

**Preconstruction Analysis
Enviva Pellets Epes, LLC
Epes, Sumter County, Alabama
Facility No. 412-0017
Air Permit Nos. X001-X009**

On April 24, 2019, Enviva Pellets Epes, LLC submitted an initial application to the ADEM-Air Division for Air Permits which would authorize the construction and operation of a wood pellet manufacturing facility to be located at 790 Port of Epes Highway in Epes. The application was deemed complete on August 2, 2019. Based on the information submitted, the facility would be a synthetic minor source under the PSD regulations and a major source under the Title V regulations. Draft Air Permit Nos. X001 through X009 are attached in Appendix B for the proposed processing operations and emergency diesel engines.

Proposed Operations

The proposed facility would manufacture finished wood pellets from received logs, green wood chips, bark, and dry shavings. Air emission sources would include three rotary dryer lines, two pelletizing lines, various material handling and storage operations, and three emergency diesel engines. Emissions from the drying operations would be controlled by three wet electrostatic precipitators (WESPs) and three regenerative thermal oxidizers (RTOs). Emissions from the pelletizing operations would be controlled by two wet scrubbers and two regenerative catalytic oxidizers (RCOs). Emissions from several of the material receiving, storage, and loadout operations would be controlled by baghouses and bin vent filters. The facility would be designed to produce approximately 1,201,995 oven dried tons (ODT) per year of wood pellets utilizing up to 100% softwood. Proposed construction may take place in either one or two phases. If construction is broken into two phases, the initial construction phase would have a production capability of 661,097 ODT per year. The second construction phase would be implemented with 18 months of completing the first phase and would result in the final production capacity of 1,201,995 ODT per year. Specific processes are discussed below:

X001 – Green Raw Material Receipt, Processing, and Storage

Wood fiber (logs, green wood chips, bark, and dry shavings) would be delivered by trucks, which would be unloaded and stored. The facility would utilize three chip truck dumps, one bark truck dump, and one dry shavings truck dump. Whole logs would be debarked and chipped. Bark from the debarker, as well as purchased bark, would be processed through a bark hog, then conveyed to a storage pile for use as dryer furnace fuel. Purchased green wood chips and chips from the log chipper would be conveyed to a green wood chip storage pile. All conveyance from these operations would be mechanical and would not utilize air pollution control devices, though the conveyors would be partially enclosed.

X002 – Green Raw Material Milling, Drying, and Storage

Green wood chips from the storage piles would be processed by five green hammermills to ensure proper sizing prior to entering the rotary drum drying lines. The facility would dry the chips utilizing three drying lines. Each drying line would have an 84 wet TPH (42 ODT/hr) rotary drum dryer directly heated by a 168 MMBtu/hr wood-fired furnace. From each dryer, an induced draft would transport the exhaust gases and dried chips to twin HE material handling cyclones to separate the wood material from the gases. The dryer design would incorporate the recirculation of a portion of the exhaust gases to improve efficiency and reduce emissions. The non-recirculated portion of the exhaust gas would be vented to a WESP, followed by a RTO, which would exhaust to the atmosphere. The RTO(s) would utilize natural gas (and propane as backup) to fuel the auxiliary burners. The dried chips from each dryer line would be conveyed to a dry hammermill feed silo that would be aspirated back into the twin cyclones and downstream WESP and RTO on either Dryer Line 1 or Dryer Line 2. The green hammermills would also be part of a closed loop system that would exhaust to the WESP and RTO of Dryer Line 1. In the event Dryer Line 1 is not in operation, the green hammermill exhaust would be routed to the WESP and RTO of Dryer Line 2.

To prevent the buildup of wood tar in the walls of the dryer ducts, the duct from the post-dryer cyclone outlet and exhaust gas recirculation duct would be heated by two 2.5 MMBtu/hr natural gas-fired (propane backup) burners (per dryer line; 6 total burners). The combustion gases from the burners would exhaust to the WESP and RTO.

The application accounted for emissions from furnace and dryer bypass stacks. Each of the three furnaces and each of the three dryers would utilize a bypass stack that would be used to exhaust gases for temperature control during start-ups, shutdowns, and malfunctions. In the event of a malfunction and a furnace abort, the furnace would automatically switch to “idle mode”, which is defined by Enviva as furnace operation up to a maximum heat input of 5 MMBtu/hr. The application detailed planned operational procedures that would be followed during cold start-ups, malfunctions, and planned shutdowns. The potential emissions included in the permit application for the dryer and furnace bypass stacks conservatively represent emissions during full capacity bypass, which would only occur in the event of a malfunction. Enviva calculated potential emissions from bypass stacks based upon an estimated 50 hours of full capacity bypass from each dryer bypass stack and 50 hours of full capacity bypass from each furnace bypass stack during malfunction. Although malfunctions are unplanned events that cannot be permitted, the calculations indicate that the facility would not exceed the PSD major source thresholds when including emissions from 50 hours of full capacity dryer bypass and 50 hours of full capacity furnace bypass. The draft Air Permit only authorizes emissions associated with cold start-ups and planned shutdowns.

X003 – Dry Shavings Handling and Storage

Dry shavings, derived from wood planer shavings and sawdust from dried lumber, would be delivered by truck to the dry shavings truck dump and used directly in the pelletizing process. Dry shavings from the enclosed truck receiving hopper would be transferred to a dry shavings silo via an enclosed conveyor and bucket elevator. Particulate matter in the displaced air from the silo during loading would be controlled by a baghouse.

X004 – Additive Handling and Storage

A dry powder additive may be used to act as a lubricant for the pellet mill dies. The additive would be delivered by truck and pneumatically loaded into an additive storage silo. The silo would be equipped with a baghouse to control particulate emissions from the displaced air during silo loading.

X005 – Wood Pelletization Process

The facility would utilize two pelletizing lines. Each pelletizing line would consist of dry hammermills, pellet mills, and pellet coolers. Enviva plans to use total of 48 dry hammermills, 18 pellet mills, and 9 pellet coolers in the process. Pelletizing Line 1 would process two-thirds of the total throughput and Pelletizing Line 2 would process the remaining one-third. Dry wood chips and dry shavings from their respective silos would be processed through dry hammermills to reduce their size to less than 4 mm. The dry hammermill feed silo and all associated conveyors and transfer points would be sealed and kept under negative pressure. Aspiration systems would be used to remove the heated moist air from the dry hammermills, pellet mills, and pellet coolers. These aspiration systems would be routed to HE material handling cyclones and then to wet scrubbers, followed by RCOs, which would vent to the atmosphere. Each pelletizing line would have a wet scrubber/RCO combination. The RCO auxiliary burners would be fueled by natural gas, with propane as a backup fuel.

The milled wood fiber from the dry hammermills would be compressed into wood pellets in pellet mills. The heat created by friction from the compressing of the wood fiber through the die would activate the lignins in the wood, effectively bonding the fibers into a hard pellet. No resin or chemical binder would be used. A dry powder additive may be used, if needed, to act as a lubricant for the dies. The additive would contain no HAP or VOC. From the additive storage silo, it would be added to the wood material from the dry hammermills via a screw conveyor. Pellets exiting the pellet mills would be gravity fed to counter air flow pellet coolers to cool and stabilize the pellets before being conveyed to storage.

X006 – Pellet Storage

Cooled finished pellets would be conveyed to any one of seven finished product storage silos. The silos would be located adjacent to the barge loading area and would provide approximately two days of pellet storage capacity. Each silo would be equipped with a 12,000 cfm bin vent filter to control emissions from the displaced air during silo loading.

X007 – Barge Loading Operations

From the hopper bottoms of the finished product storage silos, pellets would discharge onto a fixed conveyor that would feed a telescopic conveyor over the barge notch. The telescopic conveyor would have the ability to move horizontally for barge loading. Pellets would then be fed to a telescopic loading spout that would have the ability to move vertically with the depth of the barge. The barges would be loaded using the telescopic loading spout through the hatches in the barge cover. All conveyors would be sealed and the dust laden air would be aspirated to a baghouse for emissions control.

X008 – 131 Brake-Hp (98 kWm) Emergency Diesel Fire Pump Engine

The facility would be equipped with an emergency diesel fire pump engine that would power its fire suppression system.

X009 – Two 671 Brake-Hp (500 kWm) Emergency Diesel Emergency Generator Engines

The facility would be equipped with two diesel engine-powered emergency generators that would be used in the event of an electrical power outage.

Other Sources

Two 4,500 gallon diesel storage tanks (EP-033/EP-034) would store fuel for use in the emergency engines and on-site mobile equipment. In the event that natural gas is not available, a direct-fired 1 MMBtu/hr propane vaporizer would be located on-site. The vaporizer would be fueled with propane and would vaporize propane gas for the RTO burners, RCO burners, and the rotary dryer system duct burners.

Emissions

A facility-wide potential emission summary excerpted from the application is included as Appendix A. According to Enviva, all processes would be sources of particulate matter (PM, PM₁₀ and PM_{2.5}). It should be noted that likely sources of PM_{2.5} are just those involving combustion. Only draft Air Permit Nos. X002, X005, X008, and X009 involve combustion. Enviva has proposed the use of baghouses, binvent filters, WESPs, wet scrubbers, RTOs, RCOs, and design measures where practical to minimize emissions from its operations. Emissions from the dryer system (X002) would include the products of combustion from the furnaces and the RTOs, which include particulate matter (PM, PM₁₀, and PM_{2.5}), carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOC), and various hazardous air pollutants (HAP). Enviva has proposed the use of a WESP followed by a RTO on each of the three dryer lines for control of particulate, VOC, and HAP emissions generated by the green wood hammermilling and green wood chip drying operations. Emissions from the pelletization process (X005) would include particulate matter (PM, PM₁₀, and PM_{2.5}), CO, NO_x, SO₂, VOC, and HAP from the process and combustion emissions from the RCOs. Enviva proposes to control pelletization emissions by the use of a wet scrubber followed by a

RCO on each of its two pelletization lines. Emissions from the three emergency diesel engines (X008/X009) would include products of combustion of diesel fuel, which would include particulate matter (PM, PM₁₀, and PM_{2.5}), CO, NO_x, SO₂, VOC, and HAP emissions. Particulate emissions would result from the receipt, handling, and storage of dry shavings, dry additive, pellet handling and storage, and barge pellet loading. According to Enviva, negligible to no VOC emissions would be expected from these materials due to the low moisture content and ambient temperature environments. Emission calculations in the application were based on AP-42 emission factors, AIRS emission factors, NCASI emission factors, and the results of source testing at other Enviva facilities. The emission calculations indicate facility-wide potential combined HAP emissions of 34.7 TPY, with the potential emissions of the highest-emitted HAP, acetaldehyde, calculated at 5.89 TPY.

Federal Regulations

PSD

The facility operations are not one of the 28 listed major source categories and the facility is located in an attainment area for all criteria pollutants. Therefore, the major source threshold of concern is 250 TPY for criteria pollutants. The facility would be a synthetic minor source under the PSD regulations. A summary of the facility-wide potential emissions, excerpted from the permit application, is attached as Appendix A. In the summary, Enviva proposed synthetic minor emission limits for the equipment associated with draft Air Permit No. X001. However, the emissions from these sources would be fugitive, and therefore would not be included in PSD applicability. Accordingly, the proposed emission limitations for X001 were not included in the draft Air Permit. Also, synthetic minor emission limits were proposed in the summary for the emergency diesel engines. These mass-rate limits are not necessary as the applicable NSPS regulations would limit the emission rates.

The applicable State particulate emission standards would result in plantwide point-source allowable emissions for PM above the major source threshold (>1400 TPY). Therefore, Enviva has proposed limits for PM/PM₁₀/PM_{2.5} to restrict the facility-wide allowable emissions for this pollutant to below the major source threshold. The proposed emission limits would result in a plantwide potential PM/PM₁₀/PM_{2.5} emission rate of 207 TPY. Due to the particulate limits being requested to avoid PSD, PM/PM₁₀/PM_{2.5} plus condensable particulates must be considered. Due to the nature of the material handling operations and large particle size emitted from non-combustion sources, only the stacks of the RTOs controlling the drying process, and the stacks of the RCOs controlling the pelletizing process are expected to contain any significant amount of PM_{2.5} and condensable particulate matter. Therefore, compliance for all emission point-specific particulate sources other than the RTO/RCO stacks would be determined by measuring filterable particulates. Compliance with the emission limits for the RTO/RCO stacks would be determined by measuring all particulate, including condensable.

Enviva has requested CO, NOx, and VOC emission limits which would restrict the facility-wide potential emissions to below the PSD major source threshold. The uncontrolled potential emissions of SO₂ emissions would be below the 250 TPY major source threshold for PSD, and no synthetic minor emission limit for this pollutant would be necessary. Though 40 CFR 60, Subpart IIII limits the non-emergency usage of the emergency diesel engines, PSD applicability is determined using 8,760 hours of operation unless the operating hours are synthetically limited due to there being no restriction on emergency operating hours. Enviva requested that the operating hours of the emergency diesel engines (X008/X009) be synthetically limited to 500 hours, each, during any consecutive 12-month period to reduce the potential emissions.

Regarding dryer system (X002) bypass emissions, Enviva included these emissions in its potential emissions. Three scenarios were identified as 1) Normal Operation, Dryer Bypass (full capacity); 2) Furnace Bypass (full capacity); and 3) Furnace Bypass (idle mode). The draft Air Permit includes the requested bypass maximum operating hour limitation of 50 hours per furnace bypass stack, during any consecutive 12-month period, to accommodate startup/shutdown. The draft permit also contains a maximum operating hour limitation for furnace bypassing in idle mode (≤ 5 MMBtu/hr furnace heat input) of 500 hours during any consecutive 12-month period.

The draft Air Permits also contain requested throughput limits for green wood chips processed by the green hammermills (1,176,556 ODT) and green wood chips through each rotary drum dryer (367,920 ODT) (X002), and for the total pellet production (1,201,995 ODT) (X005). These consecutive 12-month throughput limits were requested with Enviva's intention to track emissions by establishing lb/ODT emission factors for various pollutants derived during the required stack testing to determine compliance with the mass rate synthetic minor emission limits.

Title V

After construction, the facility-wide potential emissions for all criteria pollutants, with the exception of SO₂, would exceed the 100 TPY major source threshold. Also, the facility-wide potential emissions of combined HAP would exceed the 25 TPY major source threshold. Therefore, Enviva would be required to submit a Title V Major Source Operating Permit application within 12 months of start-up, which would be marked by issuance of Temporary Authorization to Operate (TAO).

NSPS

The application indicates that the 131 Hp emergency diesel fire pump engine (X008) would be subject to 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which applies to owners/operators of stationary fire pump engine CI ICE that commenced construction after July 11, 2005, and are manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006 [$\S 60.4200(a)(2)(ii)$]. Since the fire pump engine has not yet been manufactured, it would be subject to this NSPS. The application indicates that the fire pump engine would be certified to meet the applicable

emission standards in Table 4 to Subpart III as required by §60.4205(c) and §60.4202(d) for the engines with a displacement of less than 30 liters per cylinder.

The two proposed 671 hp emergency diesel generator engines (X009) would be subject to 40 CFR 60, Subpart III, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, which applies to owners/operators of stationary CI ICE that commence construction after July 11, 2005, and are manufactured after April 1, 2006 and are not fire pump engines [§60.4200(a)(2)(i)]. Since the emergency generators have not yet been manufactured, they would be subject to this NSPS. According to §60.4205(b), owners and operators of post-2007 model year emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR §60.4202(a)(2). In addition to the emission standards found in §89.112(a), Table 1, for NMHC+NO_x, CO, and PM, the engines would be subject to the opacity standards found in §89.113.

Applicable to all three engines, the NSPS has fuel requirements for the sulfur content of the fuel (≤ 15 ppm) and the Cetane index (≥ 40) or aromatic content ($\leq 35\%$ by volume). The engines must be equipped with a non-resettable hour meter prior to startup. The NSPS also limits the operation of each engine to emergency situations and 100 hours per year for maintenance checks and readiness testing.

The permittee would be required to make a record of the operation of each engine in emergency and non-emergency service as recorded by the non-resettable hour meter. The permittee would be required to record the date, time, duration, and purpose of operation of the engine each time the engines operate. To demonstrate compliance with the fuel limitations, the permittee would be required to maintain records of the sulfur content and either the Cetane index or aromatic content of the diesel fuel that is burned in the engines. The permittee would be required to maintain these records in a permanent form suitable for inspection and shall make the records readily available for inspection upon request. The records would be required to be retained for a period of 5 years from the generation of each record.

The 168 MMBtu/hr wood-fired furnaces would supply direct heat to the rotary dryers and would not be indirect heating devices. Therefore, the furnaces would not be subject to NSPS, Subpart Db. Furthermore, there would be no other sources at the proposed facility that would be subject to a NSPS.

MACT

The 131 Hp emergency diesel fire pump engine (X008), and the two 671 Hp emergency diesel generator engines (X009) would be affected sources under 40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (the "RICE MACT"). All three engines would be new sources as they have yet to be constructed.

Regarding the 131 Hp emergency diesel fire pump engine, according to §63.6590(c)(7), a new or reconstructed stationary “RICE” with a rating of \leq 500 Hp and located at a major source of HAP emissions must meet the requirements of the “RICE MACT” by meeting the requirements of 40 CFR 60, Subpart IIII. No further requirements would apply to the emergency generator under Subpart ZZZZ.

Regarding the two 671 Hp emergency diesel generator engines, each with a rating of > 500 Hp and located at a major source of HAP emissions, §63.6590(b)(1)(i) states that these engines do not have to meet the requirements of Subpart ZZZZ and Subpart A, except for the initial notification requirements of §63.6645(f).

The facility would not be an affected source under the Plywood and Composite Wood Products (PCWP) MACT, 40 CFR Part 63, Subpart DDDD, as the wood pellets utilize no binder or resin, and would not meet the definition of a “composite wood product.”

The facility would not be an affected source under the Boiler MACT, 40 CFR Part 63, Subpart DDDDD, as the three dryer furnaces would supply direct heat to the rotary dryers, and would not meet the definition of a “boiler” or a “process heater” under the definitions found in §63.7575.

Case-by-Case MACT (ADEM Admin. Code r. 335-3-14-.06) (Determinations for Major Sources in Accordance with Clean Air Act Section 112(g))

Since the facility would be constructed at a greenfield site, and the potential emissions would be 34.7 TPY of combined HAP, which exceeds the 25 TPY major source threshold, and the facility operations (other than the emergency engines) would not be an affected source under an existing MACT, Enviva was required to conduct a “case-by-case” MACT analysis. The analysis relied on a review of those control technologies achieved in practice by other similar sources in the wood pellet industry. In its analysis, Enviva identified the following emission units that would be sources of HAP emissions:

- Log Chipper
- Bark Hog
- Furnaces/Dryers and associated bypass stacks
- Dryer System Duct Burners
- Green Hammermills
- Dry Hammermills
- Pellet Mills
- Pellet Coolers
- Emergency Generators (40 CFR Part 63, Subpart ZZZZ)
- Fire Water Pump (40 CFR Part 63, Subpart ZZZZ)
- Propane Vaporizer

Chipper and Bark Hog

Enviva identified that these units would be sources of methanol emissions that would be fugitive in nature. The chipper would be enclosed within a building and would have the

potential to emit approximately 0.44 TPY of methanol. Enviva contends that it would not be feasible to capture and control HAP emissions due to the volume of air that would need to be captured and routed to a control device. The processing of purchased bark and bark from the debarker by the bark hog would have the potential to emit approximately 0.27 TPY of methanol. According to Enviva, there are no add-on air pollution control technologies that currently exist to capture and control the HAP emissions from a bark hog. There are no known work practice standards or operational measures that would reduce emissions from these sources. Therefore, Enviva proposed no control or work practices for these two sources.

Furnaces/Dryers, Green Wood Hammermills, and Dryer System Duct Burners

The facility would utilize three rotary dryers to reduce the moisture content of green wood chips. Each dryer would be directly heated by a 168 MMBtu/hr wood-fired burner. Prior to drying, the green wood chips would be reduced to an appropriate size using five green hammermills. Particulate, VOC, and HAP emissions from each of the three drying lines, the green hammermills, and the dryer system duct burners would be controlled by a WESP (one per dryer line), followed by a RTO (one per dryer line). While the RTOs are proposed specifically to reduce the facility-wide VOC emissions to below the PSD major source threshold, they would also reduce HAP emissions. Enviva proposes to utilize RTOs with a minimum VOC destruction efficiency of 95% as MACT. The proposed efficiency is more stringent than that required by the PCWP MACT, 40 CFR Part 63, Subpart DDDD, which requires a minimum 90% reduction.

Regarding the use of the furnace and dryer bypass stacks, Enviva indicated that these events would result in HAP emissions of less than 1 TPY, and that the ability to abort under their described situations are necessary for safe operation of the facility. These episodes would be minimized to the extent possible. Enviva contends that the addition of controls for the bypass stacks would not be cost effective and could result in adverse environmental impacts due to emissions resulting from increased fuel combustion from continuous operation of the control device (RTO/RCO).

Dry Hammermills, Pellet Mills, and Pellet Coolers

The facility would produce wood pellets using two pelletization lines, comprised of dry hammermills, pellet mills, and pellet coolers. Two wet scrubbers (one per line) would be used to control particulate emissions and two RCOs (one per line) would be utilized to control VOC, and coincidentally HAP, emissions from the pelletizing lines. Enviva proposes the use of these control devices, and a VOC destruction efficiency of a minimum 96.3% across the RCOs, as MACT. The proposed efficiency is more stringent than that required by the PCWP MACT, 40 CFR Part 63, Subpart DDDD, which requires a minimum 90% reduction. Enviva would also be required to analyze samples of the catalytic media for activity level at least every 16 months to ensure that the catalytic bed is maintained in a properly functioning condition.

Propane Vaporizer

In the event that natural gas is not available, a direct-fired 1 MMBtu/hr propane vaporizer would be located on-site. The vaporizer would be fueled with propane and would vaporize propane gas for the RTO burners, RCO burners, and the rotary dryer system duct burners. Since the HAP emissions from this unit would be negligible (0.01 TPY), Enviva proposes no additional controls as MACT.

The Air Division concurs with Enviva's conclusions that the proposed control measures would represent MACT for the proposed facility. The proposed efficiency requirements for the RTOs and RCOs are more stringent than the PCWP MACT, and parametric monitoring mirroring that in the PCWP MACT would be required.

State Regulations

Particulate Matter

The processes of Air Permit Nos. X001 through X007 are subject to the particulate matter emission limitations of ADEM Admin. Code r. 335-3-4-.04(1) for Process Industries-General. The allowable emission rate is calculated using the following process weight equations:

$$E = 3.59P^{0.62} \text{ (P < 30 tons per hour)}$$

OR

$$E = 17.31P^{0.16} \text{ (P } \geq \text{ 30 tons per hour)}$$

where E = Emissions in pounds per hour
P = Process weight in tons per hour

As the plantwide allowable emission rate of particulate matter would exceed the PSD major source threshold of 250 TPY, Enviva has requested synthetic minor source emission limits for PM/PM₁₀/PM_{2.5} to limit the plantwide potential point-source emissions to avoid PSD. With the synthetic minor emission limits in place, the plantwide potential emissions of particulate matter is calculated at 207 TPY.

In addition to the above limitations, ADEM Admin. Code r. 335-3-4-.01(1) sets forth a visible emissions standard which states that each stationary source at the facility shall not emit particulate of an opacity greater than twenty percent (20%), as determined by a six-minute average.

The proposed 168 MMBtu/hr wood-fired furnaces would supply direct heat to the rotary dryers. Also, the facility would be equipped with an emergency diesel fire pump engine, two emergency diesel generator engines, and a propane vaporizer. Although the proposed units are fuel combustion sources, they would not be subject to the particulate matter emission limitation of ADEM Admin. Code r. 335-3-4-.03 since the burner and emergency generator would not meet the definition of "fuel burning equipment". Emissions from the furnaces would be regulated as part of the emissions of the rotary

dryer system under the process weight rule and the PSD synthetic minor source emission limits for particulate matter.

Sulfur Dioxide

The proposed wood-fired furnaces, emergency diesel engines, and the propane vaporizer are fuel combustion sources, but they would not be subject to any sulfur dioxide (SO₂) emission limitation of ADEM Admin. Code r. 335-3-5 since they do not meet the definition of fuel burning equipment.

Emission Testing

Initial stack testing of each RTO and RCO stack would be required to determine compliance with the synthetic minor source emission limits. Pollutants to be tested would include particulate (PM/PM₁₀/PM_{2.5}), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOC), VOC destruction efficiency, and visible emissions. To ensure ongoing compliance and to ensure optimal parametric monitoring parameters are being utilized, annual compliance testing of the RTO and RCO stacks for the same pollutants as the initial testing would also be required. The frequency of testing may be reduced to once every five years if two consecutive annual tests show emissions that are at or below 75 percent of all applicable emission limits. If a subsequent test shows emissions that are greater than 75 percent of an applicable emission limit, Enviva would be required to revert to annual testing until two consecutive annual tests show emissions that are at or below 75 percent of all applicable emission limits. Since the synthetic minor emission limits requested by Enviva were process-wide limits, testing of all lines within the process would be required to determine compliance.

Due to the nature of the processes, stack testing of the material handling baghouses and pellet storage silo bin vent filters would not be required at this time. However, if emission problems are observed in the future, stack testing of these sources may be required to determine compliance. Emission testing of the proposed emergency diesel engines would not be required as the application indicates that the engines installed would be certified by the manufacturer.

Emission Monitoring

The proposed facility would be a major source for criteria pollutants under the Title V regulations. Emission monitoring that would satisfy those required in a Title V major source operating permit would be required in the Air Permits. This would include weekly visual observations for greater than normal emissions from the fugitive sources of X001 and X003, as well as weekly visual observations for greater than normal visible emissions from the RTO and RCO emission points. Daily observations for the presence of visible emissions from each baghouse and bin vent filter would be required. The secondary voltage of each WESP, and the water flow rate through each wet scrubber, would be monitored and averaged over 3-hour blocks. The firebox/combustion chamber temperature of each RTO and RCO would be monitored and averaged over three-hour

blocks. The WESPs, wet scrubbers, RTOs and RCOs would initially operate under manufacturer-recommended parameters and may be adjusted based on parameters recorded during a stack test that indicates compliance. Emission monitoring requirements for the emergency diesel engines in accordance with NSPS, Subpart IIII, are included in Air Permit Nos. X008 and X009. The Air Permits contain corrective action requirements, and recordkeeping and reporting requirements. Semiannual Monitoring Reports and Annual Compliance Certifications would also be required by the Air Permits.

Air Quality Impact

This facility would be located in Sumter County, which is an attainment area for all criteria pollutants. The facility would not be located within 100 km of any PSD Class I Area.

Public Comment Period

Since the proposed facility would be considered construction at a greenfield site, a 15-day public comment period would be required prior to permit issuance. Additionally, a 30-day public comment period would be required prior to permit issuance due to the case-by-case MACT (112(g)) determination. The comment periods would run concurrently.

Recommendation

Pending the resolution of any comments received during the public comment periods, I recommend that Air Permit Nos. X001 through X009 be issued for the proposed facility processes. The draft Air Permits are attached in Appendix B. Due to the negligible potential emissions, I recommend that Air Permits not be required at this time for the two 4,500 gallon diesel storage tanks and the propane vaporizer.



Jeffrey A. Strickland
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August 30, 2019

Date

JAS/jas

Appendix A
Plantwide Potential Emissions

Summary of Proposed Emission Limits
Enviva Pellets Epes, LLC
Epes, Sumter County, Alabama

Emission Point ID	Source Description	Control Device Description	CO		NO _x		PM		PM ₁₀		PM _{2.5}		VOC		
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	
Process Area X001 - Wood Yard															
EP 001 ¹	Green Wood Handling Operations	--	--	--	--	--	--	0.033	0.14	0.017	0.075	0.017	0.075	--	--
EP 002 ¹	Bark Handling Operations	--	--	--	--	--	--	0.0069	0.030	0.0036	0.016	0.0036	0.016	--	--
EP 004	Debarker	--	--	--	--	--	--	4.76	20.9	2.88	12.6	--	--	--	--
EP 005 ¹	Log Chipping	--	--	--	--	--	--	--	--	--	--	--	--	0.60	2.63
EP 006	Bark Hog	--	--	--	--	--	--	2.26	9.91	1.37	5.99	--	--	0.37	1.64
EP 007 ¹	Bark Storage Pile	--	--	--	--	--	--	0.28	1.25	0.16	0.69	0.16	0.69	0.22	0.98
EP 008 ¹	Green Wood Storage Pile	--	--	--	--	--	--	0.61	2.67	0.34	1.47	0.34	1.47	0.48	2.11
Proposed X001 Emission limit:			--	--	--	--	7.96	34.9	4.76	20.9	0.51	2.24	1.68	7.36	
Process Area X002 - Drying															
EP 010 ²	One (1) 168 MMBtu/hr Wood-fired Direct Heat Drying System; Five (5) Green Hammermills; Two (2) 2.5 MMBtu/hr Burners for Double Ducts	WESP-1; RTO-1	13.6	59.5	16.9	73.9	8.15	35.7	8.15	35.7	8.15	35.7	14.6	64.0	
EP 011 ¹	Furnace 1 Bypass Stack	--	18.1	1.35	6.65	0.50	14.5	1.08	14.3	1.07	14.3	1.07	0.51	0.038	
EP 012 ¹	Dryer 1 Bypass Stack	--	--	--	--	--	--	--	--	--	--	--	--	--	
EP 013 ²	One (1) 168 MMBtu/hr Wood-fired Direct Heat Drying System; Two (2) 2.5 MMBtu/hr Burners for Double Ducts	WESP-2; RTO-2	13.4	58.9	16.7	73.1	8.15	35.7	8.15	35.7	8.15	35.7	9.46	41.5	
EP 014 ¹	Furnace 2 Bypass Stack	--	18.1	1.35	6.65	0.50	14.5	1.08	14.3	1.07	14.3	1.07	0.51	0.038	
EP 015 ¹	Dryer 2 Bypass Stack	--	--	--	--	--	--	--	--	--	--	--	--	--	
EP 016	One (1) 168 MMBtu/hr Wood-fired Direct Heat Drying System; Two (2) 2.5 MMBtu/hr Burners for Double Ducts	WESP-3; RTO-3	13.4	58.9	16.7	73.1	8.15	35.7	8.15	35.7	8.15	35.7	9.46	41.5	
EP 017 ¹	Furnace 3 Bypass Stack	--	18.1	1.35	6.65	0.50	14.5	1.08	14.3	1.07	14.3	1.07	0.51	0.038	
EP 018 ¹	Dryer 3 Bypass Stack	--	--	--	--	--	--	--	--	--	--	--	--	--	
Proposed X002 Emission limit:			94.9	181	70.2	222	68.1	110	67.4	110	67.4	110	35.1	147	
Process Area X003 - Dry Shavings Handling and Storage															
EP 003 ¹	Dry Shavings Handling	--	--	--	--	--	--	0.029	0.13	0.015	0.067	0.015	0.067	--	--
EP 009 ¹	Dry Shavings Silo	One (1) baghouse	--	--	--	--	--	0.034	0.15	0.034	0.150	0.034	0.15	--	--
Proposed X003 Emission limit:			--	--	--	--	0.064	0.28	0.050	0.22	0.050	0.22	--	--	
Process Area X004 - Additive Handling and Storage															
EP 021 ¹	Additive Handling and Storage	One (1) baghouse	--	--	--	--	--	0.034	0.15	0.034	0.15	0.034	0.15	--	--
Proposed X004 Emission limit:			--	--	--	--	0.034	0.15	0.034	0.15	0.034	0.15	--	--	
Process Area X005 - Pelletization															
EP 019	Pelletizing Line 1 Dry Hammermills, Pellet Mills, Pellet Coolers	Wet Scrubber-1; RCO-1	1.54	6.76	2.37	10.4	12.8	56.5	12.8	56.5	12.8	56.5	13.4	58.5	
EP 020	Pelletizing Line 2 Dry Hammermills, Pellet Mills, Pellet Coolers	Wet Scrubber-2; RCO-2	1.27	5.56	2.05	8.96	6.49	28.4	6.49	28.4	6.49	28.4	6.74	29.5	
Proposed X005 Emission limit:			2.81	12.3	4.42	19.3	19.3	84.9	19.3	84.9	19.3	84.9	20.1	88.0	
Process Area X006 - Finished Production Storage															
EP 022 ¹	Pellet Storage Silo No. 1	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
EP 023 ¹	Pellet Storage Silo No. 2	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
EP 024 ¹	Pellet Storage Silo No. 3	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
EP 025 ¹	Pellet Storage Silo No. 4	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
EP 026 ¹	Pellet Storage Silo No. 5	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
EP 027 ¹	Pellet Storage Silo No. 6	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
EP 028 ¹	Pellet Storage Silo No. 7	Bin Vent	--	--	--	--	--	0.41	1.80	0.41	1.80	0.41	1.80	--	--
Proposed X006 Emission limit:			--	--	--	--	2.88	12.6	2.88	12.6	2.88	12.6	--	--	
Process Area X007 - Barge Loading															
EP 029 ¹	Fixed Conveyor (Transfer from Storage Silos to Telescopic Barge Loading Conveyor)	One (1) baghouse	--	--	--	--	--	0.51	2.25	0.51	2.25	0.51	2.25	--	--
	Telescopic Conveyor (Transfer to Barge Loading Spout)		--	--	--	--	--	--	--	--	--	--	--	--	--
	Telescopic Barge Loading Spout		--	--	--	--	--	--	--	--	--	--	--	--	--
Proposed X007 Emission limit:			--	--	--	--	0.51	2.25	0.51	2.25	0.51	2.25	--	--	
Process Area X008 - Fire Water Pump															
EP 030	131 hp Diesel-fired Fire Water Pump	--	1.05	0.26	0.82	0.21	0.064	0.016	0.064	0.016	0.064	0.016	0.046	0.012	
Proposed X008 Emission limit:			1.05	0.26	0.82	0.21	0.064	0.016	0.064	0.016	0.064	0.016	0.046	0.012	
Process Area X009 - Emergency Generators															
EP 031	500 kW Diesel-fired Emergency Generator No. 1	--	3.86	0.96	4.19	1.05	0.22	0.055	0.22	0.055	0.22	0.055	0.24	0.059	
EP 032	500 kW Diesel-fired Emergency Generator No. 2	--	3.86	0.96	4.19	1.05	0.22	0.055	0.22	0.055	0.22	0.055	0.24	0.059	
Proposed X010 Emission limit:			7.72	1.93	8.38	2.09	0.44	0.11	0.44	0.11	0.44	0.11	0.47	0.12	
EP 033 ¹	Diesel Storage Tank 1	--	--	--	--	--	--	--	--	--	--	--	--	6.32E-04	0.0028
EP 034 ¹	Diesel Storage Tank 2	--	--	--	--	--	--	--	--	--	--	--	--	6.32E-04	0.0028
EP 035 ¹	Propane Vaporizer	--	0.098	0.43	0.17	0.75	0.0077	0.034	0.0077	0.034	0.0077	0.034	0.013	0.057	
EP 036	Paved Roads	--	--	--	--	--	--	2.27	9.89	0.50	2.18	0.50	2.18	--	--
Total Emissions:			107	196	84.0	244	102	256	96	234	91.8	215	57.4	243	
Total Excluding Fugitives²:			107	196	84.0	244	98.3	241	94.9	229	90.7	210	56.7	239	
PSD Major Source Threshold:			--	250	--	250	--	250	--	250	--	250	--	250	

Notes:
¹ Title V Insignificant Activity per ADEM Administrative Code r. 335-3-16.01(s) due to potential emissions less than 5 tpy of each criteria pollutant and 1,000 lb/yr of each individual HAP.
² The five (5) Green Hammermills will be controlled by the WESP and RTO on Dryer Line 1. If Dryer Line 1 is not operational, the Green Hammermill exhaust will be routed to the WESP/RTO on Dryer Line 2. For potential emissions purposes, emissions from the Green Hammermills are shown under Dryer Line 1 (EP 007) only to avoid double-counting emissions.
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.

