Title V Air Operation Permit Revision
Permit No. 0770007-019-AV

APPLICANT

The applicant for this project is Rex Lumber, Bristol, Florida (Rex). The applicant's responsible official and mailing address are: Mr. Kenny Sparks, General Manager, Rex Lumber Bristol, Florida, Post Office Box 610, Bristol, Florida 32321.

FACILITY DESCRIPTION

The applicant operates the Bristol Lumber Mill which is located on Highway 12 South in Bristol, Liberty County.

This facility consists of a log debarker, sawmill, wood waste handling and storage system, four lumber drying kilns, planer mill, and three boilers that provide heat to the kilns. Pine logs are delivered to the facility via logging trucks and stored in the log storage yard. The logs are debarked and conveyed into the sawmill to be cut into various sizes of dimensional lumber. The lumber is automatically sorted by size and collected in corresponding piles that are transferred to kilns for drying. After the lumber is dried, it is transferred to the planer mill where the lumber is sized to specifications. The finished lumber is stored in miscellaneous storage sheds until it is shipped off site. The facility also receives debarked and peeled poles from Apalachee Pole Company (adjacent property owner) to be dried in the facility's drying kilns. Once dried, the poles are transported back to Apalachee Pole Company for further processing. The facility has a maximum production rate of 195 million board-feet per year of lumber including 18 million equivalent board-feet (1,500,000 cubic feet) per year of poles.

The Rex process consists of the following production sequence:

Log Handling

Southern Yellow Pine logs with bark attached (barky logs) are delivered to the site by truck, weighed and unloaded at the log storage yard by the radial crane or diesel powered wheeled loaders.

Log Debarking

The barky logs are picked up by the radial crane and debarked by mechanical debarkers then conveyed to the sawmill. Bark removed from the logs is conveyed by belt to storage silos and bins for loading into trucks for shipment off site or used as boiler fuel. Log debarking emits fugitive PM and PM_{10}.

Sawmill

Lumber cut in the sawmill is sorted by an automatic drop sorter line and deposited into corresponding bins holding lumber of the same size. The sized lumber is transferred by forklifts to Kilns Nos. 1 and 2 for drying. In addition to rough lumber, byproducts produced at the sawmill are wood chips and sawdust. The wood chips are loaded into trucks for shipment to pulp mills. Sawdust is pneumatically conveyed to the sawdust silo to fuel Boilers Nos. 1, 2, and 3 or to the sawdust bins for sale offsite. Sawing emits fugitive particulates, PM and PM_{10}.

Boiler No. 1 has a maximum heat input capacity of 29.6 MMBtu/hr and is equipped with a wood gasification system. The fuel is conveyed using a variable speed screw conveyor into the gasifier prior to going into the boiler, which is manufactured by Industrial Boiler. Particulate emissions are controlled by two (in series) multiple tube dry collectors, manufactured by Zurn, model MTSA-30-9-CYT-A. Ash collected by multiclones is emptied into containers located under the multiclones. Steam production is continuously measured and recorded on a recording chart. Due to the age and size of this boiler (built before June 1989 and less than 30 MMBtu/hr), it is subject only to the visible emissions limitation in accordance with Rule 62-296.410(2)(a), F.A.C., Carbonaceous Fuel Burning Equipment.

Boiler No. 2 has a maximum heat input capacity of 42.9 MMBtu/hr and is equipped with a wood gasification system. The fuel is conveyed using a variable speed screw conveyor into the gasifier prior to going into the boiler. This boiler is manufactured by Industrial Boiler. Particulate emissions are controlled by two (in series) multiple tube dry collectors, manufactured by Zurn, model MTSA-30-9-CYT-A. Ash collected by multiclones

is emptied into containers located under the multiclones. Steam production is continuously measured and recorded on a recording chart. Due to the age and size of this boiler (built before June 1989 and greater than 30 MMBtu/hr), it is subject to visible emissions and particulate matter limitations in accordance with Rule 62-296.410(2)(b), F.A.C., Carbonaceous Fuel Burning Equipment.

Boiler No. 3 has a maximum heat input capacity of 28.7 MMBtu/hr and is equipped with a wood gasification system. The fuel is conveyed using a variable speed screw conveyor into the gasifier prior to going into the boiler. This boiler is manufactured by Hurst Boiler & Welding Company model HYB-3900. Particulate emissions are controlled by two (in series) multiple tube dry collectors manufactured by Hurst Boiler & Welding Company model K12-16t and K9-44T, respectively. Ash is conveyed by screw conveyor to an enclosed bin for removal by front-end loader. Steam production is continuously measured and recorded on a recording chart. Due to the age and size of this boiler (built after June 1989 and less than 30 MMBtu/hr), it is subject to the visible emissions limitation in accordance with Rule 62-296.410(2)(a), F.A.C., Carbonaceous Fuel Burning Equipment, and the fuel record keeping requirements of 40 CFR 60.48c, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

Kiln No. 1 Lumber Drying Process

Kiln 1 is a continuous kiln that consists of three chambers, pre-conditioning, drying, and post-conditioning. Green lumber is loaded by forklift onto steel trams sitting on rails and then the trams are pushed into the kiln by pushers on a slow continuous basis. In the initial (in-bound) pre-conditioning chamber, the green lumber is pre-heated by steam generated in the drying chamber. The central drying chamber is heated by steam from the boilers. In the center chamber the water in the green lumber is driven off. This process generates VOC, and HAP (primarily methanol and formaldehyde) from the sap in the green lumber. In the post conditioning chamber, the dried wood is gradually cooled to retard splitting and warping. Due to the open-ended design of the continuous kiln, control equipment cannot be incorporated into or retrofitted so there are no external emission controls on Kiln No. 1.

Kiln No. 2 Lumber Drying Process

Kiln 2 is a continuous kiln that consists of three chambers, pre-conditioning, drying, and post-conditioning. Green lumber is loaded by forklift onto steel trams sitting on rails and then the trams are pushed into the kiln by pushers on a slow continuous basis. In the initial (in-bound) pre-conditioning chamber, the green lumber is pre-heated by steam generated in the drying chamber. The central drying chamber is heated by steam from the boilers. In the center chamber the water in the green lumber is driven off. This process generates VOC, and HAP (primarily methanol and formaldehyde) from the sap in the green lumber. In the post conditioning chamber, the dried wood is gradually cooled to retard splitting and warping. Due to the open-ended design of the continuous kiln, control equipment cannot be incorporated into or retrofitted so there are no external emission controls on Kiln No. 2.

Kilns Nos. 3 and 4 – Utility Pole Drying Process

The utility pole drying process at Kin Nos. 3 and 4 is a batch process. Green utility poles are loaded onto a steel tram. The loaded tram is pushed into the kiln and kiln doors are closed. Steam from Boiler Nos. 1, 2, and 3 provides heat through steam coils in the kilns, the heat is then circulated inside the kiln by recirculating fans, drying the poles inside the kiln. Steam, water vapor, VOC, and HAP from the poles are exhausted through the kiln roof vents. Pole drying time averages forty- eight to fifty-two hours.

Wood Waste Handling System

This system (EU 014) conveys bark, wood chips, sawdust, and planer mill shavings via pneumatic conveying ductwork, belt conveyors and receiving cyclones to fuel storage silos and bark/wood bins.

The wood waste handling and storage system is an unregulated emission unit and is not subject to any specific emission-limiting standard except for the general visible emissions standard of less than 20% opacity. The wood waste (bark, sawdust and shavings from planer mill) is conveyed to one of three fuel storage silos located adjacent to the boilers to be used as fuel or conveyed to the truck loading station for shipment off site. Scrap pieces of wood generated from the lumber process are forwarded to chippers where they are chipped into

smaller pieces and conveyed to the truck loading station to be shipped off site. The wood waste handling system consists of miscellaneous blowpipe systems, conveyors, eight receiving cyclones and storage bins.

Lumber Storage

Dried lumber from the planer mill is stored in covered storage sheds until it is shipped.

Changes to the Current Title V Air Operation Permit

Changes authorized by air construction permit No. 0770007-017-AC are complete and are a part of this revision permit. Project No. 0770007-017-AC authorizes Rex to convert the existing steam-heated lumber drying Kiln 1 from a batch process to a continuous kiln, increases the maximum production capacity of Kiln 1 from 66 million to 85 million board-feet per year, and increases the total facility kiln throughput from 176 million to 195 million board-feet per year. The project also lengthened Kiln 1 from 84 feet to 204 feet, by the addition of two 60-feet long conditioning chambers at the ends, and added pushers, controls and other associated equipment to Kiln 1. No changes were made to the waste wood fired boilers or to the waste wood handling and storage operations.

Changes authorized by Title V air construction permit No. 0770007-018-AC, issued May 22, 2014, are not complete and are not a part of this revision permit. Project No. 0770007-018-AC authorizes Rex to duct the exhaust gasses from the three existing boilers into the two continuous kilns to recover the waste heat that is currently going out the stacks.

Reciprocating Internal Combustion Engines

This Title V facility contains one stationary reciprocating internal combustion engine (RICE) that is subject to 40 CFR 63, Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines, and 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines:

The following table provides important details for this emissions unit:

Facility Location	Engine Type	Engine Mfg	Engine Model No.	Kw	Brake hp	Mfg/Model Year
Generator Set	Emergency	Generac	F4GE9485A	80	132	2012 (New)

The engine is a post-2007 model year (new), stationary, emergency, diesel fueled, CI RICE, with a displacement of less than 10 liters per cylinder, located at a major source of HAP. Therefore, in accordance with provisions of 40 CFR 63.6590(c)(6), meeting the requirements of 40 CFR 60, Subpart IIII, satisfies compliance with the requirements of 40 CFR 63, Subpart ZZZZ.

Facility Potential Emissions

Pollutant	Boilers 1, 2 and 3	Drying Kilns	Wood Handling	Total
PM	127.4	N/A	248.85	376.25
PM_{10}	119.7	N/A	N/A	119.7
PM_2.5	84.2	N/A	N/A	84.2
NOx	97.2	N/A	N/A	97.2
SO_2	11.5	N/A	N/A	11.5
CO	265.7	N/A	N/A	265.7
VOC*	17.3	417.1	N/A	434.4
Total HAP	7.5	30.95	N/A	38.45
Methanol	N/A	21.1	N/A	21.1
CO_2e	86,435	N/A	N/A	86,435

** VOC emission factor for the kilns is 4.74 lb VOC/1000 board-feet, based on National Council for Air and Stream Improvement (NCASI) Bulletin 845 and emission factors for Formaldehyde and Methanol from the NCASI 2008 SARA Handbook.*

Air Construction permit application 0770007-018-AC, received on February 14, 2014 to duct the exhaust gases from EU 001 (Boilers 1 and 3) and EU 002 (Boilers 2) into continuous Lumber Kilns 1 and 2, changed them from steam heated kilns to direct fired /steam heated kilns. This changed Boilers 1, 2, and 3 from boilers to process heaters, as defined in 40 CFR 63 Subpart DDDDD per EPA Determination M070006 - Integrated Heat Energy Systems. Boilers 1, 2, and 3 will supply steam to batch Kilns 3 and 4 and continuous Kilns 1 and 2.

The Department has determined that Rex Lumber Bristol is not subject to a Compliance Assurance Monitoring Plan with the applicability of 40 CFR 63 subpart DDDD – Plywood and Composite Wood Products.

Based on the Title V Operation Permit application received August 22, 2014 this facility is a major source of hazardous air pollutants (HAP).

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permitting project is to revise the existing Title V permit for the above referenced facility to incorporate the terms and conditions of project No. 0770007-017-AC.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Renewed Title V Air Operation Permit issued April 7, 2013
Application for a Title V Air Operation Permit Revision received August 22, 2014
Notice of Intent to Issue Air Permit issued September 10, 2014
Public Notice Published September 24, 2014

PRIMARY REGULATORY REQUIREMENTS

Title III: The facility is identified as a major source of hazardous air pollutants (HAP).

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 62-213, Florida Administrative Code (F.A.C.).

PSD: The facility is a Prevention of Significant Deterioration (PSD)-major stationary source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility operates units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is not subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility.

PROJECT REVIEW

This project revises Title V air operation permit No. 0770007-016-AV, issued April 7, 2013, and incorporates the terms and conditions of permit No. 0770007-017-AC, issued on January 16, 2013 to authorize Rex to convert Kiln 1 to a continuous kiln, increase the maximum capacity of Kiln 1 to 85 million board-feet per year, and increase the maximum production capacity for all kilns combined to 195 million board-feet per year.

CONCLUSION

This project revises Title V air operation permit No. 0770007-016-AV, issued on April 7, 2013, and incorporates permit No. 0770007-017-AC. This Title V air operation permit revision is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210 and 62-213, F.A.C.