Facility Name: **West Fraser – Dudley Lumber Mill**
City: Dudley
County: Laurens
AIRS #: 04-13-175-00035 Application #: 696401

Date SIP Application Received: Not Applicable
Date Title V Application Received: October 10, 2022
Permit No: 2421-175-0035-V-06-1

Program	Review Engineers	Review Managers
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TOXICS	N/A	N/A
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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
2421-175-0035-V-06-0	1/20/2022	Title V Renewal Permit

B. Regulatory Status

1. PSD/NSR/RACT

The facility is a major source under the PSD/NSR regulations. The facility operates under the following PSD Avoidance Limits:

- For NOx emissions by always requiring the operation of the selective non-catalytic reduction system (ID No. SNCR) during the operation of the thermal oil heater system (ID No. TOHS). In addition, the facility shall operate the SNCR at or above the urea injection ratio factor established in accordance with the most recent performance test.

- For $PM/PM_{10}/PM_{2.5}$ by always requiring the operation of the multiclone (ID No. MC) and electrostatic precipitator (ID No. ESP) during the operation of the TOHS except during the startup and shutdown periods specified in the Division approved Startup-Shutdown-Malfunction (SSM) Plan.

- For $PM/PM_{10}/PM_{2.5}$ by always requiring the operation of the planer mill cyclofilter (ID No. PMCY) during the operation of the planer mill (ID No. PM).

The facility went through PSD review (PSD Application No. TV-343417 (March 2019)) for VOC, CO and total GHG emissions for replacement of the existing facility with a proposed greenfield sawmill, planer mill, two indirect-fired continuous drying kilns (CDKs), a thermal oil heater system (TOHS) and a logyard. The approved Best Available Control Technologies (BACT) and associated BACT limits are summarized in the following table:

Emission Unit	Pollutant	Control Technology	BACT Limit	Avg Time	Compliance Determination Method
CDK-1 CKD-2	VOC	Proper Maintenance and Operation	Kiln Emissions Mgm't Plan	N/A	N/A
TOHS	VOC	Proper Design and Operation	0.028 lb/MMBtu	1-hour	Performance Test

Emission Unit	Pollutant	Control Technology	BACT Limit	Avg Time	Compliance Determination Method
TOHS	CO	Proper Design and Operation	0.741 lb/MMBtu	1-hour	Performance Test
TOHS	Total GHG	Proper Design and Operating Practices	126,500 tpy Energy Efficiency Options	Annual N/A	Recordkeeping Recordkeeping

VOC RACT: The requirements of Georgia Rule 391-3-1-.02(2)(tt) – "VOC Emissions from Major Sources" do not apply to this facility because the facility is located in Laurens County.

NOx RACT: The requirements of Georgia Rule 391-3-1-.02(2)(yy) – "Emissions of Nitrogen Oxides from Major Sources" do not apply to this facility because the facility is located in Laurens County.

The requirements of Georgia Rule 391-3-1-.02(2)(lll) – "NOx Emissions from Fuel-Burning Equipment" do not apply to this facility because the facility is located in Laurens County.

2. Title V Major Source Status by Pollutant

Table 2: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	✓			✓
PM_{10}	✓			✓
$PM_{2.5}$	✓			✓
SO_2	✓			✓
VOC	✓	✓		
NO_x	✓			✓
CO	✓	✓		
TRS	N/A			
H_2S	N/A			
Individual HAP	✓	✓		
Total HAPs	✓	✓		
Total GHG	✓	✓		

II. Proposed Modification

A. Description of Modification

Within Permit No. 2421-175-0035-V-06-0, there are various conditions that require operation of the selective non-catalytic reduction system (ID No. SNCR) during operation of the TOHS. This permit

language initially resulted from the PSD Construction Permit Application No. TV-343417 submitted in 2019 which proposed SNCR operation as NOx emission control from the TOHS as a NOx PSD avoidance limit.

During installation and startup, it was determined that the SNCR cannot operate safely until the TOHS reaches a certain operating level which then gets the equipment temperature at an acceptable level. Operating the SNCR prior to reaching the appropriate TOHS operating set point may cause unneeded damage to equipment and result in ammonia slip that may result in a health and safety risk. Unsafe ammonia emissions could be released should urea be injected into the SNCR prior to that unit reaching adequate temperature, which is achieved only when the TOHS reaches the proper thermal (Btu) load. Further, continual operation of the SNCR is not necessary to ensure emissions of NOx from the TOHs remain below the PSD threshold. Testing was completed this summer to obtain uncontrolled emission factor data from the TOHs to verify operations are under the PSD limits.

The facility proposes to operate the SNCR to control emissions from the TOHS when the TOHS reaches at least 74 MMBtu/hr input (or 50 MMBtu/hr output).

B. Emissions Change

Table 3 summarizes the net increases/decreases in potential and actual emissions due to the requested 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			
PM_{10}			
$PM_{2.5}$			
SO_2			
VOC			
NO_x	✓	0.0	0.0
CO			
TRS			
H_2S			
Individual HAP			
Total HAPs			

C. PSD/NSR Applicability

The facility constructed and operated the TOHS as part of a PSD Analysis within Permit Application No. TV-343417 submitted in March 2019 and approved as PSD Permit No. 2421-175-0035-V-05-1. As part of this PSD Analysis, the facility went through PSD review for emissions of VOC, CO, and total GHG. In addition, NOx emissions from the operation of the TOHS were limited by requiring

the operation of the selective non-catalytic reduction system (ID No. SNCR) at all times of operation of the TOHS and that the SNCR be operated at or above the urea injection ratio factor established in accordance with performance tests.

The proposal in this Permit Application specifically addresses NOx emissions and therefore this PSD/NSR Applicability analysis will only pertain to that air pollutant. The net change in NOx emissions due to the major PSD modification of Permit Application No. TV-343417 is repeated below as this information is necessary for the analysis at hand.

App No.	Baseline Years	Baseline Actual Emissions (tpy)	Projected Future Actual Emissions (tpy)	Associated Units Increase (tpy)	Total Increase (tpy)	PSD SER (tpy)	Subject to PSD Review?
343417 (w/SNCR)	10/2012-9/2014	38.02	77.05	0.0	39.03	40	No
696401 (w/o SNCR)	10/2012-9/2014	38.02	49.34	0.0	11.32	40	No
696401 (w/SNCR)	10/2012-9/2014	38.02	77.70	0.0	39.68	40	No

Note: App. No. 343417 (w/SNCR)
This application cited an estimated controlled NOx emission rate from the TOHS of 0.127 lb/MMBtu.

Note: App. No. 696401 (w/ SNCR)
The Division-approved tested NOx emission rate was 0.116 lb/MMBtu based on October 2021 testing.

NOx (lb/hr) = (0.116 lb NOx/MMBtu)*(137.8 MMBtu/hr) = 15.98 lb/hr
NOx (lb/hr) = (0.127 lb NOx/MMBtu)*(137.8 MMBtu/hr) = 17.50 lb/hr

Potential NOx emissions from the TOHS:
NOx (tpy) = (17.50 lb/hr)*(8760 hrs/yr)*(1 ton/2000 lb) = 76.65 tpy

Potential NOx emissions from the facility after construction and operation of the TOHS as supplied in Permit Application No. 696401:
NOx (tpy) = TOHS + Startup/Shutdown of TOHS w/o SNCR + Fire Pump Engine (FE)
NOx (tpy) = 76.65 tpy + 0.66 tpy + 0.39 tpy
NOx (tpy) = 77.70 tpy

Net emissions of NOx based on the project definition in Permit Application No. 343417:
Net emissions (tpy) = Projected Emissions – Baseline Emissions
Net emissions (tpy) = 77.70 tpy – 38.02 tpy
Net emissions (tpy) = 39.68 tpy

Note: App. No. 696401 (w/o SNCR)
The Division-approved tested NOx emission rate was 0.149 lb/MMBtu based on July 2022 testing without operation of the SNCR at a maximum heat input range of 62.4-68.9 MMBtu/hr.

NOx (lb/hr) = (0.149 lb NOx/MMBtu)*(74 MMBtu/hr) = 11.03 lb/hr

Potential NOx emissions from the TOHS:
NOx (tpy) = (11.03 lb/hr)*(8760 hrs/yr)*(1 ton/2000 lb) = 48.29 tpy

Potential NOx emissions from the facility after construction and operation of the TOHS as supplied in Permit Application No. 696401:
NOx (tpy) = TOHS + Startup/Shutdown of TOHS w/o SNCR + Fire Pump Engine (FE)
NOx (tpy) = 48.29 tpy + 0.66 tpy + 0.39 tpy
NOx (tpy) = 49.34 tpy

Net emissions of NOx based on the project definition in Permit Application No. 343417:
Net emissions (tpy) = Projected Emissions – Baseline Emissions
Net emissions (tpy) = 49.34 tpy – 38.02 tpy
Net emissions (tpy) = 11.32 tpy

Therefore, if the TOHS is operating at 74 MMBtu/hr heat input (or 50 MMBtu/hr heat output) or less, it can operate without SNCR operation without changing the PSD applicability determination of Permit Application No. 343417.

PSD/NSR requirements are not triggered by this permit application.

III. Facility Wide Requirements

A. Emission and Operating Caps:

None applicable.

B. Applicable Rules and Regulations

None applicable.

C. Compliance Status

Not applicable.

D. Permit Conditions

None applicable.

IV. Regulated Equipment Requirements

A. Brief Process Description

This permit application pertains to the TOHS and operation of the SNCR system which controls NOx emissions from the TOHS.

B. Equipment List for the Process

Emission Units		Applicable	Air Pollution Control Devices	
ID No.	**Description**	**Requirements/Standards**	**ID No.**	**Description**
TOHS	Thermal Oil Heater System Fuel: Wood Capacity: 137.8 MMBtu/hr	40 CFR 52.21 40 CFR 60 Subpart A 40 CFR 60 Subpart Db 40 CFR 63 Subpart A 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)2.	SNCR MC ESP	Selective Non-catalytic Reduction Multiple Cyclone Collector Electrostatic Precipitator

C. Equipment & Rule Applicability

Georgia Rule 391-3-1-.02(2)(d) – "Fuel-Burning Equipment": Operation of the TOHS is subject to this state rule for PM and visible emissions. No change to the applicable limit is triggered by this permit application.

Georgia Rule 391-3-1-.02(2)(g) – "Sulfur Dioxide": Operation of the TOHS is subject to this state rule for fuel sulfur content. No change to the applicable fuel sulfur content limit is triggered by this permit application.

40 CFR 60 Subpart Db – "Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units": Operation of the TOHS is subject to this regulation for emissions of PM and opacity. No changes to the applicability or applicable limits are triggered by this permit application.

40 CFR 63 Subpart DDDDD – "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters": Operation of the TOHS is subject to this regulation for emissions of hydrogen chloride (HCl), mercury (Hg), CO, and Filterable PM. No changes to the applicability or applicable limits are triggered by this permit application. In addition, there is a reasonable assurance of compliance with the 5D emissions limits for HCl, Hg, and CO with removal of the SNCR at heat inputs below 74 MMBtu/hr.

D. Permit Conditions

Existing Condition 3.2.6 is revised to require operation of the SNCR when the TOHS is operating above 74 MMBtu/hr heat input (or 50 MMBtu/hr output). In addition, the facility will be required to operate the SNCR at or above the urea injection ratio factor established in accordance with the most recent Division approved performance test for NOx emissions when the TOHS is above 74 MMBtu/hr heat input, as demonstrated by heat output exceeding 50 MMBtu/hr.

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

The initial performance testing requirements specified in existing Condition 4.2.11 have been satisfied with the October 2021 tests. Therefore, this Condition has been deleted by the proposed Title V permit amendment.

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

Existing Condition 5.2.2 is modified to require the facility to continuously monitor and record the urea injection rate to the SNCR when the TOHS is operating at a level requiring SNCR operation.

Existing Condition 5.2.3 is modified to require the facility to monitor and record the TOHS heat input (or heat output).

VII. Other Record Keeping and Reporting Requirements

Existing Condition 6.1.7.c.i is modified to specify the excursion definition only applies to periods of operation of the SNCR per Modified Condition 3.2.6.

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.//