Generator, Fire Water Pump, and associated fuel storage tanks, all of which are insignificant emission units that are not expected to see an increase in operation as result of the proposed Softwood Expansion Project. Enviva has applied the "actual–to-potential test" for all project-impacted emission units.

4.1.2.2 Baseline Actual Emissions

Per 40 CFR 50.166(b)7(i), emission units that have existed for less than 2 years from the date of initial operation are by definition new emission units. Per 15A NCAC 02D .0530(b)(1)(B):

> *"For a new emission unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero and thereafter, for all other purposes, shall equal the unit's potential to emit"*

Because the Sampson plant started operations in October of 2016 and has been in operation for less than two years, the Baseline Actual Emissions (BAE) for all project-impacted emission units is equal to the potential to emit, as originally permitted. Detailed calculations of existing potential to emit emissions (i.e. BAE) are provided in Appendix D.

4.1.2.3 Project Potential to Emit

The post project potential to emit emission for all new and existing impacted sources have been calculated as described in Section 3. Detailed documentation of the post-project potential emissions calculations are provided in Appendix C.

4.1.2.4 Determine Net Emissions Increases and Compare to PSD Significance Thresholds

The final step in performing the PSD applicability analysis for the proposed project was to determine whether the net emissions increase of any regulated PSD pollutant would equal or exceed relevant PSD significant emission rates (SER). To make this determination, first, in accordance with the relevant PSD regulations, the project-only emissions increases of regulated PSD pollutants were estimated for the emission units at the Sampson plant anticipated to be impacted by the proposed project. For each regulated PSD pollutant, the total project-only emissions increase was calculated by summing together the project-only emissions increases that were estimated for each project-impacted emission unit. For each regulated PSD pollutant for which the project-only emissions increase was estimated to equal or exceed the applicable PSD SER, a net emissions increase determination was then performed by summing together the project-only emissions increase and decreases with any other contemporaneous, creditable emissions increases and decreases of the same pollutant occurring at the Sampson plant.

In accordance with the relevant PSD regulations, "an increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commenced, and the date that the increase from the particular change occurs." With anticipated start of construction date of April 2018 and an expected construction period of one year, the contemporaneous period for the proposed Softwood Expansion Project is estimated to be from April 2013 to April 2019. The same PSD regulations indicate that "an increase or decrease in actual emissions is creditable only if the department has not relied on it in issuing a PSD permit for the source, which permit is in effect when the increase in actual emissions from the particular change occurs." It should be noted that with exception of those emission decreases associated with the Softwood Expansion Project there were no creditable increases or decreases in emissions during the Softwood Expansion Project contemporaneous period. Consistent with NC DAQ's PSD rule, which is approved by EPA for implementation of the federal PSD regulations by reference in North Carolina, the project related emissions decreases were calculated pursuant to 40 CFR 51.166(b)(3)(i)(b) as follows: "any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under paragraph (b)(3)(i)(b) shall be determined as provided in paragraph (b)(47), except that paragraphs (b)(47)(i)(c) and (b)(47)(ii)(d) of this section shall not apply". Per 15A NCAC 02D .0530(b)(1)(B), which further defines baseline actual emissions:

> *"For a new emission unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero and thereafter, for all other purposes, shall equal the unit's potential to emit"*

As discussed previously because the Sampson plant started operations in October of 2016 and has been in operation for less than two years, the Baseline Actual Emissions (BAE) for all project related emissions decreases is set equal to the potential to emit.

The corresponding total was compared to the PSD SERs to establish which pollutant(s) triggered a PSD significant modification. As shown in Table 1 below, the total potential emissions increases only associated with the proposed project exceed the applicable PSD SER for PM, PM_{10}, and VOC. After netting, the proposed Softwood Expansion Project was determined to be subject to PSD review for PM and VOC, as shown in Table 1 below. Detailed calculations are provided in Appendix D.

Table 4.1. Summary of PSD Applicability

Pollutant	Project-Only Emissions Increase (tpy)	Project-Only Emissions Decrease (tpy)	PSD SER (tpy)	Is Netting Required?	Emissions Netting (tpy)	PSD Significant Modification? (Yes/No)
CO	0	-11	100	No	-11	No
NO_X	0	0	40	No	0	No
PM	103	-34	25	Yes	70	**Yes**
PM_{10}	29.7	-29.9	15	Yes	0	No
$PM_{2.5}$	4.9	-25	10	No	-20	No
SO_2	0	0	40	No	0	No
VOCs	523	-310	40	Yes	214	**Yes**
CO_2e	26,402	0	75,000	No	26,402	No

4.1.3 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 Sampson 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 project will not change this status. Enviva submitted an application for an initial Title V permit in September 2017 pursuant to 15A NCAC 02Q .0507(a) which requires that an application be submitted within one year from the date a source begins operation.

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 is included in 15A NCAC 02Q .0300, in accordance with North Carolina's State Implementation Plan (SIP). The proposed project is subject to the permitting procedures under 15A NCAC 02Q .0300, and the required application forms are included as Appendix E.

5. BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

Federal and State PSD regulations [40 CFR 52.21(j) and 15A NCAC 2D .0530, respectively] require the utilization of Best Available Control Technology (BACT) to minimize the emissions of regulated PSD pollutants from a new major stationary source or major modification occurring at an existing major stationary source. BACT is applied to each proposed new or physically modified emissions unit at which a net emissions increase in the pollutant would occur as a result of the project. BACT is defined under 40 CFR 52.21(b)(12) as:

> *an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61.*
>
> *If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.*

Therefore, a BACT analysis is conducted on a case-by-case basis and serves to develop an emission limit derived from an evaluation of the degree of emissions reductions that each available emissions-reducing technology or technique would achieve, as well as the energy, environmental, economic, and other costs associated with each technology or technique.

The Sampson plant is an existing major stationary source. With the Softwood Expansion Project, the Sampson plant is expected to incur a net emissions increase in PM and VOC emissions above applicable PSD significant modification thresholds. Therefore, a BACT analysis must be performed for each new or modified affected emissions unit that will experience a net emissions increase for PM or VOC emissions as result of the Softwood Expansion Project. The BACT analysis is evaluated on a pollutant-specific basis for an emissions unit requiring BACT. Table 5.1 summarizes the equipment and pollutants that are subject to a BACT review.

Table 5.1. Summary of Equipment Undergoing BACT Assessment			
Source Description	Equipment ID	Pollutant Triggering BACT Review	
		VOC	PM
Dryer System	ES-DRYER	X	X
Green Wood Hammermills	ES-GHM-1 to 3		
Dry Hammermills	ES-HM-1 to 8	X	X
Hammermill Conveying System	ES-HMC		X
Dried Wood Handling	ES-DWH	X	X
Pellet Presses and Coolers	ES-CLR-1 to 6	X	X
Pellet Cooler Recirculation	ES-PCR		X
Pellet Sampling Transfer Bin	ES-PSTB		X
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB		X
Pellet Mill Feed Silo	ES-PMFS		X
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 to 4/ES-PL-1 and 2		X
Paved Roads	--		X
Green Wood Handling	IES-GWH		X
Green Wood Storage Piles	IES-GWSP-1 to 4	X	X
Bark Fuel Storage Piles	IES-BFSP-1 to 2	X	X
Bark Fuel Bin	IES-BFB		X
Dry Shavings Material Handling	IES-DRYSHAVE		X
Debarker	IES-DEBARK-1		X
Log Chipping	IES-CHIP-1	X	
Bark Hog	IES-BARKHOG	X	X

5.1 "Top-Down" BACT Process

This BACT analysis generally follows a widely-accepted, though not required, procedure referred to as the top-down BACT approach. The top-down BACT approach starts with consideration of the technology that would achieve the maximum degree of emissions limitations, i.e. the lowest emission rate, which can be or has been applied to the specific source type under review or to other similar source types. The top-ranked technology may be eliminated based on costs, economics, environmental, or energy impacts. If the top control option is eliminated, the BACT analysis then proceeds to the next most stringent technology and the analysis continues until a BACT conclusion is reached. The following steps provide a general outline of the top-down BACT process. In practice, each step may not apply to each BACT analysis, and the steps may be overlapping, combined, or undertaken in a different order depending on the specific emissions units and considerations involved.

5.1.1 Step 1 – Identify All Control Technologies

The first step in the top-down procedure is to identify all available control technologies and emission reduction options for the emissions unit and pollutant undergoing the BACT analysis. Available control technologies are those with a practical potential for application to the particular pollutant and emissions unit under review, which have been demonstrated in practice on full scale operations and are commercially available. Pollutant emission reduction options can be grouped into two categories:

- Inherently lower-emitting processes, practices or designs; and
- Add-on control technologies.

In addition, emission reduction options can sometimes be used in combination.

5.1.2 Step 2 – Eliminate Technically Infeasible Options

The second step is to evaluate the technical feasibility of the alternatives identified in Step 1 and to eliminate any options that are technically infeasible based on engineering evaluation or due to chemical or physical principles. Criteria such as the following may be considered in determining technical feasibility: previous commercial scale demonstrations, precedents based on previous permits, and technology transfer from similar emissions units. Technologies which have not yet been applied to full scale operations need not be considered available; an applicant should be able to purchase or construct a process or control device that has already been demonstrated in practice.

When evaluating the technical feasibility of a technology that has been operated successfully on a type of source different than the source type under review, EPA has indicated that the "availability" and "applicability" of the technology to the source type under review should be considered in order to eliminate the technology as technically infeasible. For this situation, EPA has stated that it "considers a technology to be 'available' where it can be obtained through commercial channels or is otherwise available within the common meaning of the term."[24] In the same document, EPA stated that it "considers an available technology to be 'applicable' if it can reasonably be installed and operated on the source type under consideration."[25]

If any of the control techniques cannot be successfully used on the emission units due to technical difficulties, document this finding. Such control techniques would not be considered further in the BACT analysis.

5.1.3 Step 3 – Rank Remaining Control Technologies by Control Effectiveness

In Step 3, the alternatives are rank-ordered into a control hierarchy from most to least stringent. To the extent practical, this involves an assessment and documentation of the emissions control level or emissions limit achievable with each technically feasible alternative, considering the specific operating constraints of the emissions units undergoing review. Generally accepted control efficiencies or ranges of control efficiencies are presented where control efficiencies vary and/or detailed information for the specific emissions unit is not available.

5.1.4 Step 4 – Evaluate Most Effective Control Options and Document Results

A top-ranked control alternative may be rejected as BACT based on a consideration of cost, economic, environmental, and energy impacts. If the top-ranked alternative is not selected as BACT, the applicant should document the evaluation of the cost, economic,

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[24] EPA, PSD and Title V Permitting Guidance for Greenhouse Gases, March 2011. https://www.epa.gov/sites/production/files/2015-07/documents/ghgguid.pdf

[25] Ibid.

environmental, and/or energy impacts that leads to its rejection. If a control technology is determined to be infeasible based on high cost effectiveness, or to cause adverse economic, energy, or environmental impacts that would outweigh the benefits of the additional emissions reduction as compared to a lower ranked control, then the control technology is rejected as BACT, and the next most stringent control alternative is considered in turn. Both average cost effectiveness and incremental cost effectiveness may be considered for the control alternatives. Cost effectiveness is the annualized cost of control [in dollars ($)] divided by the mass of emissions (in tons) reduced or eliminated by that control. For a specific control technology, average cost effectiveness is the cost ($ per ton) that would be incurred compared with baseline conditions (i.e., either uncontrolled or at the control level that would be required in the absence of BACT, such as NSPS or NESHAP standards). Incremental cost effectiveness is the difference in cost per ton of emissions reduced at the next most stringent level of control, when comparing two control options.

5.1.5 Step 5 – Select BACT

BACT is identified as the option with the highest control effectiveness that is not eliminated in Step 4 based on consideration of cost, economic, energy or environmental impacts. Once the control technology, process or work practice is selected, a BACT emission limit is established, if appropriate, considering what is achievable over the range of operating conditions anticipated.

5.1.6 Information Relied Upon

In general, the spectrum of BACT control options identified in Step 1 for consideration as potential control options is based on the following:

- RACT/BACT/LAER Clearinghouse (RBLC) database located on EPA's Technology Transfer Network in the EPA electronic bulletin board system, as well as other agency on-line BACT listings. Tables summarizing the results of the RBLC database searches performed for this application are provided in Appendix F of the application;
- An assessment of recently issued BACT determinations and permits for similar sources;
- EPA Air Pollution Control Technology Fact Sheets and other EPA guidance and technical reports were relied upon as a reference for the likely achievable range of control for control equipment and/or for guidance regarding the BACT process;
- Vendor data; and,
- Professional knowledge and experience.

5.2 Summary of BACT Determinations for the Sampson Plant

Table 5.2 summarizes the BACT determinations made for PM and VOC for the applicable emissions units proposed for the Sampson plant.

Table 5.2. Summary of BACT Determinations for the Sampson Plant						
Source Description	**Equipment ID**	**Pollutant**	**Control Technology or Work Practice**	**Proposed Emission Limit**		**Averaging Period**
				Value	**Units**	
Dryer System/ Green Wood Hammermills	ES-DRYER/ ES-GHM-1 to 3	VOC	RTO	1,450 (Combustion Zone Temperature)	°F	3-hour
		PM	WESP	0.105 (filterable only)	lb/ODT	3-hour
Dry Hammermills	ES-HM-1 to 8	VOC	Good Operating Procedures	0.60	lb/ODT	3-hour
		PM	Baghouses	0.004	gr/scf	3-hour
Hammermill Conveying System	ES-HMC	PM	Baghouse	0.004	gr/scf	3-hour
Dried Wood Handling	ES-DWH	VOC	Good Operating Procedures	0.12	lb/ODT	3-hour
		PM	Baghouses	0.04	gr/scf	
Pellet Presses and Coolers	ES-CLR-1 to 6	VOC	Good Operating Procedures	1.74	lb/ODT	3-hour
		PM	Cyclones - Proper Design and Good Operating Procedures	0.04	gr/scf	3-hour
Pellet Cooler Recirculation	ES-PCR	PM	Baghouse	0.004	gr/scf	3-hour
Pellet Sampling Transfer Bin	ES-PSTB	PM	Baghouse	0.004	gr/scf	3-hour
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	PM	Baghouse	0.004	gr/scf	3-hour
Pellet Mill Feed Silo	ES-PMFS					
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ ES-PB-1 to 4/ ES-PL-1 and 2					

Table 5.2. Summary of BACT Determinations for the Sampson Plant

Source Description	Equipment ID	Pollutant	Control Technology or Work Practice	Proposed Emission Limit		Averaging Period
				Value	Units	
Paved Roads	--	PM	Combination of watering of paved roads, vehicle speed control, and good housekeeping	Not Applicable		
Green Wood Handling	IES-GWH	PM	None	Not Applicable		
Green Wood Storage Piles	IES-GWSP-1 to 4	VOC				
		PM				
Bark Fuel Storage Piles	IES-BFSP-1 to 2	VOC				
		PM				
Bark Fuel Bin	IES-BFB	PM				
Dry Shavings Material Handling	IES-DRYSHAVE	PM				
Debarker	IES-DEBARK-1	PM				
Log Chipping	IES-CHIP-1	VOC				
Bark Hog	IES-BARKHOG	VOC				
		PM				

5.3 BACT Review for the Dryer (ES-DRYER) and Green Wood Hammermills (ES-GHM-1 to 3)

The Sampson plant utilizes a rotary dryer to reduce wood moisture content. Direct contact heat is provided to the dryer via a 250.4 MMBtu/hr burner system. Air emissions are currently controlled by three simple cyclones and then a wet electrostatic precipitator (WESP) operating in series.

As discussed previously Enviva is also proposing to install a regenerative thermal oxidizer (RTO) for control of VOC emissions as part of the Softwood Expansion Project. In addition, Enviva is proposing to remove the current Green Wood Hammermills' baghouses and directly recirculate 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 to control PM and VOC emissions.

The installation of the RTO will result in a decrease in Dryer and Green Wood Hammermill VOC and PM emissions of 310 tpy and 25 tpy, respectively. As described in more detail below the use of a RTO/WESP to control VOC and PM emissions from the Dryer and Green Wood Hammermills is considered to meet or exceed BACT requirements.

5.3.1 VOC BACT for Dryer and Green Wood Hammermill Sources

5.3.1.1 Step 1- Identify Control Technologies

VOC emissions from the Dryer and Green Wood Hammermills can be reduced by add-on control technologies. There are no known process design or operational changes that will result in lower VOC emissions and still allow the Dryer and Green Wood Hammermills to function as required. Based upon a search of RBLC results and commercially demonstrated technology, the following add-on control technologies are considered in this evaluation:

- Thermal Oxidation – Thermal Oxidizer (TO), Recuperative Unit, or Regenerative Thermal Oxidation (RTO);
- Catalytic Oxidation - Regenerative Catalytic Oxidation (RCO) and Thermal Catalytic Oxidation (TCO);
- Wet Scrubber - Packed-Bed/Packed-Tower; and,
- Bio-oxidation/Bio-filtration.

Thermal Oxidation

Thermal oxidation reduces VOC emissions by oxidizing VOC to carbon dioxide (CO_2) and water vapor (H_2O) at a high temperature with a residency time between one-half second and one second. Thermal oxidizers can be designed as conventional thermal units, recuperative units, or RTO. A conventional thermal oxidizer does not have heat recovery capability. Therefore, the fuel costs are extremely high and not suitable for high volume flow applications. In a recuperative unit, the contaminated inlet air is preheated by the combustion exhaust gas stream through a heat exchanger. An RTO can achieve a heat recovery higher than a recuperative oxidizer. It is common now to design an RTO with a thermal recovery efficiency of 95%. RTOs are commonly used to control VOC emissions in high-volume low concentration gas streams because of the significant savings in fuel costs while still achieving equal VOC emissions control efficiencies; therefore, for purposes of this BACT analysis only RTOs will be further discussed.

An RTO uses high-density media such as a ceramic-packed bed still hot from a previous cycle to preheat an incoming VOC-laden waste gas stream. The preheated, partially oxidized gases then enter a combustion chamber where they are heated by auxiliary fuel (propane or natural gas) combustion to a final oxidation temperature typically between 760-820 °C (1,400-1,500 °F) and maintained at this temperature to achieve maximum VOC destruction. The purified, hot gases exit this chamber and are directed to one or more different ceramic-packed beds cooled by an earlier cycle. Heat from the purified gases is absorbed by these beds before the gases are exhausted to the atmosphere. The reheated packed-bed then begins a new cycle by heating a new incoming waste gas stream.

Particulate control must be placed upstream of thermal oxidation controls to remove unwanted particulate matter that can cause plugging of heat exchange media or result in unsafe operations as a result of fires and significant operational and maintenance related difficulties. Typical VOC control efficiencies range from 95 to 99%.[26]

[26] EPA, *Air Pollution Control Technology Fact Sheet, Regenerative Incinerator*, EPA-452/F-03-021. https://www3.epa.gov/ttn/catc/dir1/fregen.pdf

Catalytic Oxidation

Similar to an RTO, a regenerative catalytic oxidizer (RCO) and a thermal catalytic oxidizer (TCO) oxidize VOC to CO_2 and H_2O. However, RCO and TCO use catalyst to lower the activation energy required for the oxidation so that the oxidation can be accomplished at a lower temperature than an RTO. As a result, the overall auxiliary fuel is lower than that for an RTO. RCO technology is widely used in the reduction of VOC emissions. An RCO operates in the same fashion as an RTO, but it requires only moderate reheating to the operating range of the catalyst, approximately 450 °F. Similar to thermal oxidation units, particulate control must be placed upstream of an RCO. Even with highly efficient particulate control, there is the risk of catalyst blinding/poisoning and catalyst life guarantees are relatively short. The VOC destruction efficiency for an RCO typically ranges from 90 to 99%.[27]

Operating much in the same fashion as an RCO, a TCO passes heated gases through a catalyst without the regenerative properties attributed by the ceramic bed used to recapture heat. Depending on design criteria, a TCO is expected to achieve a similar VOC emission destruction efficiency to that of an RTO.

Consistent with EPA's economic analyses it has been determined by Enviva that an RTO is more cost effective control device than catalytic oxidation units (RCO and TCO) and has significantly less operational and maintenance issues while still achieving the same level of VOC control.[26, 28] Specifically, as documented in EPA's Air Pollution Control Technology Fact Sheet the annualized costs for the installation of an RTO ranges from $8 to $33 per scfm while that of an RCO ranges from $11 to $42 per scfm. As such VOC BACT analyses in this document will only address the use of RTO controls.

Wet Scrubber

With packed-bed/packed-tower wet scrubbers (scrubbers), pollutants are removed by inertial or diffusional impaction, reaction with a sorbent or reagent slurry, or absorption into a liquid solvent. Removal efficiencies for gas absorbers vary for each pollutant-solvent system and with the type of absorber used. Most absorbers can achieve removal efficiencies in excess of 90%, and packed-tower absorbers may achieve efficiencies as great as 99% for some pollutant-solvent systems.[28] It should be noted that some VOCs present in the Dryer and Green Wood Hammermill exhaust stream are highly soluble in water; other VOCs, most notably alpha/beta-pinene which make up the predominate species, are only slightly soluble in water and thus, result in a significantly reduced VOC control efficiency.

Bio-oxidation/Bio-filtration

Bio-oxidation/Bio-filtration offers a cost effective alternative to traditional thermal and catalytic oxidation systems in limited situations. In limited applications this air pollution control technology can provide a reduction in VOC emissions of 60 to 99.9%.[29] Specifically, VOCs are oxidized using living micro-organisms on a media bed (sometimes referred to as a "bioreactor"). A fan is typically used to collect or draw contaminated air from a building or process. If the air is not properly conditioned (heat, humidity, solids), then pre-treatment is

[27] Ibid.

[28] EPA, *Air Pollution Control Technology Fact Sheet, Packed-Bed/Packed-Tower Wet Scrubber*, EPA-452/F-03-015. https://www3.epa.gov/ttn/catc/dir1/fpack.pdf

[29] EPA, *Using Bioreactors to Control Air Pollution*, EPA-456/R-03-003. https://www3.epa.gov/ttncatc1/dir1/fbiorect.pdf

a necessary step to obtain optimum gas stream conditions before introducing it into the bioreactor. As the emissions flow through the bed media, the pollutants are absorbed by moisture on the bed media and come into contact with the microbes. Depending on the volume of air required to be treated, the footprint of a bio-oxidation/bio-filtration system can be excessive and take up significant acreage. The microbes consume and metabolize the excess organic pollutants, converting them into CO_2 and water, much like a traditional thermal and catalytic oxidation process.

"Mesophilic" microbes are typically used in these systems. Mesophilic microbes can survive and metabolize VOC materials at conditions up to 110 °F to 120 °F. One company is attempting to develop a commercial-scale technology that employs "thermophilic" microbes, but that technology has only been demonstrated on a single pilot scale installation that has a similar – but not exactly the same – exhaust stream profile as Enviva. Thermophilic microbes live and metabolize VOC at higher operating temperatures (~160 °F).

5.3.1.2 Step 2 – Eliminate Technically Infeasible Options

While there are a number of technologies that can be used to control VOC, the following are not technically feasible for VOC control on the Dryers and Green Wood Hammermills at the Enviva plant:

- Wet Scrubbers; and
- Bio-oxidation/Bio-filtration

As discussed previously, wet scrubbers applied to exhaust gas streams such as those from Dryer and Green Wood Hammermills have limited control efficiency given the insolubility of a large portion of the exhaust stream. It should also be noted that use of a scrubber would generate additional environmental impacts and would require onsite or offsite treatment of the scrubber blowdown water to remove/treat the soluble VOC components removed from the exhaust stream. Because of the expected low control efficiency and additional environmental impacts, wet scrubbers are not considered technically feasible.

Bio-oxidation/Bio-filtration is effective in low temperature ranges; however, at extreme temperatures, cell components can begin to decompose and proteins within the enzymes can become denatured and ineffective. The temperature of the exhaust steam from the Dryer and Green Hammermills is expected to be 172 °F which exceeds the typical operating temperatures of a bio-oxidation/bio-filtration system. Additionally, the primary constituents of the VOC in the exhaust stream are terpenes, which are highly viscous and would cause the bio-oxidation/bio-filtration system to foul. Furthermore, the expected footprint of a unit sized to handle the volume of gas needed for treatment would be extensive and impractical. Additionally, the use of this technology has not been demonstrated in practice at a pellet manufacturing facility. Due to the temperature limitations of this control technology, expected fouling, significant land requirements and the undemonstrated nature of this technology at a pellet manufacturing facility, bio-oxidation/bio-filtration has been eliminated from further consideration in this BACT analysis.

5.3.1.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

After eliminating a wet scrubber and bio-oxidation/bio-filtration as potential control options, Enviva has concluded that the following options remain technologically feasible:

- Thermal Oxidation –TO, Recuperative Unit, or RTO; and

- Catalytic Oxidation - RCO and TCO

5.3.1.4 Step 4 – Evaluate Most Effective Control Options and Step 5 – Select BACT

As described previously, as part of the Softwood Expansion Project Enviva proposes to install an RTO to reduce VOC emissions from the Dryer and Green Hammermills. Because this control has the highest VOC control efficiency of the technically viable control options, it has been selected as BACT.

5.3.2 PM BACT for Dryer and Green Hammermill Sources

5.3.2.1 Step 1- Identify Control Technologies

Potentially applicable particulate add-on control technologies are:

- Cyclone;
- Baghouse;
- Scrubber;
- Electrostatic Precipitator (ESP); and
- WESP.

Cyclone

Cyclones are frequently used for product recovery or emissions control of dry dusts and powders, and as primary collectors on high dust loading operations. Entrained particulate matter is removed in a cyclone through centrifugal and inertial forces. Thus, particulate-laden gas is forced to change direction and fall out of the gas stream where it accumulates and slides down the cyclone walls into a receiving vessel. The control efficiency range for conventional single cyclones is estimated to be 70 to 90% for PM.[30]

Baghouse

A fabric filtration device (baghouse) consists of a number of filtering elements (bags) along with a bag cleaning system contained in a main shell structure incorporating dust hoppers. Baghouses use fabric bags as filters to collect particulate matter. The particulate-laden gas enters a fabric filter compartment and passes through a layer of particulate and filter bags. The collected particulate forms a cake on the bag, which enhances the bag's filtering efficiency. However, excessive caking will increase the pressure drop across the fabric filter and reduce its efficiency. A phenomenon known as "blinding" occurs when cake builds up to the point that air can no longer pass through the baghouse during normal operation or the baghouse becomes clogged with wet and/or resinous compounds.

The particulate removal efficiency of baghouses is dependent upon a variety of particle and operational characteristics. Particle characteristics that affect the collection efficiency include particle size distribution, particle cohesion characteristics, and particle electrical resistivity. Operational parameters that affect baghouse collection efficiency include air-to-cloth ratio, operating pressure loss, cleaning sequence, interval between cleanings, cleaning method, and cleaning intensity. In addition, the particle collection efficiency and size distribution can be affected by certain fabric properties (e.g., structure of fabric, fiber composition, and bag

[30] EPA, *Air Pollution Control Technology Fact Sheet, Cyclones,* EPA-452/F-03-005. https://www3.epa.gov/ttn/catc/dir1/fcyclon.pdf

properties). Typical baghouse control efficiencies range between 99 and 99.9% for PM with a typical exhaust grain loading of 1 to 100 gr/scf.[31]

Scrubber

As discussed above, scrubbers remove pollutants by inertial or diffusional impaction, reaction with a sorbent or reagent slurry, or absorption into a liquid solvent. In addition to VOCs, scrubbers can be used to control PM emissions; however, they are limited to applications in which dust loading is low. Collection efficiencies for PM removal range from 50 to 95%, depending on the application.[32]

Electrostatic Precipitator

ESPs remove particles from a gas stream through the use of electrical forces. Discharge electrodes apply a negative charge to particles passing through a strong electrical field. These charged particles then migrate to a collecting electrode having an opposite, or positive, charge. Collected particles are removed from the collecting electrodes by periodic mechanical rapping. Typical PM control efficiencies for PM range between 99 and 99.9%.[33]

Wet Electrostatic Precipitator

Similar to ESPs, WESPs remove particles from a gas stream through the use of electrical forces. Discharge electrodes apply a negative charge to particles passing through a strong electrical field. These charged particles then migrate to a collecting electrode having an opposite, or positive, charge. Unlike ESPs, collected particles in a WESP are removed from the collecting electrodes by washing utilizing a mild hydroxide solution to prevent build-up of resinous materials present in the dryer exhaust. WESPs, rather than ESPs, are utilized in the forest products industries for control of emissions from similar sources because ESPs cannot reliably operate due to resin build-up on collection electrodes. Typical PM control efficiencies for PM range between 99 and 99.9%.[34]

5.3.2.2 Step 2 – Eliminate Technically Infeasible Options

All of the above listed PM control devices are considered technically feasible. It should be noted that a WESP is currently installed to control particulate matter emissions from the Dryer at Sampson Plant.

5.3.2.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

Enviva has concluded that the following options remain technologically feasible and has ranked them in order of greatest to least control of PM emissions.

- ESP/WESP;
- Baghouse;
- Scrubber; and
- Cyclone.

[31] EPA, *Air Pollution Control Technology Fact Sheet, Fabric Filter – Pulse-Jet Cleaned Type (also referred to as Baghouses)*, EPA-452/F-03-025. https://www3.epa.gov/ttn/catc/dir1/ff-pulse.pdf

[32] EPA, *Air Pollution Control Technology Fact Sheet, Packed-Bed/Packed-Tower Wet Scrubber*, EPA-452/F-03-015. https://www3.epa.gov/ttn/catc/dir1/fpack.pdf

[33] EPA, *Air Pollution Control Technology Fact Sheet, Dry Electrostatic Precipitator (ESP) – Wire-Plate Type*, EPA-452/F-03-028. https://www3.epa.gov/ttn/catc/dir1/fdespwpl.pdf

[34] EPA, *Air Pollution Control Technology Fact Sheet, Wet Electrostatic Precipitator (ESP) – Wire Plate Type*, EPA-452/F-03-030. https://www3.epa.gov/ttn/catc/dir1/fwespwpl.pdf

It should be noted that the control efficiency for the top three controls are near identical achieving upwards of 99.9% PM removal efficiency.

5.3.2.4 Step 4 – Evaluate Most Effective Control Options and Step 5 Select BACT

Particulate matter emissions generated by the Dryer are currently controlled by a WESP, which was deemed to be BACT for PM emissions in PSD Permit No. 10386R00. As discussed previously, Enviva proposes to route the Green Wood Hammermill exhaust to the inlet of the dryer which is ultimately routed to the WESP and proposed new RTO or to the inlet of the WESP and to the proposed RTO to reduce PM emissions. Because the WESP has one of the highest PM control efficiency of the technically viable control options, it has been selected as BACT for Dryer and Green Wood Hammermill PM emissions.

5.4 BACT Review for Dry Hammermills (ES-HM-1 through 8)

The Dry Hammermills (ES-HM-1 to 8) are used to reduce dried wood to the appropriate size prior to pressing into pellets. Each Dry Hammermill includes a product recovery cyclone for capturing additional dried wood for further processing. Particulate emissions from each of the seven (7) existing Dry Hammermills are controlled using seven (7) individual baghouses (CD-HM-BH1 through 7). As noted in Section 1, Enviva is proposing to install an eighth Dry Hammermill (ES-HM-8), associated product recovery cyclone, and baghouse (CD-HM-BH-8) as part of the Softwood Expansion Project.

A detailed BACT analysis for VOC and PM emissions from the Dry Hammermills is addressed in the following sections.

5.4.1 VOC BACT for Dry Hammermills

5.4.1.1 Step 1- Identify Control Technologies

VOC emissions from the Dry Hammermills can be reduced by add-on control technologies. There are no known process design or operational changes that will result in lower VOC emissions and still allow the Dry Hammermills to function as required. Based on a search of RBLC results and commercially demonstrated technology, the following add-on control technologies are considered in this evaluation:

- Thermal Oxidation –TO, Recuperative Unit, or RTO;
- Catalytic Oxidation - RCO and TCO;
- Wet Scrubber - Packed-Bed/Packed-Tower; and,
- Bio-oxidation/Bio-filtration.

See Section 5.3.1.1 of this document for an overview of the above control technology.

5.4.1.2 Step 2 – Eliminate Technically Infeasible Options

While there are a number of techniques that can be used to control VOC, the following technologies are not technically feasible for VOC control on the Dry Hammermills at the Enviva plant:

- Wet Scrubber; and
- Bio-oxidation/Bio-filtration

See Section 5.3.1.2 above for additional details on why these technologies are not considered technically feasible.

5.4.1.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

After eliminating wet scrubber and bio-oxidation/bio-filtration as a potential control option, Enviva has concluded that the following option remains technologically feasible:

- Thermal Oxidation -TO, Recuperative Unit, or RTO;
- Catalytic Oxidation - RCO and TCO;

See Section 5.3.1.1 above for details on why a RTO is the only control considered out of the remaining technically feasible options.

5.4.1.4 Step 4 – Evaluate Most Effective Control Options (Impacts Analysis)

Enviva analysed the costs associated with installation of an RTO on Dry Hammermills. As noted previously the Dry Hammermills are already equipped with baghouses to control PM emissions and thus, no additional control is required to reduce PM prior to oxidation in an RTO. An economic analysis was performed to estimate the cost effectiveness of an RTO in reducing VOC emissions from Dry Hammermills. The RTO capital expenditure was estimated to be $7,367,758 with annualized operating costs of $3,313,346. The installation of the RTO would reduce emissions by 159 tpy. The detailed cost estimate is included in Appendix F. As documented in Appendix F the cost of control would be $20,818 per ton of VOC emissions reduced (controlled). The high cost per ton is due to: (1) the relatively low VOC emissions; and (2) the relatively high initial capital and annual operating costs associated with the installation and operation of the RTO. This high cost of control associated with installing and operating a RTO to control VOC emissions from the Dry Hammermill is considered to be excessive and is therefore not considered to be representative of BACT on the basis of its high cost of control.

It should also be noted that the installation of an RTO would result in adverse impacts in the form of increased combustion pollutants and GHG emissions as a result of the oxidation of fuel and VOC emissions from the Dry Hammermills.

5.4.1.5 Step 5 – Select BACT

As documented above the cost to install additional controls on the Dry Hammermills is not considered cost effective. Therefore, BACT for VOC emissions from the Dry Hammermills is considered good operating procedures consistent with VOC BACT determination made in PSD Permit No. 10386R00. The proposed BACT emission limit listed in Table 5.2 above reflects an increase in the softwood throughput and the production rate requested with this permit modification for the Softwood Expansion Project as well as reflects new source test data acquired for similar Enviva facilities.

5.4.2 PM BACT for Dry Hammermills

5.4.2.1 Step 1- Identify Control Technologies

Potentially applicable particulate add-on control technologies are:

- Cyclone;
- Baghouse;
- Scrubber;
- ESP; and

- WESP.

See Section 5.3.2.1 of this document for an overview of the above control technology.

5.4.2.2 Step 2 – Eliminate Technically Infeasible Options

All of the above listed PM control devices are considered technically feasible. It should be noted that the Dry Hammermill operations already utilize baghouses for PM control which was determined to be BACT for PM emissions in PSD Permit No. 10386R00.

5.4.2.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

Enviva has concluded that the following options remain technologically feasible and has ranked them in order of greatest to least control of PM emissions.

- ESP/WESP;
- Baghouse;
- Scrubber; and
- Cyclone

It should be noted that the control efficiency for the top three controls are near identical, achieving upwards of 99.9% PM removal efficiency.

5.4.2.4 Step 4 – Evaluate Most Effective Control Options and Step 5 Select BACT

Particulate matter emissions generated by the Dry Hammermills are currently controlled by individual baghouses which were deemed to be BACT for PM emissions in PSD Permit No. 10386R00. Because baghouses have one of the highest PM control efficiency of the technically viable control options, it has been selected as BACT for Dry Hammermill.

5.5 BACT Review for Dried Wood Handling Operations (ES-DWH)

There are several conveyor transfer points comprising the Dried Wood Handling emission source that are located between the Dryer and Dry Hammermills. These sources are completely enclosed with only two (2) emission points in which particulate emissions are controlled by individual baghouses (CD-DWH-BH-1 and 2). Additionally, the dried material may continue to emit VOC as it is transferred between the Dryer and Dry Hammermills due to the elevated temperature of the material. BACT is addressed in detail in the following sections for both PM and VOC emissions for which the Softwood Expansion Project is significant.

5.5.1 PM BACT for Dried Wood Handling Operations

5.5.1.1 Step 1- Identify Control Technologies

Potentially applicable particulate add-on control technologies are:

- Cyclone;
- Baghouse;
- Scrubber;
- ESP; and
- WESP

See Section 5.3.2.1 of this document for an overview of the above control technology.

5.5.1.2 Step 2 – Eliminate Technically Infeasible Options

All of the above listed PM control devices are considered technically feasible. It should be noted that the Dried Wood Handling operations already utilize baghouses (CD-DWH-BH-1 and 2) to control PM emissions, which was determined to be BACT for PM emissions in PSD Permit No. 10386R00.

5.5.1.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

Enviva has concluded that the following options remain technologically feasible and has ranked them in order of greatest to least control of PM emissions.

- ESP/WESP;
- Baghouse;
- Scrubber; and
- Cyclone

It should be noted that the control efficiency for the top three controls are near identical, achieving upwards of 99.9% PM removal efficiency.

5.5.1.4 Step 4 – Evaluate Most Effective Control Options and Step 5 Select BACT

Particulate matter emissions generated by the Dried Wood Handling Operations are currently controlled by two baghouses which were deemed to be BACT for PM emissions in PSD Permit No. 10386R00. Because baghouses have one of the highest PM control efficiency of the technically viable control options, it has been selected as BACT for Dried Wood Handling Operations.

5.5.2 VOC BACT for Dried Wood Handling Operations

5.5.2.1 Step 1- Identify Control Technologies

VOC emissions from the Dried Wood Handling operations can potentially be controlled by add-on control technologies following the current baghouses. There are no know process changes that could be implemented that would reduce VOC emissions and still allow proper operation of Dried Wood Handling Operations. Based upon a search of RBLC results and commercially demonstrated technology, the following add-on control technologies are considered in this evaluation:

- Thermal Oxidation – TO, Recuperative Unit, or RTO;
- Catalytic Oxidation - RCO and TCO;
- Wet Scrubber - Packed-Bed/Packed-Tower; and,
- Bio-oxidation/Bio-filtration.

See Section 5.3.1.1 of this document for an overview of the above control technology.

5.5.2.2 Step 2 – Eliminate Technically Infeasible Options

While there are a number of techniques that can be used to control VOC, the following technology is not technically feasible for VOC control on the Dried Wood Handling Operations at the Enviva plant:

- Wet Scrubber; and
- Bio-oxidation/Bio-filtration

See Section 5.3.1.2 above for additional details on why these technologies are not considered technically feasible.

5.5.2.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

After eliminating wet scrubber and bio-oxidation/bio-filtration as a potential control option, Enviva has concluded that the following options remain technologically feasible:

- Thermal Oxidation – TO, Recuperative Unit, or RTO; and
- Catalytic Oxidation - RCO and TCO.

See Section 5.3.1.1 above for details on why a RTO is the only control considered out of the remaining technically feasible options.

5.5.2.4 Step 4 – Evaluate Most Effective Control Options (Impacts Analysis)

Enviva analysed the costs associated with installation of an RTO on the Dried Wood Handling operations. As noted previously, the Dried Wood Handling operations are already equipped with baghouses to control PM emissions and thus, no additional control is required to reduce PM prior to oxidation in an RTO. An economic analysis was performed to estimate the cost effectiveness of an RTO in reducing VOC emissions from the Dried Wood Handling operation. The RTO capital expenditure was estimated to be $1,119,759 with annualized operating costs of $566,776. The installation of the RTO would reduce emissions by 38.8 tpy. The detailed cost estimate is included in Appendix F. As documented in Appendix F, the cost of control would be $14,619 per ton of VOC emissions reduced (controlled). The high cost per ton is due to: (1) the relatively low VOC emissions; and (2) the relatively high initial capital and annual operating costs associated with the installation and operation of the RTO. This high cost of control associated with installing and operating a RTO to control emissions from the Dried Wood Handling Operations is considered to be excessive and is therefore not considered to be representative of BACT on the basis of its high cost of control.

It should also be noted that the installation of an RTO would result in adverse impacts in the form of increased combustion pollutants and GHG emissions as result of the oxidation of fuel and VOC emissions from the Dried Wood Handling Operations

5.5.2.5 Step 5 – Select BACT

As documented above the cost to install additional controls on the Dried Wood Handling Operations is not considered cost effective. Therefore, BACT for VOC emissions from the Dried Wood Handling Operations is considered good operating procedures consistent with VOC BACT determination made in PSD Permit No. 10386R00.

5.6 BACT Review for Pellet Presses and Coolers (ES-CLR-1 through 6)

Pellet Presses and Pellet Cooler operation generate both PM and VOC emissions during the production of wood pellets. BACT is addressed in detail in the following sections for both PM and VOC emissions for which the Softwood Expansion Project is significant.

5.6.1 PM BACT for Pellet Presses and Coolers

5.6.1.1 Step 1- Identify Control Technologies

Potentially applicable particulate add-on control technologies are:

- Cyclone;
- Baghouse,
- ESP; and,
- WESP.

Additional detail about these control options is provided above in Section 5.3.2.1.

5.6.1.2 Step 2 – Eliminate Technically Infeasible Options

All of the above listed PM control devices are considered technically feasible. It should be noted that the Pellet Presses and Coolers already utilize cyclones for material handling and PM emissions control.

5.6.1.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

Enviva has concluded that the following options remain technologically feasible and has ranked them in order of greatest to least control of PM emissions.

- ESP/WESP;
- Baghouse;
- Scrubber; and
- Cyclone

It should be noted that the control efficiency for the top three controls are near identical achieving upwards of 99.9% PM removal efficiency. Furthermore, of the top three control devices, the baghouse would be the most cost effective PM control device to install on the Pellet Presses and Coolers.

5.6.1.4 Step 4 – Evaluate Most Effective Control Options (Impacts Analysis)

Enviva analysed the costs associated with installation of six (6) baghouses on the Pellet Presses and Coolers. As noted previously, the Pellet Presses and Coolers are already equipped with cyclones. An economic analysis was performed to estimate the cost effectiveness of the installation of baghouses to reduce PM emissions from the Pellet Press and Coolers. The baghouses capital expenditure was estimated to be $4,936,380 with annualized operating costs of $1,465,025. The installation of the baghouses would reduce emissions PM emissions by 143 tpy. The detailed cost estimate is included in Appendix F. As documented in Appendix F, the cost of control would be $10,220 per ton of PM emissions reduced (controlled). The high cost per ton is due to: (1) the relatively low PM emissions; and (2) the relatively high initial capital and annual operating costs associated with the installation and operation of the baghouses. This high cost of control associated with installing and operating baghouses to control emissions from the Pellet Press and Coolers is considered to be excessive and is therefore not considered to be representative of BACT on the basis of its high cost of control.

It should also be noted that the installation of baghouses would result in adverse impacts in the form of solid waste generated from the disposal of baghouse filter media.

5.6.1.5 Step 5 – Select BACT

Based on the analysis provided above, Enviva proposes to continue utilizing the existing cyclones as BACT for the Pellet Presses and Coolers as previously approved in PSD Permit No. 10386R00. Enviva will employ proper design and good operation practices by following manufacturer's recommendations and/or Enviva's standard operating, maintenance and control practices. The proposed BACT emission limit listed in Table 5.2 above reflects an increase in the softwood throughput and the production rate requested with this permit modification for the Softwood Expansion Project as well as reflects new source test data acquired for similar Enviva facilities.

5.6.2 VOC BACT for Pellet Presses and Coolers

5.6.2.1 Step 1- Identify Control Technologies

VOC emissions from the Pellet Presses and Coolers can be controlled by add-on control technologies. There are no known process design or operational changes that will result in lower VOC emissions and still allow the Pellet Presses and Coolers to function as required. Based upon a search of RBLC results and commercially demonstrated technology, only the following add-on control technologies are considered in this evaluation:

- Thermal Oxidation – TO, Recuperative Unit, or RTO;
- Catalytic Oxidation - RCO and TCO;
- Wet Scrubber - Packed-Bed/Packed-Tower; and,
- Bio-oxidation/Bio-filtration.

See Section 5.3.1.1 of this document for an overview of the above control technology.

5.6.2.2 Step 2 – Eliminate Technically Infeasible Options

While there are a number of techniques that can be used to control VOC, the following technologies are not technically feasible for VOC control on the Pellet Presses and Coolers at the Enviva plant:

- Wet Scrubber; and
- Bio-oxidation/Bio-filtration

See Section 5.3.1.2 above for additional details on why these technologies are not considered technically feasible.

5.6.2.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

After eliminating wet scrubber and bio-oxidation/bio-filtration as a potential control option, Enviva has concluded that the following options remain technologically feasible:

- Thermal Oxidation – TO, Recuperative Unit, or RTO; and
- Catalytic Oxidation - RCO and TCO.

See Section 5.3.1.1 above for details on why a RTO is the only control considered out of the remaining technically feasible options.

5.6.2.4 Step 4 – Evaluate Most Effective Control Options (Impacts Analysis)

Enviva analysed the costs associated with installation of an RTO on Pellet Presses and Coolers. As noted previously PM controls to remove fine material are required for proper RTO installation. Since the Pellet Presses and Coolers are equipped with cyclones the costs of baghouses has been included to further pretreat exhaust prior to routing to an RTO. An economic analysis was performed to estimate the cost effectiveness of an RTO in reducing

Pellet Press and Cooler VOC emissions. The RTO capital expenditure was estimated to be $10,375,576 with annualized operating costs of $3,800,354. The installation of an RTO would reduce emissions by 544 tpy. The detailed cost estimate is included in Appendix F. As documented in Appendix F, the cost of control would be $6,991 per ton of VOC emissions reduced (controlled). The high cost per ton is due to: (1) the relatively low VOC emissions; (2) the need for additional PM control prior to the RTO and (3) the relatively high initial capital and annual operating costs associated with the installation and operation of the RTO. This high cost of control associated with installing and operating a RTO to control emissions from the Pellet Press and Coolers is considered to be excessive and is therefore not considered to be representative of BACT on the basis of its high cost of control.

It should also be noted that the installation of an RTO would result in adverse impacts in the form of increased combustion pollutants and GHG emissions as result of the oxidation of fuel and VOC emissions from the Pellet Presses and Coolers.

5.6.2.5 Step 5 – Select BACT

As documented above, the cost to install additional controls on the Pellet Press and Coolers are not considered cost effective. Therefore, BACT for VOC emissions from the Pellet Press and Coolers is considered good operating procedures consistent with VOC BACT determination made in PSD Permit No. 10386R00. The proposed BACT emission limit listed in Table 5.2 above reflects an increase in the softwood throughput and the production rate requested with this permit modification for the Softwood Expansion Project as well as reflects new source test data acquired for similar Enviva facilities.

5.7 BACT Review for the Hammermill Conveying System (ES-HMC), Pellet Cooler Recirculation (ES-PCR), Pellet Sampling Transfer Bin (ES-PSTB), Hammermill Area (ES-HMA), Pellet Fines Bin (ES-PFB), Pellet Mill Feed Silo (ES-PMFS), Finished Product Handling (ES-FPH), Pellet Loadout Bins (ES-PB-1 to 4), and Pellet Mill Loadouts (ES-PL-1 and 2)

Particulate emissions from the Pellet Cooler Recirculation (ES-PCR), Pellet Sampling Transfer Bin (ES-PSTB), Hammermill Area (ES-HMA), Pellet Fines Bin (ES-PFB), Pellet Mill Feed Silo (ES-PMFS), Finished Product Handling (ES-FPH), Pellet Loadout Bins (ES-PB-1 to 4), and Pellet Mill Loadouts (ES-PL-1 and 2) are all controlled by baghouses with fabric filters. In addition, the new Hammermill Conveying System (ES-HMC) will be controlled by a similar baghouse with fabric filters. BACT for PM for these sources is addressed in detail in the following sections.

5.7.1 PM BACT for Hammermill Conveying System (ES-HMC), Pellet Cooler Recirculation (ES-PCR), Pellet Sampling Transfer Bin (ES-PSTB), Hammermill Area (ES-HMA), Pellet Fines Bin (ES-PFB), Pellet Mill Feed Silo (ES-PMFS), Finished Product Handling (ES-FPH), Pellet Loadout Bins (ES-PB-1 to 4), and Pellet Mill Loadouts (ES-PL-1 and 2)

5.7.1.1 Step 1- Identify Control Technologies

Potentially applicable particulate add-on control technologies are:

- Cyclone;
- Baghouse;

- Scrubber;
- ESP; and
- WESP

See Section 5.3.2.1 of this document for an overview of the above control technology.

5.7.1.2 Step 2 – Eliminate Technically Infeasible Options

All of the above listed PM control devices are considered technically feasible. As discussed previously, the Hammermill Conveying System (ES-HMC), Pellet Cooler Recirculation (ES-PCR), Pellet Sampling Transfer Bin (ES-PSTB), Hammermill Area (ES-HMA), Pellet Fines Bin (ES-PFB), Pellet Mill Feed Silo (ES-PMFS), Finished Product Handling (ES-FPH), Pellet Loadout Bins (ES-PB-1 to 4) and Pellet Mill Loadouts (ES-PL-1 and 2) already utilize baghouses for PM control which was determined to be BACT for PM emissions in PSD Permit No. 10386R00.

5.7.1.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

Enviva has concluded that the following options remain technologically feasible and has ranked them in order of greatest to least control of PM emissions.

- ESP/WESP;
- Baghouse;
- Scrubber; and
- Cyclone

It should be noted that the control efficiency for the top three controls are near identical achieving upwards of 99.9% PM removal efficiency.

5.7.1.4 Step 4 – Evaluate Most Effective Control Options and Step 5 - Select BACT

Particulate matter emissions generated by the Hammermill Conveying System (ES-HMC), Pellet Cooler Recirculation (ES-PCR), Pellet Sampling Transfer Bin (ES-PSTB), Hammermill Area (ES-HMA), Pellet Fines Bin (ES-PFB), Pellet Mill Feed Silo (ES-PMFS), Finished Product Handling (ES-FPH), Pellet Loadout Bins (ES-PB-1 to 4) and Pellet Mill Loadouts (ES-PL-1 and 2) are currently controlled by individual baghouses which were deemed to be BACT for PM emissions in PSD Permit No. 10386R00. Because baghouses have one of the highest PM control efficiency of the technically viable control options, it has been selected as BACT for PM emissions for the Hammermill Conveying System (ES-HMC), Pellet Cooler Recirculation (ES-PCR), Pellet Sampling Transfer Bin (ES-PSTB), Hammermill Area (ES-HMA), Pellet Fines Bin (ES-PFB), Pellet Mill Feed Silo (ES-PMFS), Finished Product Handling (ES-FPH), Pellet Loadout Bins (ES-PB-1 to 4) and Pellet Mill Loadouts (ES-PL-1 and 2).

5.8 BACT Review for Paved Roads

Fugitive PM emissions occur as a result of trucks and employee vehicles traveling on paved roads on the Sampson plant property. The following sections document the BACT analysis for PM emissions from Paved Roads.

5.8.1 PM BACT for Paved Roads

5.8.1.1 Step 1 – Identify Control Technologies

As described above, PM emissions from paved roads are fugitive in nature. As such, no add-on control technologies are technically feasible for control of PM emissions. Therefore, work practices and pollution prevention are the only feasible means for minimizing PM emissions from paved roads. Based on a review of approved BACT from the RBLC database, the following options have been identified as potential control options:

- Application of water or wet suppressants;
- Vehicle speed control/reduction;
- Good housekeeping and maintenance practices; and
- Vacuuming and/or sweeping of roadways.

5.8.1.2 Step 2 – Eliminate Technically Infeasible Options

All of the control options are considered technically feasible for minimizing PM emissions from paved roads.

5.8.1.3 Step 3 – Rank Remaining Control Technologies by Effectiveness

The control effectiveness for the work practices and pollution prevention options identified may vary depending on the frequency of application, treatment, and implementation. However, with proper implementation a combination of the above control options can achieve up to 90% control efficiency.

5.8.1.4 Step 4 - Evaluate Most Effective Control Options and Step 5 – Select BACT

As described above, the most effective control for minimizing PM emissions from paved roads is to implement a combination of work practices. Thus, no one work practice is considered the most effective control. Therefore, Enviva proposes the watering of paved roads, vehicle speed control, and good housekeeping as BACT for PM for paved roadways, which will reduce emissions by an estimated 90% which were deemed to be BACT for PM emissions in PSD Permit No. 10386R00. It should be noted that the use of vacuuming and/or sweeping was considered; however, based on available data this would not significantly reduce the already relatively low emissions generated by paved roads beyond the proposed work practices.

5.9 BACT Review for Green Wood Handling (IES-GWH)

Fugitive particulate emissions result from unloading purchased chips and bark from trucks into hoppers and transfer of these materials to storage piles via conveyors. BACT is addressed for PM in the following section.

5.9.1 PM BACT for Green Wood Handling

5.9.1.1 Step 1 – Identify Control Technologies

Potentially applicable control technologies include the following:

- Windscreen barriers;
- Reduced drop heights; and
- Use of water spray or wet suppressants.

5.9.1.2 Step 2 – Eliminate Technically Infeasible Options

All of the identified control options are technically feasible. However, use of water sprays or chemical suppressants is unnecessary and would result in notable increases in emissions of criteria pollutants from the dryer due to combustion of additional fuel to remove the additional moisture that would be added. Therefore, use of water spray or wet suppressants is not considered further.

5.9.1.3 Step 3 – Rank Remaining Control Options by Effectiveness

The remaining control options, windscreen barriers and reduced drop heights, may have varying degrees of effectiveness that are dependent on additional factors such as wind speed and direction. Therefore, both remaining options are considered to be equal in terms of effectiveness.

5.9.1.4 Step 4 – Evaluate Most Effective Control Options and Step 5 Select BACT

Due to the inherently low emissions generated by the Green Wood Handling (0.08 tpy PM), even a modestly low-cost windscreen would be considered cost prohibitive and would not result in a significant reduction in PM emissions. Reducing of drop heights is not possible for the unloading of trucks and reduction of emissions from varying the drop height from the conveyors to the storage piles would result in minimal emission reductions. Therefore, Enviva proposes no control as BACT for Green Wood Handling, consistent with the BACT analysis for PM emissions in PSD Permit No. 10386R00.

5.10 BACT Review for Green Wood Storage Piles (ES-GWSP-1 and 2) and Bark Fuel Storage Piles (ES-BFSP-1 and 2)

Particulate and VOC emissions are generated from the Green Wood and Bark Fuel Storage piles due to wind erosion. BACT is addressed for both PM and VOC emissions for which the Softwood Expansion Project is significant.

5.10.1 PM BACT for Green Wood Storage Piles and Bark Fuel Storage Piles

5.10.1.1 Step 1 – Identify Control Technologies

Potentially applicable control technologies include the following:

- Windscreen barriers; and
- Use of water spray or wet suppressants.

5.10.1.2 Step 2 – Eliminate Technically Infeasible Options

All of the identified control options are technically feasible. However, use of water sprays or chemical suppressants is unnecessary and would result in notable increases in emissions of criteria pollutants from the dryer due to combustion of additional fuel to remove the additional moisture that would be added. Therefore, use of water spray or wet suppressants is not considered further.

5.10.1.3 Step 3 – Rank Remaining Control Options by Effectiveness

The only remaining control option identified is windscreen barriers.

5.10.1.4 Step 4 – Evaluate Most Effective Control Options and Step 5 Select BACT

Due to the inherently low emissions generated by the Green Wood Storage Piles and Bark Fuel Storage Piles (15 tpy and 0.64 tpy, respectively), even a modestly low-cost windscreen would be considered cost prohibitive and would not result in a significant reduction in PM emissions. Therefore, Enviva proposes no control as BACT for PM for Green Wood Storage Piles and Bark Fuel Storage Piles, consistent with the BACT analysis for PM emissions for storage piles in PSD Permit No. 10386R00.

5.10.2 VOC BACT for Green Wood Storage Piles and Bark Fuel Storage Piles

5.10.2.1 Step 1 – Identify Control Technologies

The VOC emissions from both Green Wood and Bark Fuel Storage Piles are fugitive in nature. Additionally, the storage piles have a relatively large footprint and thus it is not feasible to cover/enclose the storage piles in order to capture the VOC emissions. Further, no work practice or operational measures are known that will reduce emissions of VOC from these source types that will still allow for proper function and operation.

5.10.2.2 Step 2 through 4

As mentioned above, there are no practical methods to control VOC emissions from storage piles. Thus, there are no controls to eliminate, rank or evaluate.

5.10.2.3 Step 5 – Select BACT

Because there is no feasible control option to capture, control or minimize the VOC emissions, Enviva proposes no control or work practices as BACT for VOC emissions from the Green Wood and Bark Fuel Storage Piles, consistent with the BACT analysis for VOC emissions for storage piles in PSD Permit No. 10386R00.

5.11 BACT Review for Dry Shavings Material Handling (IES-DRYSHAVE), Bark Fuel Bin (IES-BFB), and Debarker (IES-DEBARK-1)

Particulate emissions will occur during unloading of dry shavings from trucks and may also occur as a result of air displaced during silo loading (IES-DRYSHAVE). In the Debarker (IES-DEBARK-1), PM emissions occur as a result of log debarking. PM emissions from debarking are minimal due to the high moisture content of green wood and because the debarking drum is enclosed, except on the two ends where the logs enter and material exit. Bark is transferred from the Bark Fuel Storage Piles via a walking floor to covered conveyor to the fully enclosed Bark Fuel Bin (IES-BFB). BACT is addressed for PM emissions from these sources below.

5.11.1 PM BACT for Dry Shavings Material Handling, Bark Fuel Bin, and Debarker

5.11.1.1 Step 1 – Identify Control Technologies

The PM emissions from these sources are fugitive in nature. No add-on controls are feasible for the Debarker as the ends must remain open for log entry and exit. Additionally, for the same reasons discussed in Sections 5.9.1.2 and 5.10.1.2, use of water sprays or chemical suppressants is unnecessary and would result in notable increases in emissions of criteria pollutants from the Dryer due to combustion of additional fuel to remove the additional moisture that would be added. Therefore, use of water spray or wet suppressants is not considered further. No additional control options were identified for control of PM emissions from these sources.

5.11.1.2 Step 2 through 4

As detailed above, no additional control options were identified for the control or reduction of PM emissions from these sources. Thus, there are no controls to eliminate, rank or evaluate.

5.11.1.3 Step 5 – Select BACT

Due to the fact there are no known available control options, the inherently low PM emission rates, and because the conveyor and Bark Fuel Bin are enclosed, Enviva proposes no additional control as BACT for PM emissions from the Dry Shavings Material Handling, Bark Fuel Bin, and Debarker, consistent with the BACT analysis for PM emissions in PSD Permit No. 10386R00.

5.12 BACT Review for Log Chipping (IES-CHIP-1)

The Chipper is located inside of a building; therefore, PM emissions are negligible and were not quantified. The chipping process also results in emissions of VOC. Therefore, a BACT assessment was conducted for VOC emissions.

5.12.1 VOC BACT for Log Chipping

5.12.1.1 Step 1 – Identify Control Technologies

The VOC emissions from Log Chipping are fugitive in natureAs noted above, the chipper is located inside a building and it is not feasible to capture and control VOC emissions due to the volume of air that would need to be captured and routed to a control device. Further, no work practice or operational measures are known that will reduce emissions of VOC from the Log Chipper.

5.12.1.2 Step 2 through 4

As mentioned above, there are no practical methods to control VOC emissions from the Log Chipper. Thus, there are no controls to eliminate, rank or evaluate.

5.12.1.3 Step 5 – Select BACT

Due to the fact there are no feasible control options and the inherently low VOC emissions (1.6 tpy), Enviva proposes no control or work practices as BACT for VOC emissions from the Log Chipper, consistent with the BACT analysis for PM emissions for the Chipper in PSD Permit No. 10386R00.

5.13 BACT Review for Bark Hog (IES-BARKHOG)

Bark that is removed from logs at the Debarker is sent for additional processing by the Bark Hog. The Bark Hog receives bark that is too large for the Bark Fuel Bin and conveyor system, reduces the size of the material and then, returns the bark back to the Bark Storage Pile. Processing of bark results in emissions of both PM and VOC emissions. Therefore, a BACT assessment was conducted for both PM and VOC emissions.

5.13.1 PM BACT for the Bark Hog

5.13.1.1 Step 1 – Identify Control Technologies

The PM emissions from the Bark Hog are fugitive in nature. Thus, no add-on controls were identified for control of PM emissions from the Bark Hog. Additionally, for the same reasons discussed in Sections 5.9.1.2 and 5.10.1.2, use of water sprays or chemical suppressants is unnecessary and would result in notable increases in emissions of criteria pollutants from the dryer due to combustion of additional fuel to remove the additional moisture that would be added. Therefore, use of water spray or wet suppressants is not considered further. No additional control options were identified for control of PM emissions from this source.

5.13.1.2 Step 2 through 4

As detailed above, no additional control options were identified for the control or reduction of PM emissions from the Bark Hog. Thus, there are no controls to eliminate, rank or evaluate.

5.13.1.3 Step 5 – Select BACT

Due to the fact there are no known available control options and the inherently low PM emission rates (0.24 tpy), Enviva proposes no control as BACT for PM emissions from the Bark Hog, consistent with the BACT analysis for PM emissions for the Bark Hog in PSD Permit No. 10386R00.

5.13.2 VOC BACT for Bark Hog

5.13.2.1 Step 1 – Identify Control Technologies

The VOC emissions from the Bark Hog are fugitive in nature. Thus, no add-on controls exists to capture and control the VOC emissions. Additionally, no work practice or operational measures are known that will reduce emissions of VOC from the Bark Hog.

5.13.2.2 Step 2 through 4

As mentioned above, there are no practical methods to control VOC emissions from the Bark Hog operations. Thus, there are no controls to eliminate, rank or evaluate.

5.13.2.3 Step 5 – Select BACT

Due to the fact there are no feasible control options and the inherently low VOC emissions (0.30 tpy), Enviva proposes no control or work practices as BACT for VOC emissions from the Bark Hog, consistent with the BACT analysis for VOC emissions for the Bark Hog in PSD Permit No. 10386R00.

6. REGULATORY APPLICABILITY

The Sampson plant is subject to federal and state air quality regulations. The following addresses all potentially applicable regulations.

6.1 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.

6.1.1 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 are subject to NSPS Subpart IIII.

6.1.2 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 689 bhp Emergency Generator and 131 bhp Fire Pump at the Sampson plant are subject to NSPS Subpart IIII. These units will not be modified by the proposed Softwood Expansion Project and will continue to comply with all applicable requirements.

6.1.3 40 CFR 60 Subpart CCCC – Standards of Performance for Commercial and Industrial Solid Waste Incineration Units

NSPS Subpart CCCC regulates emissions from commercial and industrial solid waste incineration (CISWI) units. A CISWI unit is one that combusts a solid waste meeting the definition under §241.2. The Sampson plant's Dryer is heated by a furnace burner system firing bark and wood chip fuels. In accordance with §241.2, traditional fuels that are produced as fuels and are unused products that have not been discarded, including cellulosic biomass (virgin wood), are not solid waste. As such, the Dryer furnace burner system is not considered a CISWI unit, and Subpart CCCC does not apply.

6.2 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 Sampson plant is considered a major source of HAP due to facility-wide total HAP emissions exceeding 25 tpy and maximum individual HAP emissions exceeding 10 tpy.

6.2.1 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 Sampson plant has sources subject to Subparts B and ZZZZ of this part, and thus, Subpart A is also applicable to these sources.

6.2.2 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 any 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 Sampson plant is subject to 112(g) and underwent case-by-case MACT as part of the initial PSD construction permitting process. NC DAQ concluded that case-by-case MACT for the Dryer (ES-DRYER) is use of a low HAP-emitting dryer design not requiring add-on control, and the Sampson plant is not subject to numeric HAP emission limits under Section 112(g).[35] Further, while not required under case-by-case MACT, the plant is also subject to other requirements as part of its previous PSD BACT determination that also have the ancillary benefit of reducing HAP emissions. These BACT requirements include a limitation on softwood to reduce VOCs, which also results in reduced organic HAP emissions, and control of PM from the dryer through the use of a WESP, which also provides control of metallic and inorganic HPA emissions resulting from wood combustion in the furnace.

6.2.2.1 Applicability of Section 112(g) to the Softwood Expansion Project

This proposed Softwood Expansion Project includes changes to the wood pellet manufacturing process which will increase potential HAP emissions. The increase in potential HAP emissions is estimated to be approximately 63 tpy for total HAPs and 43 tpy for the highest individual HAP (methanol).[36] As provided in §63.40(b), a case-by-case MACT evaluation is required prior to the construction or reconstruction of a major source of HAP emissions.

The regulation defines "construct a major source" to mean 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.[37] 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."[38]

In the preamble to the December 1996 amendment to Subpart B, EPA further clarified the agency's intention for what constitutes a new process or production unit.[39] Specifically, the preamble states, "By requiring that the unit produce a product, the EPA intends section 112(g) to apply to units which are discrete, not units which are just one essential part of a

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[35] Air Quality Permit No. 10386R03, Section 2.1, Condition 4

[36] Note that the increase in HAP potential emissions from that shown in previous air permit applications is resulting both from the proposed process changes and also from updates to HAP emission factors based on more recent test data.

[37] §63.41

[38] Ibid.

[39] Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources, 61 Fed. Reg. 250 (December 27, 1996). https://www.gpo.gov/fdsys/pkg/FR-1996-12-27/pdf/96-32236.pdf

larger function."[40] Further, the preamble clarifies EPA's intent for the definition of "construct a major source" to only apply to the construction of new equipment or structures, not to the modification of existing equipment, as the agency recognizes "that it is more straightforward to build such a level of control technology into the original design."[41] EPA provides the following statement within the preamble [bold emphasis added]:[42]

> *In applying the definition of "process or production unit" to a facility, a key question is: [...] Do the new equipment and/or structures constitute a collection of equipment and/or structures that produces such a product? The EPA believes that an appropriate factor for the permitting authority to consider is* ***the extent to which the new equipment and structures are discrete— in other words, whether as a technical matter the new equipment and structures can produce an intermediate or final product independently, in substantial degree, from the existing equipment or structures****. If so, this would tend to support a judgment by the permitting authority that the new equipment and structures constitute a process or production unit. If not, this would support the opposite conclusion. The EPA notes that in making this judgment concerning "discreteness," one relevant consideration is whether the types of new equipment and structures in question are reasonably controlled independently.*

The "process or production unit" at the Sampson plant is the entire wood pellet manufacturing process, as all equipment in the process operate together to form the wood pellet product, and no individual sources within the process can operate independently to produce the product. As such, while the proposed Softwood Expansion Project will involve certain process modifications, including construction of new equipment and replacement of existing equipment, the project does not constitute construction of a new process or production unit (i.e., a new wood pellet manufacturing plant).

Enviva also reviewed the definition of "reconstruct a major source" in §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. As previously discussed, the "process or production unit" at the Sampson plant is the collection of all equipment used to manufacture the wood pellet product. The fixed capital costs associated with the proposed Softwood Expansion 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 Softwood Expansion 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 new construction or reconstruction of the process or production unit.

6.2.2.2 Impact of Softwood Expansion Project on Existing Case-by-Case MACT

As part of the proposed Softwood Expansion Project, Enviva is requesting modifications to previous PSD BACT determinations, including requesting an increase in the maximum

[40] Page 68390

[41] Page 68391

[42] Ibid.

amount of softwood that can be used from 75% to 100%. However, Enviva is also proposing to install a RTO to follow the current WESP for the dryer exhaust, which will result in better control for VOCs (and organic HAPs) than would be achieved from just lowering the quantity of softwood processed. In addition, Enviva will recirculate the emission from the Green Wood Hammermills (ES-GHM-1 to 3) to the to either the inlet of the Dryer furnace or directly to the WESP/RTO system (CD-WESP/CD-RTO), which will provide control for organic HAP emissions from the hammermill process. With installation of the RTO, Enviva believes the intent of the original case-by-case MACT determination continues to be satisfied after the completion of the proposed project, and Enviva does not believe that numeric HAP emission limits are required.

Other sources of organic HAP emissions at the plant include the following: eight (8) Dry Wood Hammermills (ES-HM-1 through 8), Dried Wood Handling operations (ES-DWH), the Hammermill Area filtration system (ES-HMA), twelve (12) wood Pellet Presses, and six (6) Pellet Coolers (ES-CLR-1 through 6). For these source, MACT and VOC BACT for PSD were 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.

6.2.3 40 CFR 63 Subpart DDDD – NESHAP for Plywood and Composite Wood Products

Subpart DDDD regulates HAP emissions from plywood and composite wood products (PCWP) manufacturing facilities located at major sources of HAPs. A PCWP manufacturing facility is defined in §63.2292 as one that manufactures plywood and/or composite wood products by bonding wood material or agricultural fiber to form a panel, engineered wood product, or other product defined in §63.2292. Further, an engineered wood product is defined as a product made with wood elements that are bound together with resin, such as laminated strand lumber and glue-laminated beams. The wood pellets manufactured at the Sampson plant do not meet the definition for any of the PCWP products defined in §63.2292 as being subject to Subpart DDDD. Wood pellets are not an engineered wood product, as they are not bound together with resin or other chemical agent. As such, this regulation is not applicable.

6.2.4 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 power from the local utility is interrupted, or when engines are used to pump water in the case of fire or flood. The Sampson plant Emergency Generator and emergency Fire Water Pump engine are both classified as emergency RICE under Subpart ZZZZ. Further, the engines are both classified as new sources, as they were constructed after June 12, 2006.

New and reconstructed emergency power 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. These units will not be modified by the proposed Softwood Expansion Project and will continue to comply with all applicable requirements.

6.2.5 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 indirectly to a process material or to a heat transfer material for use in a process unit. The Sampson plant's Dryer is heated by a wood-fired furnace burner system; however, the furnace burner system provides direct heating of the wood chips, not indirect. As such, Subpart DDDDD does not apply.

6.3 Compliance Assurance Monitoring

Compliance Assurance Monitoring (CAM) under 40 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]).[43] 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.[44]

The Dryer (ES-DRYER) is subject to a PM emission limit under 15A NCAC 02D .0515 and emissions are controlled by a WESP. In addition, the exhaust from the three Green Wood Hammermills (ES-GHM-1 to 3) will be controlled by the Dryer's WESP. Combined, the Dryer and Green Wood Hammermill post-controlled PM emissions will be below the major source threshold. Additionally, the exhaust from both the Dryer and Green Wood Hammermills will be controlled by the new RTO following the WESP for control of VOC emissions to meet a BACT emission limit under 15 NCAC 02D .0530. However, the post-controlled VOC emissions will be below the major source threshold. As such, a CAM plan for the Dryer and Green Wood Hammermills is not required to be submitted until the first Title V permit renewal application is submitted. A control device is not utilized to meet the Dryer's CO or NO_X emission limits.

All other emission units at the Sampson 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.

6.4 North Carolina Administrative Code

The Sampson plant sources are subject to regulations contained within 15A NCAC 02D and 02Q. Potentially applicable regulations are addressed below.

[43] §64.5(a)

[44] §64.5(b)

6.4.1 15A NCAC 02D .0504 Particulates from Wood Burning Indirect Heat Exchangers

15A NCAC 02D .0504 provides PM emission limits for indirect 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 (ES-DRYER) is heated by a wood-fired furnace burner system; however, the furnace burner system provides direct heating of the wood chips, not indirect. As such, this regulation does not apply.

6.4.2 15A NCAC 02D .0512 Particulates from Wood Products Finishing Plants

This regulation provides control requirements designed to reduce PM emissions from the working, sanding, or finishing of wood. The Sampson plant does not perform the subject wood finishing operations and thus, 15A NCAC 02D .0512 does not apply.

6.4.3 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 Sampson plant are either negligible or controlled by cyclones, baghouses, or the WESP, and thus, are expected to comply with this requirement.

6.4.4 15A NCAC 02D .0516 Sulfur Dioxide Emissions from Combustion Sources

Emissions of SO_2 from combustion sources cannot exceed 2.3 pounds of SO_2 per MMBtu input. The Emergency Generator and Fire Water Pump use low sulfur diesel, the Dryer furnace burner system combusts bark and wood chips, and the RTO will utilize propane/natural gas, each of which contain low amounts of sulfur and result in SO_2 emissions well below the limit of 2.3 lb/MMBtu.

6.4.5 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 that may have visible emissions.

6.4.6 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 Sampson plant does not show a violation or the potential for a violation of the PM_{10} or $PM_{2.5}$ NAAQS. As such, a fugitive dust control plan is not required at this time.

6.4.7 15A NCAC 02D .1100 Control of Toxic Air Pollutant Emissions

A TAP permit application is required to include an evaluation of the TAP emissions from a facility's sources, excluding exempt sources listed under 15A NCAC 02Q .0702(a)(18). This regulation (15A NCAC 02D .1100) outlines the procedures that must be followed if a TAP permit and associated modeling is required under 15A NCAC 02Q .0700. Per 15A NCAC 02Q .0702(27)(B) and (C), sources subject to 40 CFR 63 or case-by-case MACT are exempt from the requirement to obtain a permit to emit TAP. All sources of TAP emissions at the Sampson plant are subject to 40 CFR 63 or have undergone case-by-case MACT. The Sampson plant Softwood Expansion Project does not trigger a re-assessment of the previous case-by-case MACT determination, as discussed in Section 5.2.2. As such, a TAP permit and associated TAP modeling is not required. Because a TAP permit and modeling are not required for a case-by-case MACT source, no further TAP modeling is required for this application.

6.4.8 15A NCAC 02Q .0700 Toxic Air Pollutant Procedures

As discussed above, per 15A NCAC 02Q .0702, sources subject to 40 CFR 63 or case-by-case MACT are exempt from the requirements to obtain a permit for TAP emissions. Because Enviva is subject to NESHAP Subpart B, 112(g) §63.40-§63.44 for the Sampson plant, and the Emergency Generator and Fire Water Pump are subject to Subpart ZZZZ, all sources are exempt from air toxics review.

7. PSD AIR QUALITY ANALYSIS

As previously discussed in Section 4, the proposed project will trigger PSD for VOC and total suspended particulate (TSP), as emissions increases exceed the respective PSD SERs. Emissions increases of CO, SO_2, NO_X, PM_{10}, and $PM_{2.5}$ are below the SERs and thus, no modeling was conducted for these pollutants. The following sections outline the data sources and methodologies used in completing the PSD air quality analysis for the proposed project.

7.1 State and Federal Requirements

There are no National Ambient Air Quality Standards (NAAQS) or PSD Increment standards for VOC; however, if emissions increases exceed 100 tpy, an ozone ambient impact analysis is required. Additionally, although there are no NAAQS or PSD Increment standards for TSP, modeling was conducted to demonstrate that the Sampson plant, as modified, will not cause or contribute to an exceedance of the State Ambient Air Quality Standards (SAAQS) for TSP.

The analysis was conducted consistent with the following state and federal guidance documents and the modeling protocol that was approved by DAQ on January 19, 2018:

- North Carolina's PSD Modeling Guidance (January 6, 2012);
- EPA's Guideline on Air Quality Models 40 CFR 51, Appendix W (Revised, January 17, 2017), herein referred to as Appendix W;[45]
- EPA's AERMOD Implementation Guide (Revised August 3, 2015); and
- EPA, Office of Air Quality Planning and Standards. Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program. EPA-454/R-16-006. December 2016.

A copy of the modeling protocol and protocol approval letter are included in Appendix G for reference.

7.2 State Ambient Air Quality Standards

Ambient air quality standards for TSP are established in 15A NCAC 2D .0403 and are summarized in Table 2 below. Enviva conducted modeling to demonstrate that the proposed changes will not result in an exceedance of the SAAQS for TSP.

Table 2. NC TSP SAAQS

Averaging Period	SAAQS (μg/m³)
24-Hour	150
Annual	75

To assess compliance with the SAAQS, all sources at the Sampson plant were modeled. The maximum annual concentration across the five years of meteorological data was compared to

[45] Appendix W was revised on December 17, 2016 (Federal Register Vol. 82, No. 10); however, on January 26, 2017 the effective date of the final rule was delayed until March 21, 2017 (Federal Register Vol. 82, No. 16). On March 20, 2017 the effective date of the final rule was further delayed to May 22, 2017 (Federal Register Vol. 82, No. 52), upon which it became effective.

the annual SAAQS and the highest-first-high (H1H) 24-hour concentration across the five years was compared to the 24-hour SAAQS. Concentrations below the SAAQS indicate that the Sampson plant will not cause or contribute to an exceedance of the TSP SAAQS.

7.3 Ozone Ambient Impact Analysis

Because emissions increases of VOC from the proposed project will exceed 100 tpy, an ozone ambient impact analysis was completed. Enviva conducted the analysis using Modeled Emission Rates for Precursors (MERPs), consistent with EPA's *Draft Guidance on the Development of MERPs as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ Under the PSD Permitting Program*.

Ground-level (i.e., tropospheric) ozone (O_3) is formed through photochemical reactions of NO_X and VOC in the presence of sunlight. Per the draft guidance, the Tier 1 approach uses existing empirical relationships between precursors and secondary impacts derived from photochemical grid modeling to characterize the impact of the emissions on air quality. Specifically, this methodology involves the use of MERPs as a demonstration tool. The MERP is the emission rate (tpy) of a precursor pollutant below which the impact from the precursor pollutant emissions on the formation of ambient ozone would not be expected to cause or contribute to a violation of the NAAQS for ozone. The MERP value is derived from the ratio of the precursor pollutant emissions from a hypothetical source to the maximum modeled impacts from that source, which is multiplied by the air quality concentration threshold that is used to determine if such an impact causes or contributes to a violation of the NAAQS, referred to as the critical air quality threshold.

$$MERP\ (tpy) = Critical\ Air\ Quality\ Threshold\ \left(\frac{\mu g}{m^3}, ppb, or\ ppm\right) x\ [\frac{Modeled\ Emission\ Rate\ from\ Hypothetical\ Source\ (tpy)}{Modeled\ Impact\ from\ Hypothetical\ Source\ \left(\frac{\mu g}{m^3}, ppb, or\ ppm\right)}]$$

In the development of the December 2016 draft guidance document, EPA conducted photochemical modeling assessments for multiple hypothetical emissions sources with varying precursor pollutant emission levels and stack characteristics located in different regions of the U.S. EPA presented the most conservative (i.e., lowest) illustrative MERP for each precursor pollutant and NAAQS across all sources, regions, and studies in Table 7-1 of the draft guidance. This table was subsequently updated in a February 2017 memo.[46]

Table 3 below includes a comparison of the proposed project's potential emissions increase to the most conservative MERPs values for the Eastern U.S.[47] Because both NO_X and VOC contribute to ozone formation, the contribution from both pollutants must be considered together. Per the draft guidance, the proposed emissions increase was expressed as a percentage of the individual MERP for that precursor and then summed. A value less than 100% indicates that the combined impacts of VOC and NO_X will not exceed the critical air quality threshold.

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[46] U.S. EPA, Office of Air Quality Planning and Standards, Memorandum from Mr. Tyler Fox to Regional Air Division Directors. Distribution of the EPA's modeling data used to develop illustrative examples in the draft Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (February 23, 2017).

[47] Ibid.

Table 7.1. Results of Tier I Demonstration Using MERPs

Precursor	MERP (tpy)	Project Potential Emissions Increase (tpy)	Percentage of MERPs
NO_X	170	0	0%
VOC	1,159	214	18%
		Total:	18%

The entire state of North Carolina is currently in attainment with the 2008 8-hour ozone standard (0.075 ppm) and the NCDEQ has recommended that all of North Carolina be classified as attainment for the 2015 8-hour ozone standard (0.070 ppm).[48] Given the magnitude of the project impact (Table 3), the project will not have a significant impact on regional ozone concentrations. The combined VOC and NO_X impact from the proposed project is well below 100%; therefore, air quality impacts of ground level ozone from the proposed project are expected to be less than the critical air quality threshold and thus, the proposed project is not expected to cause or contribute to a violation of the ozone NAAQS.

7.4 Class I Area Analysis

The Federal Land Managers (FLM) are responsible for protecting Air Quality Related Values (AQRV) at Class I areas and have the authority to determine whether a proposed project is expected to have a negative impact on AQRV.

There are three (3) Class I areas located within 300 kilometers (km) of the Sampson plant:

- Swanquarter National Wildlife Refuge (158 km to the east);
- Cape Romain national Wildlife Refuge (252 km to the south southwest); and
- James River Face Wilderness Area (294 km to the northwest).

A Q/d screening analysis was conducted to evaluate the project's potential impacts on federally-protected Class I areas consistent with the FLM's AQRV Work Group (FLAG) 2010 guidance. The ratio of the sum of emissions of SO_2, NO_X, PM_{10}, and sulfuric acid mist (H_2SO_4) to the distance of the source from the Class I area (FLAG 2010) is determined and compared to a threshold of 10. As shown in Table 5, the ratio of Q/d is below the threshold of 10 at each Class I area. As such, Enviva anticipates that no AQRV analysis will be required by the FLM.

[48] Letter from Donald R. van der Vaart (Secretary, NCDEQ) to Heather McTeer Toney (Regional Administrator, EPA Region 4) on September 30, 2016.

Table 7.2. Class I Q/d Analysis

Visibility Impacting Pollutant	Facility-Wide Maximum 24-Hour Emission Rate (lb/hr)	Annual Emissions Q[2] (tpy)
NO_X	56.8	249
SO_2	6.27	27.5
Direct Particulate[1]	41.6	182

1. Per FLAG2010, direct particulate includes all filterable and condensable PM_{10}, such as elemental carbon (EC), sulfuric acid (H_2SO_4), sulfates, and nitrates.
2. Q = [SO_2 + NO_X + PMC + PMF (lb/hr, maximum 24-hour basis)] * 8760 (hr/yr) / 2000 (lb/ton)

Table 7.3. Class I Q/d Analysis

Class I Area	FLM	Approx. Distance from Enviva Sampson (km)	Facility-wide Annual Emissions Q (tpy)	Q/d	AQRV Required? (Y/N?)
Swanquarter Wilderness	FWS	158	458	3	N
Cape Romain Wilderness	FWS	252		2	N
James River Face Wilderness	FS	294		2	N
Linville Gorge Wilderness	FS	343		1	N

There are no Class I PSD Increments for VOC or TSP; therefore, no Class I Increment analysis is required.

7.5 Model Selection

Enviva utilized the latest version of the AERMOD model (Version 16216r). AERMOD is the EPA-approved air dispersion model for near-field (within 50 km) PSD modeling analyses. AERMOD was run using default regulatory options.

7.6 Receptor Grid and Elevation Data

A resolution of 25 meters was used for receptors along the ambient boundary and a 500 meter Cartesian grid extends 10 km from the center of the plant. Modeled concentrations were reviewed to ensure that the maximum concentration was captured for both the 24-hour and annual averaging periods.

Receptor elevations, in addition to source and building elevations, were determined using the AERMAP terrain pre-processor. Hill height parameters required by AERMOD are also calculated by AERMAP. Elevations were based on 1 arc-second National Elevation Dataset (NED) from the U.S. Geological Survey (USGS). AERMAP input and output files and a copy of the NED file are provided in Appendix I.

7.7 Meteorological Data

Enviva utilized AERMOD-ready meteorological data provided by DAQ for the Fayetteville National Weather Service (NWS) surface station (ID: 93740) and upper air data from the

Greensboro NWS Station (ID: 13723) for the period 2012-2016.[49] The data were processed using version 16216 of AERMET with the ADJ U* option. The base elevation for the Fayetteville surface station was set to 57 m.[50] The meteorological data files are provided in Appendix I.

7.8 Modeled Sources and Release Parameters

The TSP analysis included all sources of particulate emissions at the Sampson plant. Table 6 presents a summary of the modeled sources and emission rates. These modeled emission rates are consistent with the emission rates provided in the potential emissions calculations in Appendix C. Tables 7 through 9 below summarize the modeled release parameters and a figure showing the modeled layout is provided in Appendix H.

7.8.1 Point Sources

All sources with a defined stack were modeled as point sources. Rain capped stacks or stacks that exhaust horizontally were modeled using an exit velocity of 0.001 m/s in accordance with the *AERMOD Implementation Guide*.[51]

7.8.2 Area Sources

Fugitive particulate emissions associated with trucks traveling on paved roads and storage pile wind erosion were characterized using area sources. Initial lateral and vertical dimensions were determined in accordance with the *AERMOD User's Guide*.[52]

7.8.3 Volume Sources

Material transfer points associated with handling of green wood chips and bark were modeled using volume sources. Initial lateral and vertical dimensions were determined in accordance with the *AERMOD User's Guide*.[53]

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[49] Data provided via email to Aubrey Jones (Ramboll) by Matthew Porter (NC DAQ) on May 12, 2017.

[50] https://ncdenr.s3.amazonaws.com/s3fs-public/Air%20Quality/permits/mets/ProfileBaseElevations_17Oct2016.pdf

[51] EPA. *AERMOD Implementation Guide*. Revised August 3, 2015.

[52] EPA. *User's Guide for the AMS/EPA Regulatory Model - AERMOD*. September 2016.

[53] Ibid.

Table 7.4. Summary of Modeled Emission Rates

Model ID	Description	TSP (lb/hr)	TSP (g/s)
RTO	RTO Stack (CD-RTO)	7.60	9.58E-01
HM1_2	Dry Hammermill Baghouses (CD-HM-BH-1 and 2)	1.03	1.30E-01
HM3_4	Dry Hammermill Baghouses (CD-HM-BH-3 and 4)	1.03	1.30E-01
HM5_6	Dry Hammermill Baghouses (CD-HM-BH-5 and 6)	1.03	1.30E-01
HM7_8	Dry Hammermill Baghouses (CD-HM-BH-7 and 8)	1.03	1.30E-01
PMFS	Pellet Mill Feed Silo (CD-PMFS-BH)	0.084	1.06E-02
CLR1	Pellet Cooler Cyclone (CD-CLR-1)	5.74	7.23E-01
CLR2	Pellet Cooler Cyclone (CD-CLR-2)	5.74	7.23E-01
CLR3	Pellet Cooler Cyclone (CD-CLR-3)	5.74	7.23E-01
CLR4	Pellet Cooler Cyclone (CD-CLR-4)	5.74	7.23E-01
CLR5	Pellet Cooler Cyclone (CD-CLR-5)	5.74	7.23E-01
CLR6	Pellet Cooler Cyclone (CD-CLR-6)	5.74	7.23E-01
EG	Emergency Generator (IES-EG)	0.076	4.78E-03
FWP	Firewater Pump (IES-FWP)	0.037	2.31E-03
PFB	Pellet Fines Bin and Hammermill Area (CD-PFB-BH)	0.11	1.34E-02
FPH	Finished Product Handling/Pellet Loadout (CD-FPH-BH)	0.29	3.67E-02
DWH1	Dried Wood Handling (CD-DWH-BH-1)	0.034	4.32E-03
DWH2	Dried Wood Handling (CD-DWH-BH-2)	0.034	4.32E-03
PSTB	Pellet Sampling Transfer Bin (CD-PSTB-BH)	0.034	4.32E-03
PCR	Pellet Cooler Recirculation (CD-PCR-BH)	0.034	4.32E-03
HMC	Dry Hammermill Conveying System (CD-HMC-BH)	0.051	6.48E-03
DSILO	Dry Shavings Silo	0.001	1.41E-04
GWH1	Purchased Bark Transfer to Outdoor Storage Area	1.24E-03	1.57E-04
GWH2	Purchased Wood Chips to Outdoor Storage	4.13E-03	5.20E-04
GWH3	Purchased Wood Chips to Outdoor Storage	4.13E-03	5.20E-04
GWH4	Purchased Wood Chips to Outdoor Storage	4.13E-03	5.20E-04
GWH5	Purchased Wood Chips to Outdoor Storage	4.13E-03	5.20E-04
GWH6	Processed Wood Chips to Outdoor Storage	8.25E-03	1.04E-04
GWH7	Processed Wood Chips to Outdoor Storage	8.25E-03	1.04E-04
GWH8	Chip Truck Dump to Dumper 1	4.13E-03	5.20E-04
GWH9	Chip Truck Dump to Dumper 2	4.13E-03	5.20E-04
DSH1	Dry Shavings Truck Dump to Dumper 3	0.011	1.41E-03
DEBARK	Debarking	0.55	6.93E-02
BHOG	Bark Hog	0.10	1.26E-02
Model ID	**Description**	**TSP (lb/hr)**	**TSP (g/s-m^2)**
PAVEDRDS	Paved Roadway	3.74	6.68E-06
GWSP1	Green Wood Storage Pile No. 1	0.63	2.74E-05
GWSP2	Green Wood Storage Pile No. 2	0.63	2.74E-05
GWSP3	Green Wood Storage Pile No. 3	1.13	2.24E-05
GWSP4	Green Wood Storage Pile No. 4	1.13	2.24E-05
BFSP1	Bark Fuel Storage Pile No. 1	0.12	2.75E-05
BFSP2	Bark Fuel Storage Pile No. 2	0.024	5.20E-05

Table 7.5. Summary of Modeled Point Source Parameters

Model ID	Stack Height (m)	Exhaust Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
RTO	28.65	388.71	10.59	3.05
HM1_2	19.81	310.93	17.46	1.02
HM3_4	19.81	310.93	17.46	1.02
HM5_6	19.81	310.93	17.46	1.02
HM7_8	19.81	310.93	17.46	1.02
PMFS	23.77	305.37	0.01	0.40
CLR1	27.43	316.48	17.82	0.71
CLR2	27.43	316.48	17.82	0.71
CLR3	27.43	316.48	17.82	0.71
CLR4	27.43	316.48	17.82	0.71
CLR5	27.43	316.48	17.82	0.71
CLR6	27.43	316.48	17.82	0.71
EG	4.57	764.43	101.65	0.15
FWP	4.57	824.26	37.55	0.10
PFB	20.42	293.00	15.92	0.36
FPH	7.62	310.93	16.36	0.56
DWH1	4.57	293.00	0.01	0.40
DWH2	15.85	293.00	0.01	0.40
PSTB	4.57	293.00	0.01	0.40
PCR	14.02	293.00	25.87	0.15
HMC	4.57	293.00	0.01	0.40
DSILO	25.91	293.00	0.01	0.001

Table 7.6. Summary of Modeled Area Source Parameters

Model ID	Release Height (m)	Initial Vertical Dimension (m)
PAVEDRDS	3.50	3.26
GWSP1	4.57	0
GWSP2	4.57	0
GWSP3	4.57	0
GWSP4	4.57	0
BFSP1	2.29	0
BFSP2	2.29	0

Table 7.7. Summary of Modeled Volume Source Parameters

Model ID	Release Height (m)	Initial Vertical Dimension (m)	Initial Lateral Dimension (m)
GWH1	3.81	0	0.28
GWH2	8.76	1.95	0.28
GWH3	8.76	1.95	0.28
GWH4	8.76	1.95	0.28
GWH5	8.76	1.95	0.28
GWH6	7.96	1.58	0.28
GWH7	7.96	1.58	0.28
GWH8	3.05	0.85	0.85
GWH9	3.05	0.85	0.85
DSH1	3.05	0.85	0.85
DEBARK	5.49	0.78	0.78
8HOG	3.96	0.43	0.39

7.9 GEP Stack Height Analysis

EPA has promulgated regulations that limit the maximum stack height that may be used in a modeling analysis to no more than Good Engineering Practice (GEP) stack height. The purpose of this requirement is to prevent the use of excessively tall stacks to reduce the modeled concentrations of a pollutant. GEP stack height is impacted by the heights of nearby structures. In general, the minimum value for GEP stack height is 65 meters. The stack heights for all sources at the Sampson plant are less than 65 meters and were modeled using actual stack heights.

7.10 Building Downwash

The AERMOD model incorporates Plume Rise Modeling Enhancements (PRIME) to account for downwash. The direction-specific building downwash dimensions used as inputs were determined by the latest version (04274) of the Building Profile Input Program, PRIME (BPIP PRIME). BPIP PRIME uses building downwash algorithms incorporated into AERMOD to account for the plume dispersion effects of the aerodynamic wakes and eddies produced by buildings and structures. On-site buildings at the Sampson plant were evaluated for downwash effects on each modeled point source. BPIP input and output files are included in Appendix I.

7.11 TSP Modeling Results

As shown in Table 10 below, facility-wide modeled concentrations for 24-hour and annual TSP are below the respective SAAQS. The Sampson plant will not cause or contribute to an exceedance of the SAAQS for TSP. Plots of modeled concentrations are included in Appendix H and AERMOD input and output files are provided in Appendix I.

Table 7.8. Results of TSP SAAQS Modeling

Averaging Period	UTM Easting (m)	UTM Northing (m)	Modeled Concentration (μg/m³)	SAAQS (μg/m³)	Exceeds SAAQS?
24-Hour	756,884.00	3,889,895.40	139	150	No
Annual	756,462.20	3,889,765.40	20.8	75	No

7.12 Toxic Air Pollutants

As discussed in Section 6, per 15A NCAC 02Q .0702(27)(B) and (C), sources subject to 40 CFR 63 or case-by-case Maximum Achievable Control Technology (MACT) are exempt from the requirement to obtain a permit to emit toxic air pollutants (TAP). All sources of TAP emissions at the Sampson plant are subject to 40 CFR 63 or have undergone case-by-case MACT. As such, no modeling for TAPs is required.[54]

[54] Per North Carolina General Statues (NCGS) 143-215.107(a), DAQ must make a determination of whether the emissions from the proposed project would present an unacceptable risk to human health; however, this does not explicitly require modeling to be conducted by the applicant.

8. ADDITIONAL IMPACT ANALYSIS

An additional impact analysis is required as part of the PSD permitting process per 40 CFR 51.166(o)(1). This includes an assessment of the impact of a proposed project on general commercial, residential, industrial, and other growth, as well as an analysis of impairment to visibility, soils, and vegetation.

8.1 Visibility

The proposed project is triggering PSD for VOC and TSP; however, only TSP is a visibility impacting pollutant. Given that there are no airports or sensitive Class II areas located in close proximity to the Sampson plant and the fact that the maximum modeled TSP concentrations occur at the fenceline and decrease exponentially with distance, the proposed project is not expected to have a significant impact on visibility.

8.2 Growth Analysis

The Sampson plant is an existing facility and there will be no additional permanent jobs added as a result of the proposed project. As such, no commercial or residential growth is expected to occur.

8.3 Soils and Vegetation Analysis

To assess the impact of the proposed project on soils and vegetation, the first high modeled 24-hour TSP concentration was compared to the secondary NAAQS standard for PM_{10}. The secondary NAAQS are specifically set at the level necessary to protect public welfare, including protection against visibility and damage to animals, crops, vegetation, and buildings.[55] This analysis is conservative given that PM_{10} emission rates for many of the Sampson plant sources are a fraction of the modeled TSP emission rate. As shown in Table 11 below, the maximum modeled TSP concentration is below the 24-hour PM_{10} secondary NAAQS. As such, the proposed project is not expected to have a significant impact on soils or vegetation.

Table 8.1. Soils and Vegetation Impacts

Averaging Period	Modeled TSP Concentration (μg/m³)	Secondary PM_{10} NAAQS (μg/m³)	Exceeds Secondary NAAQS?
24-Hour	139	150	No

[55] https://www.epa.gov/criteria-air-pollutants/naaqs-table

APPENDIX A
AREA MAP

RAMBOLL

DRAFTED BY: FXP | DATE: MARCH 2018

SITE LOCATION MAP

ENVIVA PELLETS SAMPSON, LLC

SAMPSON COUNTY, NORTH CAROLINA

FIGURE

1

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APPENDIX B
PROCESS FLOW DIAGRAM

APPENDIX C
POTENTIAL EMISSIONS CALCULATIONS

Table 1
Calculation Inputs
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Operational Data	
Green Hammermills, Dryers, Pellet Coolers	
Short-Term Throughput (ODT/hr)	120
Annual Throughput (ODT/yr)	657,000
Hours of Operation (Hr/yr)	8,760
Softwood Composition	100%
Dry Hammermills	
Short-Term Throughput (ODT/hr)	102
Annual Throughput (ODT/yr)[1]	558,450
Hours of Operation (Hr/yr)	8,760
Softwood Composition	100%

Notes:
1. 85% of raw material is processed by the dry hammermills.

Table 2
Summary of Facility-wide Potential Emissions
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Emission Unit ID	Source Description	Control Device ID	Control Device Description	CO (tpy)	NO_X (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	VOC (tpy)	CO_2e (tpy)
IES-CHIP-1	Log Chipping	--	--	--	--	--	--	--	--	1.6	--
IES-BARKHOG	Bark Hog	--	--	--	--	0.24	0.13	0.13	--	0.30	--
ES-DRYER	250.4 MMBtu/hr wood-fired direct heat drying system	CD-WESP CD-RTO	WESP; RTO	219	219	33	33	33	27	51	256,230
ES-GHM-1 through 3	Three (3) Green Wood Hammermills	CD-WESP CD-RTO	WESP; RTO								
ES-HM-1 through 8	Eight (8) Dry Hammermills	CD-HM-BH1 through 8	Eight (8) baghouses	--	--	18	18	0.31	--	168	--
ES-HMC	Hammermill Conveying System	CD-HMC-BH	One (1) baghouse	--	--	0.23	0.23	0.23	--	--	--
ES-HMA	Hammermill Area	CD-PFB-BH	One (1) baghouse	--	--	0.47	0.47	0.47	--	--	--
ES-PFB	Pellet Fines Bin										
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	One (1) baghouse	--	--	0.37	0.37	0.37	--	--	--
ES-CLR-1 through 6	Six (6) Pellet Coolers	CD-CLR-1 through 6	Six (6) simple cyclones (one on each cooler)	--	--	151	39	4.8	--	572	--
ES-PCR	Pellet Cooler Recirculation	CD-PCR-BH	One (1) baghouse	--	--	0.15	0.15	0.15	--	--	--
ES-PSTB	Pellet Sampling Transfer Bin	CD-PSTB-BH	One (1) baghouse	--	--	0.15	0.15	0.15	--	--	--
ES-FPH	Finished Product Handling	CD-FPH-BH	One (1) baghouse	--	--	1.3	1.2	0.02	--	--	--
ES-PB-1 through 4	Four (4) Pellet Loadout Bins										
ES-PL-1 and 2	Two (2) Pellet Mill Loadouts										
ES-DWH	Dried wood handling operations	CD-DWH-BH-1 through -2	Two (2) baghouses	--	--	0.30	0.30	0.30	--	41	--
IES-GWH	Green wood handling operations	--	--	--	--	0.08	0.04	0.006	--	--	--
IES-TK-1	2,500 gal diesel storage tank	--	--	--	--	--	--	--	--	0.001	--
IES-TK-2	500 gal diesel storage tank	--	--	--	--	--	--	--	--	0.0002	--
IES-TK-3	3,000 gal diesel storage tank	--	--	--	--	--	--	--	--	0.002	--
IES-GWSP-1 through 4	Green wood storage piles	--	--	--	--	15	7.7	1.2	--	6.9	--
IES-BFSP-1 and 2	Bark fuel storage piles	--	--	--	--	0.64	0.32	0.05	--	0.29	--
IES-DRYSHAVE	Dry shavings material handling	--	--	--	--	0.05	0.03	0.004	--	--	--
IES-DEBARK-1	Debarker	--	--	--	--	1.1	0.62	0.62	--	--	--
IES-BFB[1]	Bark fuel bin	--	--	--	--	--	--	--	--	--	--
IES-ADD[2]	Additive Handling	--	--	--	--	--	--	--	--	--	--
IES-EG	689 hp diesel-fired emergency generator	--	--	0.18	1.5	0.019	0.019	0.019	0.0019	0.02	195
IES-FWP	131 hp diesel-fired fire water pump	--	--	0.07	0.18	0.009	0.009	0.009	0.0005	0.01	50
--	Paved Roads	--	--	--	--	16	3.3	0.80	--	--	--
			Total Emissions:	**219**	**221**	**239**	**106**	**43**	**27**	**840**	**256,475**
			Total Excluding Fugitives[3]:	**219**	**221**	**205**	**93**	**40**	**27**	**831**	**256,475**

Notes:

1. Bark fuel is transferred by walking floor to covered conveyors to fully enclosed bark fuel bin to pusher(s) into furnace. Therefore, there are no emissions expected from the bin.
2. Additive is added to a hopper within a warehouse. Once the additive is added to the enclosed feed conveyor, all transfers and subsequent conveyors to pellet presses are enclosed. Therefore, there are no emissions expected.
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 Sources
IES - Insignificant Emission Source
CO - carbon monoxide
CO_2e - carbon dioxide equivalent
NO_X - nitrogen oxides
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
SO_2 - sulfur dioxide
tpy - tons per year
VOC - volatile organic compounds

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

Pollutant	RTO[1] (tpy)	ES-HM-1 through 8 (tpy)	ES-CLR-1 through 6 (tpy)	IES-EG (tpy)	IES-FWP (tpy)	ES-DWH (tpy)	IES-CHIP-1 (tpy)	IES-BARKHOG (tpy)	Total HAP (tpy)
Acetaldehyde	1.9	2.5	2.8	9.2E-04	1.8E-04	--	--	--	7.2
Acetophenone	1.8E-07	--	--	--	--	--	--	--	1.8E-07
Acrolein	1.1	3.0	17	1.1E-04	2.1E-05	--	--	--	21
Antimony & Compounds	6.3E-04	--	--	--	--	--	--	--	6.3E-04
Arsenic & Compounds	1.8E-03	--	--	--	--	--	--	--	1.8E-03
Benzo(a)pyrene	1.4E-04	--	--	2.3E-07	4.3E-08	--	--	--	1.4E-04
Benzene	0.33	--	--	1.1E-03	2.1E-04	--	--	--	0.33
Beryllium metal	8.9E-05	--	--	--	--	--	--	--	8.9E-05
Butadiene, 1,3-	--	--	--	4.7E-05	9.0E-06	--	--	--	5.6E-05
Cadmium Metal	4.8E-04	--	--	--	--	--	--	--	4.8E-04
Carbon tetrachloride	2.5E-03	--	--	--	--	--	--	--	2.5E-03
Chlorine	0.87	--	--	--	--	--	--	--	0.87
Chlorobenzene	1.8E-03	--	--	--	--	--	--	--	1.8E-03
Chloroform	1.5E-03	--	--	--	--	--	--	--	1.5E-03
Chromium VI	2.8E-04	--	--	--	--	--	--	--	2.8E-04
Chromium–Other compds	1.6E-03	--	--	--	--	--	--	--	1.6E-03
Cobalt compounds	5.3E-04	--	--	--	--	--	--	--	5.3E-04
Dichlorobenzene	1.6E-04	--	--	--	--	--	--	--	1.6E-04
Dichloroethane, 1,2-	1.6E-03	--	--	--	--	--	--	--	1.6E-03
Dichloropropane, 1,2-	1.8E-03	--	--	--	--	--	--	--	1.8E-03
Dinitrophenol, 2,4-	9.9E-06	--	--	--	--	--	--	--	9.9E-06
Di(2-ethylhexyl)phthalate	2.6E-06	--	--	--	--	--	--	--	2.6E-06
Ethyl benzene	1.7E-03	--	--	--	--	--	--	--	1.7E-03
Formaldehyde	1.2	2.2	10	1.4E-03	2.7E-04	0.28	--	--	14
Hexane	0.25	--	--	--	--	--	--	--	0.25
Hydrochloric acid	2.1	--	--	--	--	--	--	--	2.1
Lead and Lead Compounds	3.9E-03	--	--	--	--	--	--	--	3.9E-03
Manganese & Compounds	0.13	--	--	--	--	--	--	--	0.13
Mercury, vapor	3.1E-04	--	--	--	--	--	--	--	3.1E-04
Methanol	2.2	1.4	79	--	--	0.64	0.33	6.0E-02	83
Methyl bromide	8.2E-04	--	--	--	--	--	--	--	8.2E-04
Methyl chloride	1.3E-03	--	--	--	--	--	--	--	1.3E-03
Methylene chloride	1.6E-02	--	--	--	--	--	--	--	1.6E-02
Naphthalene	5.4E-03	--	--	1.0E-04	1.9E-05	--	--	--	5.5E-03
Nickel metal	2.9E-03	--	--	--	--	--	--	--	2.9E-03
Nitrophenol, 4-	6.0E-06	--	--	--	--	--	--	--	6.0E-06
Pentachlorophenol	5.6E-05	--	--	--	--	--	--	--	5.6E-05
Perchloroethylene	4.2E-02	--	--	--	--	--	--	--	4.2E-02
Phenol	1.3	1.1	8.3	--	--	--	--	--	11
Phosphorus Metal, Yellow or White	2.1E-03	--	--	--	--	--	--	--	2.1E-03
Polychlorinated Biphenyls	4.5E-07	--	--	--	--	--	--	--	4.5E-07
Propionaldehyde	0.48	5.3	3.5	--	--	--	--	--	9.3
Selenium Compounds	2.3E-04	--	--	--	--	--	--	--	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	--	--	4.9E-04	9.4E-05	--	--	--	2.7E-03
Total PAH (POM)	0.14	--	--	2.0E-04	3.9E-05	--	--	--	0.14
Trichloroethane, 1,1,1-	3.4E-02	--	--	--	--	--	--	--	3.4E-02
Trichloroethylene	1.6E-03	--	--	--	--	--	--	--	1.6E-03
Trichlorophenol, 2,4,6-	1.2E-06	--	--	--	--	--	--	--	1.2E-06
Vinyl Chloride	9.9E-04	--	--	--	--	--	--	--	9.9E-04
Xylene	1.4E-03	--	--	3.4E-04	6.5E-05	--	--	--	1.8E-03
Total HAP Emissions[2] (tpy)	**12**	**16**	**120**	**4.7E-03**	**8.9E-04**	**0.92**	**0.33**	**6.0E-02**	**149**
Maximum Individual HAP (tpy)	**Methanol**	**Propionaldehyde**	**Methanol**	**Formaldehyde**	**Formaldehyde**	**Methanol**	**Methanol**	**Methanol**	**Methanol**
Maximum Individual HAP Emissions (tpy)	**2.2**	**5.3**	**79**	**1.4E-03**	**2.7E-04**	**0.64**	**0.33**	**6.0E-02**	**83**

Notes:

1. Includes emissions at outlet of RTO stack as well as the maximum HAP combustion emissions resulting from either propane or NG by the RTO burners. The RTO controls emissions from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3).
2. 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.

Abbreviations:

HAP - hazardous air pollutant
tpy - tons per year

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

Calculation Basis

Hourly Throughput	120 ODT/hr
Annual Throughput	657,000 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 Fuel Type	Natural Gas or Propane
RTO control efficiency	95%

Potential Criteria Pollutant and Greenhouse Gas Emissions

Pollutant	Emission Factor	Units	Emissions at RTO Outlet[1]	
			(lb/hr)	(tpy)
CO	50	lb/hr[2]	50	219
NO_X	50	lb/hr[2]	50	219
SO_2	0.025	lb/MMBtu[3]	6.3	27
VOC	0.15	lb/ODT[4]	18	51
$PM/PM_{10}/PM_{2.5}$ (Filterable + Condensable)	7.6	lb/hr[2]	7.6	33
CO_2	780	lb/ODT[5]	93,600	256,230

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 and particulates.
2. Emission rate based on data provided by RTO vendor (TSI).
3. No emission factor is provided in AP-42, Section 10.6.2 for SO_2 for rotary dryers. Enviva has conservatively calculated SO_2 emissions based on AP-42, Section 1.6 - Wood Residue Combustion in Boilers, 09/03.
4. VOC emission factor was derived based on data from stack testing conducted at Enviva and other similar wood pellet manufacturing facilities.
5. Emission factor for CO_2 from AP-42, Section 10.6.1 for rotary dryer with RTO control device. Enviva has conservatively calculated the CO_2 emissions using the hardwood emission factor because the dryer at Sampson 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 Stack
ES-DRYER and ES-GHM-1 through 3
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Potential HAP and TAP Emissions

Pollutant	HAP	NC TAP	VOC	Emission Factor	Units	Footnote	Emissions at RTO Outlet	
							(lb/hr)	(tpy)
Biomass Source								
Acetaldehyde	Y	Y	Y	5.7E-03	lb/ODT	1	0.69	1.9
Acrolein	Y	Y	Y	3.2E-03	lb/ODT	1	0.39	1.1
Formaldehyde	Y	Y	Y	3.0E-03	lb/ODT	1	0.36	0.97
Methanol	Y	N	Y	6.6E-03	lb/ODT	1	0.79	2.2
Phenol	Y	Y	Y	4.1E-03	lb/ODT	1	0.49	1.3
Propionaldehyde	Y	N	Y	1.4E-03	lb/ODT	1	0.17	0.48
Acetophenone	Y	N	Y	3.2E-09	lb/MMBtu	2,3	4.0E-08	1.8E-07
Antimony & Compounds	Y	N	N	7.9E-06	lb/MMBtu	2,4	1.4E-04	6.3E-04
Arsenic	Y	Y	N	2.2E-05	lb/MMBtu	2,4	4.0E-04	1.7E-03
Benzene	Y	Y	Y	4.2E-03	lb/MMBtu	2,3	5.3E-02	0.23
Benzo(a)pyrene	Y	Y	Y	2.6E-06	lb/MMBtu	2,3	3.3E-05	1.4E-04
Beryllium	Y	Y	N	1.1E-06	lb/MMBtu	2,4	2.0E-05	8.7E-05
Cadmium	Y	Y	N	4.1E-06	lb/MMBtu	2,4	7.4E-05	3.3E-04
Carbon tetrachloride	Y	Y	Y	4.5E-05	lb/MMBtu	2,3	5.6E-04	2.5E-03
Chlorine	Y	Y	N	7.9E-04	lb/MMBtu	2	0.20	0.87
Chlorobenzene	Y	Y	Y	3.3E-05	lb/MMBtu	2,3	4.1E-04	1.8E-03
Chloroform	Y	Y	Y	2.8E-05	lb/MMBtu	2,3	3.5E-04	1.5E-03
Chromium VI	-[5]	Y	N	3.5E-06	lb/MMBtu	2,4,5	6.4E-05	2.8E-04
Chromium–Other compds	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-ethylhexyl)phthalate	Y	Y	Y	4.7E-08	lb/MMBtu	2,3	5.9E-07	2.6E-06
Ethyl benzene	Y	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	lb/MMBtu	2,4	8.7E-04	3.8E-03
Manganese & compounds	Y	Y	N	1.6E-03	lb/MMBtu	2,4	2.9E-02	0.13
Mercury, vapor	Y	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	Y	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	Y	Y	2.9E-04	lb/MMBtu	2,3	3.6E-03	1.6E-02
Naphthalene	Y	N	Y	9.7E-05	lb/MMBtu	2,3	1.2E-03	5.3E-03
Nickel metal	Y	Y	N	3.3E-05	lb/MMBtu	2,4	6.0E-04	2.6E-03
Nitrophenol, 4-	Y	N	Y	1.1E-07	lb/MMBtu	2,3	1.4E-06	6.0E-06
Pentachlorophenol	Y	Y	N	5.1E-08	lb/MMBtu	2	1.3E-05	5.6E-05
Perchloroethylene	Y	Y	N	3.8E-05	lb/MMBtu	2	9.5E-03	4.2E-02
Phosphorus Metal, Yellow or White	Y	N	N	2.7E-05	lb/MMBtu	2,4	4.9E-04	2.1E-03
Polychlorinated biphenyls	Y	Y	Y	8.2E-09	lb/MMBtu	2,3	1.0E-07	4.5E-07
Polycyclic Organic Matter	Y	N	N	1.3E-04	lb/MMBtu	2	3.1E-02	0.14
Selenium compounds	Y	N	N	2.8E-06	lb/MMBtu	2,4	5.1E-05	2.2E-04
Styrene	Y	Y	Y	1.9E-03	lb/MMBtu	2,3	2.4E-02	0.10
Tetrachlorodibenzo-p-dioxin, 2,3,7,8-	Y	Y	Y	8.6E-12	lb/MMBtu	2,3	1.1E-10	4.7E-10
Toluene	Y	Y	Y	3.0E-05	lb/MMBtu	2,3	3.8E-04	1.6E-03
Trichloroethane, 1,1,1-	Y	Y	N	3.1E-05	lb/MMBtu	2	7.8E-03	3.4E-02
Trichloroethylene	Y	Y	Y	3.0E-05	lb/MMBtu	2,3	3.8E-04	1.6E-03
Trichlorofluoromethane	N	Y	Y	4.1E-05	lb/MMBtu	2,3	5.1E-04	2.2E-03
Trichlorophenol, 2,4,6-	Y	N	Y	2.2E-08	lb/MMBtu	2,3	2.8E-07	1.2E-06
Vinyl chloride	Y	Y	Y	1.8E-05	lb/MMBtu	2,3	2.3E-04	9.9E-04
Xylene	Y	Y	Y	2.5E-05	lb/MMBtu	2,3	3.1E-04	1.4E-03
Total HAP Emissions (related to wood drying/biomass combustion)							**3.7**	**12**
Total TAP Emissions (related to wood drying/biomass combustion)							**2.7**	**8.8**

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

Pollutant	HAP	NC TAP	VOC	Emission Factor	Units	Footnote	Potential Emissions	
							(lb/hr)	(tpy)
Natural Gas Source								
2-Methylnaphthalene	Y	N	Y	2.4E-05	lb/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	lb/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	Y	Y	Y	1.8E-05	lb/MMscf	7	5.6E-07	2.5E-06
Ammonia	N	Y	N	3.2	lb/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	Y	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	lb/MMscf	7	5.6E-08	2.5E-07
Benzo(g,h,i)perylene	Y	N	Y	1.2E-06	lb/MMscf	7	3.8E-08	1.6E-07
Benzo(k)fluoranthene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Beryllium	Y	Y	N	1.2E-05	lb/MMscf	7	3.8E-07	1.6E-06
Cadmium	Y	Y	N	1.1E-03	lb/MMscf	7	3.5E-05	1.5E-04
Chromium VI	Y	N	N	1.4E-03	lb/MMscf	7	4.4E-05	1.9E-04
Chrysene	Y	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Cobalt	Y	N	N	8.4E-05	lb/MMscf	7	2.6E-06	1.2E-05
Dibenzo(a,h)anthracene	Y	N	Y	1.2E-06	lb/MMscf	7	3.8E-08	1.6E-07
Dichlorobenzene	Y	Y	Y	1.2E-03	lb/MMscf	7	3.8E-05	1.6E-04
Fluoranthene	Y	N	Y	3.0E-06	lb/MMscf	7	9.4E-08	4.1E-07
Fluorene	Y	N	Y	2.8E-06	lb/MMscf	7	8.8E-08	3.8E-07
Formaldehyde	Y	Y	Y	7.5E-02	lb/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	N	Y	1.8E-06	lb/MMscf	7	5.6E-08	2.5E-07
Lead	Y	N	N	5.0E-04	lb/MMscf	7	1.6E-05	6.9E-05
Manganese	Y	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	lb/MMscf	7	1.9E-05	8.4E-05
Nickel	Y	Y	N	2.1E-03	lb/MMscf	7	6.6E-05	2.9E-04
Phenanthrene	Y	N	Y	1.7E-05	lb/MMscf	7	5.3E-07	2.3E-06
Pyrene	Y	N	Y	5.0E-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 (related to natural gas)							**5.9E-02**	**0.26**
Total TAP Emissions (related to natural gas)							**0.16**	**0.70**

Pollutant	HAP	NC TAP	VOC	Emission Factor	Units	Footnote	Potential Emissions	
							(lb/hr)	(tpy)
Propane Source								
Benzene	Y	Y	Y	7.1E-04	lb/MMBtu	8	2.3E-02	0.10
Formaldehyde	Y	Y	Y	1.5E-03	lb/MMBtu	8	4.8E-02	0.21
PAHs	Y	Y	Y	4.0E-05	lb/MMBtu	8	1.3E-03	5.6E-03
Total HAP Emissions (related to propane)							**0.07**	**0.32**
Total TAP Emissions (related to propane)							**0.07**	**0.32**

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

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

7. 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.
8. Emission factors for propane combustion from SCAQMD's AER Reporting Tool for external combustion equipment fired with LPG.

Abbreviations:

CAS - chemical abstract service
HAP - hazardous air pollutant
hr - hour
lb - pound
MMBtu - Million British thermal units
NC - North Carolina
CH_4 - methane
CO - carbon monoxide
CO2 - carbon dioxide
CO_2e - carbon dioxide equivalent
kg - kilogram
NO_X - nitrogen oxides
N_2O - nitrous oxide
PAH - polycyclic aromatic hydrocarbon
RTO - regenerative thermal oxidizer
ODT - oven dried tons
TAP - toxic air pollutant
tpy - tons per year
VOC - volatile organic compound
WESP - wet electrostatic precipitator
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
SO_2 - sulfur dioxide
yr - year

Table 5
Summary of Baghouse and Cyclone Potential Emissions
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Emission Unit ID	Source Description	Control Device ID	Control Device Description	Exhaust Flow Rate	Exit Grain Loading	Particulate Speciation		Potential Emissions					
								PM		PM_{10}		$PM_{2.5}$	
				(cfm)	(gr/cf)	PM_{10} (% of PM)	$PM_{2.5}$ (% of PM)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
ES-HM-1	Dry Hammermill	CD-HM-BH1	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-2	Dry Hammermill	CD-HM-BH2	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-3	Dry Hammermill	CD-HM-BH3	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-4	Dry Hammermill	CD-HM-BH4	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-5	Dry Hammermill	CD-HM-BH5	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-6	Dry Hammermill	CD-HM-BH6	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-7	Dry Hammermill	CD-HM-BH7	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HM-8	Dry Hammermill	CD-HM-BH8	Baghouse[1, 2, 3]	15,000	0.004	100%	1.7%	0.51	2.3	0.51	2.3	0.0087	0.038
ES-HMC	Hammermill Conveying System	CD-HMC-BH	Baghouse[2, 4, 5]	1,500	0.004	100%	100%	0.051	0.23	0.05	0.23	0.051	0.23
ES-HMA ES-PFB	Hammermill Area Pellet Fines Bin	CD-PFB-BH	Baghouse[1, 2, 4]	3,102	0.004	100%	100%	0.11	0.47	0.11	0.47	0.11	0.47
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	Baghouse[1, 2, 4]	2,444	0.004	100%	100%	0.084	0.37	0.084	0.37	0.084	0.37
ES-CLR-1	Pellet Cooler	CD-CLR-1	Simple cyclone[6]	16,746	0.04	26.1%	3.2%	5.7	25	1.5	6.6	0.18	0.80
ES-CLR-2	Pellet Cooler	CD-CLR-2	Simple cyclone[6]	16,746	0.04	26.1%	3.2%	5.7	25	1.5	6.6	0.18	0.80
ES-CLR-3	Pellet Cooler	CD-CLR-3	Simple cyclone[6]	16,746	0.04	26.1%	3.2%	5.7	25	1.5	6.6	0.18	0.80
ES-CLR-4	Pellet Cooler	CD-CLR-4	Simple cyclone[6]	16,746	0.04	26.1%	3.2%	5.7	25	1.5	6.6	0.18	0.80
ES-CLR-5	Pellet Cooler	CD-CLR-5	Simple cyclone[6]	16,746	0.04	26.1%	3.2%	5.7	25	1.5	6.6	0.18	0.80
ES-CLR-6	Pellet Cooler	CD-CLR-6	Simple cyclone[6]	16,746	0.04	26.1%	3.2%	5.7	25	1.5	6.6	0.18	0.80
ES-PCR	Pellet Cooler Recirculation	CD-PCR-BH	Baghouse[1, 2, 4]	1,000	0.004	100%	100%	0.034	0.15	0.034	0.15	0.034	0.15
ES-PSTB	Pellet Sampling Transfer Bin	CD-PSTB-BH	Baghouse[1, 2, 4]	1,000	0.004	100%	100%	0.034	0.15	0.034	0.15	0.034	0.15
ES-FPH	Finished Product Handling	CD-FPH-BH	Baghouse[1, 3, 7]	8,500	0.004	91%	1.7%	0.29	1.3	0.27	1.2	0.0050	0.022
ES-PB-1 through 4	Four (4) Pellet Loadout Bins												
ES-PL-1 and 2	Two (2) Pellet Mill Loadouts												
ES-DWH	Dried wood handling operations (conveyors)	CD-DWH-BH-1	Baghouse[1, 2, 4]	1,000	0.004	100%	100%	0.034	0.15	0.034	0.15	0.034	0.15
		CD-DWH-BH-2	Baghouse[1, 2, 4]	1,000	0.004	100%	100%	0.034	0.15	0.034	0.15	0.034	0.15

Notes:

1. Control device flow rate (cfm) provided by design engineering firm (Mid-South Engineering Co.).
2. No speciation data is available for PM_{10}. Therefore, it is conservatively assumed to be equal to total PM.
3. Dry Hammermills and Finished product handling $PM_{2.5}$ speciation based on April 2014 Enviva Southampton $PM_{2.5}$ speciation tests.
4. No speciation data is available for $PM_{2.5}$. Therefore, it is conservatively assumed to be equal to total PM.
5. Exhaust flow rate provided by the vendor (WPI).
6. Exit grain loading rate (gr/cf) based on June 21, 2017 conference call and March 27, 2017 stack test parameters. Exhaust flow rate provided by Enviva (16,500 dcfm at 4.89% moisture).
7. Finished product handling PM_{10} speciation based on emission factors for wet wood combustion controlled by a mechanical separator from AP-42, Section 1.6 - Wood Residue Combustion in Boilers, 09/03. Because the particle size of particulate matter from finished product handling is anticipated to be larger than flyash, this factor is believed to be a conservative indicator of speciation.

Abbreviations:

cf - cubic feet
cfm - cubic feet per minute
dcfm - dry cubic feet per minute
ES - Emission Sources
IES - Insignificant Emission Source
gr - grain
hr - hour
lb - pound
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
tpy - tons per year

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

Calculation Basis

Hourly Throughput	102 ODT/hr
Annual Throughput	558,450 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	
				(lb/ODT)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Y	0.0091	0.93	2.5
Acrolein	107-02-8	Y	Y	0.0108	1.10	3.0
Formaldehyde	50-00-0	Y	Y	0.0080	0.82	2.2
Methanol	67-56-1	N	Y	0.0052	0.53	1.4
Phenol	108-95-2	Y	Y	0.0041	0.42	1.1
Propionaldehyde	123-38-6	N	Y	0.0188	1.9	5.3
				Total HAP Emissions	**5.7**	**16**
Total VOC	--	--	Y	0.60	61	168

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
Pellet Cooler and Pellet Mill Potential VOC and HAP Emissions
ES-CLR-1 through 6
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Calculation Basis

Hourly Throughput	120 ODT/hr
Annual Throughput	657,000 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	
				(lb/ODT)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Y	0.0084	1.01	2.8
Acrolein	107-02-8	Y	Y	0.0504	6.0	17
Formaldehyde	50-00-0	Y	Y	0.0312	3.7	10
Methanol	67-56-1	N	Y	0.24	29	79
Phenol	108-95-2	Y	Y	0.0252	3.0	8.3
Propionaldehyde	123-38-6	N	Y	0.0108	1.30	3.5
				Total HAP Emissions	**44**	**120**
Total VOC	--	--	Y	1.74	209	572

Notes:

[1] Emission factors were derived 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 8
Dried Wood Handling Potential Emissions
ES-DWH
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Calculation Basis

Hourly Throughput	120 ODT/hr
Annual Throughput	657,000 ODT/yr

Potential Criteria Pollutant Emissions

Pollutant	Emission Factor[2] (lb/ODT)	Potential Emissions[1]	
		(lb/hr)	(tpy)
Formaldehyde	8.40E-04	0.10	0.28
Methanol	1.95E-03	0.23	0.64
Total HAP Emissions		**0.33**	**0.92**
VOC as carbon	0.10	12.1	33
VOC as propane[3]	0.12	15	41

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 lb/MSF (3/8") to lb/ODT using the typical density and moisture content of an OSB panel.
3. VOC as propane = (1.22 x VOC as carbon) + 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-EG
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Calculation Basis

Engine Output	0.45 MW
Horsepower Rating	689 brake hp
Diesel Density[1]	7.1 lb/gal
Hours of Operation	500 hr/yr
Hourly Fuel Consumption[2]	34.8 gal/hr
Energy Input[3]	4.77 MMBtu/hr

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. Fuel consumption obtained from generator's spec sheet, assuming 100% load.
3. Energy calculated on a fuel consumption basis using an energy factor of 0.137 MMBtu/gal.

Potential Criteria Pollutant Emissions

Pollutant	Emission Factor	Units	Potential Emissions[1]	
			(lb/hr)	(tpy)
CO[2]	0.48	g/hp-hr	0.73	0.18
NO_X[2]	3.98	g/hp-hr	6.0	1.5
SO_2[3]	15	ppmw	7.4E-03	1.9E-03
VOC[2]	0.05	g/hp-hr	7.6E-02	1.9E-02
PM[2]	0.05	g/hp-hr	7.6E-02	1.9E-02
PM_{10}[2]	0.05	g/hp-hr	7.6E-02	1.9E-02
$PM_{2.5}$[2]	0.05	g/hp-hr	7.6E-02	1.9E-02
CO_2	74.0	kg/MMBtu[4]	777	194
CH_4	3.0E-03	kg/MMBtu[4]	3.2E-02	7.9E-03
N_2O	6.0E-04	kg/MMBtu[4]	6.3E-03	1.6E-03
CO_2e			780	195

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 at 100% load.
2. Emissions factors for $PM/PM_{10}/PM_{2.5}$, NO_X, hydrocarbons, and CO obtained from generator's spec sheet.
3. Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(b) 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.

Abbreviations:

Btu - British thermal unit
CH_4 - methane
CO - carbon monoxide
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
g - gram
gal - gallon
hp - horsepower
hr - hour
kg - kilogram
kW - kilowatt
lb - pound
MW - megawatt
MMBtu - Million British thermal units
NO_X - nitrogen oxides
N_2O - nitrous oxide
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
SO_2 - sulfur dioxide
tpy - tons per year
VOC - volatile organic compound
yr - year

Table 9

Emergency Generator Potential Emissions

IES-EG

Enviva Pellets Sampson, LLC

Faison, Sampson County, North Carolina

Potential HAP Emissions

Pollutant	CAS No.	NC TAP	VOC	Emission Factor[1]	Potential Emissions[2]	
				(lb/hp-hr)	(lb/hr)	(tpy)
Acetaldehyde	75-07-0	Y	Y	5.37E-06	3.70E-03	9.25E-04
Acrolein	107-02-8	Y	Y	6.48E-07	4.46E-04	1.12E-04
Benzene	71-43-2	Y	Y	6.53E-06	4.50E-03	1.12E-03
Benzo(a)pyrene	50-32-8	Y	Y	1.32E-09	9.07E-07	2.27E-07
Butadiene, 1,3-	106-99-0	Y	Y	2.74E-07	1.89E-04	4.71E-05
Formaldehyde	50-00-0	Y	Y	8.26E-06	5.69E-03	1.42E-03
Naphthalene	91-20-3	N	Y	5.94E-07	4.09E-04	1.02E-04
Total PAH (POM)[3]	--	N	Y	1.18E-06	8.10E-04	2.03E-04
Toluene	108-88-3	Y	Y	2.86E-06	1.97E-03	4.93E-04
Xylene	1330-20-7	Y	Y	2.00E-06	1.37E-03	3.44E-04
				Total HAP Emissions	**0.019**	**0.0047**

Notes:

1. 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 hrs/yr of non-emergency operation of these engines. Potential emissions for the emergency generator 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.

Abbreviations:

CAS - chemical abstract service
HAP - hazardous air pollutant
hp - horsepower
hr - hour
lb - pound
NC - North Carolina
ODT - oven dried tons
PAH - polycyclic aromatic hydrocarbon
POM - polycyclic organic matter
TAP - toxic air pollutant
tpy - tons per year
VOC - volatile organic compound

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

Calculation Basis

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

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 MMBtu/gal.

Potential Criteria Pollutant Emissions

Pollutant	Emission Factor	Units	Potential Emissions[1]	
			(lb/hr)	(tpy)
CO[2]	1.3	g/kW-hr	0.28	7.0E-02
NO_X[2]	3.4	g/kW-hr	0.72	0.18
SO_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	9.2E-03
PM_{10}[2]	0.17	g/kW-hr	3.7E-02	9.2E-03
$PM_{2.5}$[2]	0.17	g/kW-hr	3.7E-02	9.2E-03
CO_2	74	kg/MMBtu[4]	201	50
CH_4	3.0E-03	kg/MMBtu[4]	8.2E-03	2.0E-03
N_2O	6.0E-04	kg/MMBtu[4]	1.6E-03	4.1E-04
CO_2e			202	50

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. Emissions factors for $PM/PM_{10}/PM_{2.5}$, NO_X, hydrocarbons, and CO obtained from generator's spec sheet.
3. Sulfur content in accordance with Year 2010 standards of 40 CFR 80.510(b) 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.

Abbreviations:

Btu - British thermal unit
CH_4 - methane
CO - carbon monoxide
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalent
g - gram
gal - gallon
hp - horsepower
hr - hour
kg - kilogram
kW - kilowatt
lb - pound
MW - megawatt
MMBtu - Million British thermal units
NO_X - nitrogen oxides
N_2O - nitrous oxide
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
SO_2 - sulfur dioxide
tpy - tons per year
VOC - volatile organic compound
yr - year

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

Potential HAP Emissions

Pollutant	CAS No.	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
Butadiene, 1,3-	106-99-0	Y	Y	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	5.9E-07	7.8E-05	1.9E-05
Total PAH (POM)[3]	--	N	Y	1.18E-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	Y	2.0E-06	2.6E-04	6.5E-05
				Total HAP Emissions	**3.6E-03**	**8.9E-04**

Notes:

1. 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 hrs/yr of non-emergency operation of these engines. Potential emissions for the emergency generator 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.

Abbreviations:

CAS - chemical abstract service
HAP - hazardous air pollutant
hp - horsepower
hr - hour
lb - pound
NC - North Carolina
ODT - oven dried tons
PAH - polycyclic aromatic hydrocarbon
POM - polycyclic organic matter
TAP - toxic air pollutant
tpy - tons per year
VOC - volatile organic compound

Table 11
Log Chipping Potential Emissions
IES-CHIP-1
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Calculation Basis

Hourly Throughput[1]	275 ton/hr, wet
	138 ODT/hr
Maximum Pellet Production	657,000 ODT/yr

Potential Criteria Pollutant Emissions

Pollutant	Emission Factor	Potential Emissions	
		(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	0.33

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, Tables 7 and 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. VOC as propane = (1.22 x THC) + formaldehyde - (acetone+methane+methylene chloride). A value of zero is used for specified compounds where no emission factor is available or where the emission factor is reported only as "BDL" as indicated in AP-42, Section 10.6.3.

Abbreviations:

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

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

Calculation Basis

Hourly Throughput[1]	50 ton/hr, wet
	25 ODT/hr
Annual Throughput[2]	119,455 ODT/yr
	238,909 ton/yr, wet
Approx. Moisture Content[1]	50% of total weight

Potential Criteria Pollutant Emissions

Pollutant	Emission Factor	Potential Emissions	
		(lb/hr)	(tpy)
THC as carbon[3]	4.1E-03 lb/ODT	0.10	0.24
VOC as propane[4]	5.0E-03 lb/ODT	0.13	0.30
Methanol[3]	1.0E-03 lb/ODT	2.5E-02	6.0E-02
TSP[5]	2.0E-02 lb/ton	0.10	0.24
PM_{10}[5]	1.1E-02 lb/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 similar bark hog usage is proportional to the amount of log chipping that occurs for maximum pellet ODT and maximum 75% purchase of greenwood 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. VOC as propane = (1.22 x THC) + formaldehyde - (acetone+methane+methylene chloride). A value of zero is used for specified compounds where no emission factor is available or where the emission factor is reported only as "BDL" as indicated in AP-42, Section 10.6.3.
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
IES-GWH
Enviva Pellets Sampson, LLC
Falson, Sampson County, North Carolina

Source	Transfer Activity[1]	Number of Drop Points	Material Moisture Content[2]	PM Emission Factor[3]	PM_{10} Emission Factor[3]	$PM_{2.5}$ Emission Factor[3]	Potential Throughput[4]		Potential PM Emissions		Potential PM_{10} Emissions		Potential $PM_{2.5}$ Emissions	
			(%)	(lb/ton)	(lb/ton)	(lb/ton)	(tph)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
IES-GWH	Purchased Bark/Fuel Chips Transfer to Outdoor Storage Area	1	48%	4.97E-05	2.35E-05	3.56E-06	25	81,640	1.2E-03	2.0E-03	5.9E-04	9.6E-04	8.9E-05	1.5E-04
	Purchased Wood Chips to Outdoor Storage Area	4	42%	6.00E-05	2.84E-05	4.30E-06	69	328,500	1.7E-02	3.9E-02	7.8E-03	1.9E-02	1.2E-03	2.8E-03
	Processed Wood Chips to Outdoor Storage Area	2	42%	6.00E-05	2.84E-05	4.30E-06	138	328,500	1.6E-02	2.0E-02	7.8E-03	9.3E-03	1.2E-03	1.4E-03
	Chip Truck Dump to Dumpers	2	42%	6.00E-05	2.84E-05	4.30E-06	69	328,500	8.3E-03	2.0E-02	3.9E-03	9.3E-03	5.9E-04	1.4E-03
							Total Emissions:		4.3E-02	8.1E-02	2.0E-02	3.8E-02	3.0E-03	5.8E-03

Notes:

1. These green wood handling emissions are representative of the fugitive emissions at the site. Note there may be multiple drop points for each type but as shown these emissions will be negligible.
2. Average moisture content for bark based on material balance provided by design engineering firm (Mid-South Engineering). Moisture content for purchased and process wood chips provided by Enviva on July 12, 2017. Assumed the lower moisture content between pine and hardwood to conservatively estimate PM emissions. (Hardwood 42% moisture; pine 51% (purchased wood chips) and 49% (processed wood chips).
3. Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06).

where:		
	E = emission factor (lb/ton)	
	k = particle size multiplier (dimensionless) for PM	0.74
	k = particle size multiplier (dimensionless) for PM_{10}	0.35
	k = particle size multiplier (dimensionless) for $PM_{2.5}$	0.053
	U = mean wind speed (mph)	7.85

4. Throughputs represent dry weight of materials, calculated based on listed material moisture contents. Hourly purchased bark throughput based on bark hog hourly throughput. Hourly purchased wood chip throughput based on weight of chips delivered to the facility. Hourly processed wood chip throughput based on log chipping hourly throughput.

Abbreviations:

hr - hour
lb - pound
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
tpy - tons per year
yr - year

Table 14
Storage Pile Wind Erosion
IES-GWSP-1 through 4, and IES-BFSP-1 and 2
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Source	Description	PM Emission Factor[1]		VOC Emission Factor[2]		Pile Width	Pile Length	Pile Height	Outer Surface Area of Pile[3]	Potential PM Emissions		Potential PM_{10} Emissions		Potential $PM_{2.5}$ Emissions		Potential VOC Emissions as propane[4]	
		(lb/day/acre)	(lb/hr/ft^2)	(lb/day/acre)	(lb/hr/ft^2)	(ft)	(ft)	(ft)	(ft^2)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
IES-GWSP-1	Green Wood Storage Pile No. 1	9.8	9.4E-06	3.5	3.4E-06	100	310	30	66,720	0.63	2.7	0.31	1.4	4.7E-02	0.21	0.28	1.2
IES-GWSP-2	Green Wood Storage Pile No. 2	9.8	9.4E-06	3.6	3.4E-06	100	310	30	66,720	0.63	2.7	0.31	1.4	4.7E-02	0.21	0.28	1.2
IES-GWSP-3	Green Wood Storage Pile No. 3	9.8	9.4E-06	3.6	3.4E-06	220	310	30	120,000	1.1	4.9	0.56	2.5	8.5E-02	0.37	0.50	2.2
IES-GWSP-4	Green Wood Storage Pile No. 4	9.8	9.4E-06	3.6	3.4E-06	220	310	30	120,000	1.1	4.9	0.56	2.5	8.5E-02	0.37	0.50	2.2
IES-BFSP-1	Bark Fuel Storage Pile No. 1	9.8	9.4E-06	3.6	3.4E-06	60	100	15	12,960	0.12	0.53	6.1E-02	0.27	9.1E-03	4.0E-02	5.4E-02	0.24
IES-BFSP-2	Bark Fuel Storage Pile No. 2	9.8	9.4E-06	3.6	3.4E-06	25	25	15	2,550	2.4E-02	0.10	1.2E-02	5.2E-02	1.8E-03	7.9E-03	1.1E-02	4.7E-02
									Total Emissions:	**3.7**	**16**	**1.8**	**8.0**	**0.27**	**1.2**	**1.6**	**7.2**

Notes:

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

$$E = 1.7\left(\frac{s}{1.5}\right)\left(\frac{(365-p)}{235}\right)\left(\frac{f}{15}\right)(\text{lb/day/acre})$$

where:	s, silt content of wood chips (%):	8.4	s = silt content (%) for lumber sawmills (mean) from AP-42, Section 13.2.2 - Unpaved Roads, 11/06, Table 13.2.2-1
	p, number of days with rainfall greater than 0.01 inch:	120	Based on AP-42, Section 13.2.2 - Unpaved Roads, 11/06, Figure 13.2.1-2.
	f (time that wind exceeds 5.36 m/s - 12 mph) (%):	14.8	Based on meteorological data averaged for 2007-2011 for Sampson, NC.
	PM_{10}/TSP ratio:	50%	PM_{10} is assumed to equal 50% of TSP based on U.S. EPA Control of Open Fugitive Dust Sources, Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988.
	$PM_{2.5}$/TSP ratio:	7.5%	$PM_{2.5}$ is assumed to equal 7.5 % of TSP U.S. EPA Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors. November 2006.

[2] Emission factors obtained from NCASI document provided by the South Carolina Department of Health and Environmental Control (DHEC) for the calculation of fugitive VOC emissions from Douglas Fir wood storage piles. Emission factors ranged from 1.6 to 3.6 lb C/acre-day. Enviva chose to employ the maximum emission factor for purposes of conservatism.

[3] The surface area is calculated as [2*H*L+2*W*H+L*W] + 20% to consider the sloping pile edges. Length and width based on proposed site design with a conservative height.

[4] Emissions are calculated in tons of carbon per year by the following formula:

tons C/year = 5 acres * 365 days * 1.6 lb C/acre-day / 2000 lb/ton

Emission factor converted from as carbon to as propane by multiplying by 1.22.

Abbreviations:

EPA - Environmental Protection Agency
ft - feet
ft^2 - square feet
lb - pound
mph - miles per hour
NC - North Carolina
NCASI - National Council for Air and Stream Improvement, Inc.
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
tpy - tons per year
TSP - total suspended particulate
yr - year
VOC - volatile organic compound

Table 15
Potential Fugitive PM Emissions from Paved Roads
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Vehicle Activity	Distance Traveled per Roundtrip[1] (ft)	Trips Per Day[2]	Daily VMT	Events Per Year (days)	Empty Truck Weight (lb)	Loaded Truck Weight (lb)	Average Truck Weight (ton)	Annual VMT	PM Emission Factor[3] (lb/VMT)	PM_{10} Emission Factor[3] (lb/VMT)	$PM_{2.5}$ Emission Factor[3] (lb/VMT)	Potential PM Emissions[4] (lb/day)	Potential PM Emissions[4] (tpy)	Potential PM_{10} Emissions[4] (lb/day)	Potential PM_{10} Emissions[4] (tpy)	Potential $PM_{2.5}$ Emissions[4] (lb/day)	Potential $PM_{2.5}$ Emissions[4] (tpy)
Logs Delivery to Crane	9,102	60	103.4	365	31,700	87,380	30	37,753	2.2	0.44	0.11	23	4.2	4.5	0.83	1.1	0.20
Logs Delivery to Log Storage Area	9,102	60	103.4	365	31,700	87,380	30	37,753	2.2	0.44	0.11	23	4.2	4.5	0.83	1.1	0.20
Chips Delivery	7,660	95	138	365	30,080	90,060	30	50,305	2.2	0.44	0.11	31	5.6	6.1	1.1	1.5	0.27
Hog Fuel Delivery	7,660	12	17.4	365	30,080	90,060	30	6,354	2.2	0.44	0.11	3.9	0.70	0.77	0.14	0.19	3.5E-02
Pellet Delivery	3,654	66	45.7	365	25,460	87,980	28	16,671	2.1	0.42	0.10	9.6	1.7	1.9	0.35	0.47	8.6E-02
Employee Car Parking	2,400	37	16.8	365	4,000	4,000	2	6,139	0.14	2.8E-02	6.9E-03	0.24	4.3E-02	4.7E-02	8.6E-03	1.2E-02	2.1E-03
											Total Emissions:	**90**	**16**	**18**	**3.27**	**4.4**	**0.80**

Notes:

[1] Distance traveled per round trip was estimated based measuring wheel values. Data provided by Joe Harrell (Enviva) via email on May 16, 2017.

[2] Daily trip counts provided by Joe Harrell (Enviva) via email on May 15, 2017. Log delivery trips updated assuming a maximum of 75% of greenwood is from logs.

[3] Emission factors calculated based on Equation 2 from AP-42 Section 13.2.1 - Paved Roads, 01/11.

where:

E = emission factor (lb/ton)
k = particle size multiplier (dimensionless) for PM 0.011
k = particle size multiplier (dimensionless) for PM_{10} 0.0022
k = particle size multiplier (dimensionless) for $PM_{2.5}$ 0.00054
sL - mean road surface silt loading from AP-42 Table 13.2.1-3 for quarries (g/m^2) 8.2
P - No. days with rainfall greater than 0.01 inch 110 Per AP-42, Section 13.2.1, Figure 13.2.1-2 (Sampson County, NC).

[4] Potential emissions calculated from appropriate emission factor times vehicle miles traveled with control efficiency of 90% for water / dust suppression activities followed by sweeping. Per Table 5 in Chapter 4 of the Air Pollution Engineering Manual, Air and Waste Management Association, page 141. Control efficiency (%) = 96-0.263*V, where V is the number of vehicle passes since application of water. Use of dry shavings would replace log or chip delivery and thus, dry shaving paved road emissions are assumed to equal those of log or chip delivery if Enviva opts to use dry shavings instead; thus, separate emissions calculations for dry shaving vehicle activity is not needed.

Abbreviations:

ft - feet
hr - hour
lb – pound
PM - particulate matter
tpy - tons per year
yr - year
VMT - vehicle miles traveled
VOC - volatile organic compound
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

Table 16
Diesel Storage Tanks
IES-TK-1 through 3
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Source ID	Description	Design Volume[1]	Working Volume[2]	Tank Dimensions		Orientation	Throughput [3]	Turnovers	VOC Emissions[4]	
				Diameter	Length					
		(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	17,400	34.8	1.3E-04	5.9E-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	3,000	1,500	5.3	18	Horizontal	200,000	133.3	4.9E-04	2.2E-03
Total Emissions:									**6.6E-04**	**2.9E-03**

Notes:
1. Conservative design specifications.
2. Working volume conservatively assumed to be 50% of tank design volume because tanks will not be full at all times.
3. 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
4. Emissions calculated using EPA TANKS 4.0 software.

Abbreviations:
EPA - Environmental Protection Agency
ft - feet
gal - gallon
lb - pound
yr - year
VOC - volatile organic compound

Table 17
Dry Shavings Material Handling
IES-DRYSHAVE
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Source	Transfer Activity	Number of Drop Points	Material Moisture Content[1]	PM Emission Factor[2]	PM_{10} Emission Factor[2]	$PM_{2.5}$ Emission Factor[2]	Potential Throughput[3,4]		Potential PM Emissions		Potential PM_{10} Emissions		Potential $PM_{2.5}$ Emissions	
			(%)	(lb/ton)	(lb/ton)	(lb/ton)	(tph)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
IES-DRYSHAVE	Dry Shavings Material Handling - Truck dump to truck dumpe	1	10%	4.5E-04	2.1E-04	3.2E-05	25	219,000	1.1E-02	4.9E-02	5.3E-03	2.3E-02	8.0E-04	3.5E-03
	Dry Shavings Material Handling - Bucket elevator to silo[5]	1	10%	4.5E-04	2.1E-04	3.2E-05	25	219,000	1.1E-03	4.9E-03	5.3E-04	2.3E-03	8.0E-05	3.5E-04
								Total Emissions:	**1.2E-02**	**5.4E-02**	**5.8E-03**	**2.5E-02**	**8.8E-04**	**3.9E-03**

Notes:

[1] Moisture content for dry shavings based on information provided by Enviva.

[2] Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06).

where:		
	E = emission factor (lb/ton)	
	k = particle size multiplier (dimensionless) for PM	0.74
	k = particle size multiplier (dimensionless) for PM_{10}	0.35
	k = particle size multiplier (dimensionless) for $PM_{2.5}$	0.053
	U = mean wind speed (mph)	7.85

[3] Hourly throughput based on a maximum of 25 ton/hr transfer rate pounds of dry shaving material.

[4] Annual throughput based on maximum daily throughput of 600 tons/day and 365 day/yr of operation.

[5] Bucket elevator to silo material handling transfer point emissions associate a 90% control efficiency due to the enclosed nature of the silo (San Diego County, 1993).

Abbreviations:

hr - hour
lb - pound
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
tpy - tons per year
yr - year

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

Calculation Basis

Hourly Throughput[1]	275 ton/hr
Annual Throughput[1]	1,133,325 ton/yr

Potential Criteria Pollutant Emissions

Source	Pollutant	Emission Factor (lb/ton)	Potential Emissions (lb/hr)	Potential Emissions (tpy)
IES-DEBARK-1	TSP[2]	2.0E-02	0.55	1.1
	PM_{10}[2]	1.1E-02	0.30	0.62

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

APPENDIX D
PSD ANALYSIS

Table 1
PSD Project-Only Emissions Change Summary Table
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

PSD Project-Only Emissions Changes Summary Table

Pollutant	Project-Only Emissions Increase (tpy)	Project-Only Emissions Decrease (tpy)	PSD Significant Threshold (tpy)	Is Netting Required?	Emissions Netting (tpy)	PSD Significant Modification? (Yes/No)
CO	0	-11	100	No	-11	No
NO_X	0	-0.4	40	No	-0.4	No
PM	103	-34	25	**Yes**	70	**Yes**
PM_{10}	29.7	-29.9	15	**Yes**	-0.2	No
$PM_{2.5}$	4.9	-25	10	No	-20	No
SO_2	0	0	40	No	0	No
VOCs	523	-310	40	**Yes**	214	**Yes**
CO_2e	26,402	0	75,000	No	26,402	No

Table 2
PSD Project-Only Emissions Change for CO
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	*Emissions Unit Status/ (Methodology)*	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	*New (<2yrs)*	230	219	-11	1,2

Project-Only Emissions Increase:	0.00
Project-Only Emissions Decrease:	-11
PSD Significant Threshold:	100
Is the Project-Only Emissions Increase Significant?	**NO**

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	--	MMBtu/yr	1,3
		--	8,760	Hr/yr	4

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	0.21	--	lb/MMBtu	1
		--	50	lb/hr	5

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 above. Emissions reflect outlet of RTO stack.
3. Existing annual heat input capacity calculated based on hourly heat input capacity (250.4 MMBtu/hr) and continuous operation (8,760 hr/yr).
4. Potential hours of operation.
5. Emission rate at RTO outlet based on data provided by RTO vendor (TSI).

Table 3
PSD Project-Only Emissions Change for NO_x
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	Emissions Unit Status/ (Methodology)	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	New (<2yrs)	219.4	219.0	0	1,2

Project-Only Emissions Increase:	0.0
Project-Only Emissions Decrease:	-0.4
PSD Significant Threshold:	40
Is the Project-Only Emissions Increase Significant?	**NO**

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	--	MMBtu/yr	1,3
		--	8,760	Hr/yr	4

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	0.20	--	lb/MMBtu	1
		--	50	lb/hr	5

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 above. Emissions reflect outlet of RTO stack.
3. Existing annual heat input capacity calculated based on hourly heat input capacity (250 MMBtu/hr) and continuous operation (8,760 hr/yr).
4. Potential hours of operation.
5. Emission rate at RTO outlet based on data provided by RTO vendor (TSI).

Table 4
PSD Project-Only Emissions Change for PM
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	Emissions Unit Status/ (Methodology)	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	New (<2yrs)	52	33	-25	1,2,3
Green Wood Hammermills	ES-GHM-1 to -3	New (<2yrs)	6.8			
Dry Hammermills	ES-HM-1 to -8	New (<2yrs)	18.0	18.0	0.0	
Hammermill Conveying System	ES-HMC	New (<2yrs)	---	0.23	0.23	
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	New (<2yrs)	0.47	0.47	0.0	
Pellet Mill Feed Silo	ES-PMFS	New (<2yrs)	0.37	0.37	0.0	
Pellet Presses and Coolers	ES-CLR-1 to -6	New (<2yrs)	74	151	77	
Pellet Cooler Recirculation	ES-PCR	New (<2yrs)	---	0.15	0.15	
Pellet Sampling Transfer Bin	ES-PSTB	New (<2yrs)	---	0.15	0.15	
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	New (<2yrs)	1.3	1.3	0.0	
Dried Wood Handling	ES-DWH	New (<2yrs)	---	0.30	0.30	
Bark Hog	IES-BARKHOG	New (<2yrs)	1.0	0.24	-0.74	
Paved Roads	Paved Roads	New (<2yrs)	2.4	16	14	
Green Wood Handling	IES-GWH	New (<2yrs)	0.02	0.08	0.06	
Green Wood Storage Piles	IES-GWSP-1	New (<2yrs)	1.4	2.7	11	
	IES-GWSP-2		2.6	2.7		
	IES-GWSP-3		---	4.9		
	IES-GWSP-4		---	4.9		
Bark Fuel Storage Piles	IES-BFSP-1	New (<2yrs)	---	0.53	0.64	
	IES-BFSP-2		---	0.10		
Dry Shavings Material Handling	IES-DRYSHAVE	New (<2yrs)	---	0.05	0.05	
Debarker	IES-DEBARK-1	New (<2yrs)	9.3	1.1	-8.1	

Project-Only Emissions Increase:	103
Project-Only Emissions Decrease:	-34
PSD Significant Threshold:	25
Is the Project-Only Emissions Increase Significant?	**YES**

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 below.
3. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.

Table 4
PSD Project-Only Emissions Change for PM
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	--	MMBtu/yr	1
		--	8,760	Hr/yr	2
Green Wood Hammermills	ES-GHM-1 to -3	15,000	--	cfm	2,3
		--	8,760	Hr/yr	
Dry Hammermills	ES-HM-1 to -8	15,000	15,000	cfm	3
Hammermill Conveying System	ES-HMC	---	1,500	cfm	4,5
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	3,102	3,102	cfm	3
Pellet Mill Feed Silo	ES-PMFS	2,444	2,444	cfm	3
Pellet Presses and Coolers	ES-CLR-1 to -6	15,000	16,746	cfm	6
Pellet Cooler Recirculation	ES-PCR	---	1,000	cfm	4,5
Pellet Sampling Transfer Bin	ES-PSTB	---	1,000	cfm	4,5
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	8,500	8,500	cfm	3
Dried Wood Handling	ES-DWH	---	2,000	cfm	4,5
Bark Hog	IES-BARKHOG	97,750	119,455	tpy	7,8
Paved Roads	Paved Roads	Various	Various	VMT/yr	
Green Wood Handling	IES-GWH	Various	Various	tpy	
Green Wood Storage Piles	IES-GWSP-1	60,000	66,720	sf	9,10
	IES-GWSP-2	110,400	66,720	sf	
	IES-GWSP-3	---	120,000	sf	
	IES-GWSP-4	---	120,000	sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	12,960	sf	4
	IES-BFSP-2	---	2,550	sf	
Dry Shavings Material Handling	IES-DRYSHAVE	---	219,000	tpy	11
Debarker	IES-DEBARK-1	927,403	1,133,325	tpy	7,12

Notes

1. Existing annual heat input capacity calculated based on hourly heat input capacity (250 MMBtu/hr) and continuous operation (8,760 hr/yr).
2. Potential annual hours of operation.
3. Existing flow rate from previous Enviva Sampson PSD applications dated August 2014 and October 2015 is not changing.
4. Not accounted for in original permit application.
5. Proposed project flow rate provided by Enviva.
6. Increase in proposed project flow rate. Existing flow rate from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
7. Existing throughput from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
8. Proposed project throughput for bark hog assumes similar bark hog usage is proportional to the amount of log chipping that occurs for maximum pellet ODT and maximum
9. Proposed project includes accounting for two additional storage piles.
10. Storage pile surface area based on dimensions provided by Enviva. The surface area is calculated as [2*H*L+2*W*H+L*W] + 20% to consider the sloping pile edges.
11. Annual throughput based on maximum daily throughput of 600 tons/day and 365 day/yr of operation.
12. Proposed project throughput for log chipping assumes worst-case of 100% of logs purchased for chipping based on 12/21/17 email from Enviva that 2 tons of green material

Table 4
PSD Project-Only Emissions Change for PM
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760
Green Wood Hammermills	ES-GHM-1 to -3	8,760	8,760
Dry Hammermills	ES-HM-1 to -8	8,760	8,760
Hammermill Conveying System	ES-HMC	---	8,760
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	8,760	8,760
Pellet Mill Feed Silo	ES-PMFS	8,760	8,760
Pellet Presses and Coolers	ES-CLR-1 to -6	8,760	8,760
Pellet Cooler Recirculation	ES-PCR	---	8,760
Pellet Sampling Transfer Bin	ES-PSTB	---	8,760
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	8,760	8,760
Dried Wood Handling	ES-DWH	---	8,760
Bark Hog	IES-BARKHOG	8,760	8,760
Paved Roads	Paved Roads	---	---
Green Wood Handling	IES-GWH	---	---
Green Wood Storage Piles	IES-GWSP-1	8,760	8,760
	IES-GWSP-2	8,760	8,760
	IES-GWSP-3	---	8,760
	IES-GWSP-4	---	8,760
Bark Fuel Storage Piles	IES-BFSP-1	---	8,760
	IES-BFSP-2	---	8,760
Dry Shavings Material Handling	IES-DRYSHAVE	---	---
Debarker	IES-DEBARK-1	8,760	8,760

Table 4
PSD Project-Only Emissions Change for PM
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	0.047	—	lb/MMBtu	1
		--	7.6	lb/hr	2,3
Green Wood Hammermills	ES-GHM-1 to -3	--			
		0.004	--	gr/cf	4
Dry Hammermills	ES-HM-1 to -8	0.004	0.004	gr/cf	5
Hammermill Conveying System	ES-HMC	---	0.004	gr/cf	6,7
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	0.004	0.004	gr/cf	5
Pellet Mill Feed Silo	ES-PMFS	0.004	0.004	gr/cf	5
Pellet Presses and Coolers	ES-CLR-1 to -6	0.022	0.04	gr/cf	4,6
Pellet Cooler Recirculation	ES-PCR	---	0.004	gr/cf	6,7
Pellet Sampling Transfer Bin	ES-PSTB	---	0.004	gr/cf	6,7
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	0.004	0.004	gr/cf	5
Dried Wood Handling	ES-DWH	---	0.004	gr/cf	6,7
Bark Hog	IES-BARKHOG	0.02	0.02	lb/ton	8
Paved Roads	Paved Roads	Various	Various	lb/VMT	9
Green Wood Handling	IES-GWH	Various	Various	lb/ton	10
Green Wood Storage Piles	IES-GWSP-1	5.4E-06	9.4E-06	lb/hr/sf	11
	IES-GWSP-2	5.4E-06	9.4E-06	lb/hr/sf	
	IES-GWSP-3	---	9.4E-06	lb/hr/sf	
	IES-GWSP-4	---	9.4E-06	lb/hr/sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	9.4E-06	lb/hr/sf	7,11
	IES-BFSP-2	---	9.4E-06	lb/hr/sf	
Dry Shavings Material Handling	IES-DRYSHAVE	--	4.9E-02	lb/ton	12
Debarker	IES-DEBARK-1	0.02	0.02	lb/ton	8

Notes

1. Dryer PM emission factor is filterable plus condensable for existing PTE. The Proposed emission factor listed is for only filterable. The proposed dryer PTE is calculated
2. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.
3. Emission rate at RTO outlet based on data provided by RTO vendor (TSI).
4. Existing grain loading from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
5. Existing grain loading from previous Enviva Sampson PSD applications dated August 2014 and October 2015 is not changing.
6. Proposed project grain loading provided by Enviva.
7. Not accounted for in original permit application.
8. Particulate matter emission factors from the USEPA document titled AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air
9. Paved road emission factors calculated based on Equation 2 from AP-42 Section 13.2.1 - Paved Roads, with control efficiency of 90% for water/dust suppression activities followed by sweeping (per Table 5 in Chapter 4 of the Air Pollution Engineering Manual, Air and Waste Management Association, page 141).
10. Green wood handling emission factors calculated based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, with a control efficiency of 74.7% applied for three-sided enclosed structure with 50% porosity per Sierra Research "Final BACM Technological and Economic Feasibility Analysis", report
11. Green wood storage pile and green wood fuel storage pile emission factors calculated based on formula from U.S. EPA Control of Open Fugitive Dust Sources. Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988, Page 4-17.
12. Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06).

Table 5
PSD Project-Only Emissions Change for PM_{10}
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	Emissions Unit Status/ (Methodology)	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	New (<2yrs)	52	33	-25	1,2,3
Green Wood Hammermills	ES-GHM-1 to -3	New (<2yrs)	6.8			
Dry Hammermills	ES-HM-1 to -8	New (<2yrs)	18.0	18.0	0.0	
Hammermill Conveying System	ES-HMC	New (<2yrs)	---	0.23	0.23	
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	New (<2yrs)	0.47	0.47	0.0	
Pellet Mill Feed Silo	ES-PMFS	New (<2yrs)	0.37	0.37	0.0	
Pellet Presses and Coolers	ES-CLR-1 to -6	New (<2yrs)	19.4	39.4	20	
Pellet Cooler Recirculation	ES-PCR	New (<2yrs)	---	0.15	0.15	
Pellet Sampling Transfer Bin	ES-PSTB	New (<2yrs)	---	0.15	0.15	
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	New (<2yrs)	1.2	1.2	0.0	
Dried Wood Handling	ES-DWH	New (<2yrs)	---	0.30	0.30	
Bark Hog	IES-BARKHOG	New (<2yrs)	0.54	0.13	-0.41	
Paved Roads	Paved Roads	New (<2yrs)	0.48	3.3	2.8	
Green Wood Handling	IES-GWH	New (<2yrs)	0.01	0.04	0.03	
Green Wood Storage Piles	IES-GWSP-1	New (<2yrs)	0.71	1.4	5.7	
	IES-GWSP-2		1.3	1.4		
	IES-GWSP-3		---	2.5		
	IES-GWSP-4		---	2.5		
Bark Fuel Storage Piles	IES-BFSP-1	New (<2yrs)	---	0.27	0.32	
	IES-BFSP-2		---	0.05		
Dry Shavings Material Handling	IES-DRYSHAVE	New (<2yrs)	---	0.03	0.03	
Debarker	IES-DEBARK-1	New (<2yrs)	5.1	0.62	-4.5	

Project-Only Emissions Increase:	29.7
Project-Only Emissions Decrease:	-29.9
PSD Significant Threshold:	15
Is the Project-Only Emissions Increase Significant?	**YES**

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 below.
3. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.

Table 5
PSD Project-Only Emissions Change for PM_{10}
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	--	MMBtu/yr	1
		--	8,760	Hr/yr	2
Green Wood Hammermills	ES-GHM-1 to -3	15,000	--	cfm	2,3
		--	8,760	Hr/yr	
Dry Hammermills	ES-HM-1 to -8	15,000	15,000	cfm	3
Hammermill Conveying System	ES-HMC	---	1,500	cfm	4,5
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	3,102	3,102	cfm	3
Pellet Mill Feed Silo	ES-PMFS	2,444	2,444	cfm	3
Pellet Presses and Coolers	ES-CLR-1 to -6	15,000	16,746	cfm	6
Pellet Cooler Recirculation	ES-PCR	---	1,000	cfm	4,5
Pellet Sampling Transfer Bin	ES-PSTB	---	1,000	cfm	4,5
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	8,500	8,500	cfm	3
Dried Wood Handling	ES-DWH	---	2,000	cfm	4,5
Bark Hog	IES-BARKHOG	97,750	119,455	tpy	7,9
Paved Roads	Paved Roads	Various	Various	VMT/yr	
Green Wood Handling	IES-GWH	Various	Various	tpy	
Green Wood Storage Piles	IES-GWSP-1	60,000	66,720	sf	10,11
	IES-GWSP-2	110,400	66,720	sf	
	IES-GWSP-3	---	120,000	sf	
	IES-GWSP-4	---	120,000	sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	12,960	sf	4,11
	IES-BFSP-2	---	2,550	sf	
Dry Shavings Material Handling	IES-DRYSHAVE	---	219,000	tpy	12
Debarker	IES-DEBARK-1	927,403	1,133,325	tpy	7,8

Notes

1. Existing annual heat input capacity calculated based on hourly heat input capacity (250 MMBtu/hr) and continuous operation (8,760 hr/yr).
2. Potential annual hours of operation.
3. Existing flow rate from previous Enviva Sampson PSD applications dated August 2014 and October 2015 is not changing.
4. Not accounted for in original permit application.
5. Proposed project flow rate provided by Enviva.
6. Increase in proposed project flow rate. Existing flow rate from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
7. Existing throughput from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
8. Proposed project throughput for log chipping assumes worst-case of 100% of logs purchased for chipping based on 12/21/17 email from Enviva that 2 tons of green material is needed for every 1 ODT of pellets, and 1.15 times that amount for purchased logs through the chipper. At most, Enviva would purchase 75% of the needed logs with the remaining 25% of green material coming from purchased chips.
9. Proposed project throughput for bark hog assumes similar bark hog usage is proportional to the amount of log chipping that occurs for maximum pellet ODT and maximum 75% purchase of greenwood from logs.
10. Proposed project includes accounting for two additional storage piles.
11. Storage pile surface area based on dimensions provided by Enviva. The surface area is calculated as [2*H*L+2*W*H+L*W] + 20% to consider the sloping pile edges.
12. Annual throughput based on maximum daily throughput of 600 tons/day and 365 day/yr of operation.

Table 5
PSD Project-Only Emissions Change for PM_{10}
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760
Green Wood Hammermills	ES-GHM-1 to -3	8,760	8,760
Dry Hammermills	ES-HM-1 to -8	8,760	8,760
Hammermill Conveying System	ES-HMC	---	8,760
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	8,760	8,760
Pellet Mill Feed Silo	ES-PMFS	8,760	8,760
Pellet Presses and Coolers	ES-CLR-1 to -6	8,760	8,760
Pellet Cooler Recirculation	ES-PCR	---	8,760
Pellet Sampling Transfer Bin	ES-PSTB	---	8,760
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	8,760	8,760
Dried Wood Handling	ES-DWH	---	8,760
Bark Hog	IES-BARKHOG	8,760	8,760
Paved Roads	Paved Roads	---	---
Green Wood Handling	IES-GWH	---	---
Green Wood Storage Piles	IES-GWSP-1	8,760	8,760
	IES-GWSP-2	8,760	8,760
	IES-GWSP-3	---	8,760
	IES-GWSP-4	---	8,760
Bark Fuel Storage Piles	IES-BFSP-1	---	8,760
	IES-BFSP-2	---	8,760
Dry Shavings Material Handling	IES-DRYSHAVE	---	---
Debarker	IES-DEBARK-1	8,760	8,760

Table 5
PSD Project-Only Emissions Change for PM_{10}
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	0.047	--	lb/MMBtu	1
Dryer System	ES-DRYER	--	7.6	lb/hr	2,3
Green Wood Hammermills	ES-GHM-1 to -3	--	7.6	lb/hr	2,3
Green Wood Hammermills	ES-GHM-1 to -3	0.004	--	gr/cf	4
Dry Hammermills	ES-HM-1 to -8	0.004	0.004	gr/cf	5
Hammermill Conveying System	ES-HMC	--	0.004	gr/cf	6,7
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	0.004	0.004	gr/cf	5
Pellet Mill Feed Silo	ES-PMFS	0.004	0.004	gr/cf	5
Pellet Presses and Coolers	ES-CLR-1 to -6	0.006	0.01	gr/cf	4,7,8
Pellet Cooler Recirculation	ES-PCR	--	0.004	gr/cf	6,7
Pellet Sampling Transfer Bin	ES-PSTB	--	0.004	gr/cf	6,7
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	0.0036	0.0036	gr/cf	5,9
Dried Wood Handling	ES-DWH	---	0.004	gr/cf	6,7
Bark Hog	IES-BARKHOG	0.011	0.011	lb/ton	10
Paved Roads	Paved Roads	Various	Various	lb/VMT	11
Green Wood Handling	IES-GWH	Various	Various	lb/ton	12
Green Wood Storage Piles	IES-GWSP-1	2.7E-06	4.7E-06	lb/hr/sf	13
Green Wood Storage Piles	IES-GWSP-2	2.7E-06	4.7E-06	lb/hr/sf	13
Green Wood Storage Piles	IES-GWSP-3	---	4.7E-06	lb/hr/sf	13
Green Wood Storage Piles	IES-GWSP-4	---	4.7E-06	lb/hr/sf	13
Bark Fuel Storage Piles	IES-BFSP-1	---	4.7E-06	lb/hr/sf	6,13
Bark Fuel Storage Piles	IES-BFSP-2	---	4.7E-06	lb/hr/sf	6,13
Dry Shavings Material Handling	IES-DRYSHAVE	--	4.9E-02	lb/ton	14
Debarker	IES-DEBARK-1	0.011	0.011	lb/ton	10

Notes

1. Dryer PM emission factor is filterable plus condensable for existing PTE.
2. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.
3. Emission rate at RTO outlet based on data provided by RTO vendor (TSI).
4. Existing grain loading from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
5. Existing grain loading from previous Enviva Sampson PSD applications dated August 2014 and October 2015 is not changing.
6. Not accounted for in original permit application.
7. Proposed project grain loading provided by Enviva.
8. PM_{10} is assumed to be 26.1% of PM.
9. PM_{10} is assumed to be 91% of PM.
10. 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).
11. Paved road emission factors calculated based on Equation 2 from AP-42 Section 13.2.1 - Paved Roads, with control efficiency of 90% for water/dust suppression activities followed by sweeping (per Table 5 in Chapter 4 of the Air Pollution Engineering Manual, Air and Waste Management Association, page 141).
12. Green wood handling emission factors calculated based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, with a control efficiency of 74.7% applied for three-sided enclosed structure with 50% porosity per Sierra Research "Final BACM Technological and Economic Feasibility Analysis", report prepared for the San Joaquin Valley Unified Air Pollution Control District.
13. Green wood storage pile and green wood fuel storage pile emission factors calculated based on formula from U.S. EPA Control of Open Fugitive Dust Sources. Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988, Page 4-17. PM_{10} is assumed to equal 50% of TSP based on U.S. EPA Control of Open Fugitive Dust
14. Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06).

Table 6
PSD Project-Only Emissions Change for $PM_{2.5}$
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	Emissions Unit Status/ (Methodology)	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	New (<2yrs)	52	33	-25.0	1,2,3
Green Wood Hammermills	ES-GHM-1 to -3	New (<2yrs)	6.8			
Dry Hammermills	ES-HM-1 to -8	New (<2yrs)	0.31	0.31	0.00	
Hammermill Conveying System	ES-HMC	New (<2yrs)	—	0.23	0.23	
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	New (<2yrs)	0.47	0.47	0.0	
Pellet Mill Feed Silo	ES-PMFS	New (<2yrs)	0.37	0.37	0.0	
Pellet Presses and Coolers	ES-CLR-1 to -6	New (<2yrs)	2.38	4.83	2.4	
Pellet Cooler Recirculation	ES-PCR	New (<2yrs)	—	0.15	0.15	
Pellet Sampling Transfer Bin	ES-PSTB	New (<2yrs)	—	0.15	0.15	
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	New (<2yrs)	2.2E-02	2.2E-02	0.0	
Dried Wood Handling	ES-DWH	New (<2yrs)	—	0.30	0.30	
Paved Roads	Paved Roads	New (<2yrs)	0.12	0.80	0.69	
Green Wood Handling	IES-GWH	New (<2yrs)	1.1E-03	5.8E-03	4.6E-03	
Green Wood Storage Piles	IES-GWSP-1	New (<2yrs)	0.11	0.21	0.85	
	IES-GWSP-2		0.19	0.21		
	IES-GWSP-3		—	0.37		
	IES-GWSP-4		—	0.37		
Bark Fuel Storage Piles	IES-BFSP-1	New (<2yrs)	—	4.0E-02	4.8E-02	
	IES-BFSP-2		—	7.9E-03		
Dry Shavings Material Handling	IES-DRYSHAVE	New (<2yrs)	—	3.9E-03	3.9E-03	

Project-Only Emissions Increase:	4.9
Project-Only Emissions Decrease:	-25
PSD Significant Threshold:	10
Is the Project-Only Emissions Increase Significant?	**NO**

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 below.
3. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.

Table 6
PSD Project-Only Emissions Change for $PM_{2.5}$
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	--	MMBtu/yr	1
		--	8,760	Hr/yr	2
Green Wood Hammermills	ES-GHM-1 to -3	15,000	--	cfm	2,3
		--	8,760	Hr/yr	
Dry Hammermills	ES-HM-1 to -8	15,000	15,000	cfm	3
Hammermill Conveying System	ES-HMC	---	1,500	cfm	4,5
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	3,102	3,102	cfm	3
Pellet Mill Feed Silo	ES-PMFS	2,444	2,444	cfm	3
Pellet Presses and Coolers	ES-CLR-1 to -6	15,000	16,746	cfm	6
Pellet Cooler Recirculation	ES-PCR	---	1,000	cfm	4,5
Pellet Sampling Transfer Bin	ES-PSTB	---	1,000	cfm	4,5
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	8,500	8,500	cfm	3
Dried Wood Handling	ES-DWH	---	2,000	cfm	4,5
Paved Roads	Paved Roads	Various	Various	VMT/yr	7
Green Wood Handling	IES-GWH	Various	Various	tpy	8
Green Wood Storage Piles	IES-GWSP-1	60,000	66,720	sf	9,10
	IES-GWSP-2	110,400	66,720	sf	
	IES-GWSP-3	---	120,000	sf	
	IES-GWSP-4	---	120,000	sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	12,960	sf	4,10
	IES-BFSP-2	---	2,550	sf	
Dry Shavings Material Handling	IES-DRYSHAVE	---	219,000	tpy	11

Notes

1. Existing annual heat input capacity calculated based on hourly heat input capacity (250 MMBtu/hr) and continuous operation (8,760 hr/yr).
2. Potential annual hours of operation.
3. Existing flow rate from previous Enviva Sampson PSD applications dated August 2014 and October 2015 is not changing.
4. Not accounted for in original permit application.
5. Proposed project flow rate provided by Enviva.
6. Increase in proposed project flow rate. Existing flow rate from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
7. Paved road emission factors calculated based on Equation 2 from AP-42 Section 13.2.1 - Paved Roads, with control efficiency of 90% for water/dust suppression activities followed by sweeping (per Table 5 in Chapter 4 of the Air Pollution Engineering Manual, Air and Waste Management Association, page 141).
8. Green wood handling emission factors calculated based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, with a control efficiency of 74.7% applied for three-sided enclosed structure with 50% porosity per Sierra Research "Final BACM Technological and Economic Feasibility Analysis", report prepared for the San Joaquin Valley Unified Air Pollution Control District.
9. Proposed project includes accounting for two additional storage piles.
10. Storage pile surface area based on dimensions provided by Enviva. The surface area is calculated as [2*H*L+2*W*H+L*W] + 20% to consider the sloping pile edges.
11. Annual throughput based on maximum daily throughput of 600 tons/day and 365 day/yr of operation.

Table 6
PSD Project-Only Emissions Change for $PM_{2.5}$
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760
Green Wood Hammermills	ES-GHM-1 to -3	8,760	8,760
Dry Hammermills	ES-HM-1 to -8	8,760	8,760
Hammermill Conveying System	ES-HMC	---	8,760
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	8,760	8,760
Pellet Mill Feed Silo	ES-PMFS	8,760	8,760
Pellet Presses and Coolers	ES-CLR-1 to -6	8,760	8,760
Pellet Cooler Recirculation	ES-PCR	---	8,760
Pellet Sampling Transfer Bin	ES-PSTB	---	8,760
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	8,760	8,760
Dried Wood Handling	ES-DWH	---	8,760
Paved Roads	Paved Roads	---	---
Green Wood Handling	IES-GWH	---	---
Green Wood Storage Piles	IES-GWSP-1	8,760	8,760
	IES-GWSP-2	8,760	8,760
	IES-GWSP-3	---	8,760
	IES-GWSP-4	---	8,760
Bark Fuel Storage Piles	IES-BFSP-1	---	8,760
	IES-BFSP-2	---	8,760
Dry Shavings Material Handling	IES-DRYSHAVE	---	---

Table 6
PSD Project-Only Emissions Change for $PM_{2.5}$
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	0.047	--	lb/MMBtu	1
		--	7.6	lb/hr	2
Green Wood Hammermills	ES-GHM-1 to -3	--			
		0.004	--	gr/cf	3
Dry Hammermills	ES-HM-1 to -8	0.00007	0.00007	gr/cf	4,5
Hammermill Conveying System	ES-HMC	---	0.004	gr/cf	6
Hammermill Area/Pellet Fines Bin	ES-HMA/ES-PFB	0.004	0.004	gr/cf	4,7
Pellet Mill Feed Silo	ES-PMFS	0.004	0.004	gr/cf	4,7
Pellet Presses and Coolers	ES-CLR-1 to -6	0.0007	0.0013	gr/cf	3,8,9
Pellet Cooler Recirculation	ES-PCR	---	0.004	gr/cf	4,6,8
Pellet Sampling Transfer Bin	ES-PSTB	---	0.004	gr/cf	4,6,8
Finished Product Handling/Pellet Loadout Bins/Pellet Mill Loadouts	ES-FPH/ES-PB-1 through 4/ES-PL-1 and 2	0.000068	0.000068	gr/cf	5,7
Dried Wood Handling	ES-DWH	---	0.004	gr/cf	4,6,8
Paved Roads	Paved Roads	Various	Various	lb/VMT	10
Green Wood Handling	IES-GWH	Various	Various	lb/ton	11
Green Wood Storage Piles	IES-GWSP-1	4.0E-07	7.0E-07	lb/hr/sf	12
	IES-GWSP-2	4.0E-07	7.0E-07	lb/hr/sf	
	IES-GWSP-3	---	7.0E-07	lb/hr/sf	
	IES-GWSP-4	---	7.0E-07	lb/hr/sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	7.0E-07	lb/hr/sf	6,12
	IES-BFSP-2	---	7.0E-07	lb/hr/sf	
Dry Shavings Material Handling	IES-DRYSHAVE	--	3.2E-05	lb/ton	13

Notes

1. Dryer PM emission factor is filterable plus condensable for existing PTE.
2. Emission rate at RTO outlet based on data provided by RTO vendor (TSI).
3. Existing grain loading from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
4. All PM is assumed to be $PM_{2.5}$.
5. $PM_{2.5}$ is assumed to be 1.7% of PM.
6. Not accounted for in original permit application.
7. Existing grain loading from previous Enviva Sampson PSD applications dated August 2014 and October 2015 is not changing.
8. Proposed project grain loading provided by Enviva.
9. $PM_{2.5}$ is assumed to be 3.2% of PM.
10. Paved road emission factors calculated based on Equation 2 from AP-42 Section 13.2.1 - Paved Roads, with control efficiency of 90% for water/dust suppression activities followed by sweeping (per Table 5 in Chapter 4 of the Air Pollution Engineering Manual, Air and Waste Management Association, page 141).
11. Green wood handling emission factors calculated based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, with a control efficiency of 74.7% applied for three-sided enclosed structure with 50% porosity per Sierra Research "Final BACM Technological and Economic Feasibility Analysis", report prepared for the San Joaquin Valley Unified Air Pollution Control District.
12. Green wood storage pile and green wood fuel storage pile emission factors calculated based on formula from U.S. EPA Control of Open Fugitive Dust Sources. Research Triangle Park, North Carolina, EPA-450/3-88-008. September 1988, Page 4-17. $PM_{2.5}$ is assumed to equal 7.5% of TSP based on U.S. EPA Control of Open Fugitive Dust
13. Emission factor calculation based on formula from AP-42, Section 13.2.4 - Aggregate Handling and Storage Piles, Equation 13.2.1, (11/06).

Table 7
PSD Project-Only Emissions Change for SO_2
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	Emissions Unit Status/ (Methodology)	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	New (<2yrs)	27	27	0	1,2

Project-Only Emissions Increase:	0.0E+00
Project-Only Emissions Decrease:	0.0E+00
PSD Significant Threshold:	40
Is the Project-Only Emissions Increase Significant?	**NO**

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	2,193,504	MMBtu/yr	3

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	0.025	0.025	lb/MMBtu	4

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 above. Emissions reflect outlet of RTO stack.
3. Annual heat input capacity calculated based on hourly heat input capacity (250 MMBtu/hr) and continuous operation (8,760 hr/yr).
4. Emission factor for normal operation, dryer bypass, and furnace bypass obtained from AP-42 Chapter 1.6 - Wood Residue Combustion in Boilers, 9/03.

Table 8
PSD Project-Only Emissions Change for VOC
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	Emissions Unit Status/ (Methodology)	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	New (<2yrs)	288	51	-310	1,2,3
Green Wood Hammermills	ES-GHM-1 to -3	New (<2yrs)	72			
Dry Hammermills	ES-HM-1 to -8	New (<2yrs)	34	168	133	
Pellet Presses and Coolers	ES-CLR-1 to -6	New (<2yrs)	228	572	345	
Dried Wood Handling	ES-DWH	New (<2yrs)	---	41	41	
Log Chipping	IES-CHIP-1	New (<2yrs)	1.3	1.6	0.39	
Bark Hog	IES-BARKHOG	New (<2yrs)	---	0.30	0.30	
Green Wood Storage Piles	IES-GWSP-1	New (<2yrs)	1.0	1.2	3.9	
	IES-GWSP-2		1.9	1.2		
	IES-GWSP-3		---	2.2		
	IES-GWSP-4		---	2.2		
Bark Fuel Storage Piles	IES-BFSP-1	New (<2yrs)	---	0.24	0.29	
	IES-BFSP-2		---	4.7E-02		
Emergency Generator Fuel Storage Tank	IES-TK1	New (<2yrs)	3.6E-03	5.9E-04	-3.0E-03	
Fire Pump Fuel Storage Tank	IES-TK2	New (<2yrs)	4.3E-04	1.6E-04	-2.7E-04	
Mobile Fuel Diesel Storage Tank	IES-TK3	New (<2yrs)	---	2.2E-03	2.2E-03	

Project-Only Emissions Increase:	523
Project-Only Emissions Decrease:	-310
PSD Significant Threshold:	40
Is the Project-Only Emissions Increase Significant?	**YES**

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 below.
3. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	537,625	657,000	ODT/yr	1,2
Green Wood Hammermills	ES-GHM-1 to -3	537,625	657,000	ODT/yr	1,2
Dry Hammermills	ES-HM-1 to -8	286,554	558,450	ODT/yr	3,4
Pellet Presses and Coolers	ES-CLR-1 to -6	537,625	657,000	ODT/yr	1,2
Dried Wood Handling	ES-DWH	---	657,000	ODT/yr	2
Log Chipping	IES-CHIP-1	537,625	---	tons dry wood/yr	1
		---	657,000	ODT/yr	2
Bark Hog	IES-BARKHOG	---	119,456	ODT/yr	5
Green Wood Storage Piles	IES-GWSP-1	60,000	66,720	sf	6,7
	IES-GWSP-2	110,400	66,720	sf	
	IES-GWSP-3	---	120,000	sf	
	IES-GWSP-4	---	120,000	sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	12,960	sf	6
	IES-BFSP-2	---	2,550	sf	

Notes

1. Existing throughput from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Proposed maximum throughput provided by Enviva.
3. Existing throughput from previous Enviva Sampson PSD applications dated August 2014 and October 2015; assumes 53.3% of raw material is processed by the dry hammermills.
4. Throughput assumes 85% of raw material is processed by the dry hammermills.
5. Maximum throughput assumes similar bark hog usage is proportional to the amount of log chipping that occurs for maximum pellet ODT and maximum 75% purchase of greenwood from logs.
6. Proposed project includes accounting for two additional storage piles.
7. Storage pile surface area based on dimensions provided by Enviva. The surface area is calculated as [2*H*L+2*W*H+L*W] + 20% to consider the sloping pile edges.

Table 8
PSD Project-Only Emissions Change for VOC
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760
Green Wood Hammermills	ES-GHM-1 to -3	8,760	8,760
Dry Hammermills	ES-HM-1 to -8	8,760	8,760
Pellet Presses and Coolers	ES-CLR-1 to -6	8,760	8,760
Dried Wood Handling	ES-DWH	---	8,760
Log Chipping	IES-CHIP-1	8,760	8,760
Bark Hog	IES-BARKHOG	---	8,760
Green Wood Storage Piles	IES-GWSP-1	8,760	8,760
	IES-GWSP-2	8,760	8,760
	IES-GWSP-3	---	8,760
	IES-GWSP-4	---	8,760
Bark Fuel Storage Piles	IES-BFSP-1	---	8,760
	IES-BFSP-2	---	8,760

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	1.07	0.15	lb/ODT	1,2,3
Green Wood Hammermills	ES-GHM-1 to -3	0.27			
Dry Hammermills	ES-HM-1 to -8	0.24	0.60	lb/ODT	1,4
Pellet Presses and Coolers	ES-CLR-1 to -6	0.85	1.74	lb/ODT	1,5
Dried Wood Handling	ES-DWH	---	0.12	lb/ODT	8
Log Chipping	IES-CHIP-1	4.65E-03	5.0E-03	lb/ODT	1,6
Bark Hog	IES-BARKHOG	---	5.0E-03	lb/ODT	7
Green Wood Storage Piles	IES-GWSP-1	3.93E-06	4.2E-06	lb/hr/sf	1,9
	IES-GWSP-2	3.93E-06	4.2E-06	lb/hr/sf	
	IES-GWSP-3	---	4.2E-06	lb/hr/sf	
	IES-GWSP-4	---	4.2E-06	lb/hr/sf	
Bark Fuel Storage Piles	IES-BFSP-1	---	4.2E-06	lb/hr/sf	
	IES-BFSP-2	---	4.2E-06	lb/hr/sf	

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Exhaust from the dryer (ES-DRYER) and green hammermills (ES-GHM-1 through 3) will be routed to a WESP and RTO for particulate and VOC control. Proposed potential to emit reflects emissions at the outlet of the RTO stack.
3. Emission rate at RTO outlet derived based on stack test data from comparable Enviva facilites for dryers and green wood hammermills and assumes a 95% control efficiency for the RTO.
4. Hammermill emission factor is based on Enviva Cottondale April 23, 2013 stack test data scaled to 100% softwood based on AP-42 emission factors, with a 20%
5. Pellet presses and coolers emission factor was derived based on stack test data from comparable Enviva facilities.
6. Log chipping emission factor for VOC as propane is from AP-42, Section 10.6.3., Medium Density Fiberboard, 08/02, Table 7. VOC as propane = (1.22 x THC) + formaldehyde - (acetone+methane+methylene chloride). A value of zero is used for specified compounds where no emission factor is available or where the emission factor is reported only as "BDL" as indicated in AP-42, Section 10.6.3.
7. Emission factor for VOC as propane is from AP-42, Section 10.6.3., Medium Density Fiberboard, 08/02, Table 7. VOC as propane = (1.22 x THC) + formaldehyde - (acetone+methane+methylene chloride).
8. Emission factor derived from NCASI VOC Dry Wood handling factor based on > 50 % southern pine at 3 OSB facilities, from NCASI factor ID VOC-OSB-Uog-DWMH-Spine. Emission factor converted from as carbon to as propane by multiplying by 1.22 (ratio of molecular weight of propane to molecular weight of carbon in propane).
9. Emission factors obtained from NCASI document provided by the South Carolina Department of Health and Environmental Control (DHEC) for the calculation of fugitive VOC emissions from Douglas Fir wood storage piles. Emission factors ranged from 1.6 to 3.6 lb C/acre-day. Enviva chose to employ the maximum emission factor for purposes of conservatism. Emission factor converted from as carbon to as alpha-pinene by multiplying by 1.14.

Table 9
PSD Project-Only Emissions Change for CO_2e
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

1. Project Emissions Changes (tpy)

Emissions Unit	Equipment ID	*Emissions Unit Status/ (Methodology)*	Existing Potential to Emit	Proposed Potential to Emit	Project-Only Emissions Change*	Notes
Dryer System	ES-DRYER	*New (<2yrs)*	229,828	256,230	26,402	1,2,3

Project-Only Emissions Increase:	26,402
Project-Only Emissions Decrease:	0
PSD Significant Threshold:	75,000
Is the Project-Only Emissions Increase Significant?	**NO**

2. Annual Operating Rates

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Operating Rate Units	Notes
Dryer System	ES-DRYER	2,193,504	--	MMBtu/yr	1,4
		--	657,000	ODT/yr	3

3. Annual Operating Hours (hr/yr)

Emissions Unit	Equipment ID	Existing Potential to Emit Operating Hours	Proposed Potential to Emit Operating Hours
Dryer System	ES-DRYER	8,760	8,760

4. Emissions Factors

Emissions Unit	Equipment ID	Existing Potential to Emit Basis	Proposed Potential to Emit Basis	Emissions Factor Units	Notes
Dryer System	ES-DRYER	95.1	--	kg/MMBtu	1,5
		--	780	lb/ODT	6

Notes

1. Existing potential to emit calculations from previous Enviva Sampson PSD applications dated August 2014 and October 2015.
2. Potential emissions based on the emission factors and operations documented in Sections 2-4 above.
3. Proposed emissions reflect outlet of RTO stack.
4. Annual heat input capacity calculated based on hourly heat input capacity (250 MMBtu/hr) and continuous operation (8,760 hr/yr).
5. Emission factors from Table C-1 and C-2 of 40 CFR Part 98 and Global Warming Potentials from Table A-1.
6. Emission factor for CO_2 from AP-42, Section 10.6.1 for rotary dryer with RTO control device. Enviva has conservatively calculated the CO_2 emissions using the hardwood emission factor because the dryer at Sampson uses a combination of hardwood and softwood and the hardwood emission factor is greater than the softwood emission factor.

APPENDIX E
PERMIT APPLICATION FORM

FORM A

GENERAL FACILITY INFORMATION

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **A**

NOTE- APPLICATION WILL NOT BE PROCESSED WITHOUT THE FOLLOWING:

☑ Local Zoning Consistency Determination (new or modification only)	☑ Appropriate Number of Copies of Application	☐ Application Fee (if required)
☑ Responsible Official/Authorized Contact Signature	☑ P.E. Seal (if required)	

GENERAL INFORMATION

Legal Corporate/Owner Name: Enviva Pellets Sampson, LLC	
Site Name: Enviva Pellets Sampson, LLC	
Site Address (911 Address) Line 1: 5 Connector Road	
Site Address Line 2:	
City: Faison	State: North Carolina
Zip Code: 28341	County: Sampson

CONTACT INFORMATION

Responsible Official/Authorized Contact:	*Invoice Contact:*
Name/Title: Deborah Steinke, Plant Manager	Name/Title: William Simon, EHS Manager
Mailing Address Line 1: 5 Connector Road, US 117	Mailing Address Line 1: 5 Connector Road, US 117
Mailing Address Line 2:	Mailing Address Line 2:
City: Faison State: NC Zip Code: 24341	City: Faison State: NC Zip Code: 28341
Primary Phone No.: 919-218-4452 Fax No.:	Primary Phone No.: 910-375-6365 Fax No.:
Secondary Phone No.:	Secondary Phone No.:
Email Address: Adam.Lassen@envivabiomass.com	Email Address: William.Simon@envivabiomass.com

Facility/Inspection Contact:	*Permit/Technical Contact:*
Name/Title: William Simon, EHS Manager	Name/Title: Kai Simonsen, Air Permit Engineer
Mailing Address Line 1: 5 Connector Road, US 117	Mailing Address Line 1: 4242 Six Forks Road, Suite 1050
Mailing Address Line 2:	Mailing Address Line 2:
City: Faison State: NC Zip Code: 28341	City: Raleigh State: NC Zip Code: 27609
Primary Phone No.: 910-375-6365 Fax No.:	Primary Phone No.: 984-789-3628 Fax No.:
Secondary Phone No.:	Secondary Phone No.:
Email Address: William.Simon@envivabiomass.com	Email Address: Kai.Simonsen@envivabiomass.com

APPLICATION IS BEING MADE FOR

☐ New Non-permitted Facility/Greenfield	☑ Modification of Facility (permitted)	☐ Renewal Title V	☐ Renewal Non-Title V
☐ Name Change ☐ Ownership Change	☐ Administrative Amendment	☐ Renewal with Modification	

FACILITY CLASSIFICATION AFTER APPLICATION (Check Only One)

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

FACILITY (Plant Site) INFORMATION

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

	Facility ID No. 8200152
Primary SIC/NAICS Code: 2499 (Wood Products, not elsewhere classified)	Current/Previous Air Permit No. 10386R02 Expiration Date: 10/31/2019
Facility Coordinates: Latitude: 35 degrees, 7 minutes, 19.8 seconds	Longitude: 78 degrees, 10 minutes, 59.7 seconds
Does this application contain confidential data? ☐ YES ☑ NO	*****If yes, please contact the DAQ Regional Office prior to submitting this application.*** (See Instructions)**

PERSON OR FIRM THAT PREPARED APPLICATION

Person Name: Michael Carbon	Firm Name: Ramboll US Corporation
Mailing Address Line 1: 8234 YMCA Plaza Drive	Mailing Address Line 2:
City: Baton Rouge State: LA	Zip Code: 70810 County:
Phone No.: (225) 408-2691 Fax No.:	Email Address: mcarbon@ramboll.com

SIGNATURE OF RESPONSIBLE OFFICIAL/AUTHORIZED CONTACT

Name (typed): Deborah Steinke	Title: Plant Manager
X Signature(Blue Ink): Deborah Steinke	Date: 3/14/18

Attach Additional Sheets As Necessary

Received
MAR 19 2018
Air Permits Section

FORM A (continued, page 2 of 2)

GENERAL FACILITY INFORMATION

SECTION AA1 - APPLICATION FOR NON-TITLE V PERMIT RENEWAL

______ (Company Name) hereby formally requests renewal of Air Permit No. ______

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

Is your facility subject to 40 CFR Part 68 "Prevnetion of Accidental Releases" - Section 112(r) of the Clean Air Act? ☐ YES ☐ NO

If yes, have you already submitted a Risk Manage Plan (RMP) to EPA? ☐ YES ☐ NO Date Submitted: ______

Did you attach a current emissions inventory? ☐ YES ☐ NO

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 identifies and describes all emissions units at the above subject facility, except where such units are exempted under the North Carolina Title V regulations at 15A NCAC 2Q .0500;

(2) The current air quality permit cits all applicable requirements and provides the method or methods for determing compliance with the applicable requirements;

(3) The facility is currently in compliance, and shall continue to comply, with all applicable requiremetns. (Note: As provided under 15A NCAC 2Q .0512 compliance with the conditions of the permit shall be deemed compliance with the applicable requirements specifically identified in the permit);

(4) For applicable requirements that become effective during the term of the renewed permit that the facility shall comply on a timely basis;

(5) The facility shall fulfill applicable enhanced monitoring requirements and submit a compliance certification as required by 40 CFR Part 64.

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

SECTION AA3- APPLICATION FOR NAME CHANGE

New Facility Name: ______

Former Facility Name: ______

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

SECTION AA4- APPLICATION FOR AN OWNERSHIP CHANGE

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

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

X Signature (Blue Ink): ______

Date:

New Facility Name:

Former Facility Name:

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

Name (typed or print):

Title:

X Signature (Blue Ink): ______

Date:

Former Legal Corporate/Owner Name:

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

SECTION AA5- APPLICATION FOR ADMINISTRATIVE AMENDMENT

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

Attach Additional Sheets As Necessary

FORMs A2, A3

EMISSION SOURCE LISTING FOR THIS APPLICATION - A2

112r APPLICABILITY INFORMATION - A3

REVISED 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 ID NO.	EMISSION SOURCE DESCRIPTION	CONTROL DEVICE ID NO.	CONTROL DEVICE DESCRIPTION
Equipment To Be ADDED By This Application (New, Previously Unpermitted, or Replacement)			
ES-HMC-1	Hammermill Conveying System	CD-HMC-BH	Baghouse
Existing Permitted Equipment To Be MODIFIED By This Application			
ES-GHM-1 through 3	Three (3) Green Wood Hammermills	CD-WESP	Wet Electrostatic Precipitator
		CD-RTO (new)	Regenerative Thermal Oxidizer
ES-DRYER	Green Wood Direct-Fired Rotary Dryer System	CD-WESP	Wet Electrostatic Precipitator
		CD-RTO (new)	Regenerative Thermal Oxidizer
ES-HM-1 through 8	Eight (8) Dry Hammermills	CD-HM-BH-1	Baghouse
		CD-HM-BH-2	Baghouse
		CD-HM-BH-3	Baghouse
		CD-HM-BH-4	Baghouse
		CD-HM-BH-5	Baghouse
		CD-HM-BH-6	Baghouse
		CD-HM-BH-7	Baghouse
		CD-HM-BH-8	Baghouse
ES-HMA	Hammermill Area	CD-PFB-BH	Baghouse
ES-PFB	Pellet Fines Bin		
ES-PMFS	Pellet Mill Feed Silo	CD-PMFS-BH	Baghouse
ES-CLR-1 through 6	Six (6) Pellet Coolers	CD-CLR-1 through 6	Six (6) Simple Cyclones
ES-PCR	Pellet Cooler Recirculation	CD-PCR-BH	Baghouse
ES-PSTB	Pellet Sampling Transfer Bin	CD-PSTB-BH	Baghouse
FPH	Finished Product Handling	CD-FPH-BH	Baghouse
-PB-1 through 4	Four (4) Pellet Loadout Bins		
ES-PL-1 and 2	Pellet Mill Loadout 1 and 2		
ES-DWH	Dried Wood Handling Operations	CD-DWH-BH-1 through -2	Two (2) baghouses
Equipment To Be DELETED By This Application			

112(r) APPLICABILITY INFORMATION — A 3

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

If No, please specify in detail how your facility avoided applicability: **The Sampson plant does not store any regulated substances in excess of their respective threshold quantities, as determined under §68.115.**

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

A. Have you already submitted a Risk Management Plan (RMP) to EPA Pursuant to 40 CFR Part 68.10 or Part 68.150?
☐ Yes ☐ No Specify required RMP submittal date: ____________ If submitted, RMP submittal date: ____________

B. Are you using administrative controls to subject your facility to a lesser 112(r) program standard?
☐ Yes ☐ No If yes, please specify: ____________

C. List the processes subject to 112(r) at your facility:

PROCESS DESCRIPTION	PROCESS LEVEL (1, 2, or 3)	HAZARDOUS CHEMICAL	MAXIMUM INTENDED INVENTORY (LBS)

Attach Additional Sheets As Necessary

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

	EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)
AIR POLLUTANT EMITTED	tons/yr	tons/yr	tons/yr
PARTICULATE MATTER (PM)	See Emission Calculations in Appendix C		
PARTICULATE MATTER < 10 MICRONS (PM_{10})			
PARTICULATE MATTER < 2.5 MICRONS ($PM_{2.5}$)			
SULFUR DIOXIDE (SO_2)			
NITROGEN OXIDES (NOx)			
CARBON MONOXIDE (CO)			
VOLATILE ORGANIC COMPOUNDS (VOC)			
LEAD			
GREENHOUSE GASES (GHG) (SHORT TONS)			
OTHER			

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

		EXPECTED ACTUAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (BEFORE CONTROLS / LIMITATIONS)	POTENTIAL EMISSIONS (AFTER CONTROLS / LIMITATIONS)
HAZARDOUS AIR POLLUTANT EMITTED	CAS NO.	tons/yr	tons/yr	tons/yr
		See Emission Calculations in Appendix C		

TOXIC AIR POLLUTANT EMISSIONS INFORMATION - FACILITY-WIDE

INDICATE REQUESTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS. EMISSIONS ABOVE THE TOXIC PERMIT EMISSION RATE (TPER) IN 15A NCAC 2Q .0711 MAY REQUIRE AIR DISPERSION MODELING. USE NETTING FORM D2 IF NECESSARY.

					Modeling Required ?		
TOXIC AIR POLLUTANT EMITTED	CAS NO.	lb/hr	lb/day	lb/year	Yes	No	
		See Emission Calculations in Appendix C					

COMMENTS:

Attach Additional Sheets As Necessary

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 RATE**	**BASIS FOR EXEMPTION OR INSIGNIFICANT ACTIVITY**
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	2,500 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	3,000 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 IES-DEBARK-1	275 tons/hr	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
10. Bark Fuel Bin IES-BFB	N/A	15A NCAC 02Q .0503(8)-negligible emissions, see Appendix C
11. Diesel Fired Emergency Generator IES-EG	536 HP	15A NCAC 02Q .0503(8)-low emissions, see Appendix C
12. Diesel Fired Fire Water Pump IES-FWP	131 HP	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
14. Additive Handling IES-ADD	N/A	15A NCAC 02Q .0503(8)-negligible emissions, see Appendix C

Attach Additional Sheets As Necessary

FORM D5

TECHNICAL ANALYSIS TO SUPPORT PERMIT APPLICATION

REVISED 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 DEMONSTRATIONS MADE IN THIS APPLICATION. INCLUDE A COMPREHENSIVE PROCESS FLOW DIAGRAM AS NECESSARY TO SUPPORT AND CLARIFY CALCULATIONS AND ASSUMPTIONS. ADDRESS THE FOLLOWING SPECIFIC ISSUES ON SEPARATE PAGES:

A **SPECIFIC EMISSIONS SOURCE (EMISSION INFORMATION) (FORM B and B1 through B9)** - SHOW CALCULATIONS USED, INCLUDING EMISSION FACTORS, MATERIAL BALANCES, AND/OR OTHER METHODS FROM WHICH THE POLLUTANT EMISSION RATES IN THIS APPLICATION WERE DERIVED. INCLUDE CALCULATION OF POTENTIAL BEFORE AND, WHERE APPLICABLE, AFTER CONTROLS. CLEARLY STATE ANY ASSUMPTIONS MADE AND PROVIDE ANY REFERENCES AS NEEDED TO SUPPORT MATERIAL BALANCE CALCULATIONS.

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

C **CONTROL DEVICE ANALYSIS (FORM C and C1 through C9)** - PROVIDE A TECHNICAL EVALUATION WITH SUPPORTING REFERENCES FOR ANY CONTROL EFFICIENCIES LISTED ON SECTION C FORMS, OR USED TO REDUCE EMISSION RATES IN CALCULATIONS UNDER ITEM "A" ABOVE. INCLUDE PERTINENT OPERATING PARAMETERS (e.g. OPERATING CONDITIONS, MANUFACTURING RECOMMENDATIONS, AND PARAMETERS AS APPLIED FOR IN THIS APPLICATION) CRITICAL TO ENSURING PROPER PERFORMANCE OF THE CONTROL DEVICES). INCLUDE AND LIMITATIONS OR MALFUNCTION POTENTIAL FOR THE PARTICULAR CONTROL DEVICES AS EMPLOYED AT THIS FACILITY. DETAIL PROCEDURES FOR ASSURING PROPER OPERATION OF THE CONTROL DEVICE INCLUDING MONITORING SYSTEMS AND MAINTENANCE TO BE PERFORMED.

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

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

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

Received

MAR 1 9 2018

Air Permits Section

(PLEASE USE BLUE INK TO COMPLETE THE FOLLOWING)

NAME:	Russell Kemp, MS, PE
DATE:	15 FEB 2018
COMPANY:	REUS Engineers, P.C.
ADDRESS:	1600 Parkwood Circle, Suite 310, Atlanta, GA 30339
TELEPHONE:	678-388-1654
SIGNATURE:	
PAGES CERTIFIED:	Forms B, B1, B6, B9, C1, C2, C3, C4
	Appendices C and D with emission calculations
	Application Narrative

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

PLACE NORTH CAROLINA SEAL HERE

NORTH CAROLINA PROFESSIONAL SEAL 19628 ENGINEER RUSSELL STEPHEN KEMP

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

.EVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B**

EMISSION SOURCE DESCRIPTION: **Green Wood Hammermills**	EMISSION SOURCE ID NO: **ES-GHM-1, 2, 3**
	CONTROL DEVICE ID NO(S): **CD-WESP and CD-RTO**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-1**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Green wood chips are processed in the green wood hammermills.

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

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

START CONSTRUCTION DATE: **2016** DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: **West Salem Machinery #4888SP** EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ☑ NESHAP (SUBPARTS **Subpart B, Section 112(g)**

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
		See Emission Calculations in Appendix C			

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 for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Green Wood Hammermills**	EMISSION SOURCE ID NO: **ES-GHM-1, 2, 3**
	CONTROL DEVICE ID NO(S): **CD-WESP and CD-RTO**
OPERATING SCENARIO: __1__________ OF ___1__________	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 hammermills.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Green Wood	ODT	80	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

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

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

Green wood is conveyed to a rotary dryer system. Direct contact heat is provided to the system via a 250.4 MMBtu/hr burner system followed by product recovery cyclones. Particulate matter and metallic-HAP emissions are removed utilizing a wet electrostatic precipitator (WESP). A regenerative thermal oxidizer (RTO) will be added following the WESP to provide further VOC and HAP removal.

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

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

START CONSTRUCTION DATE: **2016**	DATE MANUFACTURED:
MANUFACTURER / MODEL NO.: **Teal Sales Inc. 24' x 80' Single Pass Drum Dryer**	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR
IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?):	☑ NESHAP (SUBPARTS' **Subpart B, Section 112(g)**

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
		See Emission Calculations in Appendix C			

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

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

Attach Additional Sheets As Necessary

FORM B1

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

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **B1**

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

DESCRIBE USE: ☑ PROCESS HEAT ☐ SPACE HEAT ☐ ELECTRICAL GENERATION
☐ CONTINUOUS USE ☐ STAND BY/EMERGENCY ☐ OTHER (DESCRIBE): ____

HEATING MECHANISM: ☐ INDIRECT ☑ DIRECT

MAX. FIRING RATE (MMBTU/HOUR): **250.4**

WOOD-FIRED BURNER

WOOD TYPE: ☐ BARK ☑ WOOD/BARK ☐ WET WOOD ☐ DRY WOOD ☐ OTHER (DESCRIBE): ____

PERCENT MOISTURE OF FUEL: **20 to 50%**

☐ UNCONTROLLED ☐ CONTROLLED WITH FLYASH REINJECTION ☑ CONTROLLED W/O REINJECTION

FUEL FEED METHOD: **N/A** — HEAT TRANSFER MEDIA: ☐ STEAM ☑ AIR ☐ OTHER (DESCRIBE) ____

COAL-FIRED BURNER

TYPE OF BOILER — IF OTHER DESCRIBE:

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

OIL/GAS-FIRED BURNER

TYPE OF BOILER: ☐ UTILITY ☐ INDUSTRIAL ☐ COMMERCIAL ☐ INSTITUTIONAL
TYPE OF FIRING: ☐ NORMAL ☐ TANGENTIAL ☐ LOW NOX BURNERS ☐ NO LOW NOX BURNER

OTHER FUEL-FIRED BURNER

TYPE(S) OF FUEL: ____
TYPE OF BOILER: ☐ UTILITY ☐ INDUSTRIAL ☐ COMMERCIAL ☐ INSTITUTIONAL
TYPE OF FIRING: ____ TYPE(S) OF CONTROL(S) (IF ANY): ____

FUEL USAGE (INCLUDE STARTUP/BACKUP FUELS)

FUEL TYPE	UNITS	MAXIMUM DESIGN CAPACITY (UNIT/HR)	REQUESTED CAPACITY LIMITATION (UNIT/HR)
Bark/Wet Wood	**tons**	**30**	

FUEL CHARACTERISTICS (COMPLETE ALL THAT ARE APPLICABLE)

FUEL TYPE	SPECIFIC BTU CONTENT	SULFUR CONTENT (% BY WEIGHT)	ASH CONTENT (% BY WEIGHT)
Bark/Wet Wood	**Nominal 4,200 BTU/lb**	**0.011**	

SAMPLING PORTS, COMPLIANT WITH EPA METHOD 1 WILL BE INSTALLED ON THE STACKS ☑ YES ☐ ☐ NO

COMMENTS:

Attach Additional Sheets As Necessary

FORM C2

CONTROL DEVICE (Electrostatic Precipitator)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **C2**

CONTROL DEVICE ID NO: **CD-WESP**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-DRYER and ES-GHM-1 through -3**
EMISSION POINT (STACK) ID NO(S): **EP-1**	POSITION IN SERIES OF CONTROL NO. 1 OF 2 UNITS
MANUFACTURER: **Teal Sales, Inc.**	MODEL NO.
OPERATING SCENARIO:	
OPERATING SCENARIO: 1 OF 1	P.E. SEAL REQUIRED (PER 2Q .0112)? ☐ YES ☑ NO

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 HCl removal.

EQUIPMENT SPECIFICATIONS	GAS DISTRIBUTION GRIDS: ☑ YES ☐ NO
TYPE: ☑ WET ☐ DRY	☑ SINGLE-STAGE ☐ TWO-STAGE
TOTAL COLLECTION PLATE AREA (FT^2): **29,904**	NO. FIELDS **2** NO. COLLECTOR PLATES PER FIELD: **567 tubes**
COLLECTOR PLATE SIZE (FT): LENGTH: WIDTH:	SPACING BETWEEN COLLECTOR PLATES (INCHES): **12" hextube**
TOTAL DISCHARGE ELECTRODE LENGTH (FT): **19"-0"**	GAS VISCOSITY (POISE): **2.054E-04 Poise**
NUMBER OF DISCHARGE ELECTRODES: **567**	NUMBER OF COLLECTING ELECTRODE RAPPERS: **none**
MAXIMUM INLET AIR FLOW RATE (ACFM): **117,000**	PARTICLE MIGRATION VELOCITY (FT/SEC): **0.234**
MINIMUM GAS TREATMENT TIME (SEC): **2.3**	BULK PARTICLE DENSITY (LB/FT^3): **45 lb/cr. Ft.**
FIELD STRENGTH (VOLTS) CHARGING: **83kVA** COLLECTING: **N/A**	CORONA POWER (WATTS/1000 CFM): **4000**
ELECTRICAL USAGE (KW/HOUR): **141.5**	
CLEANING PROCEDURES: ☐ RAPPING ☐ PLATE VIBRATING ☑ WASHING ☐ OTHER ____	
OPERATING PARAMETERS PRESSURE DROP (IN. H20): MIN **2"** MAX **2"**	WARNING ALARM? ☐ YES ☑ NO
RESISTIVITY OF POLLUTANT (OHM-CM): **N/A**	GAS CONDITIONING ☑ YES ☐ NO TYPE OF AGENT (IF YES):
INLET GAS TEMPERATURE (°F): **240 °F nominal**	OUTLET GAS TEMPERATURE (°F): **180 °F Nominal**
VOLUME OF GAS HANDLED (ACFM): **117,000**	INLET MOISTURE PERCENT: MIN **40%** MAX **50%**
POWER REQUIREMENTS IS AN ENERGY MANAGEMENT SYSTEM USED? ☐ YES ☐ NO	

FIELD NO.	NO. OF SETS	CHARGING	EACH TRANSFORMER (kVA)	EACH RECTIFIER Kv Ave/Peak Ma Dc
1	1		118	83 / 1265
2	1		118	83 / 1265

POLLUTANT(S) COLLECTED:	$PM / PM_{10} / PM_{2.5}$			
BEFORE CONTROL EMISSION RATE (LB/HR):	150			
CAPTURE EFFICIENCY:	%	%	%	%
CONTROL DEVICE EFFICIENCY:	%	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL AFTER CONTROL EMISSION RATE (LB/HR) **See calculations in Appendix C**				

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE STARTUP PROCEDURES:
Refer to previous submittal.

DESCRIBE MAINTENANCE PROCEDURES:
Refer to previous submittal.

DESCRIBE ANY AUXILIARY MATERIALS INTRODUCED INTO THE CONTROL SYSTEM

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):

Attach Additional Sheets As Necessary

FORM C3

CONTROL DEVICE (THERMAL OR CATALYTIC)

AS REQUIRED BY 15A NCAC 2Q .0112, THIS FORM MUST BE SEALED BY A PROFESSIONAL ENGINEER (P.E.) LICENSED IN NORTH CAROLINA.

CONTROL DEVICE ID NO: **CD-RTO**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-DRYER, ES-GHM-1 through -3**
EMISSION POINT (STACK) ID NO(S): **EP-1**	POSITION IN SERIES OF CONTROLS NO. 2 OF 2 UNITS
MANUFACTURER: **TSI, Inc.**	MODEL NO: **TBD**
OPERATING SCENARIO:	
1 OF 1	

TYPE ☐ AFTERBURNER ☑ REGENERATIVE THERMAL OXIDATION ☐ RECUPERATIVE THERMAL OXIDATION ☐ CATALYTIC OXIDATION

EXPECTED LIFE OF CATALYST (YRS):	METHOD OF DETECTING WHEN CATALYST NEEDS REPLACMENT:

CATALYST MASKING AGENT IN AIR STREAM: ☐ HALOGEN ☐ SILICONE ☐ PHOSPHOROUS COMPOUND ☐ HEAVY METAL ☐ SULFUR COMPOUND ☐ OTHER (SPECIFY) ____________ ☐ NONE

TYPE OF CATALYST:	CATALYST VOL (FT^3):	VELOCITY THROUGH CATALYST (FPS):

SCFM THROUGH CATALYST:

DESCRIBE CONTROL SYSTEM, INCLUDING RELATION TO OTHER CONTROL DEVICES AND SOURCES, AND ATTACH DIAGRAM OF SYSTEM:
Emissions leaving the WESP will enter the RTO prior to being emitted to the atmosphere.

POLLUTANT(S) COLLECTED:	**VOC**			
BEFORE CONTROL EMISSION RATE (LB/HR):				
CAPTURE EFFICIENCY:	%	%	%	%
CONTROL DEVICE EFFICIENCY:	95 %	%	%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL AFTER CONTROL EMISSION RATE (LB/HR) :	**See calculations in Appendix C**			

PRESSURE DROP (IN. H_2O): MIN MAX	OUTLET TEMPERATURE (°F): ____ MIN ____ MAX
INLET TEMPERATURE (°F): MIN MAX	RESIDENCE TIME (SECONDS):
INLET AIR FLOW RATE (ACFM): (SCFM):	COMBUSTION TEMPERATURE (°F):
COMBUSTION CHAMBER VOLUME (FT^3):	INLET MOISTURE CONTENT (%):
% EXCESS AIR:	CONCENTRATION (ppmv) ____ INLET ____ OUTLET
AUXILIARY FUEL USED: **Natural Gas and/or Propane**	TOTAL MAXIMUM FIRING RATE (MILLION BTU/HR): **32**

DESCRIBE MAINTENANCE PROCEDURES:
TBD

DESCRIBE ANY AUXILIARY MATERIALS INTRODUCED INTO THE CONTROL SYSTEM:
N/A

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B**

EMISSION SOURCE DESCRIPTION: **Eight (8) Dry Hammermills**	EMISSION SOURCE ID NO: **ES-HM-1 through 8**
	CONTROL DEVICE ID NO(S): **CD-HM-BH-1 through 8**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-2 through 5**

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

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

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

START CONSTRUCTION DATE: **2016** DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: **West Salem Machinery Model #4460S** EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ☑ NESHAP (SUBPART: **Subpart B, Section 112(g)**

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS		
			lb/hr	lb/day	lb/yr
		See Emission Calculations in Appendix C			

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 for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Eight (8) Dry Hammermills**	EMISSION SOURCE ID NO: **ES-HM-1 thru 8**
	CONTROL DEVICE ID NO(S): **CD-HM-BH-1 through 8**
OPERATING SCENARIO: __1__ OF __1__	EMISSION POINT (STACK) ID NO(S): **EP-2 through 5**

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

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	ODT	68	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **C1**

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 5**	POSITION IN SERIES OF CONTROLS NO. **2** OF **2** UNITS
OPERATING SCENARIO:	
1 OF 1	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
Eight (8) baghouses are utilized for emission control on the eight dry hammermill cyclones. Two baghouses share a common stack, so there are 4 dry hammermill baghouse stacks. All 4 stacks are identical.

POLLUTANTS COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	**See calculations in Appendix C**			
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 calculations in Appendix C**			

PRESSURE DROP (IN H_2O): MIN: MAX: **6"** GAUGE? ☑ YES ☐ NO

BULK PARTICLE DENSITY (LB/FT^3): **1.43E-05**	INLET TEMPERATURE (°F): **120**
POLLUTANT LOADING RATE: **0.1 gr/cf inl** ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F): **100**
INLET AIR FLOW RATE (ACFM): **15,000**	FILTER OPERATING TEMP (°F): **N/A**

NO. OF COMPARTMENTS: **1**	NO. OF BAGS PER COMPARTMENT: **144**	LENGTH OF BAG (IN.): **120**
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.): **5.75**
TOTAL FILTER SURFACE AREA (FT^2): **2,168**	AIR TO CLOTH RATIO: **6.90**	

DRAFT TYPE: ☑ INDUCED/NEGATIVE ☐ FORCED/POSITIVE — FILTER MATERIAL: ☐ WOVEN ☑ FELTED

DESCRIBE CLEANING PROCEDURES

- ☐ AIR PULSE
- ☑ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE INCOMING AIR STREAM:
The air stream contains wood dust particles. Larger particles are removed by the upstream cyclone for product recovery.

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B**

EMISSION SOURCE DESCRIPTION: **Pellet Coolers**	EMISSION SOURCE ID NO: **ES-CLR1 through 6**
	CONTROL DEVICE ID NO(S): **CD-CLR-1 through 6**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-7 through 12**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature.

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

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

START CONSTRUCTION DATE: **2016** DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: **Bliss 14-393-6A Cooler** EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ☑ NESHAP (SUBPARTS **Subpart B, Section 112(g)**

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
		See Emission Calculations in Appendix C			

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 for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Pellet Coolers**	EMISSION SOURCE ID NO: **ES-CLR1 through 6**
	CONTROL DEVICE ID NO(S): **CD-CLR-1 through 6**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-7 through 12**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	**ODT**	**80**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C4

CONTROL DEVICE (CYCLONE, MULTICYCLONE, OR OTHER MECHANICAL)

REVISED 09/22/16 | NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate | **C4**

CONTROL DEVICE ID NO: **CD-CLR-1 through 6**		CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-CLR 1 through 6**			
EMISSION POINT (STACK) ID NO(S): **EP-7 through 12**		POSITION IN SERIES OF CONTROLS	NO. **1**	OF **1**	UNITS
OPERATING SCENARIO:					
__1__ OF __1__		P.E. SEAL REQUIRED (PER 2Q .0112)?	☐ YES	☑ NO	

DESCRIBE CONTROL SYSTEM:
Six (6) identical high efficiency cyclones are used to capture bulk PM emissions from six (6) pellet coolers. Each cooler vents to one dedicated cyclone. The cyclones operate under negative pressure.

POLLUTANT(S) COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	**See Emissions Calculations in Appendix C**			
CAPTURE EFFICIENCY:	%	%	%	%
CONTROL DEVICE EFFICIENCY:	**90+** %	**90+** %	**90+** %	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL AFTER CONTROL EMISSION RATE (LB/HR):	**See Emissions Calculations in Appendix C**			

PRESSURE DROP (IN. H_2O): ____ MIN **6.0"** MAX	
INLET TEMPERATURE (°F): ____ MIN ____ **MAX Ambient**	OUTLET TEMPERATURE (°F): ____ MIN MAX **Ambient**
INLET AIR FLOW RATE (ACFM): **16,746 each**	BULK PARTICLE DENSITY (LB/FT³): **2.86E-05**
POLLUTANT LOADING RATE (GR/FT³): **0.2**	

SETTLING CHAMBER	**CYCLONE**			**MULTICYCLONE**
LENGTH (INCHES):	INLET VELOCITY (FT/SEC): **94.75**		☐ CIRCULAR ☐ RECTANGLE	NO. TUBES:
WIDTH (INCHES):	*DIMENSIONS (INCHES) See instructions*		*IF WET SPRAY UTILIZED*	DIAMETER OF TUBES:
HEIGHT (INCHES):	H: **38**	Dd: **22**	LIQUID USED:	HOPPER ASPIRATION SYSTEM?
VELOCITY (FT/SEC.):	W: **25**	Lb: **74.25**	FLOW RATE (GPM):	☐ YES ☐ NO
NO. TRAYS:	De: **32**	Lc: **84.5**	MAKE UP RATE (GPM):	LOUVERS?
NO. BAFFLES:	D: **54**	S: **44.38**		☐ YES ☐ NO
	TYPE OF CYCLONE: ☐ CONVENTIONAL		☑ HIGH EFFICIENCY	☐ OTHER

DESCRIBE MAINTENANCE PROCEDURES:
Periodic inspection of mechanical integrity during plant outages as specified by manufacturer.

DESCRIBE INCOMING AIR STREAM:
The cyclones used for particulate capture the pellet coolers are ducted to a discharge stack. The stack is common to all cooler aspiration systems.

PARTICLE SIZE DISTRIBUTION

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

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

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

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B**

EMISSION SOURCE DESCRIPTION: Hammermill Conveyor	EMISSION SOURCE ID NO: ES-HMC-1
	CONTROL DEVICE ID NO(S): CD-HMC-BVH
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-24 (new)

DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Conveying system for material to the dry hammermills.

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

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

START CONSTRUCTION DATE: 2016 DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ☐ NESHAP (SUBPARTS?):

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 25%

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Hammermill Conveyor**	EMISSION SOURCE ID NO: **ES-HMC-1**
	CONTROL DEVICE ID NO(S): **CD-HMC-BH**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-24 (new)**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Dust from the dry hammermill conveying system is vented to the hammermill conveyor baghouse (CD-HMC-BH) to control particulate matter emissions.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	**ODT**	**68**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **C1**

CONTROL DEVICE ID NO: **CD-HMC-BH**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-HMC-1**
EMISSION POINT (STACK) ID NO(S): **EP-24 (new)**	POSITION IN SERIES OF CONTROLS NO. **1** OF **1** UNITS
OPERATING SCENARIO:	
__1__ OF __1__	P.E. SEAL REQUIRED (PER 2q .0112)? ☑ YES ☐ NO

DESCRIBE CONTROL SYSTEM:
This bagfilter controls particulate from the dry hammermill conveying system.

POLLUTANTS COLLECTED:	PM	PM-10	PM-2.5	
BEFORE CONTROL EMISSION RATE (LB/HR):				
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 calculations in Appendix C**			

PRESSURE DROP (IN H_2O): MIN: MAX: **3"** GAUGE? ☑ YES ☐ NO

BULK PARTICLE DENSITY (LB/FT^3): **12**	INLET TEMPERATURE (°F): **120**
POLLUTANT LOADING RATE: **0.004** ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F) **100**
INLET AIR FLOW RATE (ACFM): **1500**	FILTER OPERATING TEMP (°F): **N/A**

NO. OF COMPARTMENTS: **1**	NO. OF BAGS PER COMPARTMENT: **40**	LENGTH OF BAG (IN.): **72**
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.): **6**

TOTAL FILTER SURFACE AREA (FT^2): **377** AIR TO CLOTH RATIO: **3.97**

DRAFT TYPE: ☑ INDUCED/NEGATIVE ☐ FORCED/POSITIVE FILTER MATERIAL: ☐ WOVEN ☑ FELTED

DESCRIBE CLEANING PROCEDURES

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

DESCRIBE INCOMING AIR STREAM:
The air stream contains wood dust particules.

PARTICLE SIZE DISTRIBUTION

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B**

EMISSION SOURCE DESCRIPTION: **Pellet Mill Feed Silo**	EMISSION SOURCE ID NO: **ES-PMFS**
	CONTROL DEVICE ID NO(S): **CD-PMFS-BH**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-6**

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

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

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

START CONSTRUCTION DATE: **2016** DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: **Mast Lepley 30'x68' wood fuel storage silo** EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ☐ NESHAP (SUBPARTS?):

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B6**

EMISSION SOURCE DESCRIPTION: **Pellet Mill Feed Silo**				EMISSION SOURCE ID NO: **ES-PMFS**		
				CONTROL DEVICE ID NO(S): **CD-PMFS-BH**		
OPERATING SCENARIO: ___1___ OF ___1___				EMISSION POINT(STACK) ID NO(S): **EP-6**		
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM): **The Pellet Mill Feed Silo stores dried ground wood prior to transport to the pellet presses.**						
MATERIAL STORED: **Dried ground wood**				DENSITY OF MATERIAL (LB/FT3): **40**		
CAPACITY	CUBIC FEET:			TONS:		
DIMENSIONS (FEET)	HEIGHT: **70**	DIAMETER: **46.6**	***(OR)***	LENGTH:	WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)		ACTUAL:		MAXIMUM DESIGN CAPACITY:		

PNEUMATICALLY FILLED	MECHANICALLY FILLED	FILLED FROM
☐ BLOWER	☐ SCREW CONVEYOR	☐ RAILCAR
☐ COMPRESSOR	☑ BELT CONVEYOR	☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR	☐ STORAGE PILE
	☐ OTHER:	☑ OTHER:
NO. FILL TUBES:		
MAXIMUM ACFM:		

MATERIAL IS UNLOADED TO: **Pellet Mill/Presses**

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): **105**

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): **105**

COMMENTS:

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **C1**

CONTROL DEVICE ID NO: **CD-PMFS-BH**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-PMFS**
EMISSION POINT (STACK) ID NO(S): **EP-6**	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
OPERATING SCENARIO:	
__1__ OF __1__	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:

A baghouse is used to create a slight negative pressure on the Pellet Mill Feed Silo. The baghouse collects dust from the air volume present in the silo. The baghouse is sized to offset the air displacement created by the material feed to the silo.

POLLUTANTS COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):				
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 calculations in Appendix C**			

PRESSURE DROP (IN H_2O): MIN: MAX: 4" GAUGE? ☑ YES ☐ NO

BULK PARTICLE DENSITY (LB/FT^3): **1.43E-06**	INLET TEMPERATURE (°F): **Ambient**
POLLUTANT LOADING RATE: **0.004** ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F) **Ambient**
INLET AIR FLOW RATE (ACFM): **2,444**	FILTER OPERATING TEMP (°F): **N/A**

NO. OF COMPARTMENTS: **1**	NO. OF BAGS PER COMPARTMENT: **1**	LENGTH OF BAG (IN.): **120**
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.): **5.875**
TOTAL FILTER SURFACE AREA (FT^2): **377**	AIR TO CLOTH RATIO: **6**	

DRAFT TYPE: ☑ INDUCED/NEGATIVE ☐ FORCED/POSITIVE FILTER MATERIAL: ☐ WOVEN ☑ FELTED

DESCRIBE CLEANING PROCEDURES

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE INCOMING AIR STREAM:

The air stream contains wood dust particulate emissions.

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Pellet Fines Bin**	EMISSION SOURCE ID NO: **ES-PFB**
	CONTROL DEVICE ID NO(S): **CD-PFB-BH**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-15**

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

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

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

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

START CONSTRUCTION DATE: **2016** — DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: **Western Pneumatics Inc.** — EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ____ ☐ NESHAP (SUBPARTS?): ____

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B6**

EMISSION SOURCE DESCRIPTION: **Pellet Fines Bin**				EMISSION SOURCE ID NO: **ES-PFB**	
				CONTROL DEVICE ID NO(S): **CD-PFB-BH**	
OPERATING SCENARIO: ____1________ OF _____1______				EMISSION POINT(STACK) ID NO(S): **EP-15**	

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Fine pellet material from hammermill pollution control system and screening operation is collected in the pellet fines bin which is controlled by a baghouse.

MATERIAL STORED: **Fine pellet material**				DENSITY OF MATERIAL (LB/FT3): **40**	
CAPACITY	CUBIC FEET: **2200**			TONS:	
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: **12**	***(OR)***	LENGTH: WIDTH: HEIGHT:	
ANNUAL PRODUCT THROUGHPUT (TONS)		ACTUAL:		MAXIMUM DESIGN CAPACITY: **6 tph**	

PNEUMATICALLY FILLED	**MECHANICALLY FILLED**	**FILLED FROM**
☐ BLOWER	☐ SCREW CONVEYOR	☐ RAILCAR
☐ COMPRESSOR	☑ BELT CONVEYOR	☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR	☐ STORAGE PILE
	☐ OTHER:	☑ OTHER: **Conveyor**
NO. FILL TUBES:		
MAXIMUM ACFM:		

MATERIAL IS UNLOADED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B**

EMISSION SOURCE DESCRIPTION: **Hammermill Area**	EMISSION SOURCE ID NO: **ES-HMA**
	CONTROL DEVICE ID NO(S): **CD-PFB-BH**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-15**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Hammermill area dust from the hammermill and screening operations is vented to the pellet fines bin baghoues (CD-PFB-BH) to control particulate matter emissions.

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

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

START CONSTRUCTION DATE: **2016** DATE MANUFACTURED:

MANUFACTURER / MODEL NO.: **Western Pneumatics Inc.** EXPECTED OP. SCHEDULE: **24** HR/DAY **7** DAY/WK **52** WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?): ☐ NESHAP (SUBPARTS?):

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Hammermill Area**	EMISSION SOURCE ID NO: **ES-HMA**
	CONTROL DEVICE ID NO(S): **CD-PFB-BH**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-15**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Hammermill area dust from the hammermill and screening operations is vented to the pellet fines bin baghouse to control particulate matter emissions.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	**ODT**	**68**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — C1

CONTROL DEVICE ID NO: CD-PFB-BH	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-HMA, ES-PFB
EMISSION POINT (STACK) ID NO(S): EP-15	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
OPERATING SCENARIO: 1 OF 1	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
The baghouse collects dust from displacement of air that occurs when wood enters or exits the pellet fines bin and also provides control for hammermill area clean up air.

POLLUTANTS COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculation in Appendix C			
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 calculation in Appendix C			

PRESSURE DROP (IN H_2O): MIN: MAX: 6"	GAUGE? ☑ YES ☐ NO	
BULK PARTICLE DENSITY (LB/FT³): 1.43E-05	INLET TEMPERATURE (°F): 120	
POLLUTANT LOADING RATE: 0.1 ☐ LB/HR ☑ GR/FT³	OUTLET TEMPERATURE (°F): 100	
INLET AIR FLOW RATE (ACFM): 9,800	FILTER OPERATING TEMP (°F): N/A	
NO. OF COMPARTMENTS: 1	NO. OF BAGS PER COMPARTMENT: 100	LENGTH OF BAG (IN.): 120
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT²):	DIAMETER OF BAG (IN.): 5.75
TOTAL FILTER SURFACE AREA (FT²): 1,520	AIR TO CLOTH RATIO: 6.45	
DRAFT TYPE: ☐ INDUCED/NEGATIVE ☑ FORCED/POSITIVE	FILTER MATERIAL: ☐ WOVEN ☑ FELTED	

DESCRIBE CLEANING PROCEDURES:

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE INCOMING AIR STREAM:
The air stream contains wood dust particules. Larger particles are removed by the upstream cyclone. The filters discharge to a common stack.

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Pellet Cooler Recirculation**	EMISSION SOURCE ID NO: **ES-PCR**
	CONTROL DEVICE ID NO(S): **CD-PCR-BH**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-23**

DESCRIBE IN DETAILTHE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):
Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. The recirculation for the pellet coolers is controlled by a baghouse.

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

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

START CONSTRUCTION DATE: **2016**	DATE MANUFACTURED:
MANUFACTURER / MODEL NO.: **Western Pneumatics Inc. Part# 18542D400**	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR
IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?):	☐ NESHAP (SUBPARTS?):

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 25%

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS		
			lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B9**

EMISSION SOURCE DESCRIPTION: **Pellet Cooler Recirculation**	EMISSION SOURCE ID NO: **ES-PCR**
	CONTROL DEVICE ID NO(S): **CD-PCR-BH**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-23**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Six (6) Pellet Coolers follow the pellet presses to cool the newly formed pellets down to an acceptable storage temperature. The recirculation for the pellet coolers is controlled by a baghouse.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Pellet Cooler Exhaust		1,000 CFM	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **C1**

CONTROL DEVICE ID NO: **CD-PCR-BH**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-PCR**	
EMISSION POINT (STACK) ID NO(S): **EP-23**	POSITION IN SERIES OF CONTROLS	NO. 1 OF 1 UNITS
OPERATING SCENARIO:		
1 OF 1	P.E. SEAL REQUIRED (PER 2q .0112)?	☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
A baghouse is used to create a slight negative pressure on the Pellet Cooler Recirculation. The baghouse collects dust from the air volume present in the pellet cooler recirculation.

POLLUTANTS COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculation in Appendix C			
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 calculation in Appendix C			

PRESSURE DROP (IN H_2O): MIN: MAX: 4"	GAUGE? ☑ YES ☐ NO	
BULK PARTICLE DENSITY (LB/FT^3): 1.43E-05	INLET TEMPERATURE (°F): Ambient	
POLLUTANT LOADING RATE: 0.004 ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F) Ambient	
INLET AIR FLOW RATE (ACFM): 1,000	FILTER OPERATING TEMP (°F): N/A	
NO. OF COMPARTMENTS: 1	NO. OF BAGS PER COMPARTMENT: 1	LENGTH OF BAG (IN.): 120
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.): 5.875
TOTAL FILTER SURFACE AREA (FT^2): 942	AIR TO CLOTH RATIO: 6	
DRAFT TYPE: ☑ INDUCED/NEGATIVE ☐ FORCED/POSITIVE	FILTER MATERIAL: ☐ WOVEN ☑ FELTED	

DESCRIBE CLEANING PROCEDURES:

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE INCOMING AIR STREAM:
The air stream contains wood dust particulate emissions.

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B**

EMISSION SOURCE DESCRIPTION: **Pellet Sampling Transfer Bin**	EMISSION SOURCE ID NO: **ES-PSTB**
	CONTROL DEVICE ID NO(S): **CD-PSTB-BH**
OPERATING SCENARIO ___1___ OF ___1___	EMISSION POINT (STACK) ID NO(S): **EP-21**

DESCRIBE IN DETAIL THE EMISSION SOURCE PROCESS (ATTACH FLOW DIAGRAM):

Pelletized wood is transferred from the pellet coolers to the truck loadout operations via conveyor. Emissions from this conveyor are controlled by the pellet sampling transfer bin baghouse.

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

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

START CONSTRUCTION DATE: **2016**

DATE MANUFACTURED:

MANUFACTURER / MODEL NO.:

EXPECTED OP. SCHEDULE: __24_ HR/DAY _7__ DAY/WK _52__ WK/YR

IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?):________ ☐ NESHAP (SUBPARTS?):________

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B6**

EMISSION SOURCE DESCRIPTION: **Pellet Sampling Transfer Bin**	EMISSION SOURCE ID NO: **ES-PSTB**
	CONTROL DEVICE ID NO(S): **CD-PSTB-BH**
OPERATING SCENARIO: ____1________ OF ______1______	EMISSION POINT(STACK) ID NO(S): **EP-21**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):

Pelletized wood is transferred from the pellet coolers to the truck loadout operations via conveyor. Emissions from this conveyor are controlled by the pelelt sampling transfer bin baghouse.

MATERIAL STORED: **Fine pellet material**			DENSITY OF MATERIAL (LB/FT3): **40**	
CAPACITY	CUBIC FEET:		TONS:	
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: **12** ***(OR)***	LENGTH: WIDTH:	HEIGHT:
ANNUAL PRODUCT THROUGHPUT (TONS)	ACTUAL:		MAXIMUM DESIGN CAPACITY: **6 tph**	

PNEUMATICALLY FILLED	MECHANICALLY FILLED	FILLED FROM
☐ BLOWER	☐ SCREW CONVEYOR	☐ RAILCAR
☐ COMPRESSOR	☑ BELT CONVEYOR	☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR	☐ STORAGE PILE
	☐ OTHER:	☑ OTHER: Conveyor
NO. FILL TUBES:		
MAXIMUM ACFM:		

MATERIAL IS UNLOADED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

MAXIMUM DESIGN FILLING RATE OF MATERIAL (TONS/HR): **105**

MAXIMUM DESIGN UNLOADING RATE OF MATERIAL (TONS/HR): **105**

COMMENTS:

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 | NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate | C1

CONTROL DEVICE ID NO: CD-PSTB-BH	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): ES-PSTB
EMISSION POINT (STACK) ID NO(S): EP-21	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
OPERATING SCENARIO:	
1 OF 1	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
A baghouse is used to create a slight negative pressure on the Pellet Sampling Transfer Bin. The baghouse collects dust from the air volume present in the bin and is sized to offset the air displacement created by the material feed to the bin.

POLLUTANTS COLLECTED:	PM	PM_{10}	$PM_{2.5}$	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculation in Appendix C			
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 calculation in Appendix C			

PRESSURE DROP (IN H_2O): MIN: MAX: 6" GAUGE?	☑ YES NO	
BULK PARTICLE DENSITY (LB/FT³): 1.43E-05	INLET TEMPERATURE (°F): Ambient	
POLLUTANT LOADING RATE: 0.004 ☐ LB/HR ☑ GR/FT³	OUTLET TEMPERATURE (°F): Ambient	
INLET AIR FLOW RATE (ACFM): 1,000	FILTER OPERATING TEMP (°F): N/A	
NO. OF COMPARTMENTS: 1	NO. OF BAGS PER COMPARTMENT: 100	LENGTH OF BAG (IN.): 120
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT²):	DIAMETER OF BAG (IN.): 5.875
TOTAL FILTER SURFACE AREA (FT²): 377	AIR TO CLOTH RATIO: 6	
DRAFT TYPE: ☐ INDUCED/NEGATIVE ☑ FORCED/POSITIVE	FILTER MATERIAL: ☐ WOVEN ☑ FELTED	

DESCRIBE CLEANING PROCEDURES:

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

PARTICLE SIZE DISTRIBUTION

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

DESCRIBE INCOMING AIR STREAM:
The air stream contains wood dust particules.

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: Finished Product Handling/Pellet Loadout Bins/Pellet Loadout	EMISSION SOURCE ID NO: ES-FPH, ES-PB1 thru 4 ES-PL1 and 2
	CONTROL DEVICE ID NO(S): CD-FPH-BH
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): EP-16

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

Pelletized product is conveyed to 4 pellet loadout bins (PB-1, 2, 3, 4) that feed two pellet loadout operations (ES-PL-1, -2). Emissions from the Pellet Loadout Bins are controlled by a baghouse. Pellet Loadout is accomplished by gravity feed of the pellets into trucks through a covered shoot that automatically telescopes upward during the loadout process to maintain constant contact with product as it is loaded to prevent emissions. Although emissions to the atmosphere from conveyance from the storage bins are minimal because of dried wood fines have been removed in the pellet coolers, a slight negative pressure is maintained in the loadout building a fire prevention measure to prevent any buildup of dust on surfaces within the building. The slight negative pressure is produced via an induced draft fan that exhausts to the same baghouse that controls minor dust emissions from loading of the pellet press silo. Trucks are covered Immediately after loading.

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

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

START CONSTRUCTION DATE: 2016	DATE MANUFACTURED:
MANUFACTURER / MODEL NO.: Agra Industries Inc.	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR
IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?):	☑ NESHAP (SUBPARTS?):

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB 25% MAR-MAY 25% JUN-AUG 25% SEP-NOV 25%

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Finished Product Handling**	EMISSION SOURCE ID NO: **ES-FPH**
	CONTROL DEVICE ID NO(S): **CD-FPH-BH**
OPERATING SCENARIO: ____1_______ OF ______1______	EMISSION POINT (STACK) ID NO(S): **EP-16**

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

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	**ODT**	**68**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM B6

EMISSION SOURCE (STORAGE SILO/BINS)

REVISED 09/22/16 NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate **B6**

EMISSION SOURCE DESCRIPTION: Four (4) Pellet Loadout Bins				EMISSION SOURCE ID NO: ES-PB1 through 4	
				CONTROL DEVICE ID NO(S): CD-FPH-BF	
OPERATING SCENARIO: 1 OF 1				EMISSION POINT(STACK) ID NO(S): EP-16	
DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM): Pellet loadout bins are used to store pellets for shipping. Pellets are then loaded from the bins into trucks in either of the two truck loadout stations.					
MATERIAL STORED: Pellet Product				DENSITY OF MATERIAL (LB/FT3): 40	
CAPACITY	CUBIC FEET:			TONS: 1,200 (total for all four bins)	
DIMENSIONS (FEET)	HEIGHT:	DIAMETER: 12	*(OR)*	LENGTH: WIDTH: HEIGHT:	
ANNUAL PRODUCT THROUGHPUT (TONS)		ACTUAL:		MAXIMUM DESIGN CAPACITY: 71.19 ODT/hr	

PNEUMATICALLY FILLED	MECHANICALLY FILLED	FILLED FROM
☐ BLOWER	☐ SCREW CONVEYOR	☐ RAILCAR
☐ COMPRESSOR	☑ BELT CONVEYOR	☐ TRUCK
☐ OTHER:	☐ BUCKET ELEVATOR	☐ STORAGE PILE
	☐ OTHER:	☑ OTHER: Conveyor
NO. FILL TUBES:		
MAXIMUM ACFM: 750 each		

MATERIAL IS UNLOADED TO:

BY WHAT METHOD IS MATERIAL UNLOADED FROM SILO?

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Pellet Loadout 1 and 2**	EMISSION SOURCE ID NO: **ES-PL-1 and PL-2**
	CONTROL DEVICE ID NO(S): **CD-FPH-BH**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-16**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM):
Final product is loaded into trucks in either of the two (2) pellet loadout stations.

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	**ODT**	**80**	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **C1**

CONTROL DEVICE ID NO: **CD-FPH-BH**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-FPH, ES-PB-1 through 12, ES-PL1 and 2**
EMISSION POINT (STACK) ID NO(S): **EP-16**	POSITION IN SERIES OF CONTROLS NO. 1 OF 1 UNITS
OPERATING SCENARIO: 1 OF 1	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
This baghouse controls emissions from Finished Product Handling (ES-FPH), the four (4) Pellet Loadout Bins (ES-PB-1 through ES-PB-4) and Truck Loadout Operations (ES-PL-1 and ES-PL-2).

POLLUTANTS COLLECTED:	PM	PM-10	PM-2.5	
BEFORE CONTROL EMISSION RATE (LB/HR):	See calculation in Appendix C			
CAPTURE EFFICIENCY:	~99.9 %	~99.9 %	~99.9 %	%
CONTROL DEVICE EFFICIENCY:			%	%
CORRESPONDING OVERALL EFFICIENCY:	%	%	%	%
EFFICIENCY DETERMINATION CODE:				
TOTAL AFTER CONTROL EMISSION RATE (LB/HR):	See calculation in Appendix C			

PRESSURE DROP (IN H_2O): MIN: MAX: 6" GAUGE? ☑ YES ☐ NO Warning Alarm ☑ Yes ☐ No

BULK PARTICLE DENSITY (LB/FT^3): **1.43E-05**	INLET TEMPERATURE (°F): **120**
POLLUTANT LOADING RATE: **0.004** ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F) **100**
INLET AIR FLOW RATE (ACFM): **8,500**	FILTER OPERATING TEMP (°F): **N/A**

NO. OF COMPARTMENTS: **1**	NO. OF BAGS PER COMPARTMENT:	LENGTH OF BAG (IN.): **144**
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.): **5.75**
TOTAL FILTER SURFACE AREA (FT^2): **4,842**	AIR TO CLOTH RATIO: **7.30**	

DRAFT TYPE: ☐ INDUCED/NEGATIVE ☑ FORCED/POSITIVE FILTER MATERIAL: ☐ WOVEN ☑ FELTED

DESCRIBE CLEANING PROCEDURES

- ☐ AIR PULSE
- ☑ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

DESCRIBE INCOMING AIR STREAM:
The air stream contains wood dust particules.

PARTICLE SIZE DISTRIBUTION

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM B

SPECIFIC EMISSION SOURCE INFORMATION (REQUIRED FOR ALL SOURCES)

.EVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **B**

EMISSION SOURCE DESCRIPTION: **Dried Wood Handling**	EMISSION SOURCE ID NO: **ES-DWH (previously IES-DWH)**
	CONTROL DEVICE ID NO(S): **CD-DWH-BH-1 and -2**
OPERATING SCENARIO 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-25 (new) and EP-26 (new)**

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

There are several transfer points comprising emission source ES-DWH that are located between the dryer and dry hammermills. These sources are completely enclosed with only two (2) emission points that are controlled by individual baghouses (CD-DWH-BH-1 and 2).

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

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

START CONSTRUCTION DATE: **2016**	DATE MANUFACTURED:
MANUFACTURER / MODEL NO.:	EXPECTED OP. SCHEDULE: 24 HR/DAY 7 DAY/WK 52 WK/YR
IS THIS SOURCE SUBJECT TO? ☐ NSPS (SUBPARTS?):	☑ NESHAP (SUBPART: **Subpart B, Section 112(g)**

PERCENTAGE ANNUAL THROUGHPUT (%): DEC-FEB **25%** MAR-MAY **25%** JUN-AUG **25%** SEP-NOV **25%**

CRITERIA AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

HAZARDOUS AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

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

TOXIC AIR POLLUTANT EMISSIONS INFORMATION FOR THIS SOURCE

TOXIC AIR POLLUTANT	CAS NO.	SOURCE OF EMISSION FACTOR	EXPECTED ACTUAL EMISSIONS AFTER CONTROLS / LIMITATIONS lb/hr	lb/day	lb/yr
N/A					

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

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

Attach Additional Sheets As Necessary

FORM B9

EMISSION SOURCE (OTHER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **B9**

EMISSION SOURCE DESCRIPTION: **Dried Wood Handling**	EMISSION SOURCE ID NO: **ES-DWH**
	CONTROL DEVICE ID NO(S): **CD-DWH-BH-1 and -2**
OPERATING SCENARIO: 1 OF 1	EMISSION POINT (STACK) ID NO(S): **EP-25 (new) and EP-26 (new**

DESCRIBE IN DETAIL THE PROCESS (ATTACH FLOW DIAGRAM): **There are several transfer points comprising emission source ES-DWH that are located between the dryer and dry hammermills. These sources are completely enclosed with only two (2) emission points that are controlled by individual baghouses (CD-DWH-BH-1 and 2).**

MATERIALS ENTERING PROCESS - CONTINUOUS PROCESS		MAX. DESIGN	REQUESTED CAPACITY
TYPE	UNITS	CAPACITY (UNIT/HR)	LIMITATION(UNIT/HR)
Dried Wood	ODT	80	

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

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

COMMENTS:

Attach Additional Sheets as Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 — NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate — **C1**

CONTROL DEVICE ID NO: **CD-DWH-BH-1**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-DWH**
EMISSION POINT (STACK) ID NO(S): **EP-25 (new)**	POSITION IN SERIES OF CONTROLS NO. **1** OF **2** UNITS
OPERATING SCENARIO:	
1 OF **1**	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
One of two (2) baghouses used to create a slight negative pressure on the dried wood handling. The baghouses collects dust from the air volume present in the dried wood handling.

POLLUTANTS COLLECTED:	PM	PM-10	PM-2.5	
BEFORE CONTROL EMISSION RATE (LB/HR):				
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 calculations in Appendix C**			

PRESSURE DROP (IN H_2O): MIN: MAX: GAUGE? ☑ YES ☐ NO	
BULK PARTICLE DENSITY (LB/FT^3): **12-17**	INLET TEMPERATURE (°F): **Ambient**
POLLUTANT LOADING RATE: **0.004** ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F)
INLET AIR FLOW RATE (ACFM): **1,000**	FILTER OPERATING TEMP (°F):

NO. OF COMPARTMENTS:	NO. OF BAGS PER COMPARTMENT: **2**	LENGTH OF BAG (IN.): **552**
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.):
TOTAL FILTER SURFACE AREA (FT^2): **377**	AIR TO CLOTH RATIO: **2.65:1**	

DRAFT TYPE: ☑ INDUCED/NEGATIVE ☐ FORCED/POSITIVE — FILTER MATERIAL: ☐ WOVEN ☑ FELTED

DESCRIBE CLEANING PROCEDURES

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

DESCRIBE INCOMING AIR STREAM:
Fans pull air from the conveyor leading from the dryer to the DHM island, transporting dried wood.

PARTICLE SIZE DISTRIBUTION

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

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

COMMENTS:

Attach Additional Sheets As Necessary

FORM C1

CONTROL DEVICE (FABRIC FILTER)

REVISED 09/22/16 **NCDEQ/Division of Air Quality - Application for Air Permit to Construct/Operate** **C1**

CONTROL DEVICE ID NO: **CD-DWH-BH-2**	CONTROLS EMISSIONS FROM WHICH EMISSION SOURCE ID NO(S): **ES-DWH**
EMISSION POINT (STACK) ID NO(S): **EP-26 (new)**	POSITION IN SERIES OF CONTROLS NO. **2** OF **2** UNITS
OPERATING SCENARIO:	
__1__ OF __1__	P.E. SEAL REQUIRED (PER 2q .0112)? ☐ YES ☑ NO

DESCRIBE CONTROL SYSTEM:
One of two (2) baghouses used to create a slight negative pressure on the dried wood handling. The baghouses collects dust from the air volume present in the dried wood handling.

POLLUTANTS COLLECTED:	PM	PM-10	PM-2.5	
BEFORE CONTROL EMISSION RATE (LB/HR):				
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 calculations in Appendix C**			

PRESSURE DROP (IN H_2O): MIN: MAX: GAUGE? ☑ YES ☐ NO

BULK PARTICLE DENSITY (LB/FT^3): **12-17**	INLET TEMPERATURE (°F): **Ambient**
POLLUTANT LOADING RATE: **0.004** ☐ LB/HR ☑ GR/FT^3	OUTLET TEMPERATURE (°F)
INLET AIR FLOW RATE (ACFM): **1,000**	FILTER OPERATING TEMP (°F):

NO. OF COMPARTMENTS:	NO. OF BAGS PER COMPARTMENT: 2	LENGTH OF BAG (IN.): **552**
NO. OF CARTRIDGES:	FILTER SURFACE AREA PER CARTRIDGE (FT^2):	DIAMETER OF BAG (IN.):
TOTAL FILTER SURFACE AREA (FT^2): **377**	AIR TO CLOTH RATIO: **2.65:1**	

DRAFT TYPE: ☑ INDUCED/NEGATIVE ☐ FORCED/POSITIVE FILTER MATERIAL: ☐ WOVEN ☑ FELTED

DESCRIBE CLEANING PROCEDURES

- ☑ AIR PULSE
- ☐ REVERSE FLOW
- ☐ MECHANICAL/SHAKER
- ☐ OTHER:
- ☐ SONIC
- ☐ SIMPLE BAG COLLAPSE
- ☐ RING BAG COLLAPSE

DESCRIBE INCOMING AIR STREAM:
Fans pull air from the conveyor leading from the dryer to the DHM island, transporting dried wood.

PARTICLE SIZE DISTRIBUTION

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

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

COMMENTS:

Attach Additional Sheets As Necessary

APPENDIX F
BACT ANALYSIS

DHM APCD Control Cost Calcs

Summary of Average Cost Effectiveness ($/ton)

Emission Point Number(s)	Unit/Service Description	Control Option	Uncontrolled PTE Emissions (TPY)	VOC Control Efficiency (%)	VOC Controlled Emission Rate (ton/yr)	VOC Reduction (ton/yr)	Total Annual Cost ($/yr)	Technology Cost Effectiveness ($/ton VOC Removed)
ES-HM-1 through 8	Eight (8) Dry Hammermills	RTO[1]	168	95%	8.4	159	$3,313,346	$20,818

[1] VOC control efficiency from USEPA Air Pollution Control Technology Fact Sheet: Regenerative Incinerator (EPA-452/F-03-021). https://www3.epa.gov/ttn/catc/dir1/fregen.pdf

[2] VOC control efficiency from USEPA Air Pollution Control Technology Fact Sheet: Packed-Bed/Packed-Tower Wet Scrubber (EPA-452/F-03-015). https://www3.epa.gov/ttn/catc/dir1/fpack.pdf

Enviva, Sampson Facility - Cost Estimate For RTO for DHM Island - 1/11/2018

Site Work			
			Estimated By
Underground Investigation/Rework (allowance)	$	10,000	
Fill material	$	5,056	Enviva
Excavate	$	10,640	Enviva
Maintenance access to and around RCO equipment	$	26,667	Enviva
Equipment			
			Estimated By
RTO system engineering, equipment, media, and installation	$	3,027,024	TSI/Lundberg/Enviva
Propane system engineering and installation (2-30,000 gallon tanks)	$	712,500	O'Neal
Air compressor	$	20,000	Enviva
Mechanical Installation			
			Estimated By
Construction supervision, on site services, and training	$	160,000	O'Neal/Enviva
Foundations and Slabs			
			Estimated By
Stack Foundation	$	11,378	O'Neal/Enviva
Anchor Bolts	$	1,200	O'Neal/Enviva
ID Fan and Drive Motor Foundation	$	120,000	O'Neal/Enviva
Anchor Bolts	$	2,000	O'Neal/Enviva
RTO foundation	$	240,000	O'Neal/Enviva
Anchor Bolts	$	2,000	O'Neal/Enviva
MCC building foundation	$	32,000	O'Neal/Enviva
Anchor Bolts	$	3,200	O'Neal/Enviva
Transformer foundation	$	6,400	O'Neal/Enviva
Propane tank foundation	$	80,000	O'Neal/Enviva
Anchor Bolts	$	1,600	O'Neal/Enviva
Overhead wet duct support foundations	$	19,200	O'Neal/Enviva
Anchor Bolts	$	2,400	O'Neal/Enviva
Pipe Supports	$	120,000	O'Neal/Enviva
Piping			
			Estimated By
Propane (100 lf 4" Sch 40 CS)	$	101,469	O'Neal/Enviva
Process Waste (65 lf 2" Sch 40 SS)	$	13,270	O'Neal/Enviva
Process Water (160 lf 2" Sch 40 CS)	$	29,866	O'Neal/Enviva
Compressed air (325 lf 2" Sch 40 CS)	$	49,919	O'Neal/Enviva
Electrical			
Provide and install the following:			
New pole and hardware to tap off of incoming distribution line		included	O'Neal/Enviva
Underground service from new pole to electrical house		included	O'Neal/Enviva
New electrical house and MCC		included	O'Neal/Enviva
2500 KVA pad mount transformer - 25,00 / 480 Secondary		included	O'Neal/Enviva
VFD drive for ID fan		included	O'Neal/Enviva
3000 Amp switchgear		included	O'Neal/Enviva
All grounding requirements		included	O'Neal/Enviva
Lightning protection		included	O'Neal/Enviva
480 / 120 transformer and panel		included	O'Neal/Enviva
480V wiring from transformer to switchgear and MCC's		included	O'Neal/Enviva
480V conduit and wiring of all motors		included	O'Neal/Enviva
Indoor and outdoor lighting		included	O'Neal/Enviva
Control and device wiring		included	O'Neal/Enviva
RTO PLC hardware and software		included	O'Neal/Enviva
Mill interface programing		included	O'Neal/Enviva
Mill interface hardware required		included	O'Neal/Enviva
Total above	$	896,000	O'Neal/Enviva
Other Items			
Freight	$	159,400	TSI/O'Neal
Geotechnical services	$	8,000	Enviva
Electrical Engineering Services	$	35,800	O'Neal
Civil, Structural and mechanical Engineering Services	$	45,000	O'Neal
Environmental testing upon completion	$	16,000	TSI
State and County Taxes at 4.75%	$	171,810	
Sub Total	$	6,139,798	
Contingency at 20%	$	1,227,960	
Grand Total	$	7,367,758	20% Contingency
Annual Operating Cost			
Propane	$	1,493,120	Piedmont
Electrical power	$	322,786	Enviva
Compressed air		-	Enviva
Water		-	Enviva

Enviva, Sampson Facility - Cost Estimate For RTO for DHM Island - 1/11/2018

Added by Ramboll (per EPA Cost Manual Section 3, Chapter 2 - Incinerators and Oxidizers, November 2017)		
Operating Labor		
Operator	$18,000	Based on $36/hr (per Enviva), 0.5 hr/shift, 8 hr/shift, and 8,000 hr/yr.
Supervisor	$2,700	15% Operator
Operating Materials	--	
Maintenance		
Labor	$17,280	Based on $36/hr, 40 hr/mo, 12 mo/yr (per Enviva)
Materials	$17,280	100% Maintenance Labor
Future Worth Factor	0.116	Based on EPA Cost Manual, where FWF = i x $1/((1+i)^y - 1)$. i = interest rate and y = life of media.
Expected life of RTO media	7	yrs
Media replacement	$124,797	100% of media replaced. Based on EPA Cost Manual, where Media Replacement = 1.08 x Media Cost x FWF.
Overhead	$22,788	60% of sum of operating labor and materials, and maintenance labor and materials
Admin Charges	$122,796	2% TCI
Property Taxes	$61,398	1% TCI
Insurance	$61,398	1% TCI
Capital Recovery	$1,049,003	CRF*TCI, 10 year equipment life per EPA Cost Manual
TOTAL ANNUAL OPERATING COST $	3,313,346	Includes 20% Contingency on TCI (consistent with EPA cost manual)

Pellet Coolers APCD Cost Calcs

Summary of Average Cost Effectiveness ($/ton)

Emission Point Number(s)	Unit/Service Description	Control Scenario	Uncontrolled PTE Emissions (TPY)	VOC Control Efficiency (%)	VOC Controlled Emission Rate (ton/yr)	VOC Reduction (ton/yr)	Total Annual Cost ($/yr)	Technology Cost Effectiveness ($/ton VOC Removed)
ES-CLR-1 through 6	Six (6) Pellet Coolers	Baghouse/RTO	572	95%	29	544	$3,800,354	$6,991

Enviva, Sampson Facility - Cost Estimate For RTO for Pellet Mill Coolers - 3/6/2018

Site Work			
			Estimated By
Underground Investigation/Rework (allowance)	$	10,000	
Fill material	$	5,056	Enviva
Excavate	$	10,640	Enviva
Maintenance access to and around RCD equipment	$	26,667	Enviva
Equipment			
			Estimated By
Baghouse (5) engineering, equipment, and installation	$	1,056,000	WPI / Enviva
Flamex detect & fire suppression	$	750,000	Enviva
Ductwork	$	310,000	Enviva
RTO system engineering, equipment, media, and installation	$	2,994,500	TSI/Lundberg/Enviva
Propane system engineering and installation (2-30,000 gallon tanks)	$	712,500	O'Neal
Air compressor	$	42,000	Enviva
Mechanical Installation			
			Estimated By
Construction supervision, on site services, and training	$	160,000	O'Neal/Enviva
Foundations and Slabs			
			Estimated By
Baghouse Foundation	$	35,200	O'Neal/Enviva
Anchor Bolts	$	2,400	O'Neal/Enviva
Stack Foundation	$	7,822	O'Neal/Enviva
Anchor Bolts	$	1,200	O'Neal/Enviva
ID Fan and Drive Motor Foundation	$	77,000	O'Neal/Enviva
Anchor Bolts	$	2,000	O'Neal/Enviva
RTO foundation	$	371,250	O'Neal/Enviva
Anchor Bolts	$	2,000	O'Neal/Enviva
MCC building foundation	$	22,000	O'Neal/Enviva
Anchor Bolts	$	3,200	O'Neal/Enviva
Transformer foundation	$	4,400	O'Neal/Enviva
Propane tank foundation	$	55,000	O'Neal/Enviva
Anchor Bolts	$	1,600	O'Neal/Enviva
Overhead wet duct support foundations	$	41,250	O'Neal/Enviva
Anchor Bolts	$	2,400	O'Neal/Enviva
NG Pipe Supports	$	120,000	O'Neal/Enviva
Duct Structural Steel	$	275,000	Enviva
Piping			
			Estimated By
Propane (100 lf 4" Sch 40 CS)	$	101,469	O'Neal/Enviva
Process Waste (65 lf 2" Sch 40 SS)	$	13,270	O'Neal/Enviva
Process Water (160 lf 2" Sch 40 CS)	$	29,866	O'Neal/Enviva
Compressed air (325 lf 2" Sch 40 CS)	$	49,919	O'Neal/Enviva
Electrical			
Provide and install the following:			**Estimated By**
New pole and hardware to tap off of incoming distribution line		Included	O'Neal/Enviva
Underground service from new pole to electrical house		Included	O'Neal/Enviva
New electrical house and MCC		Included	O'Neal/Enviva
2500 KVA pad mount transformer - 25,00 / 480 Secondary		included	O'Neal/Enviva
VFD drive for ID fan		included	O'Neal/Enviva
3000 Amp switchgear		included	O'Neal/Enviva
All grounding requirements		Included	O'Neal/Enviva
Lightning protection		included	O'Neal/Enviva
480 / 120 transformer and panel		Included	O'Neal/Enviva
480V wiring from transformer to switchgear and MCC's		Included	O'Neal/Enviva
480V conduit and wiring of all motors		Included	O'Neal/Enviva
Indoor and outdoor lighting		included	O'Neal/Enviva
Control and device wiring		included	O'Neal/Enviva
RTO PLC hardware and software		included	O'Neal/Enviva
Mill interface programing		included	O'Neal/Enviva
Mill interface hardware required		included	O'Neal/Enviva
Total above	$	896,000	O'Neal/Enviva
Other Items			
Freight	$	154,400	TSI/O'Neal
Geotechnical services	$	8,000	Enviva
Electrical Engineering Services	$	35,800	O'Neal
Civil, Structural and mechanical Engineering Services	$	45,000	O'Neal
Environmental testing upon completion	$	16,000	TSI
State and County Taxes at 4.75%	$	190,505	
Sub Total	$	8,646,313	
Contingency at 20%	$	1,729,262.61	
Grand Total (Total Capital Investment, TCI)	$	10,375,576	20% Contingency
Annual Operating Cost			
Propane	$	1,493,120	Piedmont
Electrical power	$	358,778	Enviva
Compressed air		-	Enviva
Water	$	20,000	Enviva, media rinse waterwater disposal twice per year

Enviva, Sampson Facility - Cost Estimate For RTO for Pellet Mill Coolers - 3/6/2018

			Added by Ramboll [per EPA Cost Manual Section 3, Chapter 2 - Incinerators and Oxidizers, November 2017 and Enviva]
Operating Labor			
Operator	$	18,000	Based on $36/hr (per Enviva Info), 0.5 hr/shift, 8 hr/shift, and 8,000 hr/yr.
Supervisor	$	2,700	15% Operator
Operating Materials		–	
Maintenance			
Labor	$	17,280	Based on $36/hr, 40 hr/mo, 12 mo/yr [per Enviva]
Materials	$	17,280	100% Maintenance Labor
Future Worth Factor		0.174	Based on EPA Cost Manual, where FWF = i x $1/((1+i)^y - 1)$. i = interest rate and y = life of fan motor (5 yrs).
Expected life of Fan Motor		5	yrs, per Enviva
Fan Motor replacement	$	18,780	100% of media replaced. Based on EPA Cost Manual, where Fan Motor Replacement = 1.08 x Motor Cost x FWF.
Future Worth Factor		0.097	Based on EPA Cost Manual, where FWF = i x $1/((1+i)^y - 1)$. i = interest rate and y = life of media (8 yrs).
Expected life of RTO media		8	yrs, per Enviva
RTO Media replacement	$	26,569	100% of media replaced. Based on EPA Cost Manual, where Media Replacement = 1.08 x Media Cost x FWF.
Labor for Media Replacement	$	3,024	Based on 8 workers at $42 per hour, 8 hrs/day, 3 shifts, for 3 days
Equipment Rental for Media Replacement	$	1,998	Lift $2,300 per week, Skid steer $1,800 per week, crane operator @ $165 per hour
Annual Bag Replacement	$	233,333	Enviva, bag changes every 45 days, $5,000/change
			Enviva, deflagration events, 8 times in 20 years
			Explosion panel replacement, $5,500 per deflagration event per baghouse
			Bag replacement, $5,000 per event per baghouse
			Cost to dispose of water, $10,000 per event per baghouse
Costs for Deflagration Events	$	61,200	Cost to dispose of solids, $5,000 per event per baghouse
Overhead	$	203,258	60% of sum of operating labor and materials, and maintenance labor and materials
Admin Charges	$	172,925	2% TCI
Property Taxes	$	86,463	1% TCI
Insurance	$	86,463	1% TCI
Capital Recovery	$	979,381	CRF*TCI, 20 year equipment life per Enviva
TOTAL ANNUAL OPERATING COST	$	3,800,354	Includes 20% Contingency on TCI (consistent with EPA cost manual)

Summary of Average Cost Effectiveness ($/ton)

Emission Point Number(s)	Unit/Service Description	Control Scenario	Uncontrolled PTE Emissions (TPY)	PM Control Efficiency (%)	PM Controlled Emission Rate (ton/yr)	PM Reduction (ton/yr)	Total Annual Cost ($/yr)	Technology Cost Effectiveness ($/ton VOC Removed)
ES-CLR-1 through 6	Six (6) Pellet Coolers	Baghouse	151	95%	8	143	$1,465,025	$10,220

Enviva, Sampson Facility - Cost Estimate For Baghouses for Pellet Mill Coolers - 3/12/2018

Site Work			**Estimated By**
Underground Investigation/Rework (allowance)	$	10,000	Enviva
Fill material	$	5,056	Enviva
Excavate	$	10,640	Enviva
Maintenance access to and around RTO equipment	$	120,000	Enviva
Equipment			**Estimated By**
Baghouse (6) engineering, equipment, and installation	$	1,056,000	WPI / Enviva
Flamex detect & fire suppression	$	750,000	Enviva
Air compressor	$	42,000	Enviva
Ductwork (6 individual inlet lines, common outlet header)	$	310,000	Enviva
Mechanical Installation			**Estimated By**
Construction supervision, on site services, and training	$	160,000	O'Neal / Enviva
Foundations, Slabs & Structural Steel			**Estimated By**
Baghouse Foundation	$	35,200	O'Neal / Enviva
Anchor Bolts	$	2,400	O'Neal / Enviva
MCC building foundation	$	22,000	O'Neal / Enviva
Anchor Bolts	$	3,200	O'Neal / Enviva
Transformer foundation	$	4,400	O'Neal / Enviva
Overhead duct support foundations	$	41,250	O'Neal / Enviva
Anchor Bolts	$	2,400	O'Neal / Enviva
Duct Support Steel	$	275,000	Enviva
Piping			**Estimated By**
Compressed air (325 lf 2" Sch 40 CS)	$	49,919	O'Neal / Enviva
Electrical / Instrumentation			
Provide and install the following:			
New pole and hardware to tap off of incoming distribution line		included	O'Neal / Enviva
Underground service from new pole to Electrical house		included	O'Neal / Enviva
New Electrical house & MCC		included	O'Neal / Enviva
2500 KVA pad mount transformer - 25,00 / 480 Secondary		included	O'Neal / Enviva
VFD drive for ID fan		included	O'Neal / Enviva
3000 Amp switchgear		included	O'Neal / Enviva
All grounding requirements		included	O'Neal / Enviva
Lightening protection		included	O'Neal / Enviva
480 / 120 transformer and panel		included	O'Neal / Enviva
480V wiring from transformer to switchgear and MCC's		included	O'Neal / Enviva
480V conduit and wiring of all motors		included	O'Neal / Enviva
Indoor and outdoor lighting		included	O'Neal / Enviva
Control and device wiring		included	O'Neal / Enviva
RTO PLC hardware and software		included	O'Neal / Enviva
Mill interface programing		included	O'Neal / Enviva
Mill interface hardware required		included	O'Neal / Enviva
Total above	$	896,000	O'Neal / Enviva
Other Items			
Freight	$	159,400	TSI/O'Neal
Geotechnical services	$	8,000	Enviva
Electrical Engineering Services	$	35,800	O'Neal
Civil, Structural and mechanical Engineering Services	$	45,000	O'Neal
State and County Taxes at 4.75%	$	69,986	Tax on purchased equipment
Sub Total	$	4,113,650	
Contingency at 20%	$	822,730	
Grand Total (Total Capital Investment, TCI)	$	4,936,380	
Annual Operating Cost			
Electrical power	$	145,442	Enviva
Compressed air		-	Enviva
Water		-	Enviva

Enviva, Sampson Facility - Cost Estimate For Baghouses for Pellet Mill Coolers - 3/12/2018

			Added by Ramboll (per EPA Cost Manual Section 6, Chapter 1 - Baghouses and Filters, December 1998)
Operating Labor			
Operator	$	72,000	Based on $36/hr (per Enviva), 2 hr/shift, 8 hr/shift, and 8,000 hr/yr.
Supervisor	$	10,800	15% Operator
Operating Materials		--	
Maintenance			
Future Worth Factor		0.174	Based on EPA Cost Manual, where FWF = i x $1/((1+i)^y - 1)$. i = interest rate and y = life of fan motor (5 yrs).
Expected life of Fan Motor		5	yrs, per Enviva
Fan Motor replacement	$	18,780	100% of media replaced. Based on EPA Cost Manual, where Fan Motor Replacement = 1.08 x Motor Cost x FWF.
Annual Bag Replacement	$	233,333	Enviva, bag changes every 45 days, $5,000/change
			Enviva, deflagration events, 8 times in 20 years
			Explosion panel replacement, $5,500 per deflagration event per baghouse
			Bag replacement, $5,000 per event per baghouse
			Cost to dispose of water, $10,000 per event per baghouse
Costs for Deflagration Events	$	61,200	Cost to dispose of solids, $5,000 per event per baghouse
Labor	$	17,280	Based on $36/hr, 40 hr/mo, 12 mo/yr per Enviva
Materials	$	17,280	Assumed to equal labor costs
Overhead	$	258,404	60% of sum of operating labor and materials, and maintenance labor and materials
Admin Charges	$	82,273	2% TCI
Property Taxes	$	41,137	1% TCI
Insurance	$	41,137	1% TCI
Capital Recovery	$	465,959	CRF*TCI
TOTAL ANNUAL OPERATING COST	**$**	**1,465,025**	Includes 20% Contingency on TCI (consistent with EPA cost manual)

DWH APCD Control Cost Calcs

Summary of Average Cost Effectiveness ($/ton)

Emission Point Number(s)	Unit/Service Description	Control Option	Uncontrolled PTE Emissions (TPY)	VOC Control Efficiency (%)	VOC Controlled Emission Rate (ton/yr)	VOC Reduction (ton/yr)	Total Annual Cost ($/yr)	Technology Cost Effectiveness ($/ton VOC Removed)
ES-DWH	Dried wood handling operations	RTO[1]	41	95%	2.0	38.8	$566,776	$14,619

1. VOC control efficiency from USEPA Air Pollution Control Technology Fact Sheet: Regenerative Incinerator (EPA-452/F-03-021). https://www3.epa.gov/ttn/catc/dir1/fregen.pdf
2. VOC control efficiency from USEPA Air Pollution Control Technology Fact Sheet: Packed-Bed/Packed-Tower Wet Scrubber (EPA-452/F-03-015). https://www3.epa.gov/ttn/catc/dir1/fpack.pdf

RTO Cost Calculations
Dried Wood Handling VOC Emissions
ES-DWH
Enviva Pellets Sampson, LLC
Faison, Sampson County, North Carolina

Capital Equipment Costs			
Direct Costs			
Purchased Equipment Costs			
Incinerator + auxiliary equipment	$	546,000	Equation 2.33 from EPA
Instrumentation	$	54,600	10% of incinerator and auxiliary equipment costs
Sales tax	$	16,380	3% of incinerator and auxiliary equipment costs
Freight	$	27,300	5% of incinerator and auxiliary equipment costs
Total Purchased Equipment Costs	**$**	**644,280**	
Direct installation costs			
Foundations and supports	$	51,542	8% of total purchased equipment costs
Handling and erection	$	90,199	14% of total purchased equipment costs
Electrical	$	25,771	4% of total purchased equipment costs
Piping	$	12,886	2% of total purchased equipment costs
Insulation for ductwork	$	6,443	1% of total purchased equipment costs
Painting	$	6,443	1% of total purchased equipment costs
Total Direct Installation Costs	**$**	**193,284**	
Total Direct Costs	**$**	**837,564**	
Indirect installation costs			
Engineering	$	64,428	10% of total direct costs
Construction and field expenses	$	32,214	5% of total direct costs
Contractor fees	$	64,428	10% of total direct costs
Start-up	$	12,886	2% of total direct costs
Performance test	$	6,443	1% of total direct costs
Total Indirect Installation Costs	**$**	**180,398**	
Contingency at 10%	$	101,796.24	Default contingency factor of 10% from EPA Cost Control Manual, Oxidizer and Incinerators Section
Total Capital Investment	**$**	**1,119,759**	
Annual Operating Cost			
Direct Annual Costs			
Operating Labor			
Operator		$13,350	Based on $26.70/hr (2015), 0.5 hr/shift, 8 hr/shift, and 8,000 hr/yr.
Supervisor		$2,003	15% Operator
Maintenance			
Labor		$13,625	Based on $27.25/hr (2015), 0.5 hr/shift, 8 hr/shift, and 8,000 hr/yr.
Materials		$13,625	100% Maintenance Labor
Utilities			
Natural Gas	$	307,280	Assumes 8000 hr/yr at $0.00384/scf
Electricity	$	40,844	Assumes 8000 hr/yr at $0.0689/kWh
Indirect Annual Costs			
Overhead		$25,562	60% of sum of operating labor and materials, and maintenance labor and materials
Admin Charges		$22,395	2% TCI
Property Taxes		$11,198	1% TCI
Insurance		$11,198	1% TCI
Capital Recovery		$105,697	CRF*TCI, based on 20 year equipment life and 7% interest
TOTAL ANNUAL OPERATING COST	$	566,776	Includes 10% Contingency on TCI (consistent with EPA cost manual)

Note:

Estimation based on *EPA Cost Control Manual, Chapter 2, Incinerators and Oxidizers*, November 2017. https://www.epa.gov/sites/production/files/2017-12/documents/oxidizersincinerators_chapter2_7theditionfinal.pdf

RBLC Results – VOC

Summary of Results of RBLC Database Search for VOC

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/2006
Facility Description	DESIGNED TO PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	ANTI-MOLD SPRAY SYSTEM
Process Type	30.999
Primary Fuel	
Throughput	300
	MM F/YR
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	DRIP-FREE DESIGN
Emission Limit 1	9
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	ROLLING TWELVE AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/2017
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	15.4 MBF/HR CDK (DPK-1) W/ 38.8 MMBTU/HR NATURAL GAS BURNER
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	15.4
	MBF/H
Process Notes	CONTINUOUS DIRECT-FIRED KILN WITH NATURAL GAS BURNER AND NATURAL GAS CONDENSATE EVAPORATOR
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.8
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	MEASURED AS CARBON
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/2017
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	15.4 MBF/HR CDK (DPK-2) W/ 38.8 MMBTU/HR NATURAL GAS BURNER
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	15.4
	MBF/H
Process Notes	15.4 MBF/HR CONTINUOUS DIRECT-FIRED KILN WITH 38.8 MMBTU/HR NATURAL GAS BURNER AND NATURAL GAS CONDENSATE EVAPORATOR
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.8
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	MEASURED AS CARBON
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	*AL-0310
Facility Name	FULTON SAWMILL
Facility State	AL
Permit Number	X007 & X008
Permit Issuance Date	6/8/2017
Facility Description	SOUTHERN YELLOW PINE SAWMILL WITH PLANER MILL AND LUMBER DRYING KILNS
Permit Notes	X007: 11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN WITH 40 MMBTU/HR NATURAL GAS-FIRED BURNER AND ASSOCIATED 4 MMBTU/HR NATURAL GAS-FIRED KILN CONDENSATE EVAPORATOR X008: PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Name	11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN, 40 MMBTU/HR NATURAL GAS BURNER; 4 MMBTU/HR NATURAL GAS CONDENSATE EVAPORATOR
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	11.4
	MBF/H
Process Notes	A DIRECT FIRED CONTINUOUS KILN (CDK) WHICH IS HEATED BY A 40 MMBTU/HR NATURAL GAS BURNER. KILN CONDENSATE FROM THE CDK IS SENT TO A CONDENSATE EVAPORATOR. THE EVAPORATOR IS HEATED BY A 4 MMBTU/HR NATURAL GAS BURNER.
Pollutant	VOC
Control Method Code	N
Control Method Description	BACT DETERMINED AS PROPER KILN OPERATION AND MAINTENANCE PRACTICES
Emission Limit 1	4
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	MBF
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	VOC MEASURED AS WPP1, WHERE WPP1 = [(VOC AS C) X 1.13] FORMALDEHYDE [0.35 X METHANOL]

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0083
Facility Name	POTLATCH CORPORATION - OZAN UNIT
Facility State	AR
Permit Number	0117-AOP-R4
Permit Issuance Date	7/26/2005
Facility Description	SAWMILL
Permit Notes	
Process Name	KILNS 1-4
Process Type	30.8
Primary Fuel	STEAM HEATED
Throughput	265
	MMBF ANNUALLY
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	PROPER OPERATION
Emission Limit 1	3.5
Emission Limit 1 Unit	LB/MMBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	
Percent Efficiency	0
Emission Limit 2	119
Emission Limit 2 Unit	LB/H
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0084
Facility Name	POTLATCH CORPORATION - OZAN UNIT
Facility State	AR
Permit Number	0117-AOP-R4
Permit Issuance Date	7/26/2005
Facility Description	SAWMILL
Permit Notes	
Process Name	KILNS 1-4
Process Type	30.8
Primary Fuel	STEAM HEATED
Throughput	265
	MMBF ANNUALLY
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	PROPER OPERATION
Emission Limit 1	3.5
Emission Limit 1 Unit	LB/MMBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	
Percent Efficiency	0
Emission Limit 2	119
Emission Limit 2 Unit	LB/H
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0102
Facility Name	ANTHONY TIMBERLANDS, INC.
Facility State	AR
Permit Number	456-AOP-R4
Permit Issuance Date	9/16/2009
Facility Description	SAWMILL
Permit Notes	ADDING THREE NEW INDIRECT-FIRED KILNS, ONE NEW PLANER MILL, AND INCREASING KILN DRIED LUMBER THROUGHPUT FROM 135 MMBF/YR TO 200 MMBF/YR.
Process Name	KILN #3 INDIRECT-FIRED
Process Type	30.8
Primary Fuel	NONE
Throughput	200
	MMBF/YR
Process Notes	TOTAL THROUGHPUT FOR THE KILNS IS 200 MMBF/YR.
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.5
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	350
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0102
Facility Name	ANTHONY TIMBERLANDS, INC.
Facility State	AR
Permit Number	456-AOP-R4
Permit Issuance Date	9/16/2009
Facility Description	SAWMILL
Permit Notes	ADDING THREE NEW INDIRECT-FIRED KILNS, ONE NEW PLANER MILL, AND INCREASING KILN DRIED LUMBER THROUGHPUT FROM 135 MMBF/YR TO 200 MMBF/YR.
Process Name	KILN #4 INDIRECT-FIRED
Process Type	30.8
Primary Fuel	NONE
Throughput	200
	MMBF/YR
Process Notes	TOTAL THROUGHPUT FOR THE KILNS IS 200 MMBF/YR.
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.5
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	350
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0102
Facility Name	ANTHONY TIMBERLANDS, INC.
Facility State	AR
Permit Number	456-AOP-R4
Permit Issuance Date	9/16/2009
Facility Description	SAWMILL
Permit Notes	ADDING THREE NEW INDIRECT-FIRED KILNS, ONE NEW PLANER MILL, AND INCREASING KILN DRIED LUMBER THROUGHPUT FROM 135 MMBF/YR TO 200 MMBF/YR.
Process Name	KILN #5 INDIRECT-FIRED
Process Type	30.8
Primary Fuel	NONE
Throughput	200
	MMBF/YR
Process Notes	TOTAL THROUGHPUT FOR THE KILNS IS 200 MMBR/YR.
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.5
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	350
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/2015
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	LUMBER DRYING KILN SN-01
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	45
	MMBTU/H
Process Notes	SN-02 DIRECT-FIRED, MAX 18.5 MBF/HR, LOW NOX BURNERS
Pollutant	VOC
Control Method Code	N
Control Method Description	PROPER MAINTENANCE AND OPERATION
Emission Limit 1	3.8
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/2015
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	LUMBER DRYING KILN SN-02
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	45
	MMBTU/H
Process Notes	SN-02, DIRECT-FIRED, MAX 18.5 MBF/HR, LOW-NOX BURNERS
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.8
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/2015
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	LUMBER DRYING KILN SN-03
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	45
	MMBTU/H
Process Notes	SN-03, DIRECT-FIRED, MAX 18.5 MBF/HR, LOW-NOX BURNERS
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.8
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	LA-0294
Facility Name	DODSON DIVISION
Facility State	LA
Permit Number	PSD-LA-627(M-3)
Permit Issuance Date	12/30/2013
Facility Description	LUMBER MILL
Permit Notes	COMPLETE APPLICATION DATE = DATE OF ADMINISTRATIVE COMPLETENESS PERMIT ADDRESSES THE KILN EXPANSION PROJECT, WHICH WILL ALLOW THE DODSON DIVISION TO INCREASE ITS CURRENT PRODUCTION RATE OF LUMBER FROM 208.5 MM BF PER YEAR TO 265 MM BF PER YEAR. THE INCREASE IN LUMBER PRODUCTION WILL BE ACCOMPLISHED BY THE ADDITION OF A FOURTH KILN (DRY KILN 4, 051). OTHER SOURCES AFFECTED BY THE PROJECT ARE THE WOOD-FIRED BOILER (017), FUGITIVE INK EMISSIONS (039), AND MOLD INHIBITOR EMISSIONS (052). SUBSEQUENT TO THE ISSUANCE OF PSD-LA-627(M-3), WEYERHAEUSER DETERMINED THAT THE DODSON DIVISION COULD PRODUCE 265 MILLION BOARD FEET PER YEAR OF LUMBER USING JUST THE 3 EXISTING KILNS. THEREFORE, DRY KILN 4 (051, EQT 32) WILL NOT BE CONSTRUCTED AND WAS REMOVED FROM THE PERMIT WITH PSD-LA-627(M-4), ISSUED NOVEMBER 3, 2016. IN ADDITION, THE VOC BACT LIMITS FOR THE WOOD-FIRED BOILER (017, EQT 6) WERE REVISED TO 3.45 LB/HR AND 11.80 TPY. THE NEW LIMITS ACCOUNT FOR SEVERAL TOXIC AIR POLLUTANTS THAT WERE INADVERTENTLY EXCLUDED FROM THE VOC TOTAL.
Process Name	Dry Kiln 1 (033, EQT 15)
Process Type	30.8
Primary Fuel	
Throughput	14 M BD-FT/H
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	Good operating practices, including proper design, operation, and maintenance
Emission Limit 1	79.4
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAXIMUM
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	481.37
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	ANNUAL MAXIMUM*
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	* 481.37 TPY is an aggregate limit for all four dry kilns.

Summary of Results of RBLC Database Search for VOC

RBLC ID	LA-0294
Facility Name	DODSON DIVISION
Facility State	LA
Permit Number	PSD-LA-627(M-3)
Permit Issuance Date	12/30/2013
Facility Description	LUMBER MILL
Permit Notes	COMPLETE APPLICATION DATE = DATE OF ADMINISTRATIVE COMPLETENESS PERMIT ADDRESSES THE KILN EXPANSION PROJECT, WHICH WILL ALLOW THE DODSON DIVISION TO INCREASE ITS CURRENT PRODUCTION RATE OF LUMBER FROM 208.5 MM BF PER YEAR TO 265 MM BF PER YEAR. THE INCREASE IN LUMBER PRODUCTION WILL BE ACCOMPLISHED BY THE ADDITION OF A FOURTH KILN (DRY KILN 4, 051). OTHER SOURCES AFFECTED BY THE PROJECT ARE THE WOOD-FIRED BOILER (017), FUGITIVE INK EMISSIONS (039), AND MOLD INHIBITOR EMISSIONS (052). SUBSEQUENT TO THE ISSUANCE OF PSD-LA-627(M-3), WEYERHAEUSER DETERMINED THAT THE DODSON DIVISION COULD PRODUCE 265 MILLION BOARD FEET PER YEAR OF LUMBER USING JUST THE 3 EXISTING KILNS. THEREFORE, DRY KILN 4 (051, EQT 32) WILL NOT BE CONSTRUCTED AND WAS REMOVED FROM THE PERMIT WITH PSD-LA-627(M-4), ISSUED NOVEMBER 3, 2016. IN ADDITION, THE VOC BACT LIMITS FOR THE WOOD-FIRED BOILER (017, EQT 6) WERE REVISED TO 3.45 LB/HR AND 11.80 TPY. THE NEW LIMITS ACCOUNT FOR SEVERAL TOXIC AIR POLLUTANTS THAT WERE INADVERTENTLY EXCLUDED FROM THE VOC TOTAL.
Process Name	Dry Kiln 2 (034, EQT 16)
Process Type	30.8
Primary Fuel	
Throughput	14 M BD-FT/H
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	Good operating practices, including proper design, operation, and maintenance
Emission Limit 1	79.4
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAXIMUM
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	481.37
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	ANNUAL MAXIMUM*
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	* 481.37 TPY is an aggregate limit for all four dry kilns.

Summary of Results of RBLC Database Search for VOC

RBLC ID	LA-0294
Facility Name	DODSON DIVISION
Facility State	LA
Permit Number	PSD-LA-627(M-3)
Permit Issuance Date	12/30/2013
Facility Description	LUMBER MILL
Permit Notes	COMPLETE APPLICATION DATE = DATE OF ADMINISTRATIVE COMPLETENESS PERMIT ADDRESSES THE KILN EXPANSION PROJECT, WHICH WILL ALLOW THE DODSON DIVISION TO INCREASE ITS CURRENT PRODUCTION RATE OF LUMBER FROM 208.5 MM BF PER YEAR TO 265 MM BF PER YEAR. THE INCREASE IN LUMBER PRODUCTION WILL BE ACCOMPLISHED BY THE ADDITION OF A FOURTH KILN (DRY KILN 4, 051). OTHER SOURCES AFFECTED BY THE PROJECT ARE THE WOOD-FIRED BOILER (017), FUGITIVE INK EMISSIONS (039), AND MOLD INHIBITOR EMISSIONS (052). SUBSEQUENT TO THE ISSUANCE OF PSD-LA-627(M-3), WEYERHAEUSER DETERMINED THAT THE DODSON DIVISION COULD PRODUCE 265 MILLION BOARD FEET PER YEAR OF LUMBER USING JUST THE 3 EXISTING KILNS. THEREFORE, DRY KILN 4 (051, EQT 32) WILL NOT BE CONSTRUCTED AND WAS REMOVED FROM THE PERMIT WITH PSD-LA-627(M-4), ISSUED NOVEMBER 3, 2016. IN ADDITION, THE VOC BACT LIMITS FOR THE WOOD-FIRED BOILER (017, EQT 6) WERE REVISED TO 3.45 LB/HR AND 11.80 TPY. THE NEW LIMITS ACCOUNT FOR SEVERAL TOXIC AIR POLLUTANTS THAT WERE INADVERTENTLY EXCLUDED FROM THE VOC TOTAL.
Process Name	Dry Kiln 3 (035, EQT 17)
Process Type	30.8
Primary Fuel	
Throughput	16 M BD-FT/H
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	Good operating practices, including proper design, operation, and maintenance
Emission Limit 1	90.74
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAXIMUM
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	481.37
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	ANNUAL MAXIMUM*
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	* 481.37 TPY is an aggregate limit for all four dry kilns.

Summary of Results of RBLC Database Search for VOC

RBLC ID	LA-0294
Facility Name	DODSON DIVISION
Facility State	LA
Permit Number	PSD-LA-627(M-3)
Permit Issuance Date	12/30/2013
Facility Description	LUMBER MILL
Permit Notes	COMPLETE APPLICATION DATE = DATE OF ADMINISTRATIVE COMPLETENESS PERMIT ADDRESSES THE KILN EXPANSION PROJECT, WHICH WILL ALLOW THE DODSON DIVISION TO INCREASE ITS CURRENT PRODUCTION RATE OF LUMBER FROM 208.5 MM BF PER YEAR TO 265 MM BF PER YEAR. THE INCREASE IN LUMBER PRODUCTION WILL BE ACCOMPLISHED BY THE ADDITION OF A FOURTH KILN (DRY KILN 4, 051). OTHER SOURCES AFFECTED BY THE PROJECT ARE THE WOOD-FIRED BOILER (017), FUGITIVE INK EMISSIONS (039), AND MOLD INHIBITOR EMISSIONS (052). SUBSEQUENT TO THE ISSUANCE OF PSD-LA-627(M-3), WEYERHAEUSER DETERMINED THAT THE DODSON DIVISION COULD PRODUCE 265 MILLION BOARD FEET PER YEAR OF LUMBER USING JUST THE 3 EXISTING KILNS. THEREFORE, DRY KILN 4 (051, EQT 32) WILL NOT BE CONSTRUCTED AND WAS REMOVED FROM THE PERMIT WITH PSD-LA-627(M-4), ISSUED NOVEMBER 3, 2016. IN ADDITION, THE VOC BACT LIMITS FOR THE WOOD-FIRED BOILER (017, EQT 6) WERE REVISED TO 3.45 LB/HR AND 11.80 TPY. THE NEW LIMITS ACCOUNT FOR SEVERAL TOXIC AIR POLLUTANTS THAT WERE INADVERTENTLY EXCLUDED FROM THE VOC TOTAL.
Process Name	Dry Kiln 4 (051, EQT 32)
Process Type	30.8
Primary Fuel	
Throughput	16
	M BD-FT/H
Process Notes	Subsequent to the issuance of PSD-LA-627(M-3), Weyerhaeuser determined that the Dodson Division could produce 265 million board feet per year of lumber using just the 3 existing kilns. Therefore, Dry Kiln 4 (051, EQT 32) will not be constructed and was removed from the permit with PSD-LA-627(M-4), issued November 3, 2016. In addition, the VOC BACT limits for the Wood-Fired Boiler (017, EQT 6) were revised to 3.45 lb/hr and 11.80 TPY. The new limits account for several toxic air pollutants that were inadvertently excluded from the VOC total.
Pollutant	VOC
Control Method Code	P
Control Method Description	Good operating practices, including proper design, operation, and maintenance
Emission Limit 1	90.74
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAX (SEE NOTE KILN NOT BUILT)
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	481.37
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	ANNUAL MAX*(SEE NOTE KILN NOT BUILT)

Summary of Results of RBLC Database Search for VOC

Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	* 481.37 TPY is an aggregate limit for all four dry kilns. Kiln 4 not constructed. See below. Subsequent to the issuance of PSD-LA-627(M-3), Weyerhaeuser determined that the Dodson Division could produce 265 million board feet per year of lumber using just the 3 existing kilns. Therefore, Dry Kiln 4 (051, EQT 32) will not be constructed and was removed from the permit with PSD-LA-627(M-4), issued November 3, 2016. In addition, the VOC BACT limits for the Wood-Fired Boiler (017, EQT 6) were revised to 3.45 lb/hr and 11.80 TPY. The new limits account for several toxic air pollutants that were inadvertently excluded from the VOC total.

Summary of Results of RBLC Database Search for VOC

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/2000
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAM FOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSE DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEW WHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MODS WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED T INSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. THEMONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	KILNS, DRY LUMBER, 5
Process Type	30.8
Primary Fuel	WOOD
Throughput	222.5
	MMBF/YR
Process Notes	THROUGHPUT IS COMBINED FOR ALL 5 KILNS. INDIVIDUAL MAX IS = 44,500 MBF/YR. FUEL IS WOOD WITH AN LPG IGNITOR. KILNS ARE EMISSION POINTS: AA-002, AA-003, AA-004, AA-005, AA-006.
Pollutant	VOC
Control Method Code	P
Control Method Description	ANNUAL THROUGHPUT LIMITS. NO ADD ON CONTROLS FEASIBLE.
Emission Limit 1	4.2
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	lbs as carbon/mbf
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	467.5
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	combined 5 kilns
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/2000
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAM FOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSE DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEW WHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MODS WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED T INSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. THEMONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	KILN, DRY LUMBER, AA-007
Process Type	30.8
Primary Fuel	WOOD
Throughput	35
	MMBF/YR
Process Notes	KILN NO. 6. FUEL IS WOOD WITH AN LPG IGNITER. THIS AN ADDITIONAL KILN. MOST OF THE LIMITS FOR THIS KILN WERE SET IN A PREVIOUS PSD PERMIT, THE PM/PM10 LIMITS HAVE BEEN LOWERED IN THIS PERMIT.
Pollutant	VOC
Control Method Code	P
Control Method Description	THROUGHPUT LIMIT, NO ADD ON CONTROLS FEASIBLE.
Emission Limit 1	4.2
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	lbs as carbon/mbf
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	73.5
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/2013
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	LUMBER DRYING KILNS EU007
Process Type	30.8
Primary Fuel	
Throughput	700
	MILLION BOARD FT/YR
Process Notes	
Pollutant	VOC
Control Method Code	N
Control Method Description	
Emission Limit 1	3.5
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/2006
Facility Description	DESIGNED TO PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	7 DRY KILNS
Process Type	30.8
Primary Fuel	
Throughput	300
	MM BOARD F/YR
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	COMPUTERIZED STEAM MANAGEMENT SYSTEM
Emission Limit 1	54
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	12 MONTH ROLLING AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/2006
Facility Description	DESIGNED TO PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	7.DRY KILNS
Process Type	30.8
Primary Fuel	
Throughput	300 MM BOARD F/YR
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	COMPUTERIZED STEAM MANAGEMENT SYSTEM
Emission Limit 1	54
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	12 MONTH ROLLING AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for VOC

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/2005
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	ROTARY AND FUEL DRYER PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	65.6
	T/H
Process Notes	THE ROTARY DRYERS SHALL PROCESS NO MORE THAN 347,698 DRY TONS WOOD PER YEAR FORM THE OUTLET OF THE DRYERS, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE ROTARY DRYERS SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS. THE FUEL DRYER SHALL PROCESS NO MORE THAN 173,849 DRY TONS WOOD PER YEAR FROM THE OUTLET OF THE FUEL DRYER CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE FUEL DRYER SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FO THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	VOC
Control Method Code	B
Control Method Description	WOOD FIRED THERMAL OXIZIDERS FOR ROTARY DRYERS
Emission Limit 1	37.8
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	99
Emission Limit 2	141.9
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL DRYERS

Summary of Results of RBLC Database Search for VOC

RBLC ID	VT-0037
Facility Name	BEAVER WOOD ENERGY FAIR HAVEN
Facility State	VT
Permit Number	AP-11-015
Permit Issuance Date	2/10/2012
Facility Description	PROPOSED 34 MW (GROSS) WOOD FIRED EGU CO-LOCATED WITH A 115,000 TON/YR WOOD PELLET MANUFACTURING PLANT.
Permit Notes	A PERMIT EXTENSION WAS ISSUED ON 8/5/2013. THE CONSTRUCTION PERMIT IS NOW VALID UNTIL 2/10/2015.
Process Name	Pellet Plant - burner & rotary dryer
Process Type	30.999
Primary Fuel	wood
Throughput	115000
	T/YR
Process Notes	Throughput is for finished wood pellet product. There is a wood fired heating unit, using a Coen LowNOx burner rated at 30 MMBtu/hr used to provide hot air/exhaust for the drying of wood in the rotary dryer. Additional drying heat for the rotary dryer will come from a portion of the exhaust gas from the Main Boiler at the facility.
Pollutant	VOC
Control Method Code	P
Control Method Description	Good combustion control in the burner unit, and limiting the inlet temperature to the rotary dryer.
Emission Limit 1	0.69
Emission Limit 1 Unit	LB/ODT
Emission Limit 1 Avg Time Condition	HOURLY AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	The limit is lbs of VOC per oven dry ton of wood output from the rotary dryer. Dryer inlet temperature limit will be established in the operating permit.

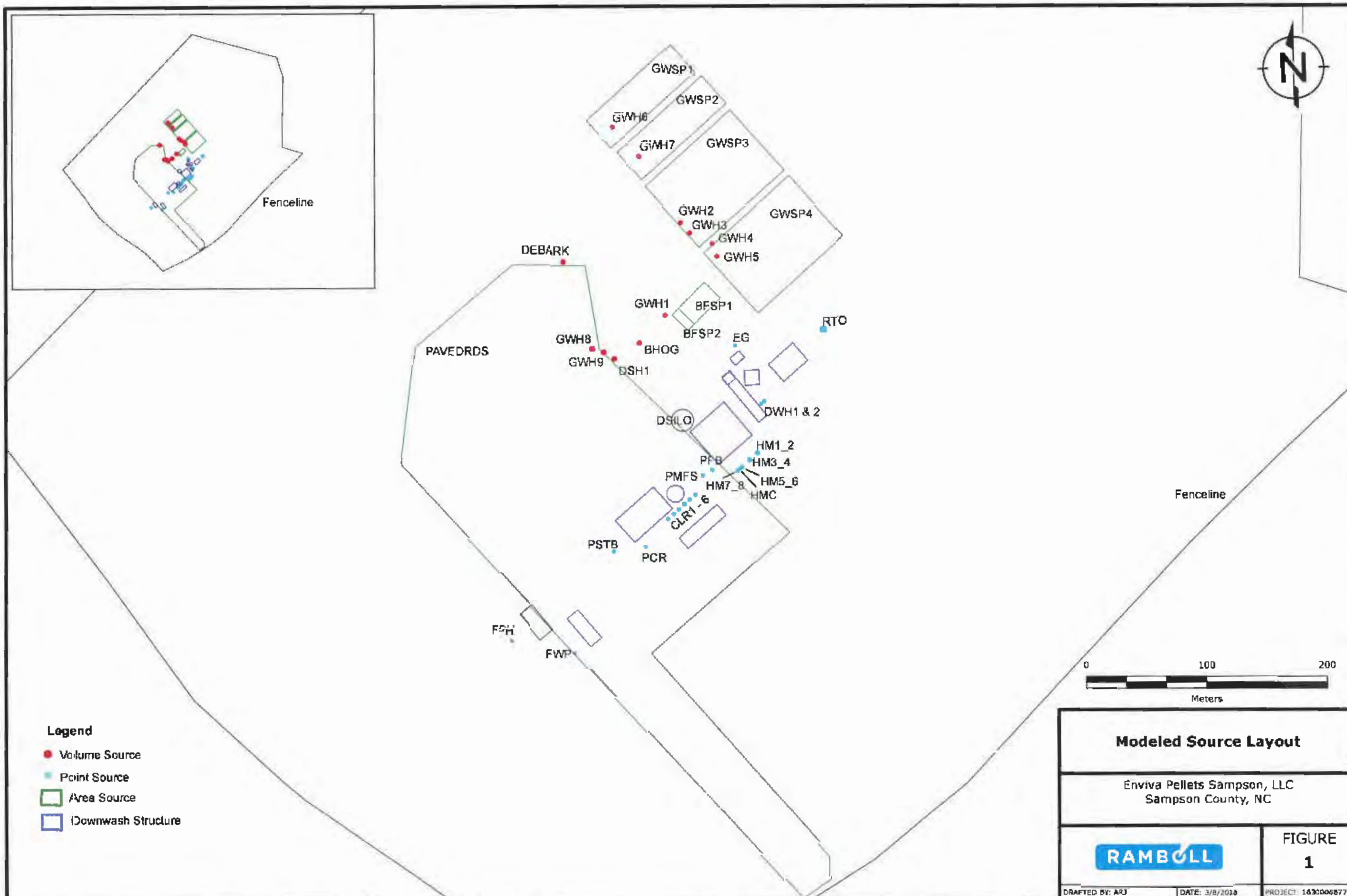
Summary of Results of RBLC Database Search for VOC

RBLC ID	VT-0037
Facility Name	BEAVER WOOD ENERGY FAIR HAVEN
Facility State	VT
Permit Number	AP-11-015
Permit Issuance Date	2/10/2012
Facility Description	34 MW (GROSS) WOOD FIRED EGU CO-LOCATED WITH A 115,000 TON/YR WOOD PELLET MANUFACTURING PLANT
Permit Notes	A PERMIT EXTENSION WAS ISSUED ON 8/5/2013. THE CONSTRUCTION PERMIT IS NOW VALID UNTIL 2/10/2015.
Process Name	Pellet Plant - burner & rotary dryer
Process Type	30.999
Primary Fuel	wood
Throughput	115000 T/YR
Process Notes	Throughput is for finished wood pellet product. There is a wood fired heating unit, using a Coen LowNOx burner rated at 30 MMBtu/hr used to provide hot air/exhaust for the drying of wood in the rotary dryer. Additional drying heat for the rotary dryer will come from a portion of the exhaust gas from the Main Boiler at the facility.
Pollutant	VOC
Control Method Code	P
Control Method Description	Good combustion control in the burner unit, and limiting the inlet temperature to the rotary dryer.
Emission Limit 1	0.69
Emission Limit 1 Unit	LB/ODT
Emission Limit 1 Avg Time Condition	HOURLY AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	The limit is lbs of VOC per oven dry ton of wood output from the rotary dryer. Dryer inlet temperature limit will be established in the operating permit.

Summary of Results of RBLC Database Search for VOC

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/2006
Facility Description	DESIGNED TO PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	ANTI-MOLD SPRAY SYSTEM
Process Type	30.999
Primary Fuel	
Throughput	300
	MM F/YR
Process Notes	
Pollutant	VOC
Control Method Code	P
Control Method Description	DRIP-FREE DESIGN
Emission Limit 1	9
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	ROLLING TWELVE AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

APPENDIX H
MODELING FIGURES



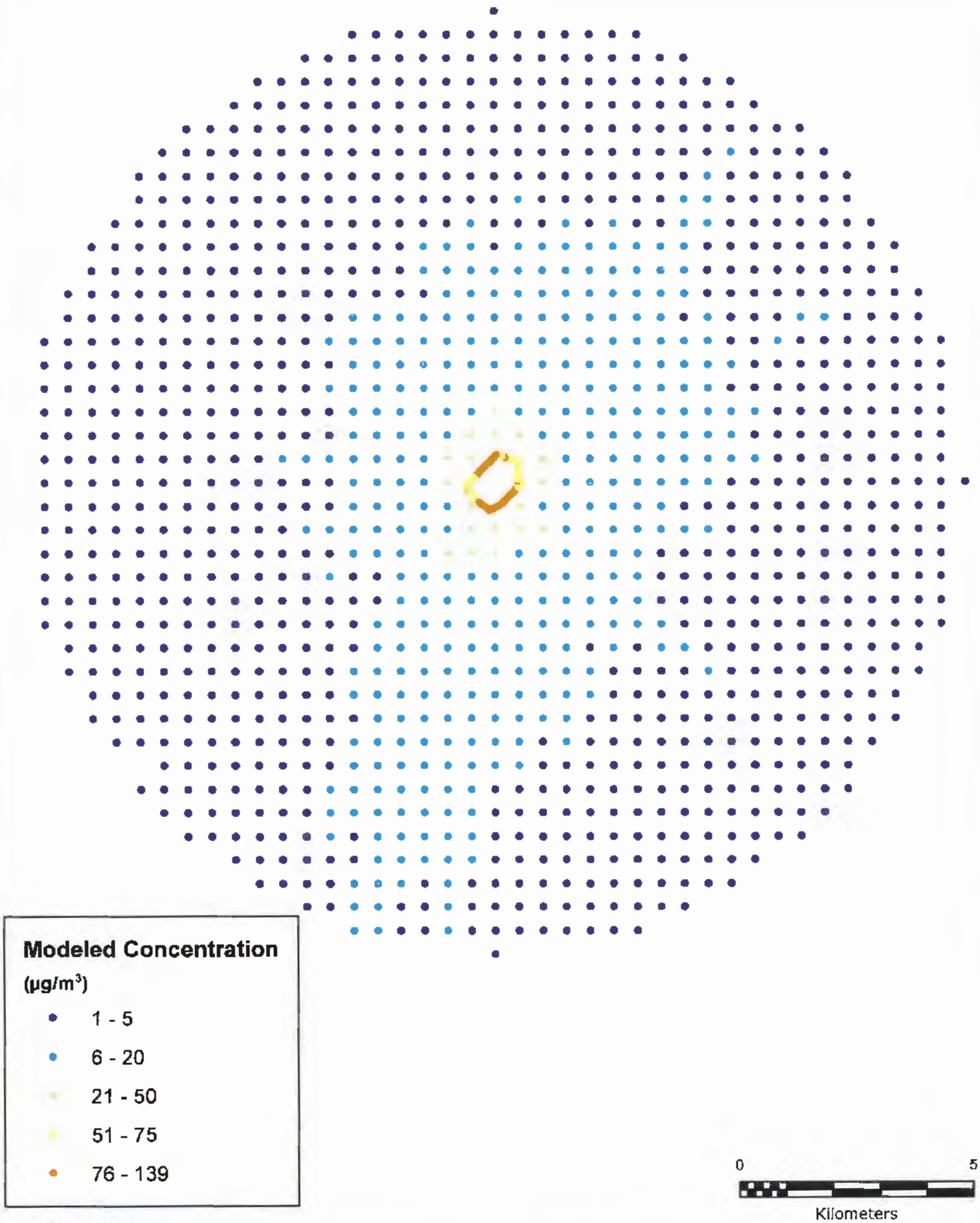
Modeled Source Layout

Enviva Pellets Sampson, LLC
Sampson County, NC

RAMBOLL

FIGURE 1

DRAFTED BY: ARJ | DATE: 3/8/2018 | PROJECT: 1630006877



H1H concentration

RAMBOLL

DRAFTED BY: ARJ

DATE: 3/9/2018

24-hour TSP Modeled Concentrations

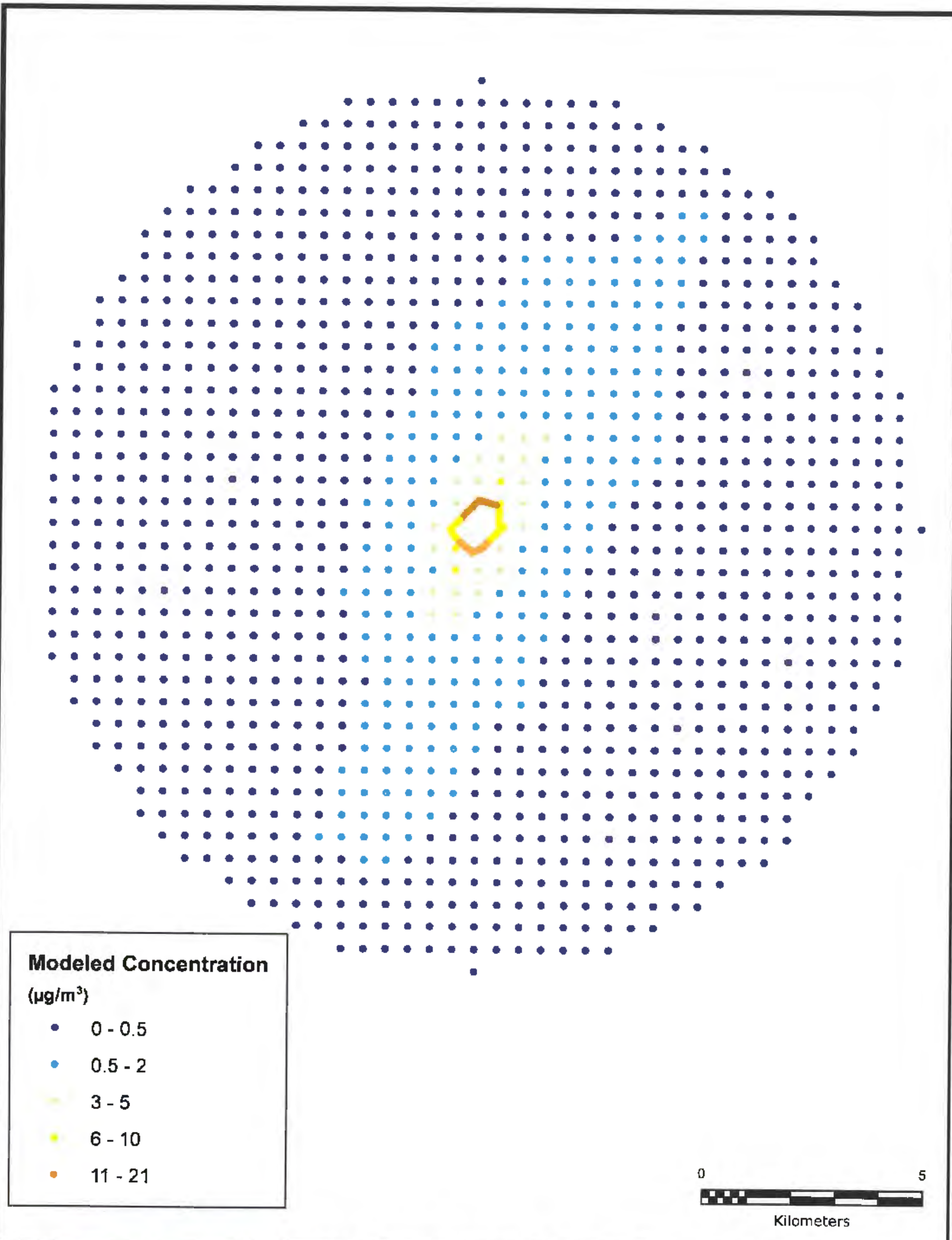
Enviva Pellets Sampson, LLC

Sampson County, NC

FIGURE

2

PROJECT: 1630006877



RAMBOLL

DRAFTED BY: ARJ | DATE: 3/9/2018

Annual TSP Modeled Concentrations
Enviva Pellets Sampson, LLC
Sampson County, NC

FIGURE
3

PROJECT: 1630006877

APPENDIX I
SUPPORTING DOCUMENTATION FOR AIR DISPERION MODELING ANALYSIS

Please see flash drive included with the application materials for Appendix I material.

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/17
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	15.4 MBF/HR CDK (DPK-1) W/ 38.8 MMBTU/HR NATURAL GAS BURNER
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	15.4
	MBF/H
Process Notes	CONTINUOUS DIRECT-FIRED KILN WITH NATURAL GAS BURNER AND NATURAL GAS CONDENSATE EVAPORATOR
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	1.3
Emission Limit 1 Unit	LB
Emission Limit 1 Avg Time Condition	HR
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/17
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	15.4 MBF/HR CDK (DPK-2) W/ 38.8 MMBTU/HR NATURAL GAS BURNER
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	15.4
	MBF/H
Process Notes	15.4 MBF/HR CONTINUOUS DIRECT-FIRED KILN WITH 38.8 MMBTU/HR NATURAL GAS BURNER AND NATURAL GAS CONDENSATE EVAPORATOR
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	1.3
Emission Limit 1 Unit	LB
Emission Limit 1 Avg Time Condition	HR
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0310
Facility Name	FULTON SAWMILL
Facility State	AL
Permit Number	X007 & X008
Permit Issuance Date	6/8/17
Facility Description	SOUTHERN YELLOW PINE SAWMILL WITH PLANER MILL AND LUMBER DRYING KILNS
Permit Notes	X007: 11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN WITH 40 MMBTU/HR NATURAL GAS-FIRED BURNER AND ASSOCIATED 4 MMBTU/HR NATURAL GAS-FIRED KILN CONDENSATE EVAPORATOR X008: PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Name	11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN, 40 MMBTU/HR NATURAL GAS BURNER; 4 MMBTU/HR NATURAL GAS CONDENSATE EVAPORATOR
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	11.4
	MBF/H
Process Notes	A DIRECT FIRED CONTINUOUS KILN (CDK) WHICH IS HEATED BY A 40 MMBTU/HR NATURAL GAS BURNER. KILN CONDENSATE FROM THE CDK IS SENT TO A CONDENSATE EVAPORATOR. THE EVAPORATOR IS HEATED BY A 4 MMBTU/HR NATURAL GAS BURNER.
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	LUMBER DRYING KILN SN-01
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	45
	MMBTU/H
Process Notes	SN-02 DIRECT-FIRED, MAX 18.5 MBF/HR, LOW NOX BURNERS
Pollutant	PM
Control Method Code	N
Control Method Description	PROPER MAINTENANCE AND OPERATION AND NATURAL GAS (CLEAN FUEL)
Emission Limit 1	0.022
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	7.6
Emission Limit 2 Unit	LB/MMSCF
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	LUMBER DRYING KILN SN-02
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	45
	MMBTU/H
Process Notes	SN-02, DIRECT-FIRED, MAX 18.5 MBF/HR, LOW-NOX BURNERS
Pollutant	PM
Control Method Code	N
Control Method Description	PROPER MAINTENANCE AND OPERATION AND NATURAL GAS (CLEAN FUEL)
Emission Limit 1	0.022
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	7.6
Emission Limit 2 Unit	LB/MMSCF
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	LUMBER DRYING KILN SN-03
Process Type	30.8
Primary Fuel	NATURAL GAS
Throughput	45
	MMBTU/H
Process Notes	SN-03, DIRECT-FIRED, MAX 18.5 MBF/HR, LOW-NOX BURNERS
Pollutant	PM
Control Method Code	N
Control Method Description	PROPER MAINTENANCE AND OPERATION AND NATURAL GAS (CLEAN FUEL)
Emission Limit 1	0.022
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	7.6
Emission Limit 2 Unit	LB/MMSCF
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/00
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAM FOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSE DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEW WHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MODS WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED T INSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. THEMONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	KILNS, DRY LUMBER, 5
Process Type	30.8
Primary Fuel	WOOD
Throughput	222.5
	MMBF/YR
Process Notes	THROUGHPUT IS COMBINED FOR ALL 5 KILNS. INDIVIDUAL MAX IS = 44,500 MBF/YR. FUEL IS WOOD WITH AN LPG IGNITOR. KILNS ARE EMISSION POINTS: AA-002, AA-003, AA-004, AA-005, AA-006.
Pollutant	PM
Control Method Code	P
Control Method Description	GOOD COMBUSTION CONTROL. NO OTHER CONTROLS FEASIBLE, HAVE ESTABLISHED EMISSION LIMITS.
Emission Limit 1	0.61
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	68
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	combined, 5 kilns
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/00
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAMFOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSER DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEWWHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MOD WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED TOINSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. TH MONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	KILN, DRY LUMBER, AA-007
Process Type	30.8
Primary Fuel	WOOD
Throughput	35
	MMBF/YR
Process Notes	KILN NO. 6. FUEL IS WOOD WITH AN LPG IGNITER. THIS AN ADDITIONAL KILN. MOST OF THE LIMITS FOR THIS KILN WERE SET IN A PREVIOUS PSD PERMIT, THE PM/PM10 LIMITS HAVE BEENLOWERED IN THIS PERMIT.
Pollutant	PM
Control Method Code	P
Control Method Description	GOOD COMBUSTION CONTROL. NO CONTROLS FEASIBLE.
Emission Limit 1	0.61
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	10.7
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/00
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAMFOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSER DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEWWHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MOD WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED TOINSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. TH MONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	KILNS, DRY LUMBER, 5
Process Type	30.8
Primary Fuel	WOOD
Throughput	222.5
	MMBF/YR
Process Notes	THROUGHPUT IS COMBINED FOR ALL 5 KILNS. INDIVIDUAL MAX IS = 44,500 MBF/YR. FUEL IS WOOD WITH AN LPG IGNITOR. KILNS ARE EMISSION POINTS: AA-002, AA-003, AA-004, AA-005, AA-006.
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	GOOD COMBUSTION CONTROL
Emission Limit 1	0.61
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	68
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	combined 5 kilns
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/00
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAMFOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSER DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEWWHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MOD WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED TOINSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. TH MONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	KILN, DRY LUMBER, AA-007
Process Type	30.8
Primary Fuel	WOOD
Throughput	35
	MMBF/YR
Process Notes	KILN NO. 6. FUEL IS WOOD WITH AN LPG IGNITER. THIS AN ADDITIONAL KILN. MOST OF THE LIMITS FOR THIS KILN WERE SET IN A PREVIOUS PSD PERMIT, THE PM/PM10 LIMITS HAVE BEENLOWERED IN THIS PERMIT.
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	GOOD COMBUSTION CONTROL. NO CONTROLS FEASIBLE.
Emission Limit 1	0.61
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	10.9
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	LUMBER DRYING KILNS EU007
Process Type	30.8
Primary Fuel	
Throughput	700
	MILLION BOARD FT/YR
Process Notes	
Pollutant	PM (fugitive)
Control Method Code	N
Control Method Description	
Emission Limit 1	0.022
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	Note from RBLC Reviewer: Pollutant entered is no longer a valid pollutant (to general) it was changed to Particulate Matter, Fugitive.

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	LUMBER DRYING KILNS EU007
Process Type	30.8
Primary Fuel	
Throughput	700
	MILLION BOARD FT/YR
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	0.013
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	LUMBER DRYING KILNS EU007
Process Type	30.8
Primary Fuel	
Throughput	700 MILLION BOARD FT/YR
Process Notes	
Pollutant	PM2.5 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	0.004
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/06
Facility Description	PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	7.DRY KILNS
Process Type	30.8
Primary Fuel	
Throughput	300
	MM BOARD F/YR
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	4
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	12 MONTH ROLLING AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/06
Facility Description	PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	7 DRY KILNS
Process Type	30.8
Primary Fuel	
Throughput	300 MM BOARD F/YR
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	4
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	12 MONTH ROLLING AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/17
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	PLANER MILL
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	PLANER MILL OPERATIONS WITH A SHAVINGS STORAGE BIN AND A CYCLOFILTER
Pollutant	PM
Control Method Code	A
Control Method Description	CYCLOFILTER: COMBINED CYCLONE AND BAGHOUSE CONTROL DEVICE
Emission Limit 1	0.048
Emission Limit 1 Unit	LB
Emission Limit 1 Avg Time Condition	HR
Case-by-Case Basis	N/A
Percent Efficiency	99.95
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/17
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	SAWMILL
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	SAWMILL AND GREEN END OPERATIONS
Pollutant	PM (fugitive)
Control Method Code	N
Control Method Description	
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	N/A
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/17
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	PLANER MILL
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	PLANER MILL OPERATIONS WITH A SHAVINGS STORAGE BIN AND A CYCLOFILTER
Pollutant	PM10
Control Method Code	A
Control Method Description	CYCLOFILTER: CYCLONE AND BAGHOUSE COMBINATION
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	N/A
Percent Efficiency	99.95
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0308
Facility Name	TWO RIVERS LUMBER CO., LLC
Facility State	AL
Permit Number	105-S007-X002
Permit Issuance Date	1/3/17
Facility Description	SOFTWOOD SAWMILL
Permit Notes	
Process Name	PLANER MILL
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	PLANER MILL OPERATIONS WITH A SHAVINGS STORAGE BIN AND A CYCLOFILTER
Pollutant	PM10
Control Method Code	A
Control Method Description	CYCLOFILTER: CYCLONE AND BAGHOUSE COMBINATION
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	N/A
Percent Efficiency	99.95
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0310
Facility Name	FULTON SAWMILL
Facility State	AL
Permit Number	X007 & X008
Permit Issuance Date	6/8/17
Facility Description	SOUTHERN YELLOW PINE SAWMILL WITH PLANER MILL AND LUMBER DRYING KILNS
Permit Notes	X007: 11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN WITH 40 MMBTU/HR NATURAL GAS-FIRED BURNER AND ASSOCIATED 4 MMBTU/HR NATURAL GAS-FIRED KILN CONDENSATE EVAPORATOR X008: PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Name	PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Type	30.999
Primary Fuel	DRY LUMBER
Throughput	240
	MMBF/YR
Process Notes	THE PLANER MILL IS WHERE KILN DRIED LUMBER IS SENT TO BE PLANED TO FINAL DIMENSIONS, GRADED, AND SORTED BEFORE BEING STORED FOR SHIPMENT. DRY SHAVINGS FROM THE PLANER MILL ARE COLLECTED AND PNEUMATICALLY CONVEYED VIA A CYCLONE TO A TRUCK LOADOUT BIN.
Pollutant	PM
Control Method Code	A
Control Method Description	PNEUMATIC CONVEYANCE SYSTEM WITH CYCLONE
Emission Limit 1	3
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HR
Case-by-Case Basis	
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	LIMIT ESTABLISHED TO AVOID BACT FOR PM

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0310
Facility Name	FULTON SAWMILL
Facility State	AL
Permit Number	X007 & X008
Permit Issuance Date	6/8/17
Facility Description	SOUTHERN YELLOW PINE SAWMILL WITH PLANER MILL AND LUMBER DRYING KILNS
Permit Notes	X007: 11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN WITH 40 MMBTU/HR NATURAL GAS-FIRED BURNER AND ASSOCIATED 4 MMBTU/HR NATURAL GAS-FIRED KILN CONDENSATE EVAPORATOR X008: PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Name	PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Type	30.999
Primary Fuel	DRY LUMBER
Throughput	240
	MMBF/YR
Process Notes	THE PLANER MILL IS WHERE KILN DRIED LUMBER IS SENT TO BE PLANED TO FINAL DIMENSIONS, GRADED, AND SORTED BEFORE BEING STORED FOR SHIPMENT. DRY SHAVINGS FROM THE PLANER MILL ARE COLLECTED AND PNEUMATICALLY CONVEYED VIA A CYCLONE TO A TRUCK LOADOUT BIN.
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	PNEUMATIC CONVEYANCE SYSTEM WITH CYCLONE
Emission Limit 1	2
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HR
Case-by-Case Basis	
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMIT ESTABLISHED TO AVOID BACT FOR PM

Summary of Results of RBLC Database Search for PM

RBLC ID	*AL-0310
Facility Name	FULTON SAWMILL
Facility State	AL
Permit Number	X007 & X008
Permit Issuance Date	6/8/17
Facility Description	SOUTHERN YELLOW PINE SAWMILL WITH PLANER MILL AND LUMBER DRYING KILNS
Permit Notes	X007: 11.4 MBF/HR CONTINUOUS DIRECT-FIRED LUMBER DRY KILN WITH 40 MMBTU/HR NATURAL GAS-FIRED BURNER AND ASSOCIATED 4 MMBTU/HR NATURAL GAS-FIRED KILN CONDENSATE EVAPORATOR X008: PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Name	PLANER MILL WITH PNEUMATIC CONVEYANCE SYSTEM AND CYCLONE
Process Type	30.999
Primary Fuel	DRY LUMBER
Throughput	240
	MMBF/YR
Process Notes	THE PLANER MILL IS WHERE KILN DRIED LUMBER IS SENT TO BE PLANED TO FINAL DIMENSIONS, GRADED, AND SORTED BEFORE BEING STORED FOR SHIPMENT. DRY SHAVINGS FROM THE PLANER MILL ARE COLLECTED AND PNEUMATICALLY CONVEYED VIA A CYCLONE TO A TRUCK LOADOUT BIN.
Pollutant	PM2.5 (filterable)
Control Method Code	A
Control Method Description	PNEUMATIC CONVEYANCE SYSTEM WITH CYCLONE
Emission Limit 1	1.8
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HR
Case-by-Case Basis	
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMIT ESTABLISHED TO AVOID BACT FOR PM

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0102
Facility Name	ANTHONY TIMBERLANDS, INC.
Facility State	AR
Permit Number	456-AOP-R4
Permit Issuance Date	9/16/09
Facility Description	SAWMILL
Permit Notes	ADDING THREE NEW INDIRECT-FIRED KILNS, ONE NEW PLANER MILL, AND INCREASING KILN DRIED LUMBER THROUGHPUT FROM 135 MMBF/YR TO 200 MMBF/YR.
Process Name	PLANER MILL #2
Process Type	30.999
Primary Fuel	NONE
Throughput	200
	MMBF/YR
Process Notes	PLANER MILL #2 IS EQUIPPED WITH A CYCLONE WHICH IS USED TO TO TRANSFER WOOD SHAVINGS (BOILER FUEL) TO THE FOUR BOILERS LOCATED AT THE FACILITY. THE TOTAL THROUGHPUT FOR PLANER MILL #1 AND PLANER MILL #2 IS 200 MMBF/YR OF LUMBER.
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	0.139
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0.28
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	NONE OF THE AVAILABLE CONTROL TECHNOLOGIES FOR PM OR PM10 WERE ECONOMICALLY FEASIBLE. THE PLANER MILL IS EQUIPPED WITH A CYCLONE. HOWEVER, THE CYCLONE IS USED TO TRANSFER SHAVINGS AS FUEL TO THE BOILERS.

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	DEBARKER SN-04
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	DEBARKER WITH HOOD ENCLOSURE
Pollutant	PM
Control Method Code	A
Control Method Description	HOOD ENCLOSURE - EFFICIENCY FROM NC-DENR
Emission Limit 1	0.02
Emission Limit 1 Unit	LB/T
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	95
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	PLANER MILL SN-06
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM
Control Method Code	B
Control Method Description	CYCLONE + BAGHOUSE AIR FLOW RATES AND OUTLET GRAIN LOADING BASED ON VENDOR TESTING - PROPER MAINTENANCE AND OPERATION
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/SCF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	99.99
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	YATES HOG MILL SN-07
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM
Control Method Code	B
Control Method Description	CYCLONE - AIR FLOW RATE AND OUTLET GRAIN LOADING, BASED ON STACK TEST - PROPER MAINTENANCE AND OPERATION
Emission Limit 1	0.001
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	TRUCK BIN SN-08
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM
Control Method Code	B
Control Method Description	CYCLONE - PROPER MAINTENANCE AND OPERATION
Emission Limit 1	0.002
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	MATERIAL PROCESSING SN-11
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM
Control Method Code	N
Control Method Description	PROPER MAINTENANCE AND OPERATION
Emission Limit 1	0.02
Emission Limit 1 Unit	LB/T
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0124
Facility Name	EL DORADO SAWMILL
Facility State	AR
Permit Number	2348-AOP-R0
Permit Issuance Date	8/3/15
Facility Description	SAWMILL
Permit Notes	AFIN: 70-00032
Process Name	PLANER MILL WOODWASTE STORAGE BIN SN-13
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM
Control Method Code	P
Control Method Description	STORAGE BIN BARRIER
Emission Limit 1	0.0011
Emission Limit 1 Unit	LB/T
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/00
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAM FOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSE DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEW WHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MODS WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED T INSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. THEMONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	SILO, WOOD FUEL, AA-010
Process Type	30.999
Primary Fuel	
Throughput	
Process Notes	Wood fuel silo receives dust from various parts of the mill. The dust is then burned in the direct fired kilns.
Pollutant	PM
Control Method Code	B
Control Method Description	PNEUMATIC DUST TRANSPORT SYSTEM (ENCLOSED) AND GOOD HOUSEKEEPING
Emission Limit 1	0.024
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	3.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	MS-0054
Facility Name	WEYERHAEUSER COMPANY
Facility State	MS
Permit Number	2280-00050
Permit Issuance Date	12/28/00
Facility Description	LUMBER MILL WITH 6 DIRECT FIRED DRY LUMBER KILNS
Permit Notes	MCCOMB WOOD PRODUCT MILL. RETROACTIVE PERMIT FOR NUMEROUS MODIFICATIONS THAT OCCURRED DURING THE 1984 TO 1997 TIME PERIOD. FACILITY PREVIOUSLY OWNED & OPERATED BY CAVENHAM FOREST PRODUCTS. BASED ON HISTORICAL REVIEW, WEYERHAEUSE DETERMINED THAT THE MILL SHOULD HAVE UNDERGONE PSD REVIEW WHEN THE MILL WAS CONSTRUCTED IN 1984 & IN 1988. MINOR MODS WERE MADE BETWEEN 1988 - 1997. THE FACILITY WAS REQUIRED T INSTALL AMBIENT AIR QUALITY MONITORS TO ESTABLISH THE AMBIENT CONCENTRATION OF PM-10 NEAR THE FACILITY. THEMONITORING WILL BE REQUIRED FOR A MINIMUM OF 2 YEARS. FACILITY TOTAL HAP EMISSIONS: 31 T/YR
Process Name	SILO, WOOD FUEL, AA-010
Process Type	30.999
Primary Fuel	
Throughput	
Process Notes	Wood fuel silo receives dust from various parts of the mill. The dust is then burned in the direct fired kilns.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	PNEUMATIC DUST TRANSPORT SYSTEM (ENCLOSED) AND GOOD HOUSEKEEPING
Emission Limit 1	0.024
Emission Limit 1 Unit	LB/MBF
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	3.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0249
Facility Name	SAUDER WOODWORKING COMPANY
Facility State	OH
Permit Number	03-16064
Permit Issuance Date	6/3/04
Facility Description	WOOD FURNITURE AND PRODUCTS
Permit Notes	ORIGINAL PSD PERMIT #03-13201 ISSUED 8/18/99 WAS MODIFIED TO ADJUST PM10 LIMITS IN PTI #03-13380, ISSUED 6/27/02, WHICH PERMITED 14 WOOD WASTE HANDLING SYSTEMS, A LAMINATION PROCESS, AND 453 INK ROLLERS. PTI #03-13380 EXPIRED (SOURCES WERE NOT INSTALLED) AND NEW APPLICATION FOR ONLY 7 WOOD WASTE HANDLING SYSTEMS AND THE LAMINATION PROCESS WAS RE-ISSUED UNDER PTI #03-16064 ISSUED 6/3/04. TOTAL FACILITY PM LIMIT IS PM10. PM LIMIT IS 75.92 TPY
Process Name	WOOD WASTE HANDLING
Process Type	30.999
Primary Fuel	
Throughput	72000 ACFM
Process Notes	23 wood waste handling systems, all baghouse systems with 0.0042 gr PM/dscf and 0.0030 gr PM10/dscf. 20,280 to 72,000 acfm. Monitor pressure drop across the handling system.
Pollutant	PM
Control Method Code	A
Control Method Description	BAGHOUSES
Emission Limit 1	2.59
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	72,000 ACFM UNIT
Case-by-Case Basis	N/A
Percent Efficiency	99
Emission Limit 2	11.34
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	72,000 ACFM UNIT
Standard Emission Limit	0.0042
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	PM/H LIMITS VARY DEPENDING ON SIZE OF UNIT; ABOVE LIMIT IS FOR EACH OF SIX 72,000 ACFM UNITS; LIMIT FOR ONE 50,000 ACFM UNIT IS 1.80 LB/H AND 7.88 T/YR. PM INCLUDES PM10.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0249
Facility Name	SAUDER WOODWORKING COMPANY
Facility State	OH
Permit Number	03-16064
Permit Issuance Date	6/3/04
Facility Description	WOOD FURNITURE AND PRODUCTS
Permit Notes	ORIGINAL PSD PERMIT #03-13201 ISSUED 8/18/99 WAS MODIFIED TO ADJUST PM10 LIMITS IN PTI #03-13380, ISSUED 6/27/02, WHICH PERMITED 14 WOOD WASTE HANDLING SYSTEMS, A LAMINATION PROCESS, AND 453 INK ROLLERS. PTI #03-13380 EXPIRED (SOURCES WERE NOT INSTALLED) AND NEW APPLICATION FOR ONLY 7 WOOD WASTE HANDLING SYSTEMS AND THE LAMINATION PROCESS WAS RE-ISSUED UNDER PTI #03-16064 ISSUED 6/3/04. TOTAL FACILITY PM LIMIT IS PM10. PM LIMIT IS 75.92 TPY
Process Name	WOOD WASTE HANDLING
Process Type	30.999
Primary Fuel	
Throughput	72000 ACFM
Process Notes	23 wood waste handling systems, all baghouse systems with 0.0042 gr PM/dscf and 0.0030 gr PM10/dscf. 20,280 to 72,000 acfm. Monitor pressure drop across the handling system.
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSES
Emission Limit 1	1.85
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	72,000 ACFM UNIT
Case-by-Case Basis	BACT-PSD
Percent Efficiency	99
Emission Limit 2	8.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	72,000 ACFM UNIT
Standard Emission Limit	0.003
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	PM/H LIMITS VARY DEPENDING ON SIZE OF UNIT; ABOVE LIMIT IS FOR EACH OF SIX 72,000 ACFM UNITS; LIMIT FOR ONE 50,000 ACFM UNIT IS 1.29 LB/H AND 5.65 T/YR.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0269
Facility Name	BIOMASS ENERGY, LLC-SOUTH POINT POWER
Facility State	OH
Permit Number	07-00534
Permit Issuance Date	1/5/04
Facility Description	SEVEN BOILERS PURCHASED FROM AN ETHANOL PLANT AND RETROFIT TO BURN WOOD OR WOOD WASTE TO GENERATE POWER
Permit Notes	SEVEN BOILERS PURCHASED FROM AN ETHANOL PLANT, REBUILDING TO BURN WOOD AND TO GENERATE POWER, USING WOOD WASTE
Process Name	WOOD HANDLING SYSTEM
Process Type	30.999
Primary Fuel	
Throughput	130495 ACFM
Process Notes	THE BAGHOUSE STACK NOT TO EXCEED 0.004 GRAINS/DSCF. ENCLOSED HANDLING SYSTEM, IN BUILDING.
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	6.71
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	29.34
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	PER ROLLING 12 MONTHS
Standard Emission Limit	0.0064
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	SYSTEM ENCLOSED IN BUILDING.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0307
Facility Name	SOUTH POINT BIOMASS GENERATION
Facility State	OH
Permit Number	07-00534
Permit Issuance Date	4/4/06
Facility Description	SEVEN BOILERS PURCHASED FROM AN ETHANOL PLANT AND RETROFIT TO BURN WOOD OR WOOD WASTE TO GENERATE POWER
Permit Notes	
Process Name	WOOD HANDLING SYSTEM
Process Type	30.999
Primary Fuel	
Throughput	
Process Notes	WOOD HANDLING INCLUDES MANY TRANSFER POINTS AND MANY BAGHOUSES, SOME OF WHICH INCLUDE TRUCK HOPPERS, WOOD RECEIVING AND STORAGE, 3 TRANSFER TOWERS, 2 TRIPPER FLOOR POINTS, AND TRANSFER CONVEYOR
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE, ONE AT EACH TRANSFER POINT
Emission Limit 1	6.71
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	29.34
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	BASED ON A 12-MONTH SUMMATION OF MONTHLY
Standard Emission Limit	0.0064
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	OF EXHAUST GASES
Pollutant Compliance Notes	CONTROL EFFICIENCY NOT MENTIONED. INSTEAD REQUIREMENT OF 0.0064 GRAINS/DSCF OF EXHAUST GASES FOR ALL BAGHOUSES.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0307
Facility Name	SOUTH POINT BIOMASS GENERATION
Facility State	OH
Permit Number	07-00534
Permit Issuance Date	4/4/06
Facility Description	SEVEN BOILERS PURCHASED FROM AN ETHANOL PLANT AND RETROFIT TO BURN WOOD OR WOOD WASTE TO GENERATE POWER
Permit Notes	
Process Name	WOOD HANDLING SYSTEM
Process Type	30.999
Primary Fuel	
Throughput	
Process Notes	WOOD HANDLING INCLUDES MANY TRANSFER POINTS AND MANY BAGHOUSES, SOME OF WHICH INCLUDE TRUCK HOPPERS, WOOD RECEIVING AND STORAGE, 3 TRANSFER TOWERS, 2 TRIPPER FLOOR POINTS, AND TRANSFER CONVEYOR
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE, ONE AT EACH TRANSFER POINT
Emission Limit 1	6.71
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	29.34
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	BASED ON A 12-MONTH SUMMATION OF MONTHLY
Standard Emission Limit	0.0064
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	OF EXHAUST GASES
Pollutant Compliance Notes	CONTROL EFFICIENCY NOT MENTIONED. INSTEAD REQUIREMENT OF 0.0064 GRAINS/DSCF OF EXHAUST GASES FOR ALL BAGHOUSES.

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0111
Facility Name	FLAKEBOARD AMERICA LIMITED - BENNETTSVILLE MDF
Facility State	SC
Permit Number	1680-0046-CU
Permit Issuance Date	12/22/09
Facility Description	MANUFACTURES MEDIUM DENSITY FIBERBOARD (MDF) FOR USE PRIMARILY IN THE FURNITURE MANUFACTURING INDUSTRY
Permit Notes	
Process Name	SANDERDUST SILO
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	STORES RESINATED SANDERDUST FOR USE IN THE SANDERDUST BOILER. EQUIPPED WITH A BAGHOUSE
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMIT IS NOT FEASIBLE AS THE SILO IS NOT TESTABLE.

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	DRY SHAVING STORAGE SILO EU009
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	SILO FOR STORAGE OF DRY SHAVINGS
Pollutant	PM (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	3-HOUR
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	METHOD 5 FOR FILTERABLE PM

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	DRY SHAVINGS STORAGE SILO EU010
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	3-HOUR
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	METHOD 5 FOR FILTERABLE PM

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	DRY SHAVING STORAGE SILO EU009
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	SILO FOR STORAGE OF DRY SHAVINGS
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	3-HOUR
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	METHOD 5 FOR FILTERABLE PM

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	DRY SHAVINGS STORAGE SILO EU010
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	3-HOUR
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	METHOD 5 FOR FILTERABLE PM

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	DRY SHAVING STORAGE SILO EU009
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	SILO FOR STORAGE OF DRY SHAVINGS
Pollutant	PM2.5 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	3-HOUR
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	METHOD 5 FOR FILTERABLE PM

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0149
Facility Name	KLAUSNER HOLDING USA, INC
Facility State	SC
Permit Number	1860-0128-CA
Permit Issuance Date	1/3/13
Facility Description	700 MILLION BOARD FOOT PER YEAR LUMBER MILL
Permit Notes	
Process Name	DRY SHAVINGS STORAGE SILO EU010
Process Type	30.999
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM2.5 (filterable)
Control Method Code	A
Control Method Description	BAGHOUSE
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	3-HOUR
Case-by-Case Basis	OTHER CASE-BY-CASE
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	METHOD 5 FOR FILTERABLE PM

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0295
Facility Name	YORKTOWNE CABINETRY INC
Facility State	VA
Permit Number	32035
Permit Issuance Date	5/23/05
Facility Description	WOOD FURNITURE MANUFACTURING FACILITY
Permit Notes	EQUIPMENT TO BE CONSTRUCTED AT THIS FACILITY CONSISTS OF: WOODWORKING EQUIPMENT (SAWS, PLANERS,SANDERS, ROUTER, ETC.) CONTROLLED BY FABRIC FILTERS (BH1, BH2, AND BH3) WITH TOTAL AIR HANDLING CAPACITY RATED AT 186,000 CFM. TOTAL FACILITY FINISHING EQUIPMENT CONSISTING OF 19 MANUALLY OPERATED SPRAY BOOTHS AND A ROLL COATING LINE, WITH A COMBINED RATED CAPACITY OF 117 CABINETS PER HOUR.
Process Name	WOOD CABINET PRODUCTION
Process Type	30.999
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	PARTICULATE EMISSIONS FROM THE WOODWORKING EQUIPMENT ARE CONTROLLED BY FABRIC FILTERS (BH1, BH2, AND BH3). FILTERS WILL BE EQUIPPED WITH DEVICES TO CONTINUOUSLY MEASURE THE DIFFERENTIAL PRESSURE DROP ACROSS THE FILTERS.
Emission Limit 1	0.004
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	EACH FABRIC FILTER
Case-by-Case Basis	MACT
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	THE EMISSION RATES FOR ONE OF TWO FILTERS (BH1 AND BH2) = 4.16 T/YR. FOR BH3 = 2.9 T/YR.

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	ROTARY AND FUEL DRYER PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	65.6
	T/H
Process Notes	THE ROTARY DRYERS SHALL PROCESS NO MORE THAN 347,698 DRY TONS WOOD PER YEAR FORM THE OUTLET OF THE DRYERS, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE ROTARY DRYERS SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS. THE FUEL DRYER SHALL PROCESS NO MORE THAN 173,849 DRY TONS WOOD PER YEAR FROM THE OUTLET OF THE FUEL DRYER CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE FUEL DRYER SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FO THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES CEM SYSTEM
Emission Limit 1	13.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	52.2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR THE 2 DRYERS AND 1 FUEL DRYER

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	4 FINAL GRIND HAMMERMILL PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	52
	T/H
Process Notes	THE FINAL GRIND HAMMERMILLS SHALL PROCESS NO MORE THATN 404,545 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	BAGHOUSE
Emission Limit 1	1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	Other Case-by-Case
Percent Efficiency	99
Emission Limit 2	4.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0.01
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL HAMMERMILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	RAW MATERIAL UNLOADING
Process Type	30.999
Primary Fuel	WOOD/WOOD PASTE
Throughput	121
	T/H
Process Notes	THE RAW MATERIALS UNLOADING SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD COMPLIANCE OF THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	12.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	47.5
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PRIMARY GRIND HAMMERMILLS
Process Type	30.999
Primary Fuel	WOOD
Throughput	121
	T/H
Process Notes	THE PRIMARY GRIND HAMMERMILLS SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES AND CEM SYSTEM
Emission Limit 1	14.5
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	57
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSIONS ARE FOR ONE OF THREE HAMMERMILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PELLET MILLS PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	51
	T/YR
Process Notes	THE PELLET MILLS1 THROUGH 16 SHALL PROCESS NO MORE THAN 395,836 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	CYCLONES
Emission Limit 1	10.2
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	39.6
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL PELLET MILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PEANUT HULL UNLOADING
Process Type	30.999
Primary Fuel	WOOD
Throughput	3
	T/H
Process Notes	THE PEANUT HULL UNLOADING SHALL PROCESS NO MORE THAN 20,000 TONS (50%MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	0.6
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	ROTARY AND FUEL DRYER PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	65.6
	T/H
Process Notes	THE ROTARY DRYERS SHALL PROCESS NO MORE THAN 347,698 DRY TONS WOOD PER YEAR FORM THE OUTLET OF THE DRYERS, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE ROTARY DRYERS SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS. THE FUEL DRYER SHALL PROCESS NO MORE THAN 173,849 DRY TONS WOOD PER YEAR FROM THE OUTLET OF THE FUEL DRYER CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE FUEL DRYER SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FO THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES CEM SYSTEM
Emission Limit 1	13.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	52.2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR THE 2 DRYERS AND 1 FUEL DRYER

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	4 FINAL GRIND HAMMERMILL PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	52
	T/H
Process Notes	THE FINAL GRIND HAMMERMILLS SHALL PROCESS NO MORE THATN 404,545 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	BAGHOUSE
Emission Limit 1	1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	Other Case-by-Case
Percent Efficiency	99
Emission Limit 2	4.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0.01
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL HAMMERMILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	RAW MATERIAL UNLOADING
Process Type	30.999
Primary Fuel	WOOD/WOOD PASTE
Throughput	121
	T/H
Process Notes	THE RAW MATERIALS UNLOADING SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD COMPLIANCE OF THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	12.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	47.5
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PRIMARY GRIND HAMMERMILLS
Process Type	30.999
Primary Fuel	WOOD
Throughput	121
	T/H
Process Notes	THE PRIMARY GRIND HAMMERMILLS SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES AND CEM SYSTEM
Emission Limit 1	14.5
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	57
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSIONS ARE FOR ONE OF THREE HAMMERMILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PELLET MILLS PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	51
	T/YR
Process Notes	THE PELLET MILLS1 THROUGH 16 SHALL PROCESS NO MORE THAN 395,836 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	B
Control Method Description	CYCLONES
Emission Limit 1	10.2
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	39.6
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL PELLET MILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PEANUT HULL UNLOADING
Process Type	30.999
Primary Fuel	WOOD
Throughput	3
	T/H
Process Notes	THE PEANUT HULL UNLOADING SHALL PROCESS NO MORE THAN 20,000 TONS (50%MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM
Control Method Code	N
Control Method Description	
Emission Limit 1	0.6
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	ROTARY AND FUEL DRYER PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	65.6
	T/H
Process Notes	THE ROTARY DRYERS SHALL PROCESS NO MORE THAN 347,698 DRY TONS WOOD PER YEAR FORM THE OUTLET OF THE DRYERS, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE ROTARY DRYERS SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS. THE FUEL DRYER SHALL PROCESS NO MORE THAN 173,849 DRY TONS WOOD PER YEAR FROM THE OUTLET OF THE FUEL DRYER CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE FUEL DRYER SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FO THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES AND CEM SYSTEM
Emission Limit 1	13.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	52.2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR 2 DRYERS AND ONE FUEL DRYER

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	4 FINAL GRIND HAMMERMILL PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	52
	T/H
Process Notes	THE FINAL GRIND HAMMERMILLS SHALL PROCESS NO MORE THATN 404,545 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	BAGHOUSE
Emission Limit 1	1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	Other Case-by-Case
Percent Efficiency	99
Emission Limit 2	4.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0.01
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	RAW MATERIAL UNLOADING
Process Type	30.999
Primary Fuel	WOOD/WOOD PASTE
Throughput	121
	T/H
Process Notes	THE RAW MATERIALS UNLOADING SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD COMPLIANCE OF THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	12.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	47.5
Emission Limit 2 Unit	TYR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PRIMARY GRIND HAMMERMILLS
Process Type	30.999
Primary Fuel	WOOD
Throughput	121
	T/H
Process Notes	THE PRIMARY GRIND HAMMERMILLS SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES CEM SYSTEM
Emission Limit 1	14.5
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	57
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSIONS ARE FOR ONE OF 3 HAMMERMILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PELLET MILLS PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	51
	T/YR
Process Notes	THE PELLET MILLS1 THROUGH 16 SHALL PROCESS NO MORE THAN 395,836 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	CYCLONES
Emission Limit 1	10.2
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	39.6
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL 16 PELLET MILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PEANUT HULL UNLOADING
Process Type	30.999
Primary Fuel	WOOD
Throughput	3
	T/H
Process Notes	THE PEANUT HULL UNLOADING SHALL PROCESS NO MORE THAN 20,000 TONS (50%MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	0.6
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	ROTARY AND FUEL DRYER PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	65.6
	T/H
Process Notes	THE ROTARY DRYERS SHALL PROCESS NO MORE THAN 347,698 DRY TONS WOOD PER YEAR FORM THE OUTLET OF THE DRYERS, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE ROTARY DRYERS SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS. THE FUEL DRYER SHALL PROCESS NO MORE THAN 173,849 DRY TONS WOOD PER YEAR FROM THE OUTLET OF THE FUEL DRYER CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. THE FUEL DRYER SHALL DRY WOOD WITH AN OVERALL COMPOSITION OF LESS THAN 50% SOFT WOOD. COMPLIANCE FO THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES AND CEM SYSTEM
Emission Limit 1	13.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	52.2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR 2 DRYERS AND ONE FUEL DRYER

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	4 FINAL GRIND HAMMERMILL PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	52
	T/H
Process Notes	THE FINAL GRIND HAMMERMILLS SHALL PROCESS NO MORE THATN 404,545 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	BAGHOUSE
Emission Limit 1	1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	Other Case-by-Case
Percent Efficiency	99
Emission Limit 2	4.1
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0.01
Standard Emission Limit Unit	GR/DSCF
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	RAW MATERIAL UNLOADING
Process Type	30.999
Primary Fuel	WOOD/WOOD PASTE
Throughput	121
	T/H
Process Notes	THE RAW MATERIALS UNLOADING SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD COMPLIANCE OF THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	12.1
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	47.5
Emission Limit 2 Unit	TYR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PRIMARY GRIND HAMMERMILLS
Process Type	30.999
Primary Fuel	WOOD
Throughput	121
	T/H
Process Notes	THE PRIMARY GRIND HAMMERMILLS SHALL PROCESS NO MORE THAN 949,168 TONS (50% MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	SETTING CHAMBERS AND CYCLONES CEM SYSTEM
Emission Limit 1	14.5
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	57
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSIONS ARE FOR ONE OF 3 HAMMERMILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PELLET MILLS PROCESSING
Process Type	30.999
Primary Fuel	WOOD
Throughput	51
	T/YR
Process Notes	THE PELLET MILLS1 THROUGH 16 SHALL PROCESS NO MORE THAN 395,836 DRY TONS WOOD PER YEAR CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12 MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12 MONTH PERIOD SHALL BE DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	CYCLONES
Emission Limit 1	10.2
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	39.6
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSION LIMITS ARE COMBINED FOR ALL 16 PELLET MILLS

Summary of Results of RBLC Database Search for PM

RBLC ID	VA-0298
Facility Name	INTERNATIONAL BIOFUELS, INC
Facility State	VA
Permit Number	52125
Permit Issuance Date	12/13/05
Facility Description	MANUFACTURE OF WOOD PELLETS NO COATINGS
Permit Notes	
Process Name	PEANUT HULL UNLOADING
Process Type	30.999
Primary Fuel	WOOD
Throughput	3
	T/H
Process Notes	THE PEANUT HULL UNLOADING SHALL PROCESS NO MORE THAN 20,000 TONS (50%MOISTURE) WOOD PER YEAR, CALCULATED MONTHLY AS THE SUM OF EACH CONSECUTIVE 12-MONTH PERIOD. COMPLIANCE FOR THE CONSECUTIVE 12-MONTH PERIOD DEMONSTRATED MONTHLY BY ADDING THE TOTAL FOR THE MOST RECENTLY COMPLETED CALENDAR MONTH TO THE INDIVIDUAL MONTHLY TOTALS FOR THE PRECEDING 11 MONTHS.
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	
Emission Limit 1	0.6
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VT-0037
Facility Name	BEAVER WOOD ENERGY FAIR HAVEN
Facility State	VT
Permit Number	AP-11-015
Permit Issuance Date	2/10/12
Facility Description	34 MW (GROSS) WOOD FIRED EGU CO-LOCATED WITH A 115,000 TON/YR WOOD PELLET MANUFACTURING PLANT
Permit Notes	A PERMIT EXTENSION WAS ISSUED ON 8/5/2013. THE CONSTRUCTION PERMIT IS NOW VALID UNTIL 2/10/2015.
Process Name	Pellet Plant - burner & rotary dryer
Process Type	30.999
Primary Fuel	wood
Throughput	115000
	T/YR
Process Notes	Throughput is for finished wood pellet product. There is a wood fired heating unit, using a Coen LowNOx burner rated at 30 MMBtu/hr used to provide hot air/exhaust for the drying of wood in the rotary dryer. Additional drying heat for the rotary dryer will come from a portion of the exhaust gas from the Main Boiler at the facility.
Pollutant	PM
Control Method Code	P
Control Method Description	Fabric filter
Emission Limit 1	0.2
Emission Limit 1 Unit	LB/ODT
Emission Limit 1 Avg Time Condition	HOURLY AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	Emission limit is lb PM per oven dry ton of wood output from the rotary dryer.

Summary of Results of RBLC Database Search for PM

RBLC ID	VT-0037
Facility Name	BEAVER WOOD ENERGY FAIR HAVEN
Facility State	VT
Permit Number	AP-11-015
Permit Issuance Date	2/10/12
Facility Description	34 MW (GROSS) WOOD FIRED EGU CO-LOCATED WITH A 115,000 TON/YR WOOD PELLET MANUFACTURING PLANT
Permit Notes	A PERMIT EXTENSION WAS ISSUED ON 8/5/2013. THE CONSTRUCTION PERMIT IS NOW VALID UNTIL 2/10/2015.
Process Name	Pellet Plant - burner & rotary dryer
Process Type	30.999
Primary Fuel	wood
Throughput	115000
	T/YR
Process Notes	Throughput is for finished wood pellet product. There is a wood fired heating unit, using a Coen LowNOx burner rated at 30 MMBtu/hr used to provide hot air/exhaust for the drying of wood in the rotary dryer. Additional drying heat for the rotary dryer will come from a portion of the exhaust gas from the Main Boiler at the facility.
Pollutant	PM (total)
Control Method Code	P
Control Method Description	Fabric filter
Emission Limit 1	0.2
Emission Limit 1 Unit	LB/ODT
Emission Limit 1 Avg Time Condition	HOURLY AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	Emission limit is lb PM per oven dry ton of wood output from the rotary dryer.

Summary of Results of RBLC Database Search for PM

RBLC ID	VT-0037
Facility Name	BEAVER WOOD ENERGY FAIR HAVEN
Facility State	VT
Permit Number	AP-11-015
Permit Issuance Date	2/10/12
Facility Description	34 MW (GROSS) WOOD FIRED EGU CO-LOCATED WITH A 115,000 TON/YR WOOD PELLET MANUFACTURING PLANT
Permit Notes	A PERMIT EXTENSION WAS ISSUED ON 8/5/2013. THE CONSTRUCTION PERMIT IS NOW VALID UNTIL 2/10/2015.
Process Name	Pellet Plant - burner & rotary dryer
Process Type	30.999
Primary Fuel	wood
Throughput	115000
	T/YR
Process Notes	Throughput is for finished wood pellet product. There is a wood fired heating unit, using a Coen LowNOx burner rated at 30 MMBtu/hr used to provide hot air/exhaust for the drying of wood in the rotary dryer. Additional drying heat for the rotary dryer will come from a portion of the exhaust gas from the Main Boiler at the facility.
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	Fabric filter
Emission Limit 1	0.005
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	HOURLY AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	VT-0037
Facility Name	BEAVER WOOD ENERGY FAIR HAVEN
Facility State	VT
Permit Number	AP-11-015
Permit Issuance Date	2/10/12
Facility Description	34 MW (GROSS) WOOD FIRED EGU CO-LOCATED WITH A 115,000 TON/YR WOOD PELLET MANUFACTURING PLANT
Permit Notes	A PERMIT EXTENSION WAS ISSUED ON 8/5/2013. THE CONSTRUCTION PERMIT IS NOW VALID UNTIL 2/10/2015.
Process Name	Pellet Plant - burner & rotary dryer
Process Type	30.999
Primary Fuel	wood
Throughput	115000
	T/YR
Process Notes	Throughput is for finished wood pellet product. There is a wood fired heating unit, using a Coen LowNOx burner rated at 30 MMBtu/hr used to provide hot air/exhaust for the drying of wood in the rotary dryer. Additional drying heat for the rotary dryer will come from a portion of the exhaust gas from the Main Boiler at the facility.
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	Fabric filter
Emission Limit 1	0.005
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	HOURLY AVERAGE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/06
Facility Description	PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	PLANER MILL BAG HOUSE
Process Type	30.999
Primary Fuel	
Throughput	48000
	DSCFM
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAG HOUSE
Emission Limit 1	0.005
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	ONE-HOUR
Case-by-Case Basis	BACT-PSD
Percent Efficiency	99
Emission Limit 2	9.4
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	TWELVE MONTH ROLLING AVERAGE
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	WA-0327
Facility Name	SKAGIT COUNTY LUMBER MILL
Facility State	WA
Permit Number	PSD 05-04
Permit Issuance Date	1/25/06
Facility Description	PRODUCE ABOUT 300 MILLION BOARD FEET OF LUMBER ANNUALLY AND RUN A 430 MMBTU/HR WASTE-WOOD-FIRED BOILER AS A 30 MW COGENERATION UNIT.
Permit Notes	
Process Name	PLANER MILL BAG HOUSE
Process Type	30.999
Primary Fuel	
Throughput	48000
	DSCFM
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	A
Control Method Description	BAG HOUSE
Emission Limit 1	0.005
Emission Limit 1 Unit	GR/DSCF
Emission Limit 1 Avg Time Condition	ONE-HOUR
Case-by-Case Basis	BACT-PSD
Percent Efficiency	99
Emission Limit 2	9.4
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	TWELVE MONTH ROLLING AVERAGE
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	WI-0187
Facility Name	STORA-ENSO NORTH AMERICA - WI RAPIDS PULP MILL
Facility State	WI
Permit Number	01-DCF-043
Permit Issuance Date	8/30/01
Facility Description	KRAFT PULP MILL
Permit Notes	
Process Name	BARK/WOOD WASTE PROCESSING AND HANDLING SYSTEM
Process Type	30.999
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM
Control Method Code	P
Control Method Description	ROOFED, 3-SIDED BARK STORAGE ENCLOSURE, TOTAL ENCLOSURE OF THE NEW BARK/WOODWASTE HOGGING/SCREENING OPERATION, COVERING OF ALL CONVEYORS LOCATED OUTSIDE OF BUILDING ENCLOSURES AND BELT CLEANERS. NO EMISSION RATE LIMITS
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AR-0077
Facility Name	BLUEWATER PROJECT
Facility State	AR
Permit Number	2062-AOP-R0
Permit Issuance Date	7/22/04
Facility Description	THE FACILITY IS A NEW SPECIALTY STEEL MILL PRODUCING VARIOUS HOT ROLLED, COLD ROLLED AND GALVANIZED PRODUCTS FOR VARIOUS END USE MARKETS. AFIN: 47-00541
Permit Notes	FUEL: NATURAL GAS
Process Name	ROADWAY EMISSIONS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	APPLICATION OF WETTING AGENT
Emission Limit 1	26.9
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	AZ-0051
Facility Name	DRAKE
Facility State	AZ
Permit Number	1001770
Permit Issuance Date	4/12/06
Facility Description	PORTLAND CEMENT MANUFACTURING
Permit Notes	
Process Name	VEHICLE TRAFFIC
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	A
Control Method Description	WATERING AND VACUUMING
Emission Limit 1	20
Emission Limit 1 Unit	MI/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	CO-0055
Facility Name	LAMAR LIGHT & POWER POWER PLANT
Facility State	CO
Permit Number	05PR0027
Permit Issuance Date	2/3/06
Facility Description	UTILITY ELECTRIC POWER FACILITY
Permit Notes	A CIRCULATING FLUIDIZED BED BOILER USING BITUMINOUS/SUB-BITUMINOUS COALS WILL BE BE INSTALLED. THIS WILL REPLACE AN EXISTING NATURAL GAS FIRED BOILER. OTHER AUXILIARY SOURCES: COAL HANDLING & PREPARATION, LIMESTONE HANDLING & PREPARATION, INERT (SAND) HANDLING. RAIL MOVEMENT WITH WITH DIESEL LOCOMOTIVE, EMERGENCY ELECTRIC GENERATOR AND FIRE WATER PUMP ENGINES, FUGITIVE DUST SOURCES.
Process Name	FUGITIVE PARTICULATE MATTER EMISSIONS SOURCES
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	P
Control Method Description	WATER WASH DOWN, DAILY INSPECTION/CLEANING/COVERING OF TRANSPORT VEHICLES, WATERING
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	FUGITIVE -NO NUMERIC LIMITS SEE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	COMPLIANCE NOTES
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	FUGITIVE NO NUMERIC LIMITS

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0067
Facility Name	WALTER SCOTT JR. ENERGY CENTER
Facility State	IA
Permit Number	PROJECT 02-528
Permit Issuance Date	6/17/03
Facility Description	utility
Permit Notes	THE PERMITS ASSOCIATED WITH THIS PROJECT HAVE BEEN AMENDED WITH THE FOLLOWING PROJECTS: 04-751: CHANGE IN CONTROL ON TRANSFER HOUSE 04-759: REPLACED 112G LIMITS WITH SUBPART DDDDD LIMITS ON AUX BOILER 06-541: AMENDED EXISTING PERMITS FOR UNPERMITTED CHANGES AND OBTAINED PERMITS FOR UNPERMITTED EMISSION UNITS INSTALLED DURING CONSTRUCTION. A NOTICE OF VIOLATION (NOV) WAS SENT FOR THE UNPERMITTED CHANGES. 08-209: TRANSFER HOUSE 2 ADDED BAGHOUSE AND BACT WAS RECALCULATED 08-516: Added 112(g) limits into permit
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	46 TRUCKS/DAY
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	WATER FLUSHING FOLLOWED BY SWEEPING
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	80
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	WORK PRACTICE STANDARD IN WHICH THE FACILTIY NEEDS TO APPLY APPROPRIATE AMOUNT OF DUST SUPPRESSANT TO OBTAIN EFFICIENCY LISTED ABOVE.

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0067
Facility Name	WALTER SCOTT JR. ENERGY CENTER
Facility State	IA
Permit Number	PROJECT 02-528
Permit Issuance Date	6/17/03
Facility Description	utility
Permit Notes	THE PERMITS ASSOCIATED WITH THIS PROJECT HAVE BEEN AMENDED WITH THE FOLLOWING PROJECTS: 04-751: CHANGE IN CONTROL ON TRANSFER HOUSE 04-759: REPLACED 112G LIMITS WITH SUBPART DDDDD LIMITS ON AUX BOILER 06-541: AMENDED EXISTING PERMITS FOR UNPERMITTED CHANGES AND OBTAINED PERMITS FOR UNPERMITTED EMISSION UNITS INSTALLED DURING CONSTRUCTION. A NOTICE OF VIOLATION (NOV) WAS SENT FOR THE UNPERMITTED CHANGES. 08-209: TRANSFER HOUSE 2 ADDED BAGHOUSE AND BACT WAS RECALCULATED 08-516: Added 112(g) limits into permit
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	46 TRUCKS/DAY
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	WATER FLUSHING FOLLOWED BY SWEEPING
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	80
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	WORK PRACTICE STANDARD IN WHICH THE FACILTIY NEEDS TO APPLY APPROPRIATE AMOUNT OF DUST SUPPRESSANT TO OBTAIN EFFICIENCY LISTED ABOVE.

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0088
Facility Name	ADM CORN PROCESSING - CEDAR RAPIDS
Facility State	IA
Permit Number	57-01-080
Permit Issuance Date	6/29/07
Facility Description	CONSISTS OF THREE DISTINCT OPERATIONS: CORN WET MILL, CORN DRY MILL AND BOILERHOUSE
Permit Notes	THIS PROJECT IS TO PERMIT THE ADDITION OF AN ETHANOL DRY MILL TO THE EXISTING CORN WET MILL AND BOILERHOUSE LOCATED AT ADM IN CEDAR RAPIDS. THE DIFFERENT PRODUCTION PROCESSED HAVE ALL BEEN DETERMINED TO BE PART OF THE SAME MAJOR STATIONARY SOURCE.
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	PERMIT 07-A-591-P.
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	DAILY SWEEPING AND/OR WASHING TO ACHIEVE A MINIMUM OF 80% CONTROL OF EMISSIONS.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	PM LIMIT INCLUDES BOTH FILTERABLE AND CONDENSABLE FRACTIONS.

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0088
Facility Name	ADM CORN PROCESSING - CEDAR RAPIDS
Facility State	IA
Permit Number	57-01-080
Permit Issuance Date	6/29/07
Facility Description	CONSISTS OF THREE DISTINCT OPERATIONS: CORN WET MILL, CORN DRY MILL AND BOILERHOUSE
Permit Notes	THIS PROJECT IS TO PERMIT THE ADDITION OF AN ETHANOL DRY MILL TO THE EXISTING CORN WET MILL AND BOILERHOUSE LOCATED AT ADM IN CEDAR RAPIDS. THE DIFFERENT PRODUCTION PROCESSED HAVE ALL BEEN DETERMINED TO BE PART OF THE SAME MAJOR STATIONARY SOURCE.
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	PERMIT 07-A-591-P.
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	DAILY SWEEPING AND/OR WASHING TO ACHIEVE A MINIMUM OF 80% CONTROL OF EMISSIONS.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0089
Facility Name	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672
Facility State	IA
Permit Number	07-A-955P TO 07-A-982P
Permit Issuance Date	8/8/07
Facility Description	170 MILLION GALLON PER ROLLING 12-MONTH PERIOD DRY MILL ETHANOL PLANT. THE PROCESS WILL USE GASIFICATION TECHNOLOGY TO PRODUCE SYNGAS AS THE SOURCE FOR ENERGY. WILL USE 60,714,286 BUSHELS OF CORN PER ROLLING 12-MONTH PERIOD PRODUCING EITHER 1.411 MILLION TONS OF WDGS OR 552,500 TONS OF DDGS PER ROLLING 12-MONTH PERIOD. THE GASIFICATION PROCESS COULD USE UP TO 298, 213 TONS OF COAL PER ROLLING 12-MONTH PERIOD. PROJECT NUMBER (PN) 06-672, 28 PERMITS ISSUED
Permit Notes	THIS PERMIT IF FOR THE GASIFICATION SYSTEM AND THE PRE-TREATMENT CONTROL ITEMS (ACTIVATED CARBON BED FOR MERCURY REMOVAL AND H2S REMOVAL SYSTEM) AND THE TREATMENT OF EXHAUST GASES USING RECUPERATIVE THERMAL OXIDIZERS OF 150 MM BTU / HR WITH LOW NOX BURNERS. THE SYSTEM CONTROLS EMISSIONS FROM THE DRYERS AND COOLING SYSTEMF FOR THE DDGS.
Process Name	DUST EMISSIONS FROM INTERNAL PLANT ROADS, F100 (07-A-981P)
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	B
Control Method Description	BEST MANAGEMENT PRACTICES WITH SWEEPERS AND DUST SUPPRESSIONS
Emission Limit 1	96.48
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	BACT
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0089
Facility Name	HOMELAND ENERGY SOLUTIONS, LLC, PN 06-672
Facility State	IA
Permit Number	07-A-955P TO 07-A-982P
Permit Issuance Date	8/8/07
Facility Description	170 MILLION GALLON PER ROLLING 12-MONTH PERIOD DRY MILL ETHANOL PLANT. THE PROCESS WILL USE GASIFICATION TECHNOLOGY TO PRODUCE SYNGAS AS THE SOURCE FOR ENERGY. WILL USE 60,714,286 BUSHELS OF CORN PER ROLLING 12-MONTH PERIOD PRODUCING EITHER 1.411 MILLION TONS OF WDGS OR 552,500 TONS OF DDGS PER ROLLING 12-MONTH PERIOD. THE GASIFICATION PROCESS COULD USE UP TO 298, 213 TONS OF COAL PER ROLLING 12-MONTH PERIOD. PROJECT NUMBER (PN) 06-672, 28 PERMITS ISSUED
Permit Notes	THIS PERMIT IF FOR THE GASIFICATION SYSTEM AND THE PRE-TREATMENT CONTROL ITEMS (ACTIVATED CARBON BED FOR MERCURY REMOVAL AND H2S REMOVAL SYSTEM) AND THE TREATMENT OF EXHAUST GASES USING RECUPERATIVE THERMAL OXIDIZERS OF 150 MM BTU / HR WITH LOW NOX BURNERS. THE SYSTEM CONTROLS EMISSIONS FROM THE DRYERS AND COOLING SYSTEMF FOR THE DDGS.
Process Name	DUST EMISSIONS FROM INTERNAL PLANT ROADS, F100 (07-A-981P)
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	B
Control Method Description	BEST MANAGEMENT PRACTICES WITH SWEEPERS AND DUST SUPPRESSIONS
Emission Limit 1	18.78
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	BACT
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0092
Facility Name	SOUTHWEST IOWA RENEWABLE ENERGY
Facility State	IA
Permit Number	06-A-571P THRU 06-A-590P
Permit Issuance Date	4/19/07
Facility Description	ETHANOL PRODUCTION FACILITY CORN FEEDSTOCK 125,000,000 GALLONS PER YEAR
Permit Notes	STEAM SUPPLIED BY ADJACENT POWER PLANT
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	VACUUM SWEPT AND WATER FLUSHED DAILY
Emission Limit 1	21.7
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	YEAR
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0095
Facility Name	TATE & LYLE INDGREDIENTS AMERICAS, INC.
Facility State	IA
Permit Number	PROJECT 08-126
Permit Issuance Date	9/19/08
Facility Description	CORN WET MILL
Permit Notes	
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	DAILY WATER FLUSHING FOLLOWED BY VACUUM SWEEPING OR DAILY USE OF A VACUUM SWEEPER THAT CAN MET A MINIMUM OF 80% OVERALL CONTROL OF EMISSIONS.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	NO EMISSION LIMITS AVAILABLE

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0095
Facility Name	TATE & LYLE INDGREDIENTS AMERICAS, INC.
Facility State	IA
Permit Number	PROJECT 08-126
Permit Issuance Date	9/19/08
Facility Description	CORN WET MILL
Permit Notes	
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	DAILY WATER FLUSHING FOLLOWED BY VACUUM SWEEPING OR DAILY USE OF A VACUUM SWEEPER THAT CAN MET A MINIMUM OF 80% OVERALL CONTROL OF EMISSIONS.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	NO EMISSION LIMITS AVAILABLE

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0105
Facility Name	IOWA FERTILIZER COMPANY
Facility State	IA
Permit Number	12-219
Permit Issuance Date	10/26/12
Facility Description	NITROGENEOUS FERTILIZER MANUFACTURING
Permit Notes	THE PROJECT WAS AMENDED ON 3/13/14 DUE TO SOME DESIGN CHANGES WHICH INCLUDED ADDITIONAL EMISSION UNITS/POINTS. THE NEW PROJECT IS UNDER PROJECT NUMBER/PERMIT NUMBER 13-355
Process Name	Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	There are two (2) paved haul roads. The length of one is 0.97 miles and the other is 1.07 miles long.
Pollutant	Particulate matter, total (TPM)
Control Method Code	P
Control Method Description	paved road, water flushing, and sweeping
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	There is no numeric emission limit in the permits.

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0105
Facility Name	IOWA FERTILIZER COMPANY
Facility State	IA
Permit Number	12-219
Permit Issuance Date	10/26/12
Facility Description	NITROGENEOUS FERTILIZER MANUFACTURING
Permit Notes	THE PROJECT WAS AMENDED ON 3/13/14 DUE TO SOME DESIGN CHANGES WHICH INCLUDED ADDITIONAL EMISSION UNITS/POINTS. THE NEW PROJECT IS UNDER PROJECT NUMBER/PERMIT NUMBER 13-355
Process Name	Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	There are two (2) paved haul roads. The length of one is 0.97 miles and the other is 1.07 miles long.
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	paved road, water flushing, and sweeping
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	There is no numeric emission limit in the permits.

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0105
Facility Name	IOWA FERTILIZER COMPANY
Facility State	IA
Permit Number	12-219
Permit Issuance Date	10/26/12
Facility Description	NITROGENEOUS FERTILIZER MANUFACTURING
Permit Notes	THE PROJECT WAS AMENDED ON 3/13/14 DUE TO SOME DESIGN CHANGES WHICH INCLUDED ADDITIONAL EMISSION UNITS/POINTS. THE NEW PROJECT IS UNDER PROJECT NUMBER/PERMIT NUMBER 13-355
Process Name	Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	There are two (2) paved haul roads. The length of one is 0.97 miles and the other is 1.07 miles long.
Pollutant	PM2.5 (total)
Control Method Code	P
Control Method Description	paved road, water flushing, and sweeping
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	There are no numeric emission limits in the permits.

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0106
Facility Name	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX
Facility State	IA
Permit Number	PN 13-037
Permit Issuance Date	7/12/13
Facility Description	Nitrogenous fertilizer manufacturing including ammonia, urea, and urea-ammonium nitrate (UAN) solutions.
Permit Notes	
Process Name	New Plant Haul Road
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	The total length of the road is 0.8 miles
Pollutant	Particulate matter, total (TPM)
Control Method Code	P
Control Method Description	paved road, water flushing, and sweeping
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	BACT is a work practice standard (paving the road, water flushing, and sweeping) instead of an emission limit

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0106
Facility Name	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX
Facility State	IA
Permit Number	PN 13-037
Permit Issuance Date	7/12/13
Facility Description	Nitrogenous fertilizer manufacturing including ammonia, urea, and urea-ammonium nitrate (UAN) solutions.
Permit Notes	
Process Name	New Plant Haul Road
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	The total length of the road is 0.8 miles
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	paved road, water flushing, and sweeping
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	BACT is a work practice standard (paving the road, water flushing, and sweeping) instead of an emission limit

Summary of Results of RBLC Database Search for PM

RBLC ID	IA-0106
Facility Name	CF INDUSTRIES NITROGEN, LLC - PORT NEAL NITROGEN COMPLEX
Facility State	IA
Permit Number	PN 13-037
Permit Issuance Date	7/12/13
Facility Description	Nitrogenous fertilizer manufacturing including ammonia, urea, and urea-ammonium nitrate (UAN) solutions.
Permit Notes	
Process Name	New Plant Haul Road
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	The total length of the road is 0.8 miles
Pollutant	PM2.5 (total)
Control Method Code	P
Control Method Description	paved road, water flushing, and sweeping
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	BACT is a work practice standard (paving the road, water flushing, and sweeping) instead of an emission limit

Summary of Results of RBLC Database Search for PM

RBLC ID	IL-0102
Facility Name	AVENTINE RENEWABLE ENERGY, INC.
Facility State	IL
Permit Number	5010062
Permit Issuance Date	11/1/05
Facility Description	FACILITY PERFORMS CORN WET MILLING AND ETHANOL PRODUCTION AT EXISTING COMPLES. AVENTINE REQUESTED A CONSTRUCTION PERMIT FOR AN ETHANOL PLANT EXPANSION TO ADD DRY-MILL ETHANOL FACILITY. CAPACITY IS 56.5 MILLION GALLONS/YEAR.
Permit Notes	THE NEW FACILITY WOULD BE SERVED BY EXISTING GRAIN ELEVATOR, ETHANOL STORAGE AND LOADOUT OPERATION.
Process Name	ROADWAYS AND OTHER FUGITIVE DUST
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	PAVE ROADS AND PARKING LOTS; FUGITIVE DUST CONTROL PROGRAM.
Emission Limit 1	7.47
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0166
Facility Name	INDIANA GASIFICATION, LLC
Facility State	IN
Permit Number	T147-30464-00060
Permit Issuance Date	6/27/12
Facility Description	THE PERMITTEE OWNS AND OPERATES A STATIONARY SUBSTITUTE NATURAL GAS (SNG) AND LIQUEFIED CARBON DIOXIDE (CO2) PRODUCTION PLANT ALSO SIC: 2819 NAICS: 211112
Permit Notes	ALSO SIC: 2819 NAICS: 211112
Process Name	FUGITIVE DUST FROM PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	P
Control Method Description	PAVING ALL PLANT HAUL ROADS, USE OF WET OR CHEMICAL SUPPRESSION, AND PROMPT CLEANUP OF ANY SPILLED MATERIALS.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0166
Facility Name	INDIANA GASIFICATION, LLC
Facility State	IN
Permit Number	T147-30464-00060
Permit Issuance Date	6/27/12
Facility Description	THE PERMITTEE OWNS AND OPERATES A STATIONARY SUBSTITUTE NATURAL GAS (SNG) AND LIQUEFIED CARBON DIOXIDE (CO2) PRODUCTION PLANT ALSO SIC: 2819 NAICS: 211112
Permit Notes	ALSO SIC: 2819 NAICS: 211112
Process Name	FUGITIVE DUST FROM PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	PAVING ALL PLANT HAUL ROADS, USE OF WET OR CHEMICAL SUPPRESSION, AND PROMPT CLEANUP OF ANY SPILLED MATERIALS.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0166
Facility Name	INDIANA GASIFICATION, LLC
Facility State	IN
Permit Number	T147-30464-00060
Permit Issuance Date	6/27/12
Facility Description	THE PERMITTEE OWNS AND OPERATES A STATIONARY SUBSTITUTE NATURAL GAS (SNG) AND LIQUEFIED CARBON DIOXIDE (CO2) PRODUCTION PLANT ALSO SIC: 2819 NAICS: 211112
Permit Notes	ALSO SIC: 2819 NAICS: 211112
Process Name	FUGITIVE DUST FROM PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM2.5 (total)
Control Method Code	P
Control Method Description	PAVING ALL PLANT HAUL ROADS, USE OF WET OR CHEMICAL SUPPRESSION, AND PROMPT CLEANUP OF ANY SPILLED MATERIALS.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0173
Facility Name	MIDWEST FERTILIZER CORPORATION
Facility State	IN
Permit Number	129-33576-00059
Permit Issuance Date	6/4/14
Facility Description	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY
Permit Notes	
Process Name	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS
Process Type	99.14
Primary Fuel	
Throughput	10402
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0173
Facility Name	MIDWEST FERTILIZER CORPORATION
Facility State	IN
Permit Number	129-33576-00059
Permit Issuance Date	6/4/14
Facility Description	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY
Permit Notes	
Process Name	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS
Process Type	99.14
Primary Fuel	
Throughput	10402
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0173
Facility Name	MIDWEST FERTILIZER CORPORATION
Facility State	IN
Permit Number	129-33576-00059
Permit Issuance Date	6/4/14
Facility Description	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY
Permit Notes	
Process Name	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS
Process Type	99.14
Primary Fuel	
Throughput	10402
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	PM2.5 (total)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0179
Facility Name	OHIO VALLEY RESOURCES, LLC
Facility State	IN
Permit Number	147-32322-00062
Permit Issuance Date	9/25/13
Facility Description	NITROGENOUS FERTILIZER PRODUCTION PLANT
Permit Notes	
Process Name	PAVED ROADWAYS AND PARKING LOTS WITH PUBLIC ACCESS
Process Type	99.14
Primary Fuel	
Throughput	17160
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	P
Control Method Description	PAVE ALL PLANT HAUL ROADS, DAILY SWEEPING AND WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0179
Facility Name	OHIO VALLEY RESOURCES, LLC
Facility State	IN
Permit Number	147-32322-00062
Permit Issuance Date	9/25/13
Facility Description	NITROGENOUS FERTILIZER PRODUCTION PLANT
Permit Notes	
Process Name	PAVED ROADWAYS AND PARKING LOTS WITH PUBLIC ACCESS
Process Type	99.14
Primary Fuel	
Throughput	17160
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	PAVE ALL PLANT HAUL ROADS, DAILY SWEEPING AND WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0179
Facility Name	OHIO VALLEY RESOURCES, LLC
Facility State	IN
Permit Number	147-32322-00062
Permit Issuance Date	9/25/13
Facility Description	NITROGENOUS FERTILIZER PRODUCTION PLANT
Permit Notes	
Process Name	PAVED ROADWAYS AND PARKING LOTS WITH PUBLIC ACCESS
Process Type	99.14
Primary Fuel	
Throughput	17160
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	PM2.5 (total)
Control Method Code	P
Control Method Description	PAVE ALL PLANT HAUL ROADS, DAILY SWEEPING AND WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0180
Facility Name	MIDWEST FERTILIZER CORPORATION
Facility State	IN
Permit Number	129-33576-00059
Permit Issuance Date	6/4/14
Facility Description	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY
Permit Notes	
Process Name	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS
Process Type	99.14
Primary Fuel	
Throughput	10402
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0180
Facility Name	MIDWEST FERTILIZER CORPORATION
Facility State	IN
Permit Number	129-33576-00059
Permit Issuance Date	6/4/14
Facility Description	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY
Permit Notes	
Process Name	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS
Process Type	99.14
Primary Fuel	
Throughput	10402
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	IN-0180
Facility Name	MIDWEST FERTILIZER CORPORATION
Facility State	IN
Permit Number	129-33576-00059
Permit Issuance Date	6/4/14
Facility Description	A STATIONARY NITROGEN FERTILIZER MANUFACTURING FACILITY
Permit Notes	
Process Name	FUGITIVE DUST FROM PAVED ROADS AND PARKING LOTS
Process Type	99.14
Primary Fuel	
Throughput	10402
	VEHICLE MILES TRAVELED
Process Notes	
Pollutant	PM2.5 (total)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS, DAILY SWEEPING WITH WET SUPPRESSION, PROMPT CLEANUP OF ANY SPILLED MATERIAL.
Emission Limit 1	90
Emission Limit 1 Unit	% CONTROL
Emission Limit 1 Avg Time Condition	CONTINUOUS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*KS-0034
Facility Name	ABENGOA BIOENERGY BIOMASS OF KANSAS (ABBK)
Facility State	KS
Permit Number	C-11396
Permit Issuance Date	5/27/14
Facility Description	Abengoa Bioenergy Biomass of Kansas (ABBK) intends to install and operate a biomass-to-ethanol and biomass-to-energy production facility near Hugoton, Kansas.
Permit Notes	This PSD permit with tracking number C-11396 supersedes PSD permits C-9600 (issued on 09/16/2011) and C-10550 (issued on 01/22/2013). This PSD permit is appended with PSD permit C-12980 issued for a temporary 96.6 MMBtu/hr natural gas-fired boiler.
Process Name	Paved Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	In-plant paved haul roads (EP-01000FUG)
Pollutant	Particulate matter, total (TPM)
Control Method Code	P
Control Method Description	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits
Emission Limit 1	148
Emission Limit 1 Unit	TRUCKS/DAY
Emission Limit 1 Avg Time Condition	7-DAY ROLLING AVE. (44 TRUCKS 6PM-6AM)
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*KS-0034
Facility Name	ABENGOA BIOENERGY BIOMASS OF KANSAS (ABBK)
Facility State	KS
Permit Number	C-11396
Permit Issuance Date	5/27/14
Facility Description	Abengoa Bioenergy Biomass of Kansas (ABBK) intends to install and operate a biomass-to-ethanol and biomass-to-energy production facility near Hugoton, Kansas.
Permit Notes	This PSD permit with tracking number C-11396 supersedes PSD permits C-9600 (issued on 09/16/2011) and C-10550 (issued on 01/22/2013). This PSD permit is appended with PSD permit C-12980 issued for a temporary 96.6 MMBtu/hr natural gas-fired boiler.
Process Name	Paved Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	in-plant paved haul roads (EP-01000FUG)
Pollutant	PM10 (total)
Control Method Code	P
Control Method Description	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits
Emission Limit 1	148
Emission Limit 1 Unit	TRUCKS/DAY
Emission Limit 1 Avg Time Condition	7 DAY ROLLING AVE. (44 TRUCKS 6PM-6AM)
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*KS-0034
Facility Name	ABENGOA BIOENERGY BIOMASS OF KANSAS (ABBK)
Facility State	KS
Permit Number	C-11396
Permit Issuance Date	5/27/14
Facility Description	Abengoa Bioenergy Biomass of Kansas (ABBK) intends to install and operate a biomass-to-ethanol and biomass-to-energy production facility near Hugoton, Kansas.
Permit Notes	This PSD permit with tracking number C-11396 supersedes PSD permits C-9600 (issued on 09/16/2011) and C-10550 (issued on 01/22/2013). This PSD permit is appended with PSD permit C-12980 issued for a temporary 96.6 MMBtu/hr natural gas-fired boiler.
Process Name	Paved Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	In-plant paved haul roads (EP-01000FUG)
Pollutant	PM2.5 (filterable)
Control Method Code	P
Control Method Description	Truck traffic fugitive control strategy and monitoring plan, including sweeping and speed limits
Emission Limit 1	148
Emission Limit 1 Unit	TRUCKS/ DAY
Emission Limit 1 Avg Time Condition	7 DAY ROLLING AVE (44 TRUCKS 6PM-6AM)
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	KY-0100
Facility Name	J.K. SMITH GENERATING STATION
Facility State	KY
Permit Number	V-05-070 R3
Permit Issuance Date	4/9/10
Facility Description	NEW CFB EGU BECAUSE OF A LEGAL CHALLENGE OUTSIDE OF THE TITLE V PROCEDURES, PERMITTEE AGREED TO TERMINATE CONSTRUCTION AUTHORITY FOR PROJECT. R4 TO THIS PERMIT REMOVES CONSTRUCTION AURTHORITY, AND THE PERMIT MAY NOT BE AVAILABLE FROM KENTUCKY'S WEBSITE.
Permit Notes	BECAUSE OF A LEGAL CHALLENGE OUTSIDE OF THE TITLE V PROCEDURES, PERMITTEE AGREED TO TERMINATE CONSTRUCTION AUTHORITY FOR PROJECT. R4 TO THIS PERMIT REMOVES CONSTRUCTION AURTHORITY, AND THE PERMIT MAY NOT BE AVAILABLE FROM KENTUCKY'S WEBSITE.
Process Name	HAUL ROADS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	A
Control Method Description	PAVED ROADWAYS, CLEANING OR PROMPT REMOVAL OF MATERIAL, AND THE APPLICATION OF WET SUPPRESSION, AS APPLICABLE.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	BACT REQUIRES PAVED ROADS ONLY SUBJECT TO STATE FUGITIVE REGULATION

Summary of Results of RBLC Database Search for PM

RBLC ID	LA-0203
Facility Name	OAKDALE OSB PLANT
Facility State	LA
Permit Number	PSD-LA-710
Permit Issuance Date	6/13/05
Facility Description	PSD FOR A NEW ORIENTED STRAND BOARD (OSB) MANUFACTURING FACILITY CAPABLE OF PRODUCING 900,000 MSF 3/8 INCH OSB PER YEAR.
Permit Notes	CO BACT LIMITS FOR ROTARY DRYER NOS. 1-3 HAVE BEEN REVISED TO 50.88 LB/HR (2.11 LB/ODT). SEE LA-0253.
Process Name	PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	LIMITED ACCESS
Emission Limit 1	2.6
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAXIMUM
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	LA-0204
Facility Name	PLAQUEMINE PVC PLANT
Facility State	LA
Permit Number	PSD-LA-709(M-1)
Permit Issuance Date	2/27/09
Facility Description	NEW 1.3 BILLION POUND PER YEAR PVC PLANT CONSISTING OF A CHLOR-ALKALI UNIT, AND EDC/VCM UNIT, AND A PVC UNIT.
Permit Notes	VINYL CHLORIDE - 28.82 TPY. VINYL CHLORIDE (VC) WAS REGULATED AS A PSD POLLUTANT (SIGNIFICANCE LEVEL OF 1 TPY) IN LOUISIANA WHEN THIS PERMIT WAS ISSUED. LOUISIANA'S NSR REFORM RULES, ADOPTED DECEMBER 20, 2005, DELISTED VC. HAPS FROM THE PVC UNIT WERE SUBJECTED TO A 112(J) MACT DETERMINATION AFTER VACATURE OF 40 CFR 63 SUBPART J ON APRIL 19, 2005. BACT FOR VC IS EQUIVALENT TO MACT FOR VC. NNSR: BECAUSE VOC AND NOX EMISSIONS ARE LESS THAN 100 TPY, LAER WAS NOT REQUIRED. OFFSETS WERE REQUIRED PURSUANT TO A STATE-ONLY PROVISION IN LAC 33:III.504. PSD-LA-709(M-1) IS FOR 1) REMOVING A COOLING TOWER (M-8), CORRECTING CAPACITY OF COOLING TOWER M-7, AND 3) INCLUDING 19 EMERGENCY ENGINES AND THREE LOADING HOPPERS.
Process Name	ROAD - FUGITIVE DUST
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	PAVINGS ROADS AS MUCH AS PRACTICABLE
Emission Limit 1	0.22
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

RBLC ID	LA-0221

Summary of Results of RBLC Database Search for PM

Facility Name	LITTLE GYPSY GENERATING PLANT
Facility State	LA
Permit Number	PSD-LA-720
Permit Issuance Date	11/30/07
Facility Description	PROJECT INVOLVES CONSTRUCTION OF 2 315 MW CIRCULATING FLUIDIZED BED (CFB) BOILERS DESIGNED TO BURN PETROLEUM COKE AND COAL. AN EXISTING BOILER WILL BE DECOMMISSIONED.
Permit Notes	APPLICATION ACCEPTED DATE IS THE DATE OF ADMINISTRATIVE COMPLETENESS. PROJECT NETTED OUT OF PSD REVIEW FOR NOX.
Process Name	PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	ALL NEWLY CONSTRUCTED ROADS WILL BE PAVED.
Emission Limit 1	4.07
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAXIMUM
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	17.2
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	ANNUAL MAXIMUM
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	EMISSIONS FROM EXISTING, UNPAVED ROADS THAT EXPERIENCE TRAFFIC FROM MATERIAL HANDLING OPERATIONS WILL BE MINIMIZED VIA APPLICATION OF DUST SUPPRESSANT.

Summary of Results of RBLC Database Search for PM

RBLC ID	LA-0223
Facility Name	BIG CAJUN I POWER PLANT
Facility State	LA
Permit Number	PSD-LA-660(M-1)
Permit Issuance Date	1/8/08
Facility Description	PROJECT INVOLVES CONSTRUCTION OF A PETROLEUM COKE, COAL, & BIOMASS FIRED 230 MW CIRCULATING FLUIDIZED BED (CFB) BOILER.
Permit Notes	PSD-LA-660(M-1) ALSO ADDRESSES REVISIONS TO THE EMISSIONS RATES FOR TWO NATURAL GAS-FIRED SIMPLE CYCLE TURBINES. SEE LA-0156. THIS PROJECT WAS NEVER CONSTRUCTED. PSD-LA-660(M-2) REMOVED THE CFB BOILER AND ASSOCIATED SOURCES FROM THE PSD PERMIT.
Process Name	PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	EST. 33,000 VEHICLE MILES TRAVELED/YR
Pollutant	PM10 (filterable)
Control Method Code	N
Control Method Description	PAVING ALL ROADS WITHIN THE FACILITY
Emission Limit 1	1.21
Emission Limit 1 Unit	LB/H
Emission Limit 1 Avg Time Condition	HOURLY MAXIMUM
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	3.54
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	ANNUAL MAXIMUM
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*MD-0041
Facility Name	CPV ST. CHARLES
Facility State	MD
Permit Number	PSC CASE NO. 9280
Permit Issuance Date	4/23/14
Facility Description	725 MW COMBINED-CYCLE NATURAL GAS-FIRED POWER PLANTFACILITY-WIDE PM10 EMISSION LIMIT = 96.6 TONS/YR FACILITY-WIDE SAM EMISISON LIMIT < 7.0 TONS/YR FACILITY-WIDE PM2.5 (TOTAL) EMISSION LIMIT < 100.0 TONS/YR
Permit Notes	FACILITY-WIDE PM10 EMISSION LIMIT = 96.6 TONS/YR FACILITY-WIDE SAM EMISISON LIMIT < 7.0 TONS/YR FACILITY-WIDE PM2.5 (TOTAL) EMISSION LIMIT < 100.0 TONS/YR
Process Name	ROADWAYS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	N
Control Method Description	
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	N/A
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	CPV MARYLAND SHALL TAKE PRECAUTIONS TO MINIMIZE PARTICULATE MATTER EMISSIONS FROM ONSITE ROADWAYS INCLUDING, BUT NOT LIMITED TO, THE USE OF WATER OR CHEMICAL SUPPRESSION AND SWEEPING

Summary of Results of RBLC Database Search for PM

RBLC ID	MO-0079
Facility Name	AMERICAN ENERGY PRODUCERS, INC.
Facility State	MO
Permit Number	012008-011
Permit Issuance Date	1/25/08
Facility Description	Consists of a 3000 tpd soybean processing plant, a 60 MMgal/yr biodiesel manufacturing plant, two 95 MMbtu/hr boilers and ancillary equipment.
Permit Notes	Permit is for the installation of a 50 MMgal per year biodiesel production facility with two 95 MMBtu/hr boilers. This permit excludes the installation of the soybean processing operations since at the time of the permit certain aspects relating to the BACT emission limitations were not completed. However, pre-construction monitoring for ozone had been completed by the applicant and hexane risk analysis modeling based on proposed BACT emission rates had been completed.
Process Name	Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, total (TPM)
Control Method Code	P
Control Method Description	Pavement of all haul roads with maintenance and repair of all sources.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	*MO-0089
Facility Name	OWENS CORNING INSULATION SYSTEMS, LLC
Facility State	MO
Permit Number	052016-003
Permit Issuance Date	5/12/16
Facility Description	
Permit Notes	PM facility wide emissions (FWE) of 265.19 tpy is for PM10, not just PM filterable which is 93.46 tpy.
Process Name	haul roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	A
Control Method Description	vacuum sweep, wash, etc
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	No numeric BACT limits were assigned for PM filterable, PM10 filterable, or PM2.5 filterable.

Summary of Results of RBLC Database Search for PM

RBLC ID	NC-0103
Facility Name	TOBACCOVILLE FACILITY
Facility State	NC
Permit Number	00745-TV12
Permit Issuance Date	7/1/03
Facility Description	CIGARETTE MANUFACTURING.
Permit Notes	APPLICATION FOR A CHANGE TO BACT DETERMINATION ORIGINALLY ESTABLISED IN 1982 FOR A PSD SOURCE. THE REQUEST IS TO CHANGE THE BACT DETERMINATION FOR FUGITIVE DUST FROM PAVED ROADS. BACT IN 1982 WAS PREVENTATIVE MEASURES (PAVED ROADS, COVERED TRUCKS, ETC.) AS WELL AS MITIGATING CONTROLS (ROAD FLUSHING). THE MODIFIED BACT IS PREVENTATIVE ONLY.
Process Name	PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	PAVING ALL MAIN ROADS AND MOST MAINTENANCE ROADS, INSTALLATION OF CURBS WITH GUTTER,ENCLOSED TRAILERS/TRUCKS.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	RACT IS PAVING ALL MAIN ROADS AND MOST MAINTENANCE ROADS, INSTALLATION OF CURBS WITH GUTTER,ENCLOSED TRAILERS/TRUCKS.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0297
Facility Name	FDS COKE
Facility State	OH
Permit Number	04-01360
Permit Issuance Date	6/14/04
Facility Description	TWO NONRECOVERY COKE OVEN BATTERIES CONSISTING OF 84 OVENS PER BATTERY WITH HEAT RECOVERY STEAM GENERATORS
Permit Notes	THIS PERMIT WAS MODIFIED BEFORE INSTALLATION, ORIGINAL PERMIT ISSUED 6/14/04 FOR 4 NONRECOVERY COKE OVEN BATTERIES. MODIFIED IN 9/05 FOR ONLY 2 BATTERIES. ORIGINAL APPLICATION RECEIVED 3/04 ON JULY 1, 2007 THE 2005 PERMIT MODIFICATION WAS VACATED, PENDING SETTLEMENT OF AN APPEAL. THE APPEAL HAS BEEN RESOLVED AND THE SAME PERMIT MODIFICATION WAS REISSUED ON 1/31/08 WITH NO CHANGES
Process Name	ROADWAYS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	TREAT WITH APPROPRIATE MATERIAL (WATER)
Emission Limit 1	4.85
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	STANDARD NOT AVAILABLE
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0297
Facility Name	FDS COKE
Facility State	OH
Permit Number	04-01360
Permit Issuance Date	6/14/04
Facility Description	TWO NONRECOVERY COKE OVEN BATTERIES CONSISTING OF 84 OVENS PER BATTERY WITH HEAT RECOVERY STEAM GENERATORS
Permit Notes	THIS PERMIT WAS MODIFIED BEFORE INSTALLATION, ORIGINAL PERMIT ISSUED 6/14/04 FOR 4 NONRECOVERY COKE OVEN BATTERIES. MODIFIED IN 9/05 FOR ONLY 2 BATTERIES. ORIGINAL APPLICATION RECEIVED 3/04 ON JULY 1, 2007 THE 2005 PERMIT MODIFICATION WAS VACATED, PENDING SETTLEMENT OF AN APPEAL. THE APPEAL HAS BEEN RESOLVED AND THE SAME PERMIT MODIFICATION WAS REISSUED ON 1/31/08 WITH NO CHANGES
Process Name	ROADWAYS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	TREAT WITH APPROPRIATE MATERIAL (WATER)
Emission Limit 1	24.88
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	N/A
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	STANDARD NOT AVAILABLE
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0315
Facility Name	NEW STEEL INTERNATIONAL, INC., HAVERHILL
Facility State	OH
Permit Number	07-00587
Permit Issuance Date	5/6/08
Facility Description	STEEL MINI MILL, WITH 2 ELECTRIC ARC FURNACES AND A PRODUCTION RATE OF 4,409,248 TONS/YEAR. THIS FACILITY WAS NOT INSTALLED AS OF 10/09.
Permit Notes	PM10 IS USED AS A SURROGATE FOR PM2.5. THE FACILITY IS NON-ATTAINMENT FOR PM2.5 AND PSD FOR PM, PM10, CO, NOX, SO2, AND VOC. A PRODUCTION RATE RESTRICTION ON THE ELECTRIC ARC FURNACES AND ROTARY HEARTH FURNACES WAS REQUESTED TO KEEP LEAD BELOW PSD ANT TITLE V THREASHOLDS. PM10 WAS USED AS THE LIMIT IN THE PERMIT, HOWEVER, SINCE PM2.5 WAS USED FOR ALL LAER DETERMINATIONS THE LIMITS WERE ENTERED UNDER PM2.5 INSTEAD.
Process Name	PAVED ROADWAYS AND PARKING AREAS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	PM2.5 (filterable)
Control Method Code	P
Control Method Description	CONTROL MEASURES INCLUDE APPLICATION OF WET SUPPRESSANTS, WATERING, SPEED REDUCTION, AND VACUUMING OR SWEEPING.
Emission Limit 1	29.9
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	FUGITIVE DUST
Case-by-Case Basis	LAER
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0315
Facility Name	NEW STEEL INTERNATIONAL, INC., HAVERHILL
Facility State	OH
Permit Number	07-00587
Permit Issuance Date	5/6/08
Facility Description	STEEL MINI MILL, WITH 2 ELECTRIC ARC FURNACES AND A PRODUCTION RATE OF 4,409,248 TONS/YEAR. THIS FACILITY WAS NOT INSTALLED AS OF 10/09.
Permit Notes	PM10 IS USED AS A SURROGATE FOR PM2.5. THE FACILITY IS NON-ATTAINMENT FOR PM2.5 AND PSD FOR PM, PM10, CO, NOX, SO2, AND VOC. A PRODUCTION RATE RESTRICTION ON THE ELECTRIC ARC FURNACES AND ROTARY HEARTH FURNACES WAS REQUESTED TO KEEP LEAD BELOW PSD ANT TITLE V THREASHOLDS. PM10 WAS USED AS THE LIMIT IN THE PERMIT, HOWEVER, SINCE PM2.5 WAS USED FOR ALL LAER DETERMINATIONS THE LIMITS WERE ENTERED UNDER PM2.5 INSTEAD.
Process Name	PAVED ROADWAYS AND PARKING AREAS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	CONTROL MEASURES INCLUDE APPLICATION OF WET SUPPRESSANTS, WATERING, SPEED REDUCTION, AND VACUUMING OR SWEEPING.
Emission Limit 1	153.4
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	FUGITIVE DUST
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0317
Facility Name	OHIO RIVER CLEAN FUELS, LLC
Facility State	OH
Permit Number	02-22896
Permit Issuance Date	11/20/08
Facility Description	COAL/BIOMASS-TO-LIQUIDS FACILITY. THE PRIMARY INDUSTRIAL PROCESSES: COAL/BIOMASS STORAGE AND HANDLING; COAL GASIFICATION; SYNGAS CLEANING (ACID GASS REMOVAL AND SULFUR RECOVERY PLANT); FISCHER-TROPSCH PROCESS (INDUSTRIAL ORGANIC CHEMICALS); PRODUCT UPGRADE PROCESS (SIMILAR TO PETROLEUM REFINING); LIQUID PRODUCT STORAGE; LOADING; ELECTRIC POWER GENERATION (USE FOR ON SITE ONLY). BIOMASS IS RESTRICTED TO ONLY SAWDUST AND WOOD CHIPS.
Permit Notes	NEW INDUSTRY, SIC AND NAICS CODE SELECTED BY FACILITY
Process Name	ROADWAYS AND PARKING AREAS
Process Type	99.14
Primary Fuel	
Throughput	736205
	vehicle mi/YR
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	P
Control Method Description	REDUCE SPEED LIMIT, SWEEPING, WATERING, AND GOOD HOUSEKEEPING MEASURES
Emission Limit 1	15.39
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	PM10 PER ROLLING 12-MONTH PERIOD
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	79
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	PM PER ROLLING 12-MONTH PERIOD
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0328
Facility Name	V & M STAR
Facility State	OH
Permit Number	P0103995
Permit Issuance Date	4/10/09
Facility Description	STEEL PRODUCTION. SEEMLESS STEEL TUBES, PIPE MILL. INCREASING FACILITY'S LIQUID STEEL PRODUCTION FROM 830,000 T/YR TO 1,400,000 TPY. NEW MELT SHOP. SEE MODIFICATION IN OH-0344.
Permit Notes	ONE EXISTING ELECTRIC ARC FURNACE AND ALLOY/ADDITIVE/FLUX HANDLING SYSTEM IS INCLUDED IN THIS PERMIT, THE OTHER EMISSIONS UNITS ARE NEW INSTALLATIONS.
Process Name	ROADWAYS AND PARKING AREAS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	PAVED AND UNPAVED ROADWAYS
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	CONTROL MEASURES SUFFICIENT TO MINIMIZE OR ELIMINATE EMISSIONS.
Emission Limit 1	12.4
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	FUGITIVE DUST USING AP-42 FACTORS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	FUGITIVE PM OF 10 MICRONS OR LESS.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0328
Facility Name	V & M STAR
Facility State	OH
Permit Number	P0103995
Permit Issuance Date	4/10/09
Facility Description	STEEL PRODUCTION. SEEMLESS STEEL TUBES, PIPE MILL. INCREASING FACILITY'S LIQUID STEEL PRODUCTION FROM 830,000 T/YR TO 1,400,000 TPY. NEW MELT SHOP. SEE MODIFICATION IN OH-0344.
Permit Notes	ONE EXISTING ELECTRIC ARC FURNACE AND ALLOY/ADDITIVE/FLUX HANDLING SYSTEM IS INCLUDED IN THIS PERMIT, THE OTHER EMISSIONS UNITS ARE NEW INSTALLATIONS.
Process Name	ROADWAYS AND PARKING AREAS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	PAVED AND UNPAVED ROADWAYS
Pollutant	Particulate matter, filterable (FPM)
Control Method Code	P
Control Method Description	CONTROL MEASURES SUFFICIENT TO MINIMIZE OR ELIMINATE EMISSIONS.
Emission Limit 1	62.6
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	FUGITIVE DUST USING AP-42 FACTORS
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	PM GREATER THAN 10 MICRONS.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0332
Facility Name	MIDDLETOWN COKE COMPANY
Facility State	OH
Permit Number	P0104768
Permit Issuance Date	2/9/10
Facility Description	Heat Recovery Coke Battery: 100 heat recovery coke ovens in 3 batteries: 1 w/ 20 ovens, 2 w/ 40 ovens each. Process includes coal handling, charging, heat recovery coking, pushing, quenching, coke handling and storage. Heat recovery steam generators will recover waste heat from ovens for steam and electricity. Maximum throughput: 912,500 tons wet coal/year and 654,449 tons coke/yr; 2690 tons coke/day. All power sent to AK Steel through grid, under bilateral trade agreement.
Permit Notes	Butler Co. is non-attainment for 8-hr ozone and PM 2.5 standard. Emission off-sets were purchased from permanently shutdown sources and the emission reduction credits (ERCs) were verified by OH EPA (from AK Steel and P&G). Even though they have different owners, Middletown Coke (MC) and AK Steel were considered one facility because they have a 20 year contract to only supply AK with their coke and they own contiguous properties. MC is non-attainment for PM2.5, NOx (ozone prcursor), SO2 (PM2.5 precursor) and PSD for PM, PM10, CO, SO2, NOx, & H2SO4. Monitors to be installed: 2 PM10, 4 PM 2.5, 1 SO2, and 2 VOC. Emission offset credits: 134.0 Tons PM2.5/YR; 1615.4 Tons SO2/YR; 477.4 Tons NOx/YR. Permit HAP limit of 3.6 T/YR from all Coke Batteries & Quench Tower. Waste gas flow 50,000 scfm.
Process Name	Roadways and Parking areas
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	P
Control Method Description	Control measures (watering etc.) when necessary
Emission Limit 1	1.08
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	PM, AS A ROLLING 12-MONTH SUMMATION
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0.21
Emission Limit 2 Unit	T/YR
Emission Limit 2 Avg Time Condition	PM10, AS A ROLLING 12-MONTH SUMMATION
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	0.05 TPY fugitive PM2.5, as a rolling 12-month summation, LAER.

Summary of Results of RBLC Database Search for PM

RBLC ID	OH-0345
Facility Name	DP&L J.M. STUART GENERATING STATION
Facility State	OH
Permit Number	P0106503
Permit Issuance Date	8/16/11
Facility Description	DP&L is constructing a residual waste landfill for gypsum, flyash, and bottom ash to support Killen & Stuart Station for disposal of excess gypsum that cannot be used by wallboard industry. Landfill named Carter Hollow Landfill
Permit Notes	
Process Name	Paved Roadways
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	P
Control Method Description	watering, use of reduced speed, good housekeeping
Emission Limit 1	110.96
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	FUGITIVE DUST
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	Fugitive PM limit: 90.63 Fugitive PM10 limit: 17.68 Fugitive 2.5 limit: 2.65 not PSD

Summary of Results of RBLC Database Search for PM

RBLC ID	*OK-0156
Facility Name	NORTHSTAR AGRI IND ENID
Facility State	OK
Permit Number	2013-0109-C PSD
Permit Issuance Date	7/31/13
Facility Description	The new Northstar Agri Industries Enid facility will be designed to convert 2,500 TPD of seeds into crude oil and RBD oil. The facility consists of several processing steps to prepare seed and remove up to 100 million gallons per year of crude oil and RBD oil.
Permit Notes	The new Northstar Agri Industries Enid facility will be designed to convert 2,500 TPD of seeds into crude oil and RBD oil. The facility consists of several processing steps to prepare seed and remove up to 100 million gallons per year of crude oil and RBD oil.
Process Name	Haul Roads
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	P
Control Method Description	Paved Haul Roads
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	All of the access and haul roads at the facility will be paved to minimize fugitive emissions.

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0132
Facility Name	ARGOS HARLEYVILLE PLANT
Facility State	SC
Permit Number	0900-0004-EF-R2
Permit Issuance Date	12/14/07
Facility Description	PORTLAND CEMENT PLANT
Permit Notes	
Process Name	PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	Particulate matter, total (TPM)
Control Method Code	P
Control Method Description	BEST MANAGEMENT PRACTICES CONSISTING OF SWEEPING AND/OR WATER FLUSHING TO MINIMIZE FUGITIVE DUST.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	SC-0132
Facility Name	ARGOS HARLEYVILLE PLANT
Facility State	SC
Permit Number	0900-0004-EF-R2
Permit Issuance Date	12/14/07
Facility Description	PORTLAND CEMENT PLANT
Permit Notes	
Process Name	PAVED ROADS
Process Type	99.14
Primary Fuel	
Throughput	0
Process Notes	
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	BEST MANAGEMENT PRACTICES CONSISTING OF SWEEPING AND/OR WATER FLUSHING TO MINIMIZE FUGITIVE DUST.
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	TX-0332
Facility Name	CHAPPARRAL STEEL MIDLOTHIAN STEEL MILL
Facility State	TX
Permit Number	PSD-TX-138 (M5)
Permit Issuance Date	4/24/00
Facility Description	THE FACILITY RECYCLES SCRAP IRON, SCRAP STEEL, AND CRUSHED AUTOMOBILES INTO STRUCTURAL STEEL BY THE FOLLOWING STEPS: (1) AUTOMOBILE AND SCRAP STEEL SHREDDING AND SEPARATION; (2) ELECTRIC ARC FURNACE MELTING, REFINING, CHARGING, TAPPING, AND SLAGGING; (3) CONTINUOUS NEAR NET SHAPE BEAM AND BILLETS CASTING WITH AUTOMATIC TORCH CUTOFF OF BEAMS; (4) REHEAT OF NEAR NET SHAPE BEAMS AND BILLETS; (5) ROLL MILL SHAPING TO FINAL PRODUCT. THIS IS AN AMENDMENT OF THE ORIGINAL PERMIT WHICH SERVES TO UPDATE REPRESENTATIONS OF EXISTING CRITERIA POLLUTANT EMISSIONS FROM THE METLSHOP OPERATIONS BASED ON STACK TESTING DATA, INCREASE THE CAPACITY AND ANNUAL FIRING RATE OF THE LARGE SECTION MILL REHEAT FURNACE, AND INCORPORATE OTHER MISCELLANEOUS EXISTING SOURCES AT THE PLANT INTO THE PERMIT.
Permit Notes	THE PERMIT WAS RENEWED ON AUGUST 3, 2000. THERE WERE NO CHANGES TO THE EMISSION LIMITS. CONTROLS WERE ADDED, AND ARE REFLECTED IN THIS DATABASE. THE PURPOSE OF THE 4/24/00 AMENDMENT WAS THE FOLLOWING: (1) ACCURATELY REPRESENT THE EXISTING EMISSIONS OF CRITERIA POLLUTANTS FROM MELTSHOP OPERATIONS; (2) MODIFY THE MELTSHOP TO REDUCE PARTICULATE EMISSIONS; (3) INCORPORAT MISCELLANEOUS EXISTING EMISSION SOURCES INTO THE PERMIT; (4) INCREASE MELTSHOP PRODUCTION FROM 1780000 TO 2048000 OF CAST STEEL PRODUCTION.
Process Name	IN-PLANT VEHICLE TRAFFIC
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.
Pollutant	PM10 (filterable)
Control Method Code	P
Control Method Description	CHEMICAL AND WATER SPRAY
Emission Limit 1	12.5
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	Other Case-by-Case
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	TX-0332
Facility Name	CHAPPARRAL STEEL MIDLOTHIAN STEEL MILL
Facility State	TX
Permit Number	PSD-TX-138 (M5)
Permit Issuance Date	4/24/00
Facility Description	THE FACILITY RECYCLES SCRAP IRON, SCRAP STEEL, AND CRUSHED AUTOMOBILES INTO STRUCTURAL STEEL BY THE FOLLOWING STEPS: (1) AUTOMOBILE AND SCRAP STEEL SHREDDING AND SEPARATION; (2) ELECTRIC ARC FURNACE MELTING, REFINING, CHARGING, TAPPING, AND SLAGGING; (3) CONTINUOUS NEAR NET SHAPE BEAM AND BILLETS CASTING WITH AUTOMATIC TORCH CUTOFF OF BEAMS; (4) REHEAT OF NEAR NET SHAPE BEAMS AND BILLETS; (5) ROLL MILL SHAPING TO FINAL PRODUCT. THIS IS AN AMENDMENT OF THE ORIGINAL PERMIT WHICH SERVES TO UPDATE REPRESENTATIONS OF EXISTING CRITERIA POLLUTANT EMISSIONS FROM THE METLSHOP OPERATIONS BASED ON STACK TESTING DATA, INCREASE THE CAPACITY AND ANNUAL FIRING RATE OF THE LARGE SECTION MILL REHEAT FURNACE, AND INCORPORATE OTHER MISCELLANEOUS EXISTING SOURCES AT THE PLANT INTO THE PERMIT.
Permit Notes	THE PERMIT WAS RENEWED ON AUGUST 3, 2000. THERE WERE NO CHANGES TO THE EMISSION LIMITS. CONTROLS WERE ADDED, AND ARE REFLECTED IN THIS DATABASE. THE PURPOSE OF THE 4/24/00 AMENDMENT WAS THE FOLLOWING: (1) ACCURATELY REPRESENT THE EXISTING EMISSIONS OF CRITERIA POLLUTANTS FROM MELTSHOP OPERATIONS; (2) MODIFY THE MELTSHOP TO REDUCE PARTICULATE EMISSIONS; (3) INCORPORAT MISCELLANEOUS EXISTING EMISSION SOURCES INTO THE PERMIT; (4) INCREASE MELTSHOP PRODUCTION FROM 1780000 TO 2048000 OF CAST STEEL PRODUCTION.
Process Name	IN-PLANT VEHICLE TRAFFIC
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	FUGITIVE EMISSIONS ARE AN ESTIMATE ONLY.
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	CHEMICAL AND WATER SPRAY
Emission Limit 1	34.8
Emission Limit 1 Unit	T/YR
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	Other Case-by-Case
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	

Summary of Results of RBLC Database Search for PM

RBLC ID	WI-0228
Facility Name	WPS - WESTON PLANT
Facility State	WI
Permit Number	04-RV-248
Permit Issuance Date	10/19/04
Facility Description	ELECTRICAL UTILITY
Permit Notes	SUPER CRITICAL PULVERIZED COAL (SCPC) FIRED ELECTRIC STEAM BOILER AND ASSOCIATED OPERATIONS 500 MW BASELOAD
Process Name	F134 ROADWAYS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	ALL HAUL ROADS ON-SITE WILL BE PAVED WHERE POSSIBLE. THE FOLLOWING ARE THE NEW ROADS FOR THE WESTON 4 PROJECT SOURCES. R09 -W4 FLY ASH ALTERNATE R10-W4 LINE DELIVERIES R11 - W4 BOTTOM ASH (DAILY ROUTE) R13 - W4 SALABLE FLY ASH (IN SEASON) R14 - W4 PAC DELIVERIES THESE ROADS WILL ONLY BE OPERATED FROM 6 AM TILL 10 PM (16 HOURS EACH DAY)
Pollutant	Particulate Matter (PM)
Control Method Code	P
Control Method Description	PAVE ALL HAUL ROADS WHERE POSSIBLE, FUGITIVE DUST CONTROL PLAN, WATERING ROADWAYS, SWEEPING ROADS, LIMIT ROAD HOURS OF OPERATION
Emission Limit 1	0
Emission Limit 1 Unit	
Emission Limit 1 Avg Time Condition	SEE NOTE
Case-by-Case Basis	BACT-PSD
Percent Efficiency	0
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	
Pollutant Compliance Notes	RACT REQUIRES THEY SWEEP DAILY (EXC. WHERE WEATHER PREVENTS). PAVE ALL HAUL ROADS WHERE POSSIBLE, FUGITIVE DUST CONTROL PLAN, WATERING ROADWAYS, SWEEPING ROADS, LIMIT ROAD HOURS OF OPERATION. NO EMISSION LIMITS GIVEN.

Summary of Results of RBLC Database Search for PM

RBLC ID	WV-0024
Facility Name	WESTERN GREENBRIER CO-GENERATION, LLC
Facility State	WV
Permit Number	R14-0028
Permit Issuance Date	4/26/06
Facility Description	NOMINAL 98 NET MEGAWATT WASTE COAL-FIRED STEAM ELECTRIC CO-GENERATION FACILITY. BOILER IS CFB TECHNOLOGY. FACILITY INCLUDES KILN TO PRODUCE CEMENTITIOUS MATERIAL FROM ASH GENERATED IN BOILER.
Permit Notes	FACILITY NEVER BUILT.
Process Name	PAVED HAULROADS
Process Type	99.14
Primary Fuel	
Throughput	
Process Notes	
Pollutant	Particulate matter, fugitive
Control Method Code	B
Control Method Description	SHALL MAINTAIN PAVEMENT SHALL USE VACUUM SWEEPER AND WATER TRUCKS MAX SPEED 15 MPH
Emission Limit 1	90
Emission Limit 1 Unit	% REDUCTION
Emission Limit 1 Avg Time Condition	
Case-by-Case Basis	BACT-PSD
Percent Efficiency	90
Emission Limit 2	0
Emission Limit 2 Unit	
Emission Limit 2 Avg Time Condition	
Standard Emission Limit	0
Standard Emission Limit Unit	
Standard Limit Average Time Condition	NOT AVAILABLE
Pollutant Compliance Notes	

APPENDIX G
MODELING PROTOCOL AND PROTOCOL APPROVAL LETTER

Air Quality
ENVIRONMENTAL QUALITY

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

MICHAEL A. ABRACZINSKAS
Director

January 19, 2018

Mr. Maitland Homer
Vice President Construction
Enviva Pellets Sampson, LLC
7200 Wisconsin A venue, Suite 1000
Bethesda, Maryland 20814

Subject: PSD Air Dispersion Modeling Protocol
Enviva Pellets Sampson, LLC
Facility ID: 8200152
Faison, NC Sampson County

Dear Mr. Homer:

The Air Quality Analysis Branch (AQAB) has reviewed the modeling protocol received December 22, 2017 for the Enviva Pellets Sampson, LLC facility located in Faison, Sampson County, North Carolina. The protocol defines the methodologies that will be used to support the air quality analysis of the proposed physical and operational changes at the Sampson plant. Preliminary estimates of project emissions under review and covered in the modeling protocol show emission increases of volatile organic compounds (VOC) exceeding Prevention of Significant Deterioration (PSD) Significant Emission Rates (SERs) as defined under 40 CFR 51.166(b)(23). In addition to VOCs, project emissions of total suspended particulate (TSP) are expected to exceed the 25 tons per year SER, and thus, trigger review under the State Ambient Air Quality Standards (SAAQS) as defined by 15A NCAC 02D .0403. Although the modeling protocol discusses exemptions from toxics impacts per 15A NCAC 02Q.0702(27)(B) and (C), any increases in toxic air pollutants (TAPs) emissions from the project will require evaluation of facility-wide TAPs emissions, in accordance with NCGS 143-215.107(a)(b), 15A NCAC 02Q .0700 and 15A NCAC 02D .1104.

The modeling protocol proposes to use methodologies from the EPA draft *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD permitting Program (EPA-454/R-16-006)*. Specifically, project VOC and NO_x emissions increases will be compared to the most conservative ozone MERPs values (based on 1 ppb 8-hour ozone SIL) from the EPA guidance to demonstrate that project emission increases will not cause or contribute to a violation of the 8-hour Ozone NAAQS. AQAB agrees that application of the current draft MERPs guidance as a Tier 1 screening tool for ozone analyses under the PSD program is appropriate for this project. Please note, however, that EPA may revise the MERPs guidance later in 2018. Therefore, subsequent revisions by EPA to the draft MERPs guidance made prior to receipt of a complete PSD application may require further consultation with AQAB.

Methodologies proposed in the protocol that are applicable to the facility-wide TSP modeling demonstration appear appropriate based on the information presented in the protocol, and based on current state and federal modeling guidelines.

The PSD Air Dispersion Modeling Protocol submitted in support of the PSD review of the physical and operational changes at the Sampson plant is conditionally approved as submitted and as per comments provided in this letter. This conditional approval is valid for **90 days**. This letter addresses only the modeling protocol and not the specific data submitted with the PSD application, which we will review upon receipt of a complete application. If you have any questions or comments, please contact me via phone: (919) 707-8268, or email: matthew.porter@ncdenr.gov.

Sincerely,

Matthew Porter, Meteorologist II
Air Quality Analysis Branch

c: Permit Coordinator, FRO
Kevin Godwin, RCO
Tom Anderson, AQAB
Matthew Porter, AQAB

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Via Electronic Mail

Mr. Tom Anderson
Air Quality Analysis Branch Supervisor, Division of Air Quality
North Carolina Department of Environmental Quality
1641 Mail Service Center
Raleigh, NC 27699

Email: Tom.Anderson@ncdenr.org

PREVENTION OF SIGNIFICANT DETERIORATION AIR DISPERSION MODELING PROTOCOL
ENVIVA PELLETS SAMPSON, LCC
FAISON,NC PLANT

Dear Mr. Anderson:

Date December 22, 2017

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

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www.ramboll-environ.com

Ramboll Environ US Corporation (Ramboll Environ) is submitting this air dispersion modeling protocol on behalf of the Enviva Pellets Sampson, LLC (Enviva) plant located near Faison, NC in Sampson County (Sampson plant). The Sampson plant is an existing major source with respect to the federal Prevention of Significant Deterioration (PSD) permitting program.

Enviva is proposing several physical and operational changes to the Sampson plant which will result in an increase in emissions above the PSD Significance Emission Rate (SER) thresholds. As such, a PSD construction permit application and air dispersion modeling analysis are required. The following sections provide a detailed description of the proposed methodologies and data sources that will be used in the modeling analysis.

AIR QUALITY ANALYSIS

The proposed project will trigger PSD for volatile organic compounds (VOC) and total suspended particulate (TSP) as emissions increases exceed the respective PSD SER. Emissions increases of carbon monoxide (CO), oxides of nitrogen (NO_X), particulate matter (PM) less than 10 microns in diameter (PM_{10}), and PM less than 2.5 microns in diameter ($PM_{2.5}$) are below the SERs and thus, no modeling will be conducted for these pollutants.

There are no National Ambient Air Quality Standards (NAAQS) or PSD Increment standards for VOC; however, if emissions increases exceed 100 tons per year (tpy) an ambient ozone impact analysis is required. Additionally, although there are no NAAQS or PSD Increment standards for TSP, modeling will be conducted to demonstrate that the Sampson plant, as modified, will not cause or contribute to an exceedance of the State Ambient Air Quality Standards (SAAQS) for TSP.

The analyses will be conducted consistent with the following state and federal guidance documents:

- North Carolina's PSD Modeling Guidance (January 6, 2012);

- U.S. EPA's Guideline on Air Quality Models 40 CFR 51, Appendix W (Revised, January 17, 2017), herein referred to as Appendix W;[1]
- U.S. EPA's AERMOD Implementation Guide (Revised August 3, 2015); and
- U.S. EPA, Office of Air Quality Planning and Standards. Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program. EPA-454/R-16-006. December 2016.

STATE AMBIENT AIR QUALITY STANDARDS

Ambient air quality standards for TSP are established in 15A NCAC 2D .0403 and are summarized in Table 1 below. Enviva will conduct modeling to demonstrate that the proposed changes will not result in an exceedance of the SAAQS for TSP.

Table 1. NC TSP SAAQS

Averaging Period	SAAQS (µg/m³)
24-Hour	150
Annual	75

To assess compliance with the SAAQS, all sources at the Sampson plant will be modeled. The maximum annual concentration across the five years of meteorological data will be compared to the annual SAAQS and the highest-first-high (H1H) 24-hour concentration across the five years will be compared to the 24-hour SAAQS. If concentrations are below the SAAQS, Enviva will conclude that the Sampson plant will not cause or contribute to an exceedance of the TSP SAAQS.

OZONE AMBIENT IMPACT ANALYSIS

Since emissions increases of VOC from the proposed project will exceed 100 tpy, an ozone ambient impact analysis will be completed. Enviva will conduct the analysis using Modeled Emission Rates for Precursors (MERPs), consistent with EPA's *Draft Guidance on the Development of MERPs as a Tier I Demonstration Tool for Ozone and PM2.5 Under the PSD Permitting Program*.[2] Enviva will utilize the most conservative MERPs values for the Eastern US shown in Table 2 below.

[1] Appendix W was revised on December 17, 2016 (Federal Register Vol. 82, No. 10); however, on January 26, 2017 the effective date of the final rule was delayed until March 21, 2017 (Federal Register Vol. 82, No. 16). On March 20, 2017 the effective date of the final rule was further delayed to May 22, 2017 (Federal Register Vol. 82, No. 52).

[2] U.S. EPA, Office of Air Quality Planning and Standards. Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program. EPA-454/R-16-006. December 2016.

Table 2. MERPs for NO_x and VOC

Precursor	MERP
NO_x	107
VOC	814

The entire state of North Carolina is currently in attainment with the 2008 8-hour ozone standard (0.075 ppm) and the North Carolina Department of Environmental Quality (NCDEQ) has recommended that all of North Carolina be classified as attainment for the 2015 8-hour ozone standard (0.070 ppm[3]). Given the magnitude of the expected emissions increases, Enviva does not anticipate that the proposed project will have a significant impact on regional ozone concentrations.

CLASS I AREA ANALYSIS

The Federal Land Managers (FLM) are responsible for protecting Air Quality Related Values (AQRV) at Class I areas and have the authority to determine whether a proposed project is expected to have a negative impact on AQRV.

There are three (3) Class I areas located within 300 kilometers (km) of the Sampson plant:

- Swanquarter National Wildlife Refuge (158 km to the east);
- Cape Romain national Wildlife Refuge (252 km to the south southwest); and
- James River Face Wilderness Area (294 km to the northwest).

Given the expected magnitude of the proposed changes at the Sampson plant, Enviva anticipates that no AQRV analysis will be required.

There are no Class I PSD Increments for VOC or TSP; therefore, no Class I Increment analysis is required.

MODEL SELECTION

Enviva will utilize the latest version of the AERMOD model (Version 16216r). AERMOD is the EPA-approved air dispersion model for near-field (within 50 km) PSD modeling analyses. AERMOD will be run using default regulatory options.

RECEPTOR GRID AND ELEVATION DATA

A resolution of 25 meters will be used for receptors along the ambient boundary and a 500 meter Cartesian grid will extend 10 km from the center of the plant. Modeled concentrations will be reviewed to ensure that the maximum concentration is captured for both the 24-hour and annual averaging periods.

Receptor elevations, in addition to source and building elevations, will be determined using the AERMAP terrain pre-processor. Hill height parameters required by AERMOD are also calculated by AERMAP. Elevations will be based on 1 arc-second National Elevation Dataset (NED) from the U.S. Geological Survey (USGS).[4]

[3] Letter from Donald R. van der Vaart (Secretary, NCDEQ) to Heather McTeer Toney (Regional Administrator, EPA Region 4) on September 30, 2016.

[4] https://www.mrlc.gov/viewerjs/

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METEOROLOGICAL DATA

Enviva will utilize AERMOD-ready meteorological data provided by the North Carolina Division of Air Quality (NCDAQ) for the Fayetteville National Weather Service (NWS) surface station (ID: 93740) and upper air data from the Greensboro NWS Station (ID: 13723) for the period 2012-2016.[5] The data will be processed using version 16216 of AERMET with the ADJ U* option. The base elevation for the Fayetteville surface station will be set to 57 m.[6]

BUILDING DOWNWASH

The current version of the BPIP-PRIME pre-processor (Version 04274) will be utilized to calculate direction-specific building parameters required by AERMOD.

TOXIC AIR POLLUTANTS

Per 15A NCAC 02Q.0702(27)(B) and (C), sources subject to 40 CFR 63 or case-by-case Maximum Achievable Control Technology (MACT) are exempt from the requirement to obtain a permit to emit toxic air pollutants (TAP). All sources of TAP emissions at the Sampson plant are subject to 40 CFR 63 or have undergone case-by-case MACT. As such, no modeling for TAPs is required. Although not required, previous modeling submittals have demonstrated that modeled TAP impacts from the Sampson plant are well below the Acceptable Ambient Levels (AAL.) The proposed changes will not significantly alter TAP emissions and thus, Enviva proposes not to conduct revised modeling for TAP.

CLOSING

Thank you for your consideration of this matter. If you have any questions or need further information, please contact me or Kai Simonsen (984-789-3628) at your convenience.

Yours sincerely

Michael H. Carbon
Managing Principal

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M +1 225 907 3822
mcarbon@ramboll.com

cc: Mr. Kai Simonsen, Enviva

Mr. Chris Seifert, Enviva

[5] Data provided via email to Aubrey Jones (Ramboll Environ) by Matthew Porter (NCDAQ) on May 12, 2017.
[6] https://ncdenr.s3.amazonaws.com/s3fs-public/Air%20Quality/permits/mets/ProfileBaseElevations_17Oct2016.pdf

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