Facility Name: Conner Holdings, LLC City: Homerville County: Clinch

AIRS #: 04-13-065-00016

Application #: 823591

Date SIP Application Received:February 27, 2024 (Updated May 16, 2024)Date Title V Application Received:February 27, 2024Permit No:2421-065-0016-V-02-2

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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.

Permit/Amendment Number	Date of Issuance	Description
2421-065-0016-V-02-0	2/16/2022	Initial Title V Permit
(Application # 551733)		
2421-065-0016-V-02-1	6/14/2023	SAWO: Removal of mandatory control device
(Application # 704618)		permit conditions for Sawmill Cyclone 1 (SCY1)

Table 1: Current Title V Permit and Amendments

#### B. Regulatory Status

#### 1. PSD/NSR/RACT

Conner Holdings, LLC (hereinafter "facility") is classified as a *wood product manufacturing facility* and this facility classification is not one of the 28 listed source categories in the PSD regulation (i.e., 40 CFR 52.21). As such, the PSD major source threshold is 250 tpy of any *NSR regulated pollutant* (excluding GHG's as CO<sub>2</sub>e). Fugitive emissions are excluded from the PSD applicability determination because the facility's operation is not one of the 28 listed source categories. The *existing* potential emissions of volatile organic compounds (VOC), carbon monoxide (CO), oxides of nitrogen (NOx), particulate matter (PM, PM<sub>10</sub>, and PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>) are less than 250 tpy, each. The potential emissions of greenhouse gases (GHGs) are less than 100,000 metric tons per year. Therefore, the *existing* facility is <u>not</u> a major source with respect to the PSD permitting program. The *existing* facility operates under a production rate limit on Dry Kiln 1 (ID No. DK01) of 100 million board feet per year (MMBF/yr), which would be equivalent to 200 tpy VOC, for PSD Avoidance purposes.

The *entire* facility (defined as the *existing* facility plus the *proposed project*) will be a PSD major source of emissions of VOC at the conclusion of this project.

2. Title V Major Source Status by Pollutant

The existing facility plus the proposed project will have the Title V classification summarized in Table 2. Note: The  $PM/PM_{10}/PM_{2.5}$  emissions status does not include fugitive emissions.

	Is the	If emitted, what is the facility's Title V status for the Pollutant?		
Pollutant	Emitted?	Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	$\checkmark$		$\checkmark$	

Table 2: Title V Major Source Status

Pollutant I	Is the Pollutant	If emitted, what is the facility's Title V status for the Pollutant?			
	Emitted?	Major Source Status	Major Source Requesting SM Status	Non-Major Source Status	
PM <sub>10</sub>	$\checkmark$		$\checkmark$		
PM <sub>2.5</sub>	$\checkmark$				
SO <sub>2</sub>				$\checkmark$	
VOC	$\checkmark$	$\checkmark$			
NO <sub>x</sub>	$\checkmark$			$\checkmark$	
СО	$\checkmark$			$\checkmark$	
TRS					
H <sub>2</sub> S					
Individual HAP	$\checkmark$		$\checkmark$		
Total HAPs	$\checkmark$				

## Table 2: Title V Major Source Status

## II. Proposed Modification

## A. Description of Modification

The facility plans to install a pelletizing system to further process their wood chips generated by the existing Sawmill (ID No. SM01) and the shavings generated by the existing Planer Mill (ID No. PLM1). The transfer of the wood chips and shavings will be accomplished via loaders.

## **Green Wood Processing and Material Drying**

The green wood chips from the Sawmill will be transferred to the Green Hammermill Screener (No. PLS1). The larger chips will go to the Green Hammermill (ID No. HM01), which will shred the chips into green shreddings. The shredded wood will then be dried using the indirect heat generated from the proposed 30.0 MMBtu/hr natural gas fired Boiler (ID No. BL01). The exhaust gases will contain particulate matter ( $PM/PM_{10}/PM_{2.5}$ ), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs), and this exhaust stream will be exhausted to the atmosphere uncontrolled through two parallel dryer stacks.

## Wood Pelletizing Lines

The dried wood material is transferred via mechanical conveyance into one of the two dry hammermills (ID Nos. HM02 and HM03) that process the dried material to the desired size. The shavings from the existing Planer Mill will be mechanically conveyed to one of the proposed hammermills as well. Each dry hammermill exhausts to the outdoor atmosphere through its own cyclone (ID Nos. HM02/PLC1 and HM03/PLC2).

In the pelletizing area there are five pellet mills which receive dried materials from the two dry hammermills via the dry hammermill cyclones. In each pellet mill, rollers push the material through the holes of a die plate. Knives on the exterior of the die plate cut the wood pellets from the plate once

the pellets achieve the required length. An exhaust system at the discharge of the pellet mills (combined) will pneumatically convey the exhaust steam and moisture.

Wood pellets from each pelletizing line are discharged into one pellet cooler (PC01). Wood pellets enter the cooling chamber and flow countercurrent to a stream of ambient air introduced in the cooler. The air flow reduces the temperature of the wood pellets at the point of pellet discharge. The captured exhaust is routed to cyclone with ID No. PLC4, and this exhaust gas system will be uncontrolled for VOC and HAP emissions.

Cyclones with ID Nos. PLC3 and PLC4 will exhaust to the outdoor atmosphere through a common stack.

Cyclones with ID Nos. PLC1 and PLC2 will always be conveying the mainstream of materials to be processed. Materials collected in cyclone with ID No. PLC3 will be too wet to be recycled into pellets, but it will be reused elsewhere at the facility. Materials collected in PLC4 can be recycled to be repelletized.

## **Screening Process**

There will be three parts of the proposed project where there are screening operations. There will be a Green Hammermill Screener (ID No. PLS1), Dry Hammermill Screener (ID No. PLS2), and a Pellet Sifter (ID No. PLS3). Screening operations result in fugitive PM emissions.

## Pellet Storage and Loadout

Wood pellets are mechanically conveyed directly to final storage (ID No. PST1). From the storage piles, the pellets are loaded onto trucks to be sold.

B. Emissions Change

	Is the Pollutant	Net Actual Emissions Increase (Decrease)	Net Potential Emissions Increase (Decrease)	
Pollutant	Emitted?	(tpy)	(tpy)	
PM	$\checkmark$	54.02	54.02	
PM <sub>10</sub>		54.02	54.02	
PM <sub>2.5</sub>		54.02	54.02	
$SO_2$		0.077	0.077	
VOC	$\checkmark$	<249	<249	
NO <sub>x</sub>	$\checkmark$	12.88	12.88	
СО		10.82	10.82	
TRS				
$H_2S$				
Individual HAP	$\checkmark$	<1.95	<1.95	
Total HAPs	$\checkmark$	<8.48	<8.48	

#### **Table 3: Emissions Change Due to Modification**

## C. PSD/NSR Applicability

The facility assessed the PSD/NSR Applicability of the proposed project by computing the potential fugitive and non-fugitive emissions of the applicable *regulated NSR pollutants*. The contribution of fugitive emissions from the proposed project are not counted toward PSD Applicability based on 40 CFR 52.21(b)1.(iii).

The facility asserts that the potential emissions from the existing lumber mill do not have to be aggregated with the potential emissions from the proposed project for PSD applicability evaluation purposes. The Division concurs that the existing lumber mill and the proposed wood pellet manufacturing operation are not a single project because the proposed project will be constructed and operated more than 3 years after the lumber mill and because the economic drivers between the two manufacturing operations are different and not dependent on each other. The activities are not artificially separated but are legitimately two different projects.

*CO*, *NOx*, and *SO*<sub>2</sub> *Emissions:* The proposed project will result in potential, non-fugitive emissions of CO, NOx, and SO<sub>2</sub>. Potential emissions are based on US EPA AP-42 Section 1.4 (natural gas combustion) emission factors for carbon monoxide (CO), oxides of nitrogen (NOx), and sulfur dioxide (SO<sub>2</sub>), and the potential emissions for each of these pollutants is less than 250 uncontrolled tons per consecutive twelve-month period at the design capacity of all the emission units at the entire facility. Therefore, no PSD review for NOx/CO/SO<sub>2</sub> would be required for this modification.

 $PM/PM_{10}/PM_{2.5}$ : The proposed modification will result in potential, non-fugitive emissions of particulate matter (PM/PM<sub>10</sub>/PM<sub>2.5</sub>). Without any controls, the proposed modification would have the potential to emit more than the PSD major source level of PM emissions, 250 tpy, and would potentially trigger a PSD review. Since the facility is not allowed to emit more than the associated Georgia Rule (e) PM emission limits for the new emission units, the Division uses the GA Rule (e) PM emission limits to calculate uncontrolled PM potential emissions from the proposed modification. As shown in Table 4A.1, the uncontrolled PM PTE from the modification (406 tpy) would exceed 250 tpy,

Table 4A.1: Uncontrolled PM Emissions per Non-Fugitive Point Source Based on GA Rule (e) PM Limits         in the Proposed Project					
Non-Fugitive Emitting Equipment	Georgia Rule (e) PM Emissions	PTE (tpy)	Note(s)		
Belt Dryer (DR01) Uncontrolled Exhaust to Atmosphere Through Stacks S005A and S005B	26.16 lb/hr	115 tpy	The Georgia Rule (e) allowable emissions rate is 26.16 lb PM/hr for the summation of PM emissions from Stack S005A and S005B.		
Dry Hammermills HM02, HM03	33.02 lb/hr	145 tpy (Combined)	Emission factor is taken from US EPA Region 10 Memo dated May 2014 for pneumatic conveyance of materials through high efficiency cyclone. The Georgia Rule (e) allowable emission rate is 33.02 lb PM/hr per dry hammermill.		
Pellet Mills/Pellet Cooler (PL01-PL05, PC01) exhausting though a common	33.02 lb/hr	145 tpy (Combined)	The Georgia Rule (e) allowable emission rate is 33.02 lb PM/hr.		

		Assuming these process units comprise one
		Georgia Rule (e) process group.
lot Subject		PM PTE for BL01 is calculated using PM
GA Rule	0.979 tpy	emission factor found in U.S. EPA AP-42
e)		Chapter 1.4.
	406 tpy	N/A
1	ot Subject GA Rule )	ot Subject GA Rule 0.979 tpy ) 406 tpy

In Application No. 823591, the facility used the PM emission factors and design volume flow rates as specified in Table 4A.2 to calculate potential PM emissions from the proposed modification. The Division evaluated the proposed emission factors and determined they were reasonable based on test results from similar sources. Note: The Division is assuming that PM emissions from the dry hammermills, pellet mills, and pellet cooler consist primarily of fines (i.e.,  $PM_{2.5}$ ) yet the Division has set the  $PM_{10}$  and  $PM_{2.5}$  emission factors equal to that of the PM emission factor.

Table 4A.2: PM Emissions (After-control) per Non-Fugitive Point Source in the Proposed Project				
Non-Fugitive Emitting Equipment	PM Emissions	Design Flow Rate of Stack(s) (CFM)	Note(s)	
Belt Dryer (DR01) Uncontrolled Exhaust to Atmosphere Through Stacks S005A and S005B	0.291 lb/ton Product 4.630 lb/hr	70,000 cfm per Stack	<ul> <li>The unit is uncontrolled, and the unit will exhaust through two stacks operated in parallel.</li> <li>Vendor supplied emission factor data (not a vendor guarantee).</li> <li>The Georgia Rule (e) allowable emissions rate is 26.16 lb PM/hr for the summation of PM emissions from Stack S005A and S005B.</li> </ul>	
Dry Hammermills/Cyclones HM02/PLC1 and HM03/PLC2	0.20 lb/ODT Product 4.050 lb/hr	15,000 cfm per cyclone	Emission factor is taken from US EPA Region 10 Memo dated May 2014 for pneumatic conveyance of materials through high efficiency cyclone. The Georgia Rule (e) allowable emission rate is 33.02 lb PM/hr for both dry hammermills.	
Pellet Mill and Pellet Cooler Combined Exhaust through combined stack for Cyclones PLC3/PLC4.	0.152 lb/ton Product 3.429 lb/hr 0.01 gr/cf	40,000 cfm	Emission factor is taken from Application # 238360 for LJR Pellet Mill (Georgia) The Georgia Rule (e) allowable emission rate is 33.02 lb PM/hr.	
Boiler BL01	7.6 lbs/MMcf NG	9,700 cfm	The unit is uncontrolled, and the unit will exhaust through two stacks operated in parallel. PM Emission Factor Found in U.S. EPA AP-42 Chapter 1.4 is used to calculate PM PTE for BL01.	
Total Non-Fugitive Point Source PTE (tpy)	54.02 tpy	20.28  tpy + 17.74  tpy + 15.02  tpy + 0.979  tpy = 54.02  tpy		

The facility proposed a potential non-fugitive PM emissions rate of 54.02 tons from the proposed modification during any consecutive twelve-month period, using the emission factors specified in Table 4A.2 (uncontrolled PM emission factor for the belt dryer and Boiler BL01 and after-control PM emission factors for the dry hammermills and pellet mills/cooler). The facility used after-control PM emission factors or dryer vendor supplied grain loading data to calculate the after-control PM emissions from the processes, and U.S. EPA AP-42 emission factor to calculate PM emissions from

Boiler BL01. The 54.02-tpy PM represents the PM potential-to-emit (PTE) with the control devices (Cyclones PLC1 through PLC4).

The facility will be required to operate all proposed cyclones (ID Nos. PLC1, PLC2, PLC3, and PLC4) whenever the associated proposed emission unit is in operation to maintain the PTE for  $PM/PM_{10}/PM_{2.5}$  at 54.02 tpy, which is below 250 tons, during any consecutive twelve-month period. The facility will be required to conduct initial performance testing for filterable/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> to validate the emission factors specified in Table 4A.1. Note that a performance test is not required to validate the AP-42 emission factor for a natural gas fired boiler.

The existing facility was minor under PSD for PM emissions prior to the modification. The facility will limit PM PTE from this modification below 250 tpy for  $PM/PM_{10}/PM_{2.5}$ . Therefore, the facility will be eligible to use the "one-time doubling provision" per 40 CFR 52.21(b)(1)(i)(c) to avoid a PSD review.

*VOC Emissions:* The proposed modification does not contain any VOC control devices. The proposed modification would result in potential, non-fugitive VOC emissions and the facility used the uncontrolled VOC emission factors as specified in Table 4B. The Division agrees that the proposed emission factors for VOC for the processes are in the reasonable range based on test results from similar sources. Note: Potential VOC emissions from Boiler BL01 was calculated using the VOC emission factor for natural gas combustion based on US EPA AP-42.

Table 4B: Basis of Project Potential VOC Emissions				
Non-Fugitive Emitting Equipment	VOC Emissions	Note(s)		
Belt Dryer (DR01) Uncontrolled Exhaust to Atmosphere Through Stacks S005A and S005B	1.36 lb/ton 21.16 lb/hr	Vendor supplied data (not a vendor guarantee)		
Dry Hammermills/Cyclones HM02/PLC1 and HM03/PLC2	0.62 lb/ODT 12.56 lb/hr	Emission factor taken from Application # 715112 for Varn Wood Products (Georgia)		
Pellet Mills and Pellet Cooler (PL01- PL05, PC01) Combined Exhaust	2.10 lb/ton 47.25 lb/hr	Emission factor taken from Application # 780227 for Telfair Forest Products LLC (Georgia)		
Boiler BL01	5.5 lbs VOC /MMcf NG	VOC Emission Factor Found in U.S. EPA AP-42 Chapter 1.4 is used to calculate VOC PTE for BL01		
Total Non-fugitive Point Source PTE (tpy)	355.4	92.7 tpy + 55.0 tpy + 207.0 tpy + 0.708 tpy = 355.4 tpy		

The proposed project itself could result in potential non-fugitive uncontrolled VOC emissions of 355.4 tons during any consecutive twelve-month period. The facility requested that the proposed project be permitted with a PSD avoidance limit for VOC emissions of less than 249 tons during any consecutive twelve-months on a combined basis from all units that would emit VOCs: the Belt Dryer (ID No. DR01), the Boiler (ID No. BL01), the Dry Hammermills (ID Nos. HM02-HM03), and the Pellet Mills/Pellet Cooler (ID Nos. PL01-PL05/PC01). Per the facility's request, the Division has incorporated enforceable limits in the permit to ensure that the new VOC emitting units are limited to below 249 tons of VOC. As the existing facility was a PSD synthetic minor source for VOC with the annual throughput limit specified in existing Condition 3.2.1 of Title V Permit No. 2421-065-0016-V-02-0, and as the modification itself is not a major source with the 249-tpy VOC limit, the

proposed project qualifies for the "one-time doubling provision" per 40 CFR 52.21(b)(1)(i)(c). Therefore, no PSD review for VOC would be required for this modification.

In order to validate the proposed VOC emission factors, specified in Table 4B above, the facility will be required to conduct an initial and subsequent performance test from the Belt Dryer (DR01), the Dry Hammermills (HM02 or HM03), and the combined exhaust from the Pellet Mills/Pellet Cooler. Note that a performance test is not required to validate the AP-42 emission factor for a natural gas fired boiler.

The facility must track its actual VOC emissions (non-fugitive) using the VOC emission factors as summarized in Table 4B. However, the VOC emission factors can vary from one pellet plant to another as well as from one wood source to another. The facility must use any higher VOC emission factor(s) obtained from the Division-approved performance tests and the actual dry material process rate to demonstrate compliance with the PSD Avoidance limit for VOC emissions. If the performance tests indicate a lower VOC emission factor(s) than those in the permit, however, the facility must continue to use the factors prescribed in the permit until the permit is revised to incorporate the lower tested results based on the facility's request in an application.

*Conclusion:* Table 4C summarizes the potential to emit of non-fugitive emissions of the applicable *regulated NSR pollutants* for the proposed project:

Table 4C: PSD Applicability Analysis for the Proposed Project				
Pollutant PTE (tpy)				
PM/PM <sub>10</sub> /PM <sub>2.5</sub>	54.02 <sup>1</sup>			
СО	10.82			
NOx	12.88			
SO <sub>2</sub>	0.077			
VOC	<249			

## III. Facility Wide Requirements

## A. Emission and Operating Caps:

The proposed individual HAP emission factors are summarized in Section 3 of the application for emissions of acetaldehyde, acrolein, arsenic, formaldehyde, hexane, hydrogen chloride, methanol, phenol, and propionaldehyde from fugitive and non-fugitive process operations. The applicable process operations include the Dry Kiln (ID No. DK01), the Green Hammermill (ID No. HM01), the Belt Dryer (ID No. DR01), the Boiler (BL01), the Dry Hammermills (ID Nos. HM02 and HM03), the Pellet Mills/Pellet Cooler (ID No. PL01-PL05, PC01), and the Pellet Storage (ID No. PST1). The proposed individual HAP emission factors are based on values specified by the US EPA, the Division, Georgia Air Permit Applications for similar wood pellet facilities, and reasonable vendor data (not vendor guarantees).

<sup>&</sup>lt;sup>1</sup> Potential PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions were limited to 54.02 tpy with the use of Cyclones PLC1 through PLC4.

The potential individual HAP emissions from the existing facility plus the proposed project are noted in Table 5. Note: The "Proposed Project Uncontrolled PTE" is based on the design capacity of the applicable equipment as specified in Section 3 of Application # 823591. As shown in the emission calculation submitted with the application, the facility used the 2021 performance test results at Telfair Forest Products' dryers to determine the emission factors used when calculating acrolein, methanol, and propionaldehyde emissions for Belt Dryer DR01. However, Telfair Forest Products conducted dryer performance tests in January 2024 as required by that facility's permit. The results of the 2024 Telfair Forest Products tests showed a significant increase in methanol potential emissions (18% increase facility-wide if using the higher of the two test results) and an insignificant increase in acrolein potential emissions (1.4% increase facility-wide if using the higher of the two test results). The results of the 2024 Telfair Forest Products tests showed a decrease of propionaldehyde emissions (4.01% decrease facility-wide if using the higher of the two test results). Therefore, the Division has updated only the potential methanol emissions for this (Connor Holdings) modification based on the 2024 Telfair Forest Products testing instead of the 2021 data.

Table 5: Individual and Total HAP PTE					
НАР	Existing Facility Uncontrolled PTE (tpy)	Proposed Project Uncontrolled PTE (tpy)	Total Uncontrolled PTE (w/No Limit) (tpy)		
Acetaldehyde	2.250	1.934	4.184		
Acrolein	0.300	1.795	2.095		
Arsenic	3.85E-03	2.58E-05	3.88E-03		
Formaldehyde	1.930	7.773	9.703		
Hexane	0.309	0.231	0.541		
Hydrogen Chloride	3.329	0.0	3.329		
Methanol	8.050	4.287	12.337		
Phenol	0.515	3.179	3.694		
Propionaldehyde	0.146	0.603	0.749		
Total	16.84	19.80	36.33		

The facility is requesting a facility-wide emissions limit of 10 tons for any individual hazardous air pollutant (HAP), and 25 tons for total HAPs during any consecutive twelve-month period for the facility to remain an Area Source under 40 CFR 63. Thus, the facility would avoid being subject to 40 CFR 63 Subpart DDDD for the lumber kiln (ID No. DK01) and the case-by-case MACT requirements for the proposed pellet manufacturing process.

In order to validate the proposed HAP emission factors, specified in Tables 6.2.12.A. and 6.2.12.B. found in the Permit, the facility will be required to conduct an initial and subsequent performance test from the Belt Dryer (DR01), the Dry Hammermills (HM02 or HM03), and the combined exhaust from the Pellet Mills/Pellet Cooler. The individual HAP emissions from the Green Hammermill (HM01) and Pellet Storage (ID No. PST1) are fugitive in nature and are unable to be effectively tested so the Division will not require the testing of emissions from these emission units.

The facility must track its actual individual HAP emissions using the HAP emission factors as summarized in Tables 6.2.12.A.-6.2.12.B. found in the Permit. However, the HAP emission factors

can vary from one pellet plant to another as well as from one wood source to another. The facility must use any higher individual HAP emission factor(s) obtained from the Division-approved performance tests and the actual dry material process rate should be used to demonstrate compliance with the facility-wide emissions limits on individual and total HAPs. If the performance tests indicate a lower HAP emission factor(s) than those in the permit, however, the facility must continue to use the factors prescribed in the permit until the permit is amended with the lower tested results based on the facility's request in an application.

B. Applicable Rules and Regulations

## Georgia Air Toxics Guideline-Proposed Project

The facility evaluated nine toxic air pollutants (TAPs) including acetaldehyde, acrolein, arsenic, formaldehyde, hexane, hydrogen chloride, methanol, phenol, and propionaldehyde based on discussions with the Division during the pre-application meeting.

Potential emissions of the applicable TAPs (from mainly unobstructed POINT source characterizations) are presumed to comply with the applicable Acceptable Ambient Concentration Screening Levels (AAC) when those potential emissions are below the Minimum Emission Rates (MERs). Potential emissions which exceed the MER must be modeled to assess compliance with the AAC Screening Levels. Table 6 summarizes the MER applicability analysis and whether a particular TAP needs to be modeled <sup>2</sup>: Note: The potential emissions for methanol have been updated from the data in the application based on the significant increase demonstrated in the January 2024 Telfair Forest Products performance test results.

Table 6: Applicability Analyses							
ТАР	PTE (lb/yr)	% from Unobstructed POINT	MER Applies?	MER (lb/yr)	Needs to be Modeled?		
Acetaldehyde	8,368	89	Yes	1,107.2	Yes		
Acrolein	4,198	97	Yes	4.87	Yes		
Arsenic	7.760	80	Yes	0.0567	Yes		
Formaldehyde	19,408	95	Yes	267	Yes		
Hexane	1,083	89	Yes	170,000	No		
Hydrogen	6,660	80	Yes	4,866.6	Yes		
Chloride							
Methanol	24,674	84	Yes	30,126.7	No		
Phenol	7,407	97	Yes	2,199.9	Yes		
Propionaldehyde	1,506	96	Yes	1,946.6	No		

The facility derived the maximum ground level concentration (MGLC) for each TAP required to be modeled using the AERMOD modeling system. The facility's original TAP Modeling analysis (dated February 22, 2024) was updated by the facility with a new TAP Modeling analysis (dated May 16, 2024) based on input from the Division. The Air Protection Branch Data and Modeling Unit (DMU)

<sup>&</sup>lt;sup>2</sup> The PTE is taken from the AERMOD Input file for the TAP modeling analysis.

assessed the facility's setup and execution of the AERMOD modeling system for the entire facility for compliance with the Georgia Air Toxics Guideline. DMU reviewed the setup and execution of the AERMOD modeling system and determined that the facility's modeling was conducted in accordance with the Georgia Air Toxics Guideline. The updated modeling results are summarized in Table 7.

The Georgia Air Toxics Guideline requires additional analysis in the form of a risk assessment if the modeling results exceed an AAC value. Addition analysis was required for arsenic.

Table 7: TAP MGLC Assessment							
TAD	Averaging	AAC	Max Modeled	Receptor UTM Zone: 17			
IAP	Period	(µg/m <sup>3</sup> )	(μg/m <sup>3</sup> )	Easting (meter)	Northing (meter)		
aastaldahyda	15-minute	4,500	14.16456	330,814.65	3,433,374.51		
acetaidenyde	Annual	4.55	1.09968	330,814.65	3,433,374.51		
1-:	15-minute	23	5.437199	330,287.79	3,433,589.05		
acrolein	Annual	0.35	0.24744	330,373.49	3,433,624.84		
	15-minute	0.2	0.024248	330,814.65	3,433,374.51		
arsenic	Annual	0.000233	0.00181	330,814.65	3,433,374.51		
formaldahuda	15-minute	245	24.82393	330,287.79	3,433,589.05		
Tormaldenyde	Annual	1.10	1.03568	330,814.65	3,433,374.51		
hydrogen	15-minute	700	20.9222	330,814.65	3,433,374.51		
chloride	Annual	20	1.56063	330,814.65	3,433,374.51		
nhanal	15-minute	6,000	8.026907	330,287.79	3,433,589.05		
phenor	24-hour	45.2	3.27372	330,287.79	3,433,589.05		

\* SSPP approved the applicant's case-by-case request to use an alternative annual acceptable ambient concentration (AAC) of 0.35  $\mu$ g/m<sup>3</sup> for acrolein.

The Division reviewed the facility's Residential and Business Area Risk analyses which were required since the facility exceeded the annual AAC for arsenic. The risk analyses are presented in Tables 8 (annual) and 9 (8-hour). Figure 1 illustrates the maximum modeled annual ground level concentrations for arsenic across 5 years (2018-2022) overlaid on a satellite map with the six closest residential area receptors. The modeled concentration at all six of the closest residential area receptors were below the AAC. Figure 2 illustrates the maximum modeled 8-hour ground level concentrations (in  $\mu g/m^3$ ) of arsenic across 5 years (2018-2022) overlaid on a satellite map with the 8 closest residential area receptors ("B1" through "B6" in Table 9). All results were below the 8-hour AAC for arsenic (0.000233  $\mu g/m^3$ ).

Table 8: TAP Risk Assessment Residential Area Analysis							
TAD	Averaging	AAC	Modeled	Receptor UTM Zone: <u>17</u>		Receptor	
IAF	Period	(µg/m <sup>3</sup> )	(μg/m <sup>3</sup> )	Easting (meter)	Northing (meter)	ID	
arsenic	Annual	0.000233	9.64E-05	331,400.00	3,434,036.00	R1	

Table of TAF Kisk Assessment Residential Area Analysis						
ТАР	Averaging Period	AAC (µg/m³)	Modeled Conc. (μg/m <sup>3</sup> )	Recept Zor	Receptor	
IAI				Easting (meter)	Northing (meter)	ID
			4.77E-05	331,878.00	3,433,921.00	R2
			3.76E-05	332,161.00	3,433,781.00	R3
			4.53E-05	332,508.00	3,432,935.00	R4
			4.12E-05	328,864.00	3,433,096.00	R5
			6.01E-05	329,777.32	3,434,223.59	R6

## Table 8: TAP Risk Assessment Residential Area Analysis

Table 9: TAP Risk Assessment Business Area Analysis							
	Averaging	AAC (µg/m³)	AAC (µg/m <sup>3</sup> ) Modeled Conc. (µg/m <sup>3</sup> )	Recept Zoi	Receptor		
IAP	Period			Easting	Northing	ID	
				(meter)	(meter)		
	8-hour	0.033333	0.00921	330,806.00	3,433,460.00	B1	
			0.00816	330,827.00	3,433,545.00	B2	
			0.00225	330,256.00	3,433,708.00	B3	
organia			0.00261	330,303.00	3,434,032.00	B4	
aiseine			0.00181	330,146.00	3,434,037.00	B5	
			0.00236	330,689.00	3,434,118.00	B6	
			0.00203	329,862.00	3,434,241.00	B7	
			0.00166	332,518.00	3,433,021.00	B8	

\* The 8-hour AAC for arsenic that was derived from 0.01 mg/m<sup>3</sup> which converts to 10  $\mu$ g/m<sup>3</sup> (OSHA Annotated Table Z-1). The value is further divided by the safety factor for known carcinogens of 300 to produce an 8-hour AAC of 0.033333  $\mu$ g/m<sup>3</sup>.



**Figure 1.** Maximum modeled annual ground level concentrations (in  $\mu g/m^3$ ) of arsenic across 5 years (2018-2022) overlaid on a satellite map with the 6 closest residential area receptors ("R1" through "R6" in Table 8). The red line indicates the annual AAC for arsenic (0.000233  $\mu g/m^3$ ).



Figure 2. Maximum modeled 8-hour ground level concentrations (in  $\mu$ g/m<sup>3</sup>) of arsenic across 5 years (2018-2022) overlaid on a satellite map with the 8 closest residential area receptors ("B1" through "B6" in Table 3). All results were below the 8-hour AAC for arsenic (0.033333  $\mu$ g/m<sup>3</sup>).

Please note that the above toxic impact analysis (TIA) was conducted with the potential HAP emission rates calculated based on the design throughput of the emission units. The TIA was conducted assuming single HAP emissions below 10 tpy, based on the requested permit limit, except for 12.337 tpy methanol and assuming combined HAPs emissions totaling 36.33 tpy. The TIA was conducted conservatively. The associated annual throughputs for the belt dryer and pellet mills (ID Nos. DR01 and PL01 through PL05), included in new Conditions 3.2.7 and 3.2.8, were incorporated in the TIA pursuant to the Georgia Air Toxics Guideline.

C. Compliance Status

The facility appears to be operating in compliance with their air permit.

D. Permit Conditions

New Condition 2.1.1 establishes the facility-wide individual and total HAP emissions limits of 10 tons (individual) and 25 tons (total) during any consecutive twelve-month period for Area Source status under 40 CFR 63 and for Avoidance of 40 CFR 70.

## **IV.** Regulated Equipment Requirements

A. Brief Process Description

The facility operates an existing lumber mill equipped with a continuous direct-fired continuous drying kiln (CDK, ID No. DK01). Kiln DK01 is equipped with a 40 MMBtu/hr green sawdust/natural gas fired burner. The facility proposes to construct and operate a wood pellet manufacturing operation at this site which will consume green wood chips from the existing sawmill and dry planer shavings from the existing planer mill to manufacture wood pellets. The proposed wood pellet manufacturing plant will be capable of producing 197,100 tons of wood pellet per year.

B. Equipment List for the Process

New Condition 3.1.2 updates Existing Condition 3.1.1 per Tables 10A and 10B: The updates are noted in **bold** font.

Table 10A: Updates to Existing Condition 3.1.1	
Emission Unit or APCD ID No.	Updates
Description	
Debarker (DB01)	
Bag Plant for Screening and Bagging Bark (BP01)	
Sawmill (SM01)-Indoors	Moved to Attachment B of the updated
Sawmill Chippers (SCH1 and SCH2)-Indoors	permit.
Sawmill Screener (SSC1)	
Planer Mill (PM01)-Indoors	
	Updated description from existing air
PCH1	permit
	Planer Mill Chipper 1

Table 10A: Updates to Existing Condition 3.1.1	
Emission Unit or APCD ID No.	Updates
Description	
	Updated description from existing air
PCY1	permit
	Planer Mill Cyclone 1

Table 10B: Up	odated Equipment List per Condition 3.1.	.2				
	Emission Units	Applicable Air Pollution Control Devices				
ID No.	Description	Requirements/Standards	ID No.	Description		
DK01	Continuous Direct-Fired Lumber Kiln	391-3-102(2)(b)	N/A	N/A		
	with Green Sawdust/Natural Gas Fired	391-3-102(2)(e)1.				
	Burner rated at 40 MMBtu/hr	391-3-102(2)(g)				
PCH1	Planer Mill Chipper 1	391-3-102(2)(b)	PCY1	Planer Mill Cyclone 1		
		391-3-102(2)(e)1.				
DR01	Belt Dryer	391-3-102(2)(b)	N/A	N/A		
		391-3-102(2)(e)1.				
BL01 30		391-3-102(2)(d)				
	30 MMBtu/hr Natural Gas Fired	391-3-102(2)(g)	NT/A	N/A		
	Boiler	40 CFR 60 Subpart A	N/A			
		40 CFR 60 Subpart Dc				
111/102	Dur Hommounill 1	391-3-102(2)(b)	PCY1 N/A N/A PLC1 PLC2	Dry Hammarmill Cyclone 1		
HMUZ	Dry Hammermill 1	391-3-102(2)(e)1.	PLCI	Dry Hammermill Cyclone 1		
111102	D	391-3-102(2)(b)				
HMUS	Dry Hammermili 2	391-3-102(2)(e)1.	PLC2	Dry Hammermill Cyclone 2		
DI 01 DI 05	Dellat Mills 1 through 5	391-3-102(2)(b)		Dollat Mill Crusters 2		
PL01-PL05	Pellet Millis I through 5	391-3-102(2)(e)1.	PLCS	Penet Mini Cyclone 5		
DC01	Dellet Cooler	391-3-102(2)(b)	DI CA	Dellat Caslan Cruslans 4		
rcui	renet Cooler	391-3-102(2)(e)1.	PLC4	reliet Cooler Cyclone 4		
PST1	Pellet Storage	391-3-102(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

Stack emissions from the Belt Dryer (ID No. DR01); Dry Hammermills (ID Nos. HM02 and HM03); Pellet Mills (PL01-PL05) and Pellet Cooler (PC01) will be subject to Georgia Rules (b) and (e), per existing conditions 3.4.1 and 3.4.2.

PM and visible emissions from the Boiler (ID No. BL01) will be subject to Georgia Rule (d). This Boiler will be limited to the combustion of natural gas which will subsume the requirements of Georgia Rule (g). The fuel restriction limit will also serve to remove the operation of this Boiler from being subject to 40 CFR 63 Subpart JJJJJJ.

<u>40 CFR 60 Subpart Dc – "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units" ("NSPS Dc"):</u> The Boiler (ID No. BL01) is subject to NSPS Dc because it is constructed after June 9, 1989, and has a maximum heat input of 30 MMBtu/hr (which is greater than 10 MMBtu/hr). This Boiler will not be subject to an NSPS Dc emissions limit because it will only combust natural gas. The facility will be required to maintain monthly usage records of the fuel.

## PSD Avoidance Limit for the Proposed Project:

Potential VOC emissions from the Belt Dryer (ID No. DR01); Dry Hammermills (ID Nos. HM02 and HM03); Boiler (ID No. BL01); Pellet Mills (PL01-PL05) and Pellet Cooler (PC01) will be limited to less than 249 tons during any consecutive twelve-month period on a combined basis. The facility proposed the limit in order to qualify for the "one-time doubling provision" per 40 CFR 52.21(b)(1)(i)(c) and avoid a PSD review for VOC. In order to demonstrate compliance with the 249-tpy limit, the facility is required to calculate the monthly and 12-month rolling total VOC emissions from the emission units included in the proposed modifications. In order to validate the VOC emission factors used to calculate the VOC emissions from the processes, the facility is required to conduct initial and subsequent performance testing for VOC. If any VOC testing result is higher than the emission factor listed in the permit, the facility is required to calculate VOC emissions using the higher value derived from the test results immediately starting on the day of the test. The facility is not allowed to use any tested results that are lower than the permit emission factors before they are incorporated into the permit with an application.

Potential Total Filterable PM (FPM)/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> emissions from the proposed project will be limited to less than 250 tons during any consecutive twelve-month period on a combined basis by requiring the operation and maintenance of the cyclones (ID Nos. PLC1, PLC2, PLC3, and PLC4) during periods of operation of the associated emission unit. The facility will also be required to demonstrate that actual FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> emissions (tpy) are less than 250 tons during any consecutive twelve-month period based on initial performance testing of the Belt Dryer (ID No. DR01), cyclone with ID No. PLC1 or PLC2 and the common exhaust of cyclones with ID Nos. PLC3 and PLC4). Testing for TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> testing must include filterable plus condensable PM. The above limits were proposed by the facility in order to qualify for the "one-time doubling provision" per 40 CFR 52.21(b)(1)(i)(c) and avoid a PSD review for PM/PM<sub>10</sub>/PM<sub>2.5</sub>.

<u>Georgia Air Toxics Guideline</u>: The following limits will be incorporated in the permit for the proposed project for purposes of compliance with the Georgia Air Toxics Guideline:

- The Belt Dryer (ID No. DR01) production rate will be limited to 139,284 tons/yr; and
- The Pellet Mills (ID Nos. PL01-PL05) production rate will be limited to 197,100 tons/yr, combined.

## D. Permit Conditions

New Condition 3.2.4 establishes the PSD Avoidance limit for VOC emissions from the Belt Dryer (ID No. DR01), Boiler (ID No. BL01), the Dry Hammermills (ID Nos. HM02 & HM03), the Pellet Mills (ID Nos. PL01-PL05), and the Pellet Cooler (ID No. PC01), combined, in an amount less than 249 tons during any consecutive twelve-month period. The facility requested this so that they can avoid a VOC PSD review by utilizing the one-time doubling provision per 40 CFR 52.21(b)(1)(i)(c).

New Condition 3.2.5 replaces Existing Condition 3.5.1. New Condition 3.2.5 requires the facility to operate and maintain the facility-wide cyclones (ID Nos. PCY1, PLC1, PLC2, PLC3, and PLC4) during all periods of operation when the associated emission units are in operation. This Condition serves as the PSD Avoidance for FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> from the proposed project (PLC1 through PLC4) and for subsuming the requirements of Georgia Rule 391-3-1-.02(2)(e). A PSD review was avoided by utilizing the one-time doubling provision per 40 CFR 52.21(b)(1)(i)(c).

New Condition 3.2.6 limits the fuel types to be combusted in the Boiler (ID No. BL01) to natural gas for Avoidance of 40 CFR 63 Subpart JJJJJJ and Georgia Rule (g).

New Conditions 3.2.7 and 3.2.8 limit the production rates of the Belt Dryer (ID No. DR01) and the Pellet Mills (ID Nos. PL01-PL05) for purposes of compliance with the Georgia Air Toxics Guideline.

New Condition 3.3.1 establishes 40 CFR 60 Subparts A and Dc as applicable requirements for the Boiler (ID No. BL01).

New Condition 3.4.5 establishes the PM and visible emissions limits for the Boiler (ID No. BL01) per Georgia Rule (d).

Modified Condition 3.5.1 requires the facility to perform routine maintenance on all air pollution control devices and to maintain a written log of such maintenance.

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

## Georgia Rule (b)

Operation of the proposed project (excluding fugitive sources and fuel-burning equipment) is subject to Georgia Rule (b) for visible emissions. The operation of the applicable non-fugitive sources should easily comply with a visible emissions limit of 40% opacity and therefore no testing is prescribed.

## Georgia Rule (e)

Operation of the proposed project (excluding fugitive sources and fuel-burning equipment) is subject to Georgia Rule (e) for PM emissions. PM emissions from the Belt Dryer (ID No. DR01), the Dry Hammermills (ID Nos. HM02/PLC1 and HM03/PLC2), and the common stack for the Pellet Mills/Pellet Cooler (ID Nos. PL01-PL05, PC01) shall be tested within 180 days of startup of the wood pellet manufacturing operation to verify compliance with Georgia Rule (e). This is required in new Condition 4.2.3.

## Georgia Rule (d)

Operation of the proposed Boiler (ID No. BL01) is subject to Georgia Rule (d) for visible emissions. The proposed Boiler shall only be fired on natural gas, which are clean burning fuels which should easily comply with the requirements of Georgia Rule (d). Therefore, no testing will be prescribed for the operation of the proposed Boiler (ID No. BL01).

## **PSD** Avoidance for FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub>

The potential non-fugitive emissions of FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> from the proposed project are below the PSD major source threshold, 250 tpy, as long as the potential emission rate (in lb/ton) is at or below that specified in Table 4A.1 of this Narrative. The facility will be required to conduct initial performance testing to validate the PSD Avoidance status of non-fugitive FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> from the Belt Dryer (ID No. DR01), Dry Hammermill (ID Nos. HM02/PLC1 or HM03/PLC2), and the Pellet Mills/Pellet Cooler (ID Nos. PL01-PL05/PLC3 and PC01/PLC4) common exhaust point. Testing for PM<sub>10</sub>/PM<sub>2.5</sub> must include condensable PM. For the dry hammermills, the facility only needs to test one of them. These are all included in new Condition 4.2.3.

If any of the initial performance test results per Condition 4.2.3 exceeds the PM emission factors in Table 4A.1, the facility will be required by new Condition 4.2.4 to submit a permit application to the Division to update the higher tested results and explain how the modification specified in Application No. 823591 would not trigger a PSD review for  $PM/PM_{10}/PM_{2.5}$ . In other words, the facility must show that the potential  $PM/PM_{10}/PM_{2.5}$  emissions caused by the proposed modification, calculated using the higher tested results, will stay below 250 tpy.

## **PSD** Avoidance for Emissions of VOCs

The non-fugitive VOC emission factors for the Belt Dryer (ID No. DR01), the Dry Hammermills (ID Nos. HM02/PLC1 and HM03/PLC2), and the Pellet Mills/Pellet Cooler common exhaust (ID Nos. PL01-PL05/PLC3 and PC01/PLC4) may vary from one pellet plant to another as well as from one wood source to another. Since the annual PSD Avoidance limit for non-fugitive VOC emissions from the proposed project is slightly below the PSD major source threshold, the facility must use a reliable VOC emission factor to track its monthly and annual VOC emission rate.

The facility will be required by Condition 4.2.1 to validate the proposed non-fugitive VOC emission factors specified in Table 6.2.7 of the Permit by conducting initial performance testing to determine the following pollutant average emissions within 180 days of startup of the wood pellet manufacturing operation (ID Nos. DR01, HM02/PLC1, HM03/PLC2, PL01-PL05/PLC3, and PC01/PLC4).

Pollutant	Equipment	Units
VOC	DR01	VOC as propane (ppm), per equipment per the
		Interim VOC Measurement Protocol for the Wood
	HM02/PLC1 or	Products Industry – July 2007 (WPP1) as stated in
	HM03/PLC2	Condition 4.1.3 in the Permit.
	PL01-PL05/PC01 common exhaust	The <i>VOC as propane (ppm)</i> , per equipment per WPP1 shall be converted from <i>ppm as propane</i> to <i>lb VOC/ton material</i> per equipment.

The facility only needs to test for the VOC emissions from either Dry Hammermill ID No. HM02/PLC1 or HM03/PLC2, and not both of them because they are the same type of process and therefore will have the same emission rate. Subsequent performance testing must be conducted at least once every 37 months from the most recent performance testing. The applicable test methods for emissions of VOCs are taken from 40 CFR 63 Subpart DDDD (Table 4) and WPP1.

The facility will <u>not</u> be required to conduct initial performance testing for VOC emissions from the Green Hammermill (ID No. HM01) or wood pellet storage (ID No. PST1) because these emissions sources are fugitive in nature, and the emission units are unable to be effectively tested.

The facility will <u>not</u> be required to conduct initial and subsequent performance testing for VOC emissions from the proposed Boiler (BL01) because the boiler will be fired only with natural gas, and emission calculation was conducted using the US EPA AP-42 VOC emission factor.

## Avoidance of Major Source Status Under 40 CFR 63

The individual HAP emission factors for the Belt Dryer (ID No. DR01), the Dry Hammermills (ID Nos. HM02/PLC1 and HM03/PLC4), and the Pellet Mills/Pellet Cooler common exhaust (ID Nos. PL01-PL05/PLC3 and PC01/PLC4) may vary from one pellet plant to another as well as from one wood source

to another. Since the facility-wide individual and total HAPs may be slightly below the major source threshold specified by 40 CFR 63 and Title V, the facility must use reliable individual HAP factors to track its monthly and annual individual and total HAP emission rates.

The facility will be required by Condition 4.2.2 to validate the proposed individual HAP emission factors specified in Tables 6.2.12.A and 6.2.12.B. of the Permit by conducting initial performance testing to determine the following pollutant average emissions within 180 days of startup of the wood pellet manufacturing operation (ID Nos. DR01, HM02/PLC1, HM03/PLC2, PL01-PL05/PLC3, and PC01/PLC4).

Pollutant	Equipment	Units
Acetaldehyde	DR01	Parts per million (ppm), per equipment
Acrolein		
Formaldehyde	HM02/PLC1 or	The HAP emission factors shall be converted to
Methanol	HM03/PLC2	pound HAP/ton material, per equipment
Phenol		
Propionaldehyde	PL01-PL05/PC01 common	
	exhaust	

The facility only needs to test for the applicable HAPs from either Dry Hammermill ID No. HM02/PLC1 or HM03/PLC2, and not both of them because they are the same type of process and therefore will have the same emission rate. Subsequent performance testing must be conducted at least once every 37 months from the most recent performance testing. The applicable test methods for emissions of the applicable HAPs are taken from 40 CFR 63 Subpart DDDD (Table 4).

The facility will <u>not</u> be required to conduct initial and subsequent performance testing for individual HAP from the Green Hammermill (ID No. HM01) or wood pellet storage (ID No. PST1) because these emissions sources are fugitive in nature and are unable to be effectively tested.

The facility will <u>not</u> be required to conduct initial and subsequent performance testing for individual HAP emissions from the proposed Boiler (BL01) because the boiler will be fired with only natural gas (i.e., calculating the emissions of arsenic, formaldehyde, and hexane using the associated US EPA AP-42 emission factors).

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

#### Georgia Rule (b) and Georgia Rule (e)

Operation of the proposed project (excluding fugitive sources and fuel-burning equipment) is subject to Georgia Rule (b) for visible emissions and Georgia Rule (e) for PM emissions. The operation of the applicable process components will exhaust to the outdoor atmosphere through cyclones (ID Nos. PLC1, PLC2, PLC3, and PLC4). Monitoring of the cyclone differential pressure will be imposed to provide for a reasonable assurance of compliance. Existing Condition 5.2.1 has been modified for this. Since Sawmill Chipper SCH1 and its cyclone (ID No. SCY1) have been moved to Attachment B of the permit due to their insignificant emission level, existing Condition 5.2.1 has also been modified to exclude SCY1. Testing of the uncontrolled proposed unit (ID No. DR01) will be used to provide for a reasonable assurance of compliance with these state rules.

In addition to the periodic pressure drop monitoring requirements specified in Condition 5.2.1; the facility is also required by modified Condition 5.2.2 to perform the exterior checks on the new cyclones.

## Georgia Rule (d)

Operation of the proposed Boiler (ID No. BL01) is subject to Georgia Rule (d) for visible emissions. The proposed Boiler shall only be fired on natural gas which is a clean burning fuel and provides for a reasonable assurance of compliance. Therefore, no periodic monitoring will be prescribed for the operation of the proposed Boiler (ID No. BL01).

## PSD Avoidance for FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub>

The potential non-fugitive emissions of FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> from the proposed project are below the PSD major source threshold, 250 tpy, as long as the potential emission rate (lb/hr) is at or below that specified in Table 4A.1 of this Narrative. The operation of the applicable process components will exhaust to the outdoor atmosphere through cyclones (ID Nos. PLC1, PLC2, PLC3, and PLC4). Monitoring of the cyclone differential pressure will be imposed to provide for a reasonable assurance of compliance. Testing of the uncontrolled proposed unit (ID No. DR01) will be used to provide for a reasonable assurance of compliance of compliance with the proposed FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> for PSD Avoidance purposes.

## **PSD** Avoidance for Emissions of VOCs

The non-fugitive VOC emission factors for the Belt Dryer (ID No. DR01), the Dry Hammermills (ID Nos. HM02/PLC1 and HM03/PLC2), and the Pellet Mills/Pellet Cooler common exhaust (ID Nos. PL01-PL05/PLC3 and PC01/PLC4) will be a function of the tested VOC emission rate (lb/ton) and the process unit throughput. No monitoring devices will be required to provide a reasonable assurance of compliance with the process unit throughput nor the VOC emissions (lb/ton).

#### Avoidance of Major Source Status Under 40 CFR 63

The individual emission factors for the Belt Dryer (ID No. DR01), the Dry Hammermills (ID Nos. HM02/PLC1 and HM03/PLC2), and the Pellet Mills/Pellet Cooler common exhaust (ID Nos. PL01-PL05/PLC3 and PC01/PLC4) will be a function of the tested individual HAP emission rate (lb/ton), proposed individual HAP emission rate (for fugitive sources) (lb/ton), U.S. EPA individual HAP emission rate (lb/MMBtu or lb/MMscf), and individual HAP emission rate (lb/ton) from NCASI for the existing lumber kiln, and the process unit throughput. No monitoring devices will be required to provide a reasonable assurance of compliance with the process unit throughput nor the individual emissions (lb/ton).

**Compliance Assurance Monitoring (CAM):** The Division assessed the facility-wide CAM applicability. The proposed project will not include any physical VOC or HAP controls . Therefore, the proposed project is not subject to CAM for emissions of VOC and individual HAPs. The proposed project will operate cyclones as pneumatic conveyance air assisted devices. The proposed project is subject to Georgia Rule (e) per cyclone (ID Nos. PCY1, PLC1, PLC2, PLC3, and PLC4) and the uncontrolled FPM emissions are less than 100 tpy for each applicable process unit. Therefore, CAM is not applicable per 40 CFR 64.2(a)(3).

## VII. Other Record Keeping and Reporting Requirements

New Condition 6.1.7.b.i establishes the exceedance definition associated with Condition 2.1.1.

New Condition 6.1.7.b.ii. establishes the exceedance definition associated with Condition 3.2.4.

New Condition 6.1.7.b.iii. establishes the exceedance definition associated with Condition 3.2.1.

New Condition 6.1.7.b.iv. establishes the exceedance definition associated with Condition 3.2.7.

New Condition 6.1.7.b.v. establishes the exceedance definition associated with Condition 3.2.8.

New Condition 6.1.7.c.iii. establishes the excursion definition associated with the inspection of the cyclones as required by Condition 5.2.2.

New Condition 6.2.5 establishes the recordkeeping requirements associated with the computation of actual VOC and individual HAP emissions from the facility.

New Condition 6.2.6 establishes the recordkeeping requirement associated with the computation of monthly actual VOC emissions from the proposed project. This new condition also establishes the formula to be used for this computation.

New Condition 6.2.7 establishes the VOC emission factors to be used associated with the computation of actual VOC emissions from the proposed project.

New Condition 6.2.8 establishes the requirement for notification of monthly VOC emissions from the proposed project when the value equals or exceeds 20.75 tons.

New Condition 6.2.9 establishes the requirement to determine and record the consecutive twelve-month VOC emissions from the proposed project. This condition also establishes the requirement for notification of VOC emissions on a consecutive twelve-month period from the proposed project when the value equals or exceeds 249 tons.

New Condition 6.2.10 establishes the requirement to compare the results of the VOC performance tests, per Condition 4.2.1, with the values in Condition 6.2.7. This condition also requires the facility to submit an air permit application to the Division when the results of the VOC performance tests exceed one or more of the values specified in Condition 6.2.7. The higher tested results must be used in the equation in Condition 6.2.6 starting on the test date.

New Condition 6.2.11 establishes the record keeping requirement associated with the computation of monthly actual individual and total HAP emissions from the facility. This new condition also establishes the formulas to be used for these computations.

New Condition 6.2.12 establishes the individual HAP emission factors to be used associated with the computation of actual individual and total HAP emissions from the facility. Note that the most recent (January 2024) average test result of methanol at Telfair Forest Products, which is much higher than the application methanol emission factor, has been updated in Table 6.2.12.B for Dryer DR01.

New Condition 6.2.13 establishes the requirement for notification of monthly individual and/or total HAP emissions from the facility when the value equals or exceeds 0.83 tons and 2.08 tons, respectively.

New Condition 6.2.14 establishes the requirement to determine and record the consecutive twelve-month individual and total HAP emissions from the facility. This condition also establishes the requirement for

notification of individual and total HAP emissions on a consecutive twelve-month period from the proposed project when the value equals or exceeds 10 tons and 25 tons, respectively.

New Condition 6.2.15 establishes the requirement to compare the results of the individual HAP performance tests, per Condition 4.2.2, with the values in Condition 6.2.12. This condition also requires the facility to submit an air permit application to the Division when the results of the individual and total HAP performance tests exceed one or more of the values specified in Condition 6.2.12. The higher tested results must be used in the equation in Condition 6.2.11 starting on the test date.

New Conditions 6.2.16 and 6.2.17 establishes the requirements associated with recordkeeping and reporting to verify compliance with the production rate of 139,284 tons during any consecutive twelvemonth period for the Belt Dryer (ID No. DR01).

New Conditions 6.2.18 and 6.2.19 establishes the requirements associated with recordkeeping and reporting to verify compliance with the production rate of 197,100 tons during any consecutive twelvemonth period for the Pellet Mills (ID Nos. PL01-PL05).

New Conditions 6.2.20 and 6.2.21 establishes the NSPS Dc recordkeeping and reporting requirements associated with the Boiler (ID No. BL01).

New Condition 6.2.22 establishes the notification requirement associated with the startup of the wood pellet manufacturing operation.

#### Public Comments on Air Permit Application No. 823591

The Division issued a public advisory for this application from February 28, 2024, to March 29, 2024. The Southern Environmental Law Center (hereinafter "SELC") submitted written comments to the Division during the public advisory period on March 29, 2024.

## Comment #1-CH Underestimates and Omits VOC and HAP Emissions in its PTE Calculations:

CH estimates that the existing lumber mill has a PTE of 16.52 tpy of total HAPs, including 8.05 tpy of methanol. If the facility wishes to avoid major source MACT permitting, then the new pellet mill's total HAP emissions cannot exceed 8.48 tpy and methanol emissions cannot exceed 1.95 tpy. Based on numerous tests at other wood pellet plants, an uncontrolled ~200,000 tpy wood pellet plant will emit far higher rates than this, and even CH estimates that the combined lumber mill and pellet plant will have the potential to emit 30.73 tpy of total HAPs.

Even under CH's calculated PTE, then EPD must implement a production limit considerably less than the maximum physical capacity (197,200 tpy) to avoid major source MACT. The same is also true for VOCs, as the facility estimates the pellet plant's PTE for VOCs is 302 tpy. As discussed below, however, EPD must utilize complete and accurate VOC and HAP emission factors when crafting the draft permit's synthetic minor limits.

#### A. CH Omits Methanol, Acrolein, and Propionaldehyde from its Dryer Emissions Estimates

CH intends to construct a belt dryer manufactured by the German company Stela, and the facility relies on "testing data provided by vendor" to estimate all pollutants from the dryer. [Footnote 1: Conner Holdings, LLC, Air Permit Application, at Section 3, Emission Calculations, Table 3.7B (Feb. 2024).] Critically, however, this emissions data only includes acetaldehyde, formaldehyde, and phenol: CH and Stela did not include any quantifications of the three other primary wood product HAPs: methanol, acrolein, and propionaldehyde.

CH provides no further information on these missing pollutants, and it is therefore unclear whether they were omitted by mistake or if the company is claiming the belt dryer will not emit any of these HAPs, which we believe is not realistic. For example, CH estimates that the dryer will emit 6.8 tons of formaldehyde per year, and methanol emissions from wood drying are typically comparable to formaldehyde emissions. [Footnote 2: For instance, most wood dryers listed in AP-42 have formaldehyde and methanol emission factors that are of the same order of magnitude.]

Likewise, in the only example of HAPs testing from wood chip belt dryers that we have been able to find, the belt dryers emitted very comparable rates of formaldehyde and methanol:

Staals ID	Emission T	Production	
Stack ID	Formaldehyde	Methanol	Rate
Stack 1	0.03 lb/hr	0.04 lb/hr	21.8 tons/hr
Stack 3	0.03 lb/hr	0.03 lb/hr	
Stack 6	0.04 lb/hr	0.02 lb/hr	32.3 tons/hr
Stack 8	0.03 lb/hr	0.03 lb/hr	
Total 4 Stacks	0.13 lb/hr	0.12 lb/hr	

Staal ID	Emission T	Production	
Stack ID	Formaldehyde	Methanol	Rate
Total 8 Stacks	0.26 lb/hr	0.24 lb/hr	
(1 Belt Dryer)			
Total 4 Belt Dryers	1.04 lb/hr	0.96 lb/hr	
NT-4	· · ·		

Notes:

• Brent Hall of the Stationary Source Compliance Branch of the DAQ reviewed the source test report and approved the results in a memorandum dated November 2, 2018.

• Each belt dryer has eight stacks, and DAQ allowed testing of only four stacks. The test results were then doubled to represent emissions from the entire belt dryer.

Figure 1: North Carolina Renewable Power Wood Chip Belt Drying Test Results from NCDEQ [Footnote 3: North Carolina Division of Air Quality, Application Review for North Carolina Renewable Power-Lumberton (Apr. 15, 2020) (Attachment A).

We therefore believe it is likely that CH's dryer will emit methanol at about the same rate as formaldehydei.e., about to 6 to 7 tons of methanol per year-which pushes total methanol PTE for the facility to about 16 tons, and total aggregate HAP PTE to 37 tons, not accounting for the other omitted HAPs, acrolein and propionaldehyde. Including those pollutants, which likely account for an additional three or four tons (each HAP being roughly comparable to the emission rates of acetaldehyde and phenol), the facility's total PTE for HAPs exceeds 40 tons. EPD must account for these emissions when establishing the draft permit's synthetic minor limits.

## B. CH Omits VOC and HAP Emissions from the Green Hammermill.

CH did not include any VOC emissions from the green hammermill, despite the fact that these units emit significant rates of VOCs; emission factors from existing tests indicate the green hammermills processing 197,100 tons of wood will emit around 20 to 30 tons of VOCs. [Footnote 4: Enviva Pellets Wiggins, LLC, Air Emission Test Report, at 1 (Oct. 31, 2013) (Attachment B).] CH also did not clarify whether the unit is a point source of fugitive source for purposes of PSD applicability; we note that many green hammermills at wood pellet plants are indeed point sources, meaning that their emissions count toward PSD applicability. To the extent that CH believes these units are fugitive sources, i.e. that the green hammermill emissions "could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening," [Footnote 5: 40 CFR 52.21(b)(20)] it must provide justification. Otherwise, CH must quantify VOC emissions from these units and include them when calculating facility-wide PTE.

Regardless of whether the green hammermills are point or fugitive sources, however, CH must include HAP emissions from the green hammermill in its PTE calculation. The same test referenced above indicates a green hammermill processing 197,100 tons per year emits about 2.5 tons of HAPs. *[Footnote 6: Enviva Pellets Wiggins, testing, supra, note 4.]* 

## C. CH Should not Rely on Telfair Forest Product Emission Factors for HAPs and VOCs.

NCASI, or the National Council for Air and Stream Improvement, is a forest products industry group that represents the interests of wood pellet manufacturing sources like Conner Holdings, LLC. As SELC has discussed in several recent comments on wood pellet plants, it appears that NCASI testing methods undermeasure at least methanol emissions, as compared to the EPA Method 320. *[Foot note 7: See, e.g., SELC et al., Public Comments on Draft Initial Part 70 Operating Permit No. 2499-193-0018-V-02-0 for* 

*Ideal Pellets (Mar. 22, 2024).]* The stack tests that ultimately underly CH's post dryer emissions calculations most derive from the Telfair Forest Products facility, which conducted testing using the NCASI method. We therefore do not think they should be relied upon when calculating emission factors.

Additionally, CH intends to operate pellet mills that utilize steam injection. As EPD noted in its 2013 emission factor memo, pelletizers using steam injection emit at least twice the rate of VOCs and organic HAPs as compared to pelletizers that do not utilize steam injection. *[Footnote 8: EPD Memorandum "Emission factors for Wood Pellet Manufacturing" (Jan. 29, 2013). This memo lists a VOC emission factor for non-steam injected pelletizers of 0.5 lb/ODT compared to 1.3 lb/ODT for pelletizers with steam injected pelletizers.]* From what we can ascertain, Telfair Forest Products does not utilize steam injection. *[Footnote 9: Telfair's recent applications do not make any reference to steam injection, but the company utilized the 0.5 lb/ODT emission factor for non-steam injection factor for non-steam injection factor for non-steam injection steam injection pelletizers when calculating emissions from the facility's initial Title V permit.]*, meaning these emission factors further underestimate emissions. Furthermore, if Connor Holdings' lower estimate of VOC and HAP emissions from the belt dryer is valid, then the estimated VOC and HAP emissions for the dry hammermills and pelletizers based on the Telfair emission factors (which are derived based on a traditional rotary dryer) are too low.

## D. EPD Should Request CH's Belt Dryer Emissions Testing.

Conner Holdings intends to utilize a belt dryer manufactured by the company Stela to dry wood chips in the pelletizing line. Although we recognize that several manufacturers of belt dryers claim these designs are lower emitting than rotary dryers, there is minimal stack testing available to support VOC and HAP estimates from these units. The company instead relies on "testing data provided by the vendor." *[Footnote 10: Conner Holdings, LLC, Air Permit Application, at Section 3, Emission Calculations, Table 3.7B (Feb. 2024).]* We note that EPD's default emission factor for wood pellet dryers is 6 lbs./ODT, which would amount to 418 tons of VOCs at Connor Holdings, compared to an emission factor from Stela of just 1.36 lb/ODT and a total of 94 tons per year. Given this stark difference in VOC emissions and uncertainty over the omitted HAPs discussed above, EPD should require that the company provide the vendor's testing data and make this information available to the public during the comment period on the draft permit.

## **EPD Response:**

*Emission Factors:* EPD's analysis of the increase in potential emissions as a result of this project, including the emission factors utilized, is contained in this document. The emission factors agreed to in the permit are within the reasonable range, nonetheless the Division recognizes that emission factors for individual pellet mills can vary. Because of the known variability in wood pellet mill emission factors and in order to validate the emission factors used in the permit, the Division requires the permit emission factors to be verified by performance testing.

*Dry Wood Production Limit:* The 197,100-ton limit in the draft permit for dry wood production in the pellet mill (ID Nos. PL01 – PL05) during any consecutive twelve-month period is not the physical capacity limitation for PSD Avoidance or Avoidance of Major Source MACT (40 CFR 63). The purpose of the 197,100-ton limit is to ensure the facility's compliance with the Georgia Air Toxics Guideline. The draft Permit also includes the following: (1) a facility-wide individual and total HAP emissions limit of 10 tons and 25 tons for individual and total HAPs, respectively; and (2) a PSD Avoidance limit for 249 tons of

VOC emissions from the non-fugitive sources of the proposed project, both of which emission limits are applicable and enforceable notwithstanding any particular amount produced.

*Proposed Belt Dryer (ID No. DR01):* The facility only submitted emission factors for acetaldehyde, formaldehyde, and phenol from the proposed Belt Dryer (ID No. DR01) in its February 2024 application. The Division verbally notified the facility on April 10, 2024, that they must propose non-zero values for the emission factors for acrolein, methanol, and propionaldehyde from the proposed Belt Dryer (ID No. DR01) as part of its application. The application was updated on May 16, 2024 as requested. Also, the facility notified the Division on June 14, 2024, via email, that the proposed Belt Dryer will be heated indirectly and not via steam directly. The draft Permit requires validation (i.e., performance testing) of the proposed VOC and individual HAP emission factors for the Belt Dryer (ID No. DR01) within 180 days of startup of the proposed project. Subsequent performance tests must be at least once every 37 months. Additionally, the Division is unfamiliar with the cited North Carolina facility and its equipment. Therefore, the Division does not have sufficient information about the process, testing and the data collected to evaluate whether or not the North Carolina facility emissions are comparable to the Conner Holdings process.

*Proposed Green Hammermill (ID No. HM01):* The facility's February 2024 application did not contain information on VOC and HAP emissions from the proposed Green Hammermill (ID No. HM01). The application also did not contain information on whether the proposed Green Hammermill (ID No. HM01) will be a source of fugitive emissions. The Division verbally notified the facility on April 10, 2024, that they must propose non-zero values for the VOC and individual HAP emission factors (acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde) from the proposed Green Hammermill (ID No. HM01). The facility updated its individual HAP emissions profiles in their application, on May 16, 2024, by proposing emission factors for acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde, acrolein, formaldehyde from the proposed Green Hammermill (ID No. HM01). This updated air permit application for GEOS Application No. 823591 has been updated with the May 16, 2024 application.

Also on May 16, 2024, the facility sent the Division two photos of what the proposed Green Hammermill (ID No. HM01) will look like.





These photos have been uploaded to the GEOS Account for Application No. 823591.

The Division has determined that the proposed Green Hammermill (ID No. HM01) is a fugitive emissions source because the emissions are not reasonably able to be collected and are not exhausted through a single stack. As a fugitive source, its VOC emissions would not be counted toward the facility's VOC PTE, while its HAP emissions will be counted toward the facility's HAP PTE.

Proposed VOC and HAP Emission Factors Based on Telfair's Application No. 780227 (Dated August 19, 2023): The facility used emission factors for VOC, acrolein, formaldehyde, methanol, phenol, and propionaldehyde emissions from the Pellet Mills/Pellet Cooler (ID Nos. PL01-PL05/PC01) based on those found in Georgia Air Permit Application No. 780227 for Telfair Forest Products LLC, which are actual tested data. The commenter objects to the use of these emission factors because of the following assumptions: (1) pelletizers will utilize steam injection; and (2) the emission factors do not account for the fact that the proposed Belt Dryer (ID No. DR01) may not emit as much of the individual HAPs as with traditional rotary dryers. The proposed Pellet Mills (ID Nos. PL01-PL05) will not use steam injection based on an email from the facility dated May 22, 2024. Furthermore, the emission factor for the Belt Dryer (ID No. DR01) is not based on the Telfair facility but on vendor provided data. Nonetheless, there are numerous similarities between the proposed project's process and the Telfair Forest Products process such as the throughput material, the application of heat, and the pelletizing equipment. In addition, there is no evidence to support the commenter's premise that if the lower VOC and HAP emission rates for the Belt Dryer (ID No. DR01) are in fact valid, then the VOC and HAP emission rates for the dry hammermills and pelletizers are necessarily underestimated. The draft Permit will require validation (i.e., performance testing) of the proposed individual HAP emission factors used for the non-fugitive sources of the proposed project within 180 days of project startup via testing along with subsequent performance testing.

#### Addendum to Narrative

The 30-day public review started on December 11, 2024, and ended on January 10, 2025. The Division received comments from the Southern Environmental Law Center (SELC) on behalf of itself, Georgia Interfaith Power and Light, the Georgia Chapter of the Sierra Club, Dogwood Alliance, Science for Georgia, and the Concerned Citizens of Cook County (hereafter "commenters").

The comments and EPD response to the comments are discussed below:

## **SELC Comments and EPD Responses**

#### SELC Comment No. 1 – CH Still Underestimates VOC and HAP Emissions from the Pellet Plant

Conner Holdings (CH) estimates that the existing lumber mill has a PTE of 16.52 tpy of total HAPs, including 8.05 tpy of methanol (and this rate appears underestimated, as discussed below). This leaves very little room for additional HAPs emitted from the pellet operations before the facility exceeds the major source thresholds of 10 and 25 tons per year, unless the lumber mill significantly curtails production. Although we appreciate that CH revised its initial application after Commenters raised these issues on the company's initial application, CH has still not adequately accounted for VOC and HAP emissions from the pellet side of operations.

Most critically, although CH has now accounted for VOC and HAP emissions from the green hammermills, it has underestimated these emissions. In particular, CH cites to a VOC emission factor from Hazlehurst Wood Pellets' 2019 permit application, and then estimates HAP emissions based on the VOC-to-HAP ratios from the dryer hammermills. Critically, though, Hazlehurst never actually tested its green hammermills because it has always claimed these units were fugitive sources. Hazlehurst's 2019 application instead cites to 2017 testing at an Enviva pellet plant in South Carolina for green hammermill VOC emissions (using the same 0.05 lb/ton emission factor as CH):

Process	Unit	PM Control	VOC/HAP Control	Stack	Description	Calculation Basis	Pollutant	Factor	Units	Emissions (Ib/hr)	Emissions (tpy)	Notes
P2	E5, E6			FUG2	GHM1-2	1,500,000 ton/yr	VOC	0.050	lb/ton		37.5	[1]

In other words, CH's green hammermill VOC emissions (and, in turn, HAP emissions) are ultimately based on the 2017 Enviva testing. This testing, however, was not actually performed on green hammermills, but rather a storage silo that is separated from the green hammermills by a conveyor. Below are excepts from the 2017 testing report:

#### 2.4 Green Hammermills and the Green Silo

There are four green hammermills located on the south side of the plant. Air is blown through the green hammermills and discharged into the conveyor shown in Figure 2-5.

The Green Silo was tested by pulling Tedlar® Bag samples from the top of the Green Silo shown in Figure 2-5. These samples were obtained through a small 6-inch diameter hole shown in Figure 2-6 in the top of the Green Silo. The air flow rate from this opening and the silo vent were estimated based on velometer readings.





Figure 2-6. Green Silo Sampling Location

Green Silo Sampling Location

It is unclear from this description what portion of the green hammermill emissions would ultimately be emitted and sampled through the top of the silo. The test report notes many other issues as well; first, the report notes that there were numerous fugitive leaks along the conveyor and from the silo; the test report also only encompassed two bag samples and, perhaps most critically, measurements of air flow were merely estimates. Those and other issues were summarized in the report:

## 3.3 Green Hammermills and the Green Silo

Table 3-6 summarizes the VOC emissions measured from the top of the Green Silo. Due to the high concentrations of VOCs, the Method 320 FTIR was not operated while the bag samples from the Green Silo were analyzed.

The air flowrate from the Green Silo is an estimate based on the measurements made at the outlet of the Green Silo vent plus small fugitive emissions from several fugitive emission points on the top of silo and along the conveyor from the green hammermills to the green silo. Only two samples were obtained during the test program. A third sample could not be obtained safety due to the accumulation of contaminants in the poorly ventilated area above the Green Silo and below the platform located approximately 3 feet above the top of the Green Silo.

Given these issues, this testing is far too dubious and technically unreliable to form the basis of emission factors for permitting new sources. This is especially so here for two reasons: first, much more reliable testing has been conducted on green hammermills that EPD could (and should) use, and, second, EPD claims that CH's green hammermills cannot be subject to stack testing, so there is no way to verify the accuracy of these emission factors.

EPD should instead utilize emission factors for VOCs and HAPs from more legitimate green hammermill tests conducted at other Enviva and non-Enviva pellet plants. We are aware of three sets of green hammermill tests for VOCs, and they all produced an emission factor between 0.2 and 0.31 lb/ODT, which is substantially higher than the 0.05 lb/ODT emission factor utilized by CH. These higher emission factors work out to 12 to 20 tons of VOCs per year, as opposed to the 3.134 tons estimated by CH.

If EPD allows CH to continue estimating HAPs using a ratio of VOCs-to-HAPs, these higher VOC emission rates mean a substantial increase in the HAP emission rates as well. On the other hand, some of these green hammermill tests also measured HAP emissions, which are again far higher than the emission rates estimated by CH. For instance, testing at Enviva Amory produced a methanol emission factor of 0.031 lb/ODT, which works out to 1.9 tons of methanol from CH's green hammermills alone, and which is again far higher than what CH currently estimates (just 0.02 tons).

Finally, the reliance on Hazlehurst for VOC and HAP emissions is especially ironic because Hazlehurst itself completely neglected to include HAP emissions from the green hammermills until this omission was highlighted by SELC; in response, EPD has now required Hazelhurst to utilize specific HAP emission factors from its green hammermills in its permit to assure compliance with synthetic minor HAP limits. We note that these emission factors are also higher than those in the CH permit.

EPD must require CH to calculate both its VOC and HAP emissions from the green hammermills in a reliable, technically justified manner. Of the various green hammermill tests discussed herein, the South Carolina Enviva testing that underpins CH's estimates is plainly the least reliable testing available, and EPD must not utilize it. Moreover, any of the three other tests discussed above result in significantly high VOC and HAP emissions, which indicate CH will need to reduce production significantly in order to avoid the major source MACT thresholds.

Given the critical nature of the selection of these emission factors for the legitimacy of CH's facility-wide synthetic minor HAP limits, EPD must make the revised emission factors and the basis for their determination available for additional public notice and comment.

## **EPD Response:**

As shown in Table 3.14 of the application updated in May 2024, using the proposed emission factors and the designed throughput of the existing lumber mill (at 100 MMbf/yr) and the proposed pellet mill (at 197,100 tpy produced by the pellet mills and pellet cooler and at lower design throughput rates at the green hammermill and dryer due to some raw materials already being reduced in size and moisture when received), the facility-wide methanol potential emissions and combined HAP emissions would be 10.457 tpy and 34.45 tpy, respectively. In order to remain a synthetic minor source for single/combined HAP emissions, the facility proposed the inclusion of the 10/25 tpy single/combined HAP emission limits that are now included in new Condition 2.1.1.

To demonstrate compliance with the HAP SM emission limits, the facility expects to curtail their production at either the lumber mill or the pellet mill or both. The permit would require that the facility use the equations provided in Condition 6.2.11 and the emission factors listed in Condition 6.2.12 and calculate actual HAP emissions from the facility. Note that most of the HAP emission factors listed in Tables 6.2.12.A and 6.2.12.B are either NCASI emission factors (for the lumber kiln) or within reasonable range of recent testing results from other pellet mills in Georgia (such as Telfair Forest Products and LJR Forest Products). The permit requires Conner Holdings to use these application emission factors temporarily (within 180 days after initial startup of the pellet mill) before they are required to perform initial performance tests to determine site-specific emission factors.

Many of the green hammermills located at the pellet mills in Georgia are fugitive in nature. The photographs of the green hammermills in the addendum to the narrative for the Hazlehurst Wood Pellets permit amendment number 2499-161-0023-V-03-2 and of Conner Holdings' green hammermills on p. 27 of this narrative both show that they are fugitive sources because the emissions are not reasonably able to be collected and are not exhausted through a single stack. Due to this fugitive nature, they would not be able to be properly tested due to low capture efficiency. The commenter's discussion of the Enviva Wiggin's green hammermill test report also illustrated the difficulty to capture all emissions from a green hammermill. The Division previously believed that resizing green wood (before the majority of moisture content is driven out by a dryer) in a green hammermill would not generate much emissions because the temperature would not rise much with the high moisture content. Hazlehurst's Application No. 738543 was the first application that included the 0.05-lb/ton VOC emission factors for its green hammermill. When applying the same ratio between the HAPs and VOC in the Enviva Wiggin's test to their assumed 0.05 lb/ton VOC emission rate, Hazlehurst agreed to use the following emission factors for their methanol, formaldehyde, and acetaldehyde emissions.

Emission Point	VOC	Methanol	Formaldehyde	Acetaldehyde
P2 (Fugitive)	0.05 lb/ton (Not Counted Since the source is fugitive)	0.000640 lb/ton	0.000877 lb/ton	0.00145 lb/ton

The Division is not aware of test data on green hammermills that yielded 0.2 and 0.31 lb/ODT VOC emission rates. The Hazlehurst VOC proposed emission factor is based on the only data that the Division currently has. The Division noticed that Conner Holding's proposed methanol, formaldehyde, and acetaldehyde emission factors for their green hammermill are all lower than those in the Hazlehurst permit. Since the green hammermill at Conner Holdings is not "testable" due to their fugitive nature, the Division has determined it is appropriate to apply the Hazlehurst's green hammermill emission factors to Conner Holding's green hammermill.

#### SELC Comment No. 2 – CH Also Underestimates HAP Emissions from the Lumber Kiln

To calculate HAP emissions from the lumber mill's kiln in prior permit applications, CH cites to three different sources, all of which are ultimately sourced from the National Council for Air and Stream Improvement (NCASI), which is a forest-products industry group. EPD has then incorporated these emission factors into the draft Title V permit in order to calculate facility-wide HAP emissions. These particular NCASI emission factors, however, appear to be outdated and for the most part underestimate HAP emissions, even compared to other NCASI emission factors.

In particular, in CH's most recent Title V application related to the lumber mill (October, 2022), CH cites NCASI Technical Bulletin 845 for acetaldehyde; for acrolein and phenol, meanwhile, CH cites to another lumber mill's application, which CH explains appear to be "based on NCASI data," but without any further explanation; for formaldehyde and methanol, finally, CH cites to "direct-fired southern pine drying kilns based on NCASI data," but again fails to provide any further explanation.

NCASI emission factors in general are dubious because the organization does not make public the source tests or other information necessary to determine how NCASI developed their emission factors. Here, however, CH has not even provided enough information to determine exactly which NCASI publication(s) form the basis of their emission factors, with the exception of the acetaldehyde emission factor.

It is moreover troubling that CH is not able to rely on just one NCASI publication, but instead is relying on three apparently different sources of NCASI emission factors for its kiln. We note also that CH's 2022 applications did not include any propionaldehyde emissions, despite this being a common wood product HAP and included in many NCASI publications. Worse yet, CH's initial application also did not include any HCL nor other combustion HAP emissions, although it appears EPD has corrected this error given that these pollutants are listed in the draft permit's HAP emissions monitoring equation.

More critically, EPA recently undertook a review of NCASI emission factors and other sources of emissions data from kilns and, in 2017, published its own emission factors for various kiln operations. For kilns like CH's, i.e. direct-fired kilns drying pine, EPA's emission factors are based again on an NCASI document (listed only as 2014 NCASI), but critically are mostly higher than the ones utilized by CH. The table below compares CH's HAP emission factors and emissions and those from EPA's 2017 publication:

Lumber Kiln Organic HAP Emissions						
	Conne	er Holdings				
	Emission	Tons per Year	Emission	Tons per Year	Increase or	
	Factor	(at 100	Factor	(at 100	Decrease	
Pollutant	(lb/MBF)	MMBF/yr)	(lb/MBF)	MMBF/yr)	(tpy)	
Acetaldehyde	0.045	2.25	0.04	2	-0.25	
Acrolein	0.0072	0.36	0.004	0.2	-0.16	
Formaldehyde	0.0386	1.93	0.065	3.25	+1.32	
Methanol	0.161	8.05	0.18	9	+0.95	
Phenol	0.0123	0.615	0.01	0.5	-0.115	
Propionaldehyde	n/a	0	0.004	0.2	+0.2	
Total		13.205		15.15	+1.945	

As this table shows, total HAP emissions using the emission EPA's 2017 emission factors, which are still ultimately based on NCASI data, show a net increase of almost 2 tons per year in total organic HAP emissions; methanol, meanwhile, increases by about one ton, from 8.05 tpy to 9 tpy. This table also notably omits nonorganic HAPs, including HCL, which amounts to 3.329 tons of HAPs per year per EPD's draft permit narrative.

We note additionally that at least one other state has begun requiring the use of the 2017 EPA emission factors for continues softwood kilns; the tables below are from a permit review of a comparable 100 MMBF/year continuous kiln in Oklahoma, showing the same HAP emission factors and emissions we calculated above:

Dollutont	Factor	Emission Easter Deference			
Pollutant	lb/MBf	Emission Factor Reference			
VOC <sup>1</sup>	3.8	ADEQ Memorandum: VOC Emissions from Lumber Drying Kilns (10/31/14); Direct Fired Batch Kilns			
VOC <sup>2</sup>	4.783	EPA Guidance, Interim VOC Measurement Protocol for the Wood Products Industry (7/07); VOC $^2$ = 1.225 VOC $^1$ + (1-0.65) Methanol + Formaldehyde			
PM	0.143	NCDENR - Wood Kiln Emissions Calculator, Rev. C (7/10/07) (Average Value from NCASI Emission Data, Gasifier)			
PM10	0.143	Assumed PM <sub>10</sub> emissions are equivalent to PM emissions.			
PM <sub>2.5</sub>	0.072	Assumed PM2.5 emissions are equivalent to 50% of PM10 emissions.			
Methanol <sup>3</sup>	0.180				
Phenol <sup>3</sup>	0.010				
Formaldehyde <sup>3</sup>	0.065	EPA Memorandum: Development of a Provisional Emission Calculation Tool			
Acetaldehyde <sup>3</sup>	0.040	- Jor Inclusion in the PCWP ICK (6/30/17); Lumber Kiln: Softwood: P Species (NCASI Emission Factors 2014 - Direct Fired)			
Acrolein <sup>3</sup>	0.004	operior (nertor Emission Factors 2014 - Direct Filed)			
Propionaldehyde <sup>3</sup>	0.004				

## Table 14 - Continuous Lumber Drying Kiln Emission Factors

<sup>1</sup> - as propane

<sup>2</sup> - Wood Products Protocol 1 (WPP1) VOC

<sup>3</sup> - HAP; NCASI: National Council for Air and Stream Improvement

HAP	CAS #	(TPY)
Methanol	67-56-1	9.00
Phenol	108-95-2	0.50
Formaldehyde	50-00-0	3.25
Acetaldehyde	75-07-0	2.00
Acrolein	107-02-8	0.20
Propionaldehyde	123-38-6	0.20
Total		15.15

## Table 16 - HAP Emissions from Continuous Kiln

Notably, the Oklahoma permit review also discusses historic issues with VOC emission factors from softwood kilns, and recommends using the Wood Products Protocol 1 (WPP1) VOC emission factor of 4.783 lb/MMBf, which is a decent bit higher than the 4.0 lb/MMBF used by CH—the company cites to this emission factor only as "EPD's preferred VOC emission factor." Without any further support for EPD's emission factor, CH should be required to use the higher WPP1 emission factor.

Most critically for purposes of the new pellet mill, however, is that with the EPA emission factor for methanol, the lumber kiln alone emits 9 tons of methanol, just one ton shy of the 10 tpy major source threshold. This would mean the pellet mill could only emit one ton of methanol before the facility exceeds the major source threshold, assuming full operation of the lumber kiln.

EPD must require CH to utilize these higher emission factors unless CH can somehow demonstrate that its mishmash of different, and presumably older, NCASI emission factors are somehow more applicable. Any such demonstration, however, must be made publicly available and subject to additional public notice and comment before EPD can issue this permit given that these emission factors are vital to ensure the draft permit's synthetic minor limits are enforceable as a legal and practical matter.

## **EPD Response:**

The emission factors for the lumber drying kiln (DK01) in Table 6.2.12.A of the permit are the standard lumber mill emission factors that the Division applies to all lumber drying kilns in Georgia. The 4.783-lb/Mbf VOC emission factor used to be the Georgia's lumber kiln VOC emission factor in the 2000's. In 2011, the Division obtained more up-to-date emission test data from Mr. David Word of NCASI and established the lumber kiln emission factors with the WPP1 method that have been used for all lumber drying kilns in the past 15 years.

The Division could not obtain a copy of the 2017 EPA lumber kiln emission factors cited by the commenter, nor can we find any emission factors for lumber drying kilns on EPA's AP-42 website. The Division has been using the same lumber kiln emission factors that were established with the 2011 data from NCASI.

## SELC Comment No. 3 – The Draft Permit is Defective for Failing to Assure Compliance with PSD and MACT Avoidance Limits.

As discussed above, the emission factors proposed by CH for HAPs and VOCs are flawed in many instances. The draft permit, meanwhile, utilizes these same deficient emission factors, as part of emissions monitoring equations, as the primary method of limiting emissions to below the relevant PSD and MACT major source thresholds.

Defective emission factors in the permit render the synthetic minor limits unenforceable as a practical matter; additionally, these same defective emission factors also mean that the draft Title V permit is separately deficient under Title V requirements for failing to include adequate periodic monitoring to necessary to assure compliance with Condition 2.1.1's MACT-avoidance limits.

## **EPD Response:**

As discussed above, Conner Holding's lumber drying kiln's emission factors are the same as those that are applied to all other lumber mills in Georgia. Its green hammermill emission factors are now the same as Hazlehurst's. All non-fugitive emission units at the proposed pellet mill (other than the natural gas boiler) are required by Condition 4.2.2 to conduct performance tests to develop site-specific emission factors for use in Conditions 6.2.7 and 6.2.12. Before the initial performance tests are conducted, the emission factors currently listed in these permit conditions are within reasonable ranges of the tested emission rates at similar pellet mills and are therefore accepted as appropriate emission factors. The record keeping and reporting conditions in Section 6.2 of the permit amendment require Conner Holdings to calculate monthly facility HAPs and VOC emissions as well as monthly 12-month totals of HAPs and VOC emissions which will provide adequate assurance of compliance with the facility's Title V synthetic minor limit in Condition 2.1.1 for single/combined HAP emissions and the limit in Condition 3.2.4 to avoid triggering a PSD review.

## SELC Comment No. 4 – CH Has Not Demonstrated that its Green Hammermills Are Fugitive Sources

CH and EPD claim that the green hammermills are fugitive sources, meaning VOC emissions do not count towards PSD applicability. Likewise, EPD states that the green hammermills cannot be subject to emissions testing because of their fugitive nature. As discussed above, green hammermills at other pellet plants are indeed point sources that have been subject to emissions testing (and in fact many pellet plants vent their green hammermill emissions to the facility's furnace and/or dryer RTO controls to reduce VOCs and HAPs).

Under the relevant PSD provisions, fugitive emissions are defined as "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." Considering green hammermills at other plants vent to stacks and emission controls, and especially that CH still lists the manufacturer of its green hammermills as "TBD" (meaning the company has apparently not yet finalized a design and manufacturer), we believe CH's green hammermill emissions could "reasonably pass through a stack" and should therefore be considered point source emissions—even if CH does not actually vent them to a stack—and therefore VOC emissions from these units ought to be included in calculating PSD applicability.

## **EPD Response:**

Many of Georgia's pellet mills' green hammermills are known to be fugitive sources. As discussed above, the photographs of the green hammermills in the addendum to the narrative for Hazlehurst Wood Pellets' permit amendment number 2499-161-0023-V-03-2 and of Conner Holdings' green hammermills on p. 27 of this narrative both show that they are fugitive sources because the emissions are not reasonably able to be collected and are not exhausted through a single stack. While the commenter claims that green hammermills at other pellet plants are indeed point sources, they did not identify any such pellet mills in their comments nor is the Division aware of any such facilities.

# SELC Comment No. 5 – EPD Should Define and Standardize Oven Dry Tons and Other Moisture Content Expectations.

As EPD is aware, a situation arose recently with Telfair Forest Products wherein that company claimed to have utilized a new accounting system that changed how the company determined the moisture content of the wood it processed and, relatedly, the weight of the wood for purposes of emissions accounting. This resulted in the facility claiming retroactively that it had produced less tonnage and therefore emitted less pollutants than it had originally reported and certified. EPD should start providing permit conditions in wood pellet plant permits that define a standard moisture content for purposes of tracking and reporting production and emissions that are calculated based on production.

## **EPD Response:**

Moisture content in the final product is related to both product quality and emissions. Green wood that comes from different locations at different times may have different initial moisture contents. Drying wood to 10% moisture, compared to drying wood to 12% moisture, will likely produce different amounts of emissions. Depending on customers' requirements, the facility may not dry wood/pellet to a fixed moisture content. Therefore, it is difficult to define a single moisture content for "oven dried ton."

However, the Division recognizes that testing conducted with a higher product moisture content from the dryer may yield lower emission rates which may not represent the actual emission rates during normal operation. Thus, the Division has revised Conditions 4.2.1 through 4.2.3 such that the facility must monitor the moisture content of the product exiting the dryer and ensure that it is representative of the product's moisture content during normal operating normal operating conditions during the performance tests. These moisture records must be submitted with the test results.

## **EPA Comments and EPD Responses**

The U.S. EPA 45-day review started on February 20, 2025, and ended on April 7, 2025. The Division received comments from U.S. EPA on April 7, 2025. The following are responses to the comments.

## **EPA Comment No. 1**

The EPA notes the importance of accuracy for the emission factors and estimates used to calculate avoidance of prevention of significant deterioration (PSD) applicability and hazardous air pollutants (HAP) major source status. Per 40 CFR 52.21(r)(1) and (4), "Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct...shall be subject to appropriate enforcement action" and "At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification."

- a. Condition 4.2.4 directs the permittee to explain how PSD review would not be triggered in the case that source testing results in emission factors which exceed those outlined in the corresponding table. To determine whether this project results in a significant emissions increase and significant net emissions increase per 40 CFR 52.21(a)(2)(iv)(A), the EPA recommends that clearer language be included in the permit that would specifically require corrected emissions estimates and an updated PSD applicability analysis if actual emission rates exceed the emission factors used to calculate PSD avoidance and would therefore require an additional permit per 40 CFR 52.21(a)(2)(iii). This language should include an acknowledgement that the facility may be subject to retroactive PSD permitting, including a retroactive best available control technology analysis, as outlined in 40 CFR 52.21(r)(4).
- b. Given the scale of the wood pellet operations proposed, in addition to the existing lumber mill emissions being near HAP major source thresholds and the requirement in 40 CFR 70.6(c)(1) that all part 70 permits contain "compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit," the EPA recommends that initial site-specific testing for all of the wood pellet operations that can be tested, along with testing of any existing operations not yet tested for HAPs, be required. This will ensure that the emissions allowable under the permit, defined in 40 CFR 70.2 "Emissions allowable under the permit", which have been set to avoid HAP major source threshold per 40 CFR 70.2 "Major source"(1)(i) have sufficient testing requirements to assure compliance, as required per 40 CFR 70.6(c)(1).

#### **EPD Response:**

The Division acknowledges U.S. EPA's concern on Condition 4.2.4 and agrees to modify the condition to include the requirements when the facility fails to demonstrate potential PM emissions from the proposed pellet mill below 250 tpy. Please note that, using the after-control PM emission factors in Table 4.2.4 of the permit, the pellet mill's PM PTE, per Table 4C of this Narrative, is 54.02 tpy, which is far below 250 tpy. The pellet mill's PM PTE will be greater than 250 tpy only if the tested results are much greater than PM emission factors in Table 4.2.4 of the permit.

Condition 4.2.2 already requires that all point sources at the pellet mill be tested for the six listed HAPs. This should already meet the U.S. EPA's suggestion. Due to the size of the continuous kiln (ID No. DK01) and its large doors on both ends being open all the time, testing of such a lumber kiln would require building an even larger temporary total enclosure so that all exhaust from the lumber kiln would be captured. This would make the test cost prohibitive, and this is why the Division has never required any continuous lumber kiln to be tested. The Division will not add any additional testing due to this portion of the comment.

## EPA Comment No. 2

The draft permit does not include a requirement for the facility to use a specific kind of wood during the performance test. The company's permit application as well as the statement of basis are also silent on whether it will process hardwood or softwood. Most Georgia wood pellet production facilities process southern yellow pine, which is a softwood, but the permit does not contain any language to limit the type of wood processed. As volatile organic compounds and HAP emissions vary based on the use of hardwood or softwood, the type of wood is an important variable in calculating emissions. Potential to emit requires considering the "maximum capacity of a stationary source to emit" per the definitions in 40 CFR 52.21(b)(4) and 40 CFR 70.2 for "potential to emit." Therefore, the EPA recommends that any performance test be run with softwood as the higher-emitting feedstock to ensure the test is representative of the worst-case scenario. If the potential to emit of the source is underestimated by testing the facility below the maximum capacity, then the source could erroneously operate as a minor source and would therefore subsequently require an additional permit per 40 CFR 52.21(a)(2)(iii).

## **EPD Response:**

According to TV Permit No. 2421-065-0016-V-02-0 (for the facility's lumber mill), the facility processes southern yellow pine (softwood) only. In Application No. 823591, the facility did not specify the type of wood that it will process in the pellet mill. It could be possible that the facility will be capable of processing both hardwood and softwood. Normally, drying and processing softwood would generate much higher VOC and HAP emissions than drying and processing hardwood. Testing the pellet mill while processing hardwood would yield much lower VOC and HAP emission rates, and using those emission rates to calculate facility-wide emissions when the facility processes softwood would underestimate the emissions. Therefore, the Division agrees to require that all performance testing be conducted with softwood.

However, the Division will not specify the types of wood that the facility is authorized to process. As long as all testing is conducted with softwood, using the resulting emission factors during normal operation will be more conservative if the facility processes hardwood. Conditions 4.2.1 through 4.2.3 have been revised to incorporate the softwood testing requirement.

## New and Modified Conditions

The following permit conditions have been created or modified as a result of comments received in the public comment period or the EPA's 45-day review period.

## PART 3.0 REQUIREMENTS FOR EMISSION UNITS

## **Modified Condition**

#### 3.1 Updated Emission Units

Emission Units		Applicable	Air Pollution Control Devic	
ID No.	Description	Requirements/Standards	ID No.	Description
DK01	Continuous Direct-Fired Lumber Kiln	391-3-102(2)(b)	N/A	N/A
	with Green Sawdust/Natural Gas Fired	391-3-102(2)(e)1.		
	Burner rated at 40 MMBtu/hr	391-3-102(2)(g)		
PCH1	Planer Mill Chipper 1	391-3-102(2)(b)	PCY1	Planer Mill Cyclone 1
		391-3-102(2)(e)1.		
HM01	Green Hammermill	391-3-102(2)(n)	N/A	N/A
	Max. Input Rate = 227,919 tons per			
	year			
DR01	Belt Dryer	391-3-102(2)(b)	N/A	N/A
	Max. Input Rate=139,284 tons per	391-3-102(2)(e)1.		
	year			
BL01	30 MMBtu/hr Natural Gas Fired	391-3-102(2)(d)	N/A	N/A
	Boiler	391-3-102(2)(g)		
		40 CFR 60 Subpart A		
		40 CFR 60 Subpart Dc		
HM02	Dry Hammermill 1	391-3-102(2)(b)	PLC1	Dry Hammermill
	Max. Input Rate=98,550 tons per	391-3-102(2)(e)1.		Cyclone 1
	year			
HM03	Dry Hammermill 2	391-3-102(2)(b)	PLC2	Dry Hammermill
	Max. Input Rate=98,550 tons per	391-3-102(2)(e)1.		Cyclone 2
	year			
PL01-PL05	Pellet Mills 1 through 5	391-3-102(2)(b)	PLC3	Pellet Mill Cyclone
	Total Max. Input Production	391-3-102(2)(e)1.		
	Rate=197,100 tons per year			
PC01	Pellet Cooler	391-3-102(2)(b)	PLC4	Pellet Cooler Cyclone
	Max. Input Rate=197,100 tons per	391-3-102(2)(e)1.		
	year			
PST1	Pellet Storage	391-3-102(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.

## PART 4.0 REQUIREMENTS FOR TESTING

## 4.2 Updated Specific Testing Requirements

## **New Condition**

4.2.1 Within 180 days of start-up of the wood pellet manufacturing operation, the Permittee shall conduct performance tests, while processing southern yellow pines, to determine and record the average VOC emissions in *pound VOC as propane per ton of product*, for the following emission units. Subsequent performance testing shall be conducted within 37 months of the previous performance tests. During the performance testing, the Permittee shall determine and record the hourly mass (tons) of material that is processed in each tested unit, separately. The Permittee shall also monitor the moisture content of the product exiting the Belt Dryer (ID No. DR01) and ensure that it is representative of the product's moisture content during normal operating conditions. The above data shall be submitted along with the test results. The tests shall be conducted at the maximum anticipated hourly production rate of each tested emission unit. All required continuous monitoring system(s) shall be installed, calibrated, and operating when tests are conducted. The results of the performance test(s) shall be submitted to the Division within sixty (60) days of the completion of testing.

[391-3-1-.02(6)(b)1. and 40 CFR 70.6(a)(3)(i)]

- a. The Belt Dryer (ID No. DR01).
- b. The Dry Hammermills (ID Nos. HM02 and HM03). The Permittee only needs to conduct testing for the ID No. HM02/PLC1 or ID No. HM03/PLC2. The resulting average VOC emission rate in pound per hour (lb/hr) shall be divided by the hourly throughput of the tested dry hammermill (in ODT/hr) for purposes of computing actual VOC emissions from the Dry Hammermills in pound per ton (lb/ODT).
- c. The common exhaust of the Pellet Mills (ID Nos. PL01-PL05) and the Pellet Cooler (ID No. PC01). The Permittee shall record the number of pellet mills in operation during the performance tests.

## **New Condition**

4.2.2 Within 180 days of initial start-up of the wood pellet manufacturing operation, the Permittee shall conduct performance tests for the pollutants listed in subparagraphs a. through f. **while processing southern yellow pines**. Subsequent performance testing shall be conducted within 37 months of the previous performance tests. The Permittee shall determine and record the average individual HAP emission rate in pounds HAP per ton (or ODT, as applicable) of product, for the Belt Dryer (ID No. DR01), the Dry Hammermills (ID No. HM02 and HM03), and the common exhaust of the Pellet Mills/Pellet Cooler (ID Nos. PL01, PL02, PL03, PL04, PL05, and PC01). Testing is required for either HM02 or HM03 as representative of the Dry Hammermills group. The resulting average HAP emission rate (in lb/hr) shall be divided by the hourly throughput of the tested dry hammermills (in ODT/hr) for purposes of computing actual HAP emissions from the Dry Hammermills (in lb/ODT). During the performance testing, the Permittee shall determine and record the following: (1) the mass of material (tons or ODT as applicable) that is

produced by each tested unit, separately; and (2) the number of pellet mills in operation; and (3) the moisture content of the product exiting the Belt Dryer (ID No. DR01) and ensure that it is representative of the product's moisture content during normal operating conditions. The above data shall be submitted along with the test results. The tests shall be conducted at the maximum anticipated production rate of each tested emission unit. All required continuous monitoring system(s) shall be installed, calibrated, and operating when tests are conducted. The results of the performance test(s) shall be submitted to the Division within sixty (60) days of the completion of testing. [391-3-1-.02(6)(b)1, and 40 CFR 70.6(a)(3)(i)]

- a. Acetaldehyde;
- b. Acrolein;
- c. Formaldehyde;
- d. Methanol;
- e. Phenol; and
- f. Propionaldehyde.

## **New Condition**

4.2.3 Within 180 days of startup of the wood pellet manufacturing operation, the Permittee shall conduct performance tests, while processing southern yellow pines, to determine and record the average filterable PM (FPM) emission rate, total PM<sub>10</sub> emission rate, and total PM<sub>2.5</sub> emission rate for the following emission units in the unit of lb/ton or lb/ODT product. During the performance testing, the Permittee shall determine and record the hourly mass (in tons or ODT as applicable) of material that is produced by each tested unit, separately. The Permittee shall also monitor the moisture content of the product exiting the Belt Dryer (ID No. DR01) and ensure that it is representative of the product's moisture content during normal operating conditions. The above data shall be submitted along with the test results. The tests shall be conducted at the maximum anticipated hourly production rate of each tested emission unit. All required continuous monitoring system(s) shall be installed, calibrated, and operating when tests are conducted. The results of the performance test(s) shall be submitted to the Division within sixty (60) days of the completion of testing.

[391-3-1-.02(6)(b)1. and 40 CFR 70.6(a)(3)(i)]

- a. The Belt Dryer (ID No. DR01).
- b. The Dry Hammermills (ID No. HM02 and HM03). The Permittee only needs to conduct testing for the ID No. HM02/PLC1 or ID No. HM03/PLC2.
- c. The common exhaust of the Pellet Mills (ID Nos. PL01-PL05) and the Pellet Cooler (ID No. PC01). The Permittee shall record the number of pellet mills in operation during the performance tests.

#### **New Condition**

4.2.4 If any of the FPM/TotalPM<sub>10</sub>/TotalPM<sub>2.5</sub> test results obtained in accordance with Condition 4.2.3 exceeds the corresponding emission factors in the following table, the Permittee shall submit a notification within 180 days after testing, explaining how the modification requested in Application No. 823591 would not trigger a PSD review for PM/PM<sub>10</sub>/PM<sub>2.5</sub>.using the higher test results. In the event that the Permittee fails to demonstrate the potential PM/PM<sub>10</sub>/PM<sub>2.5</sub> emissions by the pellet mill proposed in Application No. 823591 below 250 tons per year (tpy), the Permittee shall submit an application, within 180 days after testing, that includes a retroactive PSD application (including a retroactive BACT analysis) for the modification requested in Application No. 823591.

[391-3-1-.02(6)(b)1. and 40 CFR 70.6(a)(3)(i)]

Table 4.2.4: Emission Factors Used in Application No. 823591						
Pollutant DR01 HM02/HM03 PL01-PL0						
		PC01 Common				
			Stack			
FPM/TotalPM <sub>10</sub> /TotalPM <sub>2.5</sub>	0.291 lb/ton	0.200 lb/ODT	0.152 lb/ton			

## PART 6.0 OTHER RECORD KEEPING AND REPORTING REQUIREMENTS

## 6.2 Specific Record Keeping and Reporting Requirements

#### **New Condition**

6.2.12 The Individual HAP Emission Factors to be used in Condition 6.2.11 are specified in Tables 6.2.12.A through 6.2.12.B:

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Table 6.2.12.A-Individual HAP Emission Factors						
Emission Point Pollutant	Emission Factor Reference	DK01 (i=DK01)	HM01 (i=HM01)	BL01 (i=BL01)	PST1 (i=PST1)	
Acetaldehyde	EF02 <sub>i</sub>	0.045 lb/Mbf	3.23E-04 lb/ODT 1.45E-03 lb/ODT		1.00E-04 lb/ton	
Acrolein	EF03 <sub>i</sub>	6.00E-03 lb/Mbf	7.50E-05 lb/ODT		1.05E-05 lb/ton	
Arsenic-Natural Gas Combustion	EF04i, <sub>NG</sub>	2.0E-04 lb/MMscf		2.00E-04 lb/MMscf		
Arsenic-Wood Combustion	EF04 <sub>i, Wood</sub>	2.2E-05 lb/MMBtu				
Formaldehyde	EF05 <sub>i</sub>	0.0386 lb/Mbf	6.45E-04 lb/ODT 8.77E-04 lb/ODT	7.50E-02 lb/MMscf	2.43E-04 lb/ton	
Hexane-Natural Gas Combustion	EF06 <sub>i,NG</sub>	1.8 lb/MMscf		1.8 lb/MMscf		
Hydrogen Chloride-	EF07i,Wood	1.90E-02				
Wood Combustion		lb/MMBtu				
Methanol	EF08 <sub>i</sub>	0.161 lb/Mbf	3.23E-04 lb/ODT 6.40E-04 lb/ODT		5.00E-04 lb/ton	
Phenol	EF09 <sub>i</sub>	0.0103 lb/Mbf	1.29E-04 lb/ODT		1.80E-05 lb/ton	
Propionaldehyde	EF10 <sub>i</sub>	2.92E-03 lb/Mbf	3.65E-05 lb/ODT		5.10E-06 lb/ton	

Table 6.2.12.B-Individual HAP Emission Factors					
<b>Emission Point</b>	Emission	DDA1	UM02/UM02	DI 01 DI 05/DC01	
Pollutant	Factor	$(\mathbf{j} - \mathbf{D}\mathbf{D}01)$	$(\mathbf{j} - \mathbf{H}\mathbf{M})$	$(\mathbf{L}\mathbf{U}\mathbf{I}-\mathbf{\Gamma}\mathbf{L}\mathbf{U}\mathbf{J}/\mathbf{\Gamma}\mathbf{U}\mathbf{U}\mathbf{I})$	
	Reference		(1-111)	(I-I WI C)	
Acetaldehyde	EF02 <sub>i</sub>	1.94E-02 lb/ton	4.00E-03 lb/ODT	2.00E-03 lb/ton	
Acrolein	EF03 <sub>i</sub>	6.40E-03 lb/ton	9.30E-04 lb/ODT	1.28E-02 lb/ton	
Formaldehyde	EF05 <sub>i</sub>	9.71E-02 lb/ton	8.00E-03 lb/ODT	2.33E-03 lb/ton	
Methanol	EF08 <sub>i</sub>	2.84E-02 lb/ton	4.00E-03 lb/ODT	7.40E-03 lb/ton	
Phenol	EF09 <sub>i</sub>	1.94E-02 lb/ton	1.60E-03 lb/ODT	1.70E-02 lb/ton	
Propionaldehyde	EF10 <sub>i</sub>	2.10E-03 lb/ton	4.52E-04 lb/ODT	4.20E-03 lb/ton	

#### **EPD Permit Clarifications**

Since the last version of the draft permit and narrative were released, the Division would like to make the following clarifications to the narrative.

- 1. It has been brought to the Division's attention that pellet mills in North Carolina, Arkansas, and Mississippi use wet electrostatic precipitators in series with regenerative thermal oxidizers to control emissions from their green hammermills and pointed out that Louisiana considered wet electrostatic precipitators technically feasible for a green/wet hammermill in a BACT analysis and control emissions from the hammermill with a cyclone. GA EPD used the provided links and learned that some of the green hammermills were designed to be completely enclosed systems while other green hammermills were designed to combine their exhaust with the dryers, pelletizers and/or pellet coolers and sent the combined exhausts to the control devices. None of these documents have addressed the capture efficiency of the exhausts from the green hammermills. Regardless, according to the photo on p.27 of this Narrative, Conner Holding's proposed a green hammermill that is not designed as an enclosed system; it has many transfer points that are open to the atmosphere. The Division cannot dictate how to design or build a facility but is responsible for protecting Georgia's air quality through the regulation of emissions from industrial and mobile sources according to state and federal regulations.
- 2. It has been brought to the Division's attention that none of Conditions 4.2.1, 4.2.2, and 4.2.3 define the maximum anticipated hourly production rate of each emission unit, yet Conditions 6.2.16 and 6.2.18 include production rates for the belt dryer and pellet mills.

The monthly production thresholds listed in Conditions 6.2.16 and 6.2.18 are one-twelfth of the annual production limits specified in Conditions 3.2.7 and 3.2.8. The annual production limits in Conditions 3.2.7 and 3.2.8 were used in the application to determine the annual and hourly maximum toxic air pollutant (TAP) emission rates that were used in the toxic impact assessment (TIA). To validate the approved TIA, the facility is subject to the annual production limits so that they won't generate any TAPs in the amount that would be higher than the inputs in the TIA.

All GA air quality permits contain the same language (The Permittee shall conduct the performance tests at the maximum anticipated hourly production rate.) without specifying the numeric maximum production rates. Part of the reason is that many facilities may not have the capability to operate their processes up to the design maximum production rates shortly after the initial startup. To prevent the facility from conducting a test at a lower production rate and running the processes at a higher production rate later, Condition 4.2.5 was included in the draft TV permit amendment to require additional testing at the higher production rates.

3. It has been brought to the Division's attention that the citation for Conditions 3.2.7 and 3.2.8 should include "Avoidance of 40 CFR 52.21."

According to Table 4C of this Narrative, VOC is the key pollutant with the highest emission factor, and it will reach the PSD major source threshold, 250 tpy, before any other criteria pollutants would. In Application No. 823591, the facility used the proposed VOC emission factors and annual production rates and showed the calculated VOC emissions from the pellet mill to be lower than 250 tpy. If the initial VOC emissions tests yield a higher VOC emission rate, with the same annual production rates, the pellet mill will generate more

than 250 tpy VOC. The VOC PSD avoidance limit is in Condition 3.2.4 only. If VOC test results are higher, the facility must adjust their annual production further below the limits in Conditions 3.2.7 and 3.2.8 in order to maintain the pellet mill's VOC emissions below 250 tpy.

As discussed previously, the annual production limits in Conditions 3.2.7 and 3.2.8 were used in the application to determine the annual and hourly maximum TAP emission rates that were used in the toxic impact assessment (TIA). Conditions 3.2.7 and 3.2.8 were included in the permit solely for the purpose of upholding the TIA approved by the Division and are not intended to be used for the purpose of PSD avoidance.

4. It has been brought to the Division's attention that it may be necessary to test both dry hammermills (ID Nos. HM02 and HM03) in Conditions 4.2.1 through 4.2.3.

Conducting VOC and HAP testing can be very costly. Since Dry Hammermills HM02 and HM03 have the same design and throughput capacities and would typically process the same kind of wood, the Division would not expect significant variations in test results from the two units. The Division believes testing one unit will generate emissions rates that would be representative of both units. Considering this, the high cost of testing, and the requirement that the testing must be repeated every three years, the Division has determined that testing only one of the dry hammermills will be sufficient.

5. It has been brought to the Division's attention that the narrative did not include a discussion as to why the emission factors from Telfair Forest Products and Varn Wood Products are representative of Conner Holdings. As there is great variability in the emissions from the wood products industry based on wood type, age, moisture content, and other factors, there should be discussion of these variables and justification as to why the Telfair Forest Products and Varn Wood Products data are comparable to the type of wood and operating conditions at Conner Holdings.

The proposed pellet mill is required to use the higher of the test results and the permit emission factors, once the initial and subsequent performance tests are conducted, to calculate actual emissions and demonstrate compliance with the VOC PSD avoidance limit and the facility-wide single and combined HAP synthetic minor emission limits. The facility needs to use the emissions factors in the permit to calculate facility-wide emissions before the initial tests are conducted.

The initial permit emission factors are proposed by the facility in the application, which originated from Telfair Forest Products and Varn Wood Products. Both Telfair Forest Products and Varn Wood Products have wood drying operations and pellet manufacturing processes. The proposed pellet mill will process southern yellow pines that are similarly processed in Telfair Forest Products and Varn Wood Products. Although the operating conditions, the humidity and any other atmospheric conditions may vary from one facility to another, which would impact on the emission rates slightly, Telfair Forest Products' and Varn Wood Products' tested emission factors are the best available data to Conner Holdings. Additionally, the Division does not have any data that refutes the justification to use Telfair Forest Products and Varn Wood Products data. Therefore, the Division agrees with Conner Holdings that the application emission factors are appropriate to be included in the Title V permit amendment as the permit emission factors until the initial performance tests yields site-specific results.

6. It has been brought to the Division's attention that New Conditions 4.1.3h. and 4.1.3i. list different test methods for VOC so it is unclear what method is expected. If OTM 26 is to be used, VOC should be identified as WPP1 VOC per the method. Also, OTM 26 section 6.0 allows, in its calculation of WPP1, for the treatment of results as zero for testing in which all three test runs are below method detection limit (MDL) and MDL is less than 1ppm. It is thought that this may not be appropriate for quantifying HAP emissions for the purposes of determining major/area source status or compliance with HAP limits in permits. Consistent with the Plywood and Composite Wood Products NESHAP at 40 CFR 63.2262(g), results that are less than MDL should be treated and quantified as one-half of the MDL for the quantification of HAP emissions.

Condition 4.1.3h. did identify the VOC measured with EPA OTM 26 as the WPP1 Products Protocol 1 VOC. It also included the WPP1 VOC equation. The VOC portion in the equation that is neither methanol nor formaldehyde, like that defined in Section 3.0 of OTM 26, is defined as total hydrocarbons measured by EPA Method 25A and expressed as propane. Therefore, the two methods specified in Conditions 4.1.3h. and 4.1.3i. do not conflict with each other.

The Division recognizes that HAP emissions should not be treated as zero for the purposes of determining major/area source status for HAP emissions, which is allowed in OTM 26. Note that OTM 26 is specified as the method to measure WPP1 VOC emission rates, not for HAPs. The HAP testing methods are included in Conditions 4.1.3j. through 4.1.3o. These test methods do not allow any measurements below the associated detection limits to be considered zero. These test methods actually require the facility to report half of the associated detection limits as the tested emission rates.

7. It has been brought to the Division's attention that the Division's response to SELC's Comment No. 2 regarding lumber kiln VOC emission factors and an EPA memo from 2017 may need additional information or discussion. It is acknowledged that the referenced 2017 EPA memo's URL was included as a link in footnote 7 on page 6 of SELC's Public Comments on Draft Permit No. 2421-065-0016-V-02-2 For Conner Holdings, LLC and the memo is available online (www.epa.gov/sites/default/files/2017-10/documents/final\_icr\_provisional\_calc\_emfactors\_0.pdf). The memo references 2014 NCASI factors while EPD's response states that the division relied on 2011 NCASI factors.

The Division visited the above website and tried to look for the mentioned VOC emission factors. In Section B.3. on p. 7, the EPA document stated "*No AP-42 emission factors are available for lumber kilns. A comparison of lumber kiln emission factors from various references was conducted. Emission factors from NCASI were found to align with the various references and were included in the provisional calculations for the lumber kiln SCCs.*" The discussion stopped there without providing more information on what "various references" meant, nor did it address what version of the NCASI emission factors were the "various references" found to be aligned with.

Further, on p. 21 and p.22 (p. B-8 and p. B-9), the numeric VOC emission factors were provided as "#N/A." The lumber kiln VOC emission factor (4.783 lbs VOC/Mbf) that Oklahoma Department of Environmental Quality Air Quality Division used is not found in the 2017 EPA memo and cannot be validated/verified by the Division as comparable to the equipment at Conner Holdings. Therefore, the Division will continue to require the facility to use the 4.0-lb/Mbf VOC emission factor that originated from the updated NCASI test results.

8. It has been brought to the Division's attention that there may be a risk of carbon monoxide being released during the storage of wood pellets. There have been multiple fatalities in other countries due to carbon monoxide poisoning caused by opening doors, hatches, etc. on warehouses and storage vessels storing wood pellets. It has been suggested that EPD make Conner Holdings aware of this risk so that they can take action to mitigate it.

All warehouses, regardless of the materials stored within, will generate and accumulate carbon monoxide and pose a worker health risk and even explosion risk if the warehouses remain closed and are exposed to sunlight for an extended time. The above risks would fall into the jurisdiction of the Occupational Safety and Health Administration. The Division does not regulate such risks.

The Division has forwarded the concern to the facility. They have been made aware of the risk.

9. It has been brought to the Division's attention that the draft permit amendment that went out for notice and comment includes a signature and issuance date. It also includes the phrase "This Permit Amendment shall also serve as a final amendment to the Part 70 Permit." On the face of the document itself, the permit appears as though it is already final.

Since this application involves the construction and operation of a new pellet mill at the existing lumber mill, which is already a Title V major source, this application is processed as a Title V Significant Modification/Amendment with Construction (SAW). The draft/proposed Title V permit amendment also serves as the state construction permit and will be sent to the facility after EPD review. These permit amendments will go out as SIP construction permits and draft/proposed operating permit amendments and will be signed by the EPD Director. Having a signature and issuance date on the cover page only means that the draft Title V permit amendment is also the final SIP construction permit amendment that would authorize the facility to start construction. Operation of the new emission units are not allowed until the final Title V permit amendment due to comments, the Division will issue a letter stating that the draft Title V permit is now final. Since modifications have been made to the permit pursuant to comments, the final SIP construction permit amendment.

- 10. Several additional things have been brought to the Division's attention:
  - a. Nowhere other than the cover page does the permit state that it is a construction permit. The header of every page states that the permit is a "Title V Permit Amendment."
  - b. It is not entirely clear in the permit which specific aspects of the construction EPD is authorizing or if the permit relates only to operation of the facility.
  - c. The application is unclear on the specifics for several pieces of equipment. For example, the model of the individual pellet mills and hammermills (which would inform the units' maximum capacities) isn't listed in the application. Some emission units are even listed as "TBD." While EPA acknowledges uncertainties in the equipment selection that exist at the application phase, as much detail as possible should be included in the application, based on what is known about the equipment that could be purchased by Conner Holdings, to appropriately estimate emissions. It is recommended to add more detail with respect to the authorized construction.

As explained in Item 9 above, having a signature and issuance date on the cover page only authorizes the facility to construct the project. The authorized construction includes the emission units in Table 3.1 that are bolded.

Although the application includes "TBD" for the design input capacities of some proposed emission units, the information is later supplemented in the spreadsheet that the facility used to estimate potential emissions from the new pellet mill. The design input rates are listed in Table 3.1 of the Permit, and the resulting potential emissions are included in Table 4C of this Narrative. The spreadsheet has been verified for accuracy. The only uncertainties are whether the application emission factors would represent the new pellet mill which has already been discussed above. Conditions 4.2.1 through 4.2.5 in the proposed Permit validate the application emission factors and provide calculation instructions when the tested results are higher than the application emission factors.