

Facility Name: **Archer Forest Products, LLC**

City: Nahunta

County: Brantley

AIRS #: 04-13-025-00005

Application #: TV-406559

Date SIP Application Received: N/A

Date Title V Application Received: July 5, 2019, February 3, 2020, and June 23, 2020

Permit No: 2499-025-0005-V-05-1

Program	Review Engineers	Review Managers
SSPP	S. Ganapathy	Kirk Drucker
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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and draft operating permit amendment. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1) and 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public comment period and EPA review process will be described in an addendum to this narrative.

I. Facility Description**A. Existing Permits**

Table 1 below lists the current Title V permit, and all administrative amendments, minor and significant modifications to that permit, and 502(b)(10) attachments.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Description
2499-025-0005-V-05-0	January 23, 2019	Admin Permit Amendment – Name and Owner Change

B. Regulatory Status**1. PSD/NSR/RACT**

The facility is a synthetic minor source with respect to PSD for VOC. It is a PSD minor source for all other PSD pollutants.

2. Title V Major Source Status by Pollutant**Table 2: Title V Major Source Status**

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM				✓
PM ₁₀				✓
PM _{2.5}				✓
SO ₂	✓			✓
VOC	✓	✓		
NO _x	✓			✓
CO	✓	✓		
Individual HAP	✓			✓
Total HAPs	✓			✓

II. Proposed Modification

A. Description of Modification

The Permittee has installed and operates a WetESP (WESP) and a Regenerative Thermal Oxidizer (RTO) for controlling PM, VOC and HAP emissions from the bark burner/ dryer and the Pellet Mills (PM01-PM07). The Permittee has proposed to install and operate a Green Hammermill and proposed replacing the Refining Hog No. 1 and 2 with two Dry Hammermills (HM01 and HM02) and control PM emissions from the Pellet Cooler PC01 with a cyclone CYC1. Hammermill PM emissions are controlled by a baghouse (BGH1). The Permittee has proposed to increase the throughput from the Pellet furnish dryer and the dry hammermills to 175,000 tons per year and the throughput through the pellet mills, pellet cooler and the pellet handling and storage system to 300,000 tons per year.

B. Emissions Change

Note that WESP is expected to decrease PM emissions by 200 tpy. Actual VOC emissions is expected to decrease by 35 tpy due to RTO controlling emissions from the dryer and the pellet mills despite increase in production in the dryer and from the pellet mills. Potential NO_x emissions are expected to decrease by 21.6 tpy due to the increased efficiency of the new controls. Actual CO emissions are expected to decrease by 60 tpy due to RTO controlling CO emissions from the dryer and Pelletmills. Maximum individual HAP emission decrease is expected to be 4.7 tpy. Total HAP emission decrease is expected to be 13 tpy due to RTO.

Table 3: Emissions Change Due to Modification

Pollutant	Is the Pollutant Emitted?	Net Actual Emissions Increase (Decrease) (tpy)	Net Potential Emissions Increase (Decrease) (tpy)
PM	✓		(200)
PM ₁₀	✓		(200)
PM _{2.5}	✓		(200)
SO ₂	✓		(2.21)
VOC	✓	(35)	0
NO _x	✓	(21.6)	(21.6)
CO	✓	(60)	0
Individual HAP Acetaldehyde	✓	(4.7)	0
Total HAPs	✓	(13)	0

C. PSD/NSR Applicability

The facility is a minor source with regard to PSD.

III. Facility Wide Requirements

There is no change to existing facilitywide requirements. VOC PSD avoidance limit is unchanged at 249 ton per year. HAPs continue to be limited to 10 tpy for single HAP and 25 tpy for Total HAPs. These are MACT avoidance conditions.

IV. Regulated Equipment Requirements

A. Brief Process Description

Green wood and dry material are trucked to the facility and stored. Green wood may first pass through the green hammermill (GHM) prior to the dryer (WD02). Process heat is provided by a 50 million British thermal units per hour (MMBtu/hr) bark burner (HS02). Dryer output is combined with dry material and conveyed to two (2) dry hammermills (HAM01 and HAM02). After the dry hammermills (HAM01 and HAM02), the material is processed through the pellet mills (PM01 – PM07) and the pellet cooler (PC01). Various pellet handling and storage (PHS) operations take place prior to shipping. Particulate matter (PM), volatile organic compound (VOC), and hazardous air pollutant (HAP) emissions from the heat source (HS02), dryer (WD02), and pellet mills (PM01 – PM07) are controlled by a wet electrostatic precipitator (WESP) followed by a regenerative thermal oxidizer (RTO). Particulate matter (PM) emissions from the dry hammermills (HAM01 and HAM02) are controlled by a baghouse (BGH1). Finally, particulate matter (PM) emissions from the pellet cooler (PC01) are controlled with a cyclone (CYC1).

The pellet furnish dryer throughput will increase to 175,000 tpy from the current 155,000 tpy. The production from downstream units will increase to 300,000 tpy.

B. Updated Equipment List for the Process

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
GHM	Green Hammermill	391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(n)	N/A	N/A
WD02/HS02	Dryer / Heat Source (50 MMBtu/hr direct-fired wood burner)	391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(g)(2) 391-3-1-.02(2)(n)	WESP/RTO	Wet Electrostatic Precipitator / Regenerative Thermal Oxidizer
HAM01 HAM02	Dry Hammermill 1 Dry Hammermill 2	391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(n)	BGH1	Baghouse
PM01-PM07	Pellet Mills 1 - 7	391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(n)	WESP/RTO	Wet Electrostatic Precipitator / Regenerative Thermal Oxidizer
PC01	Pellet Cooler	391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(n)	CYC1	Cyclone
PHS	Pellet Handling and Storage	391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(n)	N/A	N/A

*Generally applicable requirements contained in this permit may also apply to emission units listed above. The lists of applicable requirements/standards are intended as a compliance tool and may not be definitive.

C. Equipment & Rule Applicability

Emission and Operating Caps –

Wood Dryer (WD02) will be limited to producing 175,000 ODT/yr of dried wood for PSD avoidance purpose. The Dry Hammermills, Pellet mills, Pellet Cooler and the Handling and Storage system will be limited to handling 300,000 tons of wood pellets for PSD avoidance purposes after installation and operation of the WESP and RTO to control the wood burner/Dryer (WD02) and the Pellet mill (PM01-PM07) emissions.

Applicable Rules and Regulations -

Rules and Regulations Assessment: There is no change to currently applicable rules and regulations to the pellet mill sources. No new rules or regulations are triggered by the proposed installation and operation of the WESP and RTO for controlling the burner/dryer and the pellet mill emissions.

Emission and Operating Standards: There will be no change currently applicable emission and operating standards.

D. Permit Conditions

All conditions in Sections 2, 3, 4, 5, and 6 of the current permit have been replaced by the new conditions listed below.

Condition 2.1.3 limits the processing in the Wood dryer (WD02) to 175,000 ODT per year for PSD avoidance.

New Condition 2.1.4 limits processing in Dry Hammermills, Pellet mills, Pellet Cooler and the pellet Handling and Storage system to 300,000 tons per year.

New Condition 3.2.1 requires operation of the WESP and RTO whenever the burner/dryer and pellet mills operate.

New Condition 3.2.2 requires operation of the baghouse BGH1 whenever the dry Hammermills operate.

New Condition 3.2.2 requires operation of the cyclone CYC1 whenever the pellet cooler operates.

New Condition 3.2.3 requires operation of the RTO at 1500 °F or the temperature established during the most recent destruction efficiency test.

Condition 3.4.1 is amended by updating the source list for Rule (e) applicability.

Condition 3.4.2 limits opacity of emissions from sources at the facility to 40% per Georgia Rule (b).

Condition 3.4.4 lists some measures the Permittee may adopt to minimize fugitive dust from facility operations.

Condition 3.4.5 limits opacity of fugitive emissions to 20% per Georgia Rule (n)2.

Existing Condition 3.5.1 and 3.5.2 are replaced with new conditions requiring maintenance of all pollution control equipment and requiring the Permittee to maintain an inventory of baghouse filter bags to promptly replace and defective bags in the baghouse. These conditions were in Section 5.2 of the current permit.

Condition 3.5.3 requires operation of all air pollution equipment whenever the corresponding sources operate.

V. Testing Requirements (with Associated Record Keeping and Reporting)

There is no change to Section 4.1 permit conditions pertaining to General Testing Requirements.

There is no change to existing Condition 4.2.1.

The WESP and RTO are installed and operating. The facility conducted testing of the new WESP/RTO, the pellet cooler and the dry hammermills in April 2020. While NO_x and CO were not tested at that time, previous testing indicates emissions well below PSD thresholds.

Condition 4.2.2 is amended to require testing of PM (filterable plus condensable), NO_x and CO emissions simultaneously from the dryer exhaust by January 1, 2023. It also requires testing of VOC and HAPs (Formaldehyde, Acetaldehyde and Methanol) from the RTO stack. VOC and HAPs shall be tested simultaneously. The WESP and RTO operating parameters are required to be monitored and recorded during the testing. The dryer production should also be monitored during testing. Testing is to be repeated once every four years.

Condition 4.2.3 is amended to require testing of PM including condensable and filterable PM and VOC emissions from the dry hammermill's baghouse exhaust and the pellet cooler cyclone exhaust by January 1, 2023. The pressure drop readings of the baghouse and cyclone needs to be monitored and recorded during the source tests. Tests are to be repeated every four years.

Existing Condition 4.2.7 is deleted as the dryer emissions will no longer be recycled to the wood burner. Existing Condition 4.2.8 is renumbered as Condition 4.2.4 in this permit amendment.

EPD has added controlled and some uncontrolled emission factors to use for emissions estimation purposes. If testing reveals emission rates greater than the factors used, the Permittee must use the higher factors.

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)

There is no change to Existing Condition 5.1.1.

Condition 5.2.8 is amended requiring weekly checks of the pellet cooler cyclone (CYC1).

Condition 5.2.6 is amended to require daily monitoring of the dry hammermill baghouse (BGH1) and the pellet cooler cyclone (CYC1) pressure drops.

Condition 5.2.7 is amended to require development and implementation of a Preventive Maintenance Program (PMP) for the dry hammermill baghouse.

Condition 5.2.2 is amended to require continuous monitoring and recording of the combustion temperature of the RTO and the total power for each fired of the WESP.

Condition 5.2.9 is amended to require daily VE checks of the dry hammermill baghouse and the pellet cooler cyclone.

Condition 5.2.3 and 5.2.5 requires the Permittee to calculate the total WESP power for each hour of operation and then calculate the three-hour average total WESP power.

Existing Condition 5.2.7 requiring monitoring and recording of the damper positioning is deleted. This Condition is replaced by a condition requiring maintenance of the RTO above the levels established during destruction efficiency tests and calculation of three-hour rolling averages of RTO temperature.

New Condition 5.2.10 requires daily fugitive dust emission inspections.

New Condition 5.2.1 requires monitoring of the production from the Wood dryer, Dry Hammer mills, Pellet mills and Pellet cooler and maintenance of hourly production records.

New Condition 5.2.11 states that the Dryer and Pellet mills are subject to CAM for PM and VOC, Hammer mills and Pellet Cooler are subject to CAM for PM.

New Condition 5.2.12 is the CAM performance indicator for PM emissions from the Dryer consisting of WetESP Secondary Power.

New Condition 5.2.13 is the CAM indicator for PM emissions from the dry Hammer mills and the Pellet Cooler consisting of Visible Emissions from the Hammer mill baghouse and Pellet Cooler cyclone stacks and the pressure drop across the hammer mill baghouse and the pellet cooler cyclone.

New Condition 5.2.14 is the CAM indicator for VOC emissions from the Dryer (WD02) and the Pellet Mills (PM1-PM7) consisting of the RTO combustion temperature.

VII. Other Record Keeping and Reporting Requirements

Emission factors used in estimating facility emissions in Section 6.2 are based, in part, on recent stack test data. The DRE of the RTO is approximately 98% and thus periods when the RTO is not running as permitted must be considered uncontrolled (a 50 x multiplier). For the dryer, OHAP represents all HAP that is not meOH, HCHO, or acetaldehyde, including phenol, acrolein, propionaldehyde, and HCl. This OHAP factor is derived from AP-42 for OSB for all but HCl, which is based on stack testing at a similar facility. The uncontrolled emission factor is 0.22 lb/odt – at 98% presumed DRE the factor is 0.0044 lb/odt.

There is no change to Conditions 6.1.1 through 6.1.6.

Condition 6.1.7 on exceedance and excursion is updated to report all exceedance and excursion of the permit amendment.

Existing Condition 6.2.1 is amended to update the source listing for the process rate monitoring per Georgia Rule (e).

Condition 6.2.2 is amended to require calculation of monthly CO emissions from the Wood Dryer (WD02) using the latest source tested emission factor. Based on current test data, the facility does not have potential to exceed major source levels of CO.

Condition 6.2.3 is amended to require calculation of 12 month rolling total CO emission from the Wood Dryer (WD02).

There is no change to existing Condition 6.2.4.

Condition 6.2.5 is amended to calculate monthly VOC emissions from the Dryer, dry Hammer mills, Pellet mills, Pellet Cooler and Pellet Handling and Storage volumes using the latest source tested emission factors for these sources.

There is no change to existing Conditions 6.2.6 and 6.2.7.

Condition 6.2.8 is amended to calculate monthly Acetaldehyde, Formaldehyde and Methanol emissions from the Wood dryers, dry hammer mills, pellet mills, pellet cooler, storage and handling emissions using the respective production data and the latest source tested emission factors.

Amended Condition 6.2.9 gives the equation to perform monthly calculation of the PM emissions from the Wood Dryer, Pellet Cooler and dry hammermills using the production data and latest source tested emission factors. It also requires calculation of the 12 month rolling total PM emissions and notification

if the monthly PM emissions exceed 20.7 tons and/or the 12 month rolling total PM emissions exceed 249 tons during any month.

VIII. Specific Requirements

Discuss any of the following specific requirements as they apply to the modification.

A. Operational Flexibility

None requested in the permit application.

B. Alternative Requirements

Not applicable.

C. Insignificant Activities

None in this permit amendment.

D. Temporary Sources

Not applicable.

E. Short-Term Activities

Not applicable.

F. Compliance Schedule/Progress Reports

Not applicable.

G. Emissions Trading

Not applicable.

H. Acid Rain Requirements/CAIR/CSPAR

Not applicable.

I. Prevention of Accidental Releases

This modification does not change the source's applicability which continues to be not applicable.

J. Stratospheric Ozone Protection Requirements

Not applicable.

K. Pollution Prevention

Not applicable.

L. Specific Conditions

None.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//