

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, 2024

Permit 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.

Table 1: Current Title V Permit and Amendments

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

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 CO₂e). 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 (NO_x), particulate matter (PM, PM₁₀, and PM_{2.5}), and sulfur dioxide (SO₂) 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 not 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/PM₁₀/PM_{2.5} emissions status does not include fugitive emissions.

Table 2: Title V Major Source Status

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

Table 2: Title V Major Source Status

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

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 shreds. 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/PM₁₀/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

Table 3: Emissions Change Due to Modification

Pollutant	Is the Pollutant Emitted?	Net Actual Emissions Increase (Decrease) (tpy)	Net Potential Emissions Increase (Decrease) (tpy)
PM	√	54.02	54.02
PM ₁₀	√	54.02	54.02
PM _{2.5}	√	54.02	54.02
SO ₂	√	0.077	0.077
VOC	√	<249	<249
NO _x	√	12.88	12.88
CO	√	10.82	10.82
TRS	--	--	--
H ₂ S	--	--	--
Individual HAP	√	<1.95	<1.95
Total HAPs	√	<8.48	<8.48

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, NO_x, and SO₂ Emissions: The proposed project will result in potential, non-fugitive emissions of CO, NO_x, and SO₂. Potential emissions are based on US EPA AP-42 Section 1.4 (natural gas combustion) emission factors for carbon monoxide (CO), oxides of nitrogen (NO_x), and sulfur dioxide (SO₂), 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 NO_x/CO/SO₂ would be required for this modification.

PM/PM₁₀/PM_{2.5}: The proposed modification will result in potential, non-fugitive emissions of particulate matter (PM/PM₁₀/PM_{2.5}). 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 through a common	33.02 lb/hr	145 tpy (Combined)	The Georgia Rule (e) allowable emission rate is 33.02 lb PM/hr.

stack to the outdoor atmosphere.			Assuming these process units comprise one Georgia Rule (e) process group.
Boiler BL01	Not Subject to GA Rule (e)	0.979 tpy	PM PTE for BL01 is calculated using PM emission factor found in U.S. EPA AP-42 Chapter 1.4.
Total Non-Fugitive Point Source PTE (tpy)		406 tpy	N/A

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 PM₁₀ 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	The unit is uncontrolled, and the unit will exhaust through two stacks operated in parallel. Vendor supplied emission factor data (not a vendor guarantee). 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/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/PM₁₀/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/TotalPM₁₀/TotalPM_{2.5} 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/PM₁₀/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 ₁₀ /PM _{2.5}	54.02 ¹
CO	10.82
NO _x	12.88
SO ₂	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).

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

¹ Potential PM/PM₁₀/PM_{2.5} emissions were limited to 54.02 tpy with the use of Cyclones PLC1 through PLC4.

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			
HAP	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 ²: 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

TAP	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 Chloride	6,660	80	Yes	4,866.6	Yes
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) 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.

² The PTE is taken from the AERMOD Input file for the TAP modeling analysis.

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

Table 7: TAP MGLC Assessment					
TAP	Averaging Period	AAC ($\mu\text{g}/\text{m}^3$)	Max Modeled Conc.* ($\mu\text{g}/\text{m}^3$)	Receptor UTM Zone: 17	
				Easting (meter)	Northing (meter)
acetaldehyde	15-minute	4,500	14.16456	330,814.65	3,433,374.51
	Annual	4.55	1.09968	330,814.65	3,433,374.51
acrolein	15-minute	23	5.437199	330,287.79	3,433,589.05
	Annual	0.35	0.24744	330,373.49	3,433,624.84
arsenic	15-minute	0.2	0.024248	330,814.65	3,433,374.51
	Annual	0.000233	0.00181	330,814.65	3,433,374.51
formaldehyde	15-minute	245	24.82393	330,287.79	3,433,589.05
	Annual	1.10	1.03568	330,814.65	3,433,374.51
hydrogen chloride	15-minute	700	20.9222	330,814.65	3,433,374.51
	Annual	20	1.56063	330,814.65	3,433,374.51
phenol	15-minute	6,000	8.026907	330,287.79	3,433,589.05
	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 $0.35 \mu\text{g}/\text{m}^3$ 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 $\mu\text{g}/\text{m}^3$) 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 ($0.000233 \mu\text{g}/\text{m}^3$).

Table 8: TAP Risk Assessment Residential Area Analysis						
TAP	Averaging Period	AAC ($\mu\text{g}/\text{m}^3$)	Modeled Conc. ($\mu\text{g}/\text{m}^3$)	Receptor UTM Zone: 17		Receptor ID
				Easting (meter)	Northing (meter)	
arsenic	Annual	0.000233	9.64E-05	331,400.00	3,434,036.00	R1
			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

Table 8: TAP Risk Assessment Residential Area Analysis

TAP	Averaging Period	AAC ($\mu\text{g}/\text{m}^3$)	Modeled Conc. ($\mu\text{g}/\text{m}^3$)	Receptor UTM Zone: <u>17</u>		Receptor ID
				Easting (meter)	Northing (meter)	
			6.01E-05	329,777.32	3,434,223.59	R6

Table 9: TAP Risk Assessment Business Area Analysis

TAP	Averaging Period	AAC ($\mu\text{g}/\text{m}^3$)	Modeled Conc. ($\mu\text{g}/\text{m}^3$)	Receptor UTM Zone: <u>17</u>		Receptor ID
				Easting (meter)	Northing (meter)	
arsenic	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
			0.00261	330,303.00	3,434,032.00	B4
			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 $0.01 \text{ mg}/\text{m}^3$ which converts to $10 \mu\text{g}/\text{m}^3$ (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 $0.033333 \mu\text{g}/\text{m}^3$.

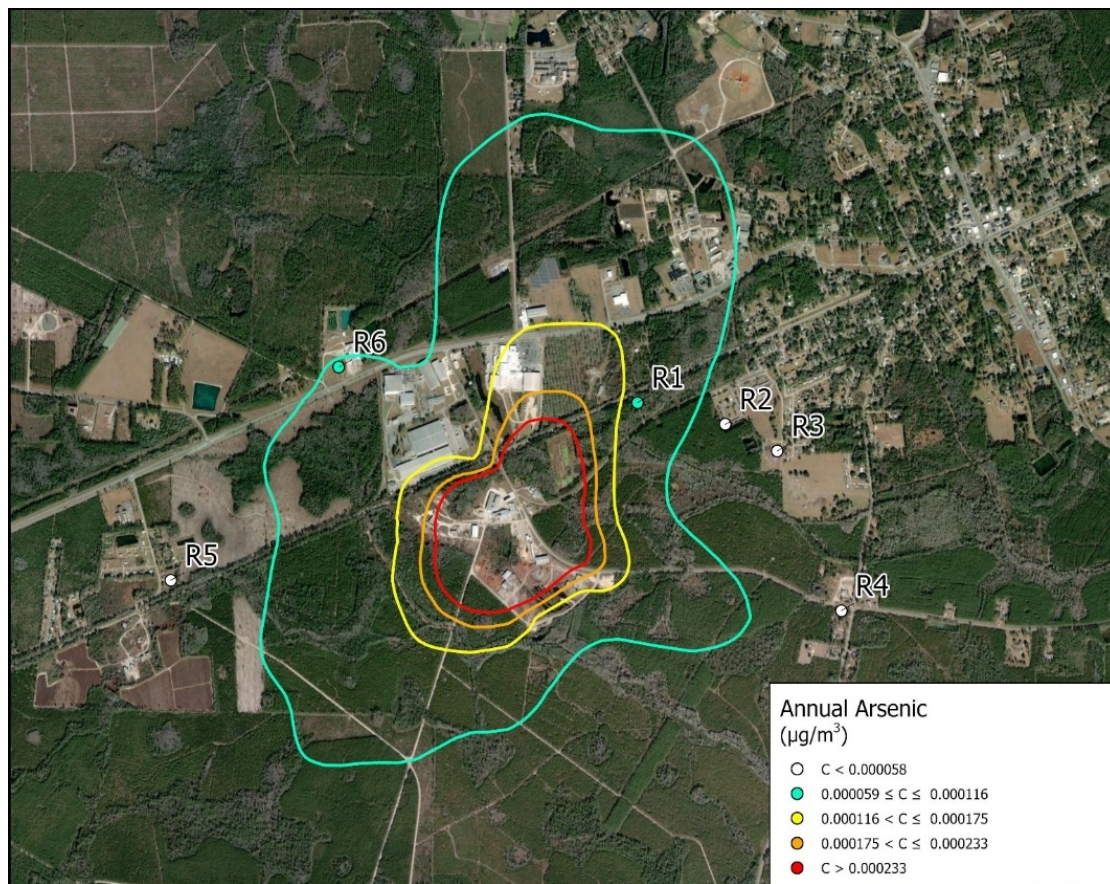


Figure 1. Maximum modeled annual ground level concentrations (in $\mu\text{g}/\text{m}^3$) of arsenic across 5 years (2018-2022) overlaid on a satellite map with the 6 closest residential area receptors (“R1” through “R6” in Table 8). The red line indicates the annual AAC for arsenic ($0.000233 \mu\text{g}/\text{m}^3$).

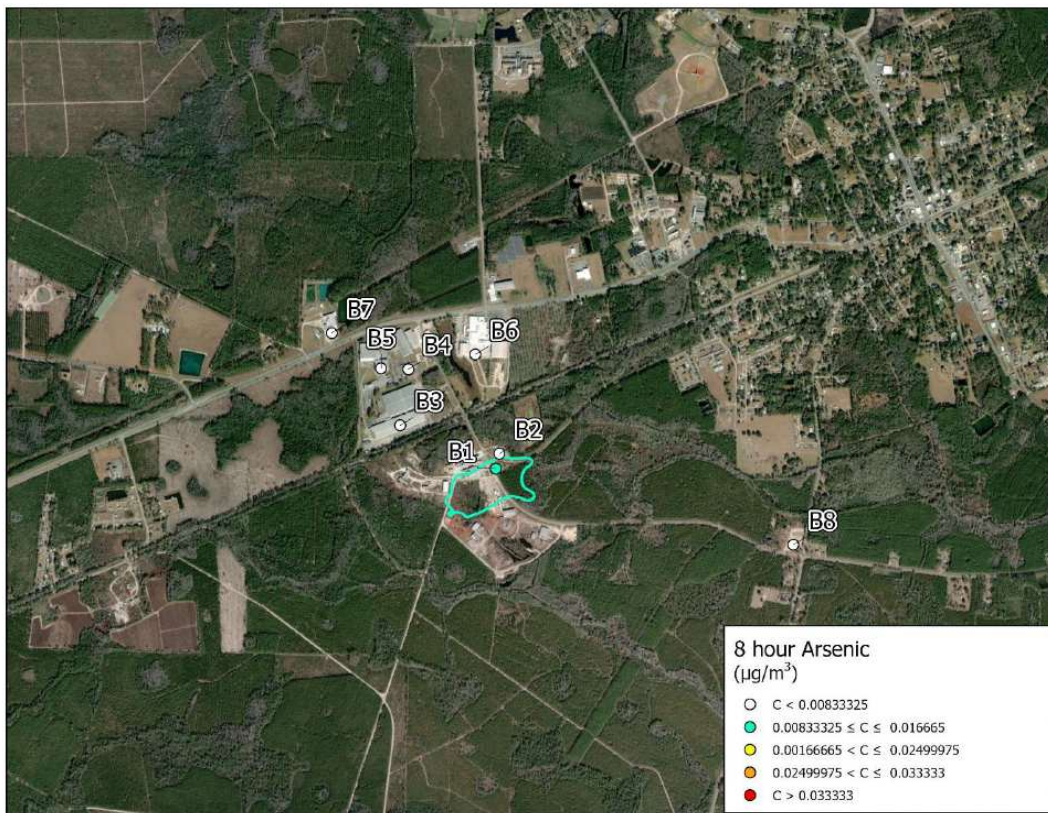


Figure 2. Maximum modeled 8-hour ground level concentrations (in $\mu\text{g}/\text{m}^3$) of arsenic across 5 years (2018-2022) overlaid on a satellite map with the 8 closest residential area receptors (“B1” through “B6” in Table 3). All results were below the 8-hour AAC for arsenic ($0.033333 \mu\text{g}/\text{m}^3$).

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. Description	Updates
Debarker (DB01)	Moved to Attachment B of the updated permit.
Bag Plant for Screening and Bagging Bark (BP01)	
Sawmill (SM01)-Indoors	
Sawmill Chippers (SCH1 and SCH2)-Indoors	
Sawmill Screener (SSC1)	
Planer Mill (PM01)-Indoors	
PCH1	Updated description from existing air permit Planer Mill Chipper 1
PCY1	Updated description from existing air permit Planer Mill Cyclone 1

Table 10B: Updated Equipment List per Condition 3.1.2				
Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
DK01	Continuous Direct-Fired Lumber Kiln with Green Sawdust/Natural Gas Fired Burner rated at 40 MMBtu/hr	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1. 391-3-1-.02(2)(g)	N/A	N/A
PCH1	Planer Mill Chipper 1	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1.	PCY1	Planer Mill Cyclone 1
DR01	Belt Dryer	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1.	N/A	N/A
BL01	30 MMBtu/hr Natural Gas Fired Boiler	391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 60 Subpart A 40 CFR 60 Subpart Dc	N/A	N/A
HM02	Dry Hammermill 1	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1.	PLC1	Dry Hammermill Cyclone 1
HM03	Dry Hammermill 2	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1.	PLC2	Dry Hammermill Cyclone 2
PL01-PL05	Pellet Mills 1 through 5	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1.	PLC3	Pellet Mill Cyclone 3
PC01	Pellet Cooler	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1.	PLC4	Pellet Cooler Cyclone 4
PST1	Pellet Storage	391-3-1-.02(2)(n)	N/A	N/A

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

C. Equipment & Rule Applicability

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 JJJJJ.

40 CFR 60 Subpart Dc – “Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units” (“NSPS Dc”): 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)/TotalPM₁₀/TotalPM_{2.5} 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/TotalPM₁₀/TotalPM_{2.5} 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 TotalPM₁₀/TotalPM_{2.5} 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/PM₁₀/PM_{2.5}.

Georgia Air Toxics Guideline: 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/TotalPM₁₀/TotalPM_{2.5} 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 JJJJJ 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/TotalPM₁₀/TotalPM_{2.5}

The potential non-fugitive emissions of FPM/TotalPM₁₀/TotalPM_{2.5} 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/TotalPM₁₀/TotalPM_{2.5} 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 PM₁₀/PM_{2.5} 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/PM₁₀/PM_{2.5}. In other words, the facility must show that the potential PM/PM₁₀/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 <i>propane (ppm)</i> , per equipment per the Interim VOC Measurement Protocol for the Wood Products Industry – July 2007 (WPP1) as stated in Condition 4.1.3 in the Permit.
	HM02/PLC1 or HM03/PLC2	
	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 not 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 not 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 HM03/PLC2	The HAP emission factors shall be converted to pound HAP/ton material, per equipment
Methanol		

Phenol Propionaldehyde	PL01-PL05/PC01 common exhaust	
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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 not 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 not 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/TotalPM₁₀/TotalPM_{2.5}

The potential non-fugitive emissions of FPM/TotalPM₁₀/TotalPM_{2.5} 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 with the proposed FPM/TotalPM₁₀/TotalPM_{2.5} 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 twelve-month 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 twelve-month 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:

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

Stack ID	Emission Test Results		Production Rate
	Formaldehyde	Methanol	
Total 8 Stacks (1 Belt Dryer)	0.26 lb/hr	0.24 lb/hr	---
Total 4 Belt Dryers	1.04 lb/hr	0.96 lb/hr	---
<u>Notes:</u> <ul style="list-style-type: none"> 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 formaldehyde—i.e., about 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 or 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. [Footnote 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 injection. For HAPs, this memo estimates steam injected pelletizers emit twice the rate of non-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 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 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 month day, year and ended on month day, year. Comments were/were not received by the Division.

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