TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

Rex Lumber, Bristol, Florida
Post Office Box 610
Bristol, Florida 32321

Bristol Lumber Mill
Facility ID No. 0770007

PROJECT

Project No. 0770007-017-AC
Application for Title V Source Air Construction Permit
Kiln 1 Modification

COUNTY

Liberty, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Air Resource Section
Northwest District Office
160 W Government Street, Suite 308
Pensacola, Florida 32502-5740

December 20, 2012

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U. S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location

The Rex Lumber mill is an existing major stationary source, which is categorized under Standard Industrial Classification Code No. 2421, Sawmills and Planing Mills. This facility is located on Highway 12 South in Bristol, Liberty County; UTM Coordinates: Zone 16, 689.54 km East and 3358.88 km North; and, Latitude: 30° 20’ 50” North and Longitude: 84° 59’ 10” West. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The project includes emissions units subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) in Subpart DDDD (Plywood and Composite Wood Products).

Project Description

Rex Lumber, Bristol, Florida proposes to convert the existing steam-heated lumber drying Kiln 1 from a batch-process kiln to a continuous open-ended countercurrent kiln with a pre-conditioning chamber, drying chamber and post-conditioning chamber. The project will increase the maximum production capacity of Kiln 1 from 66 million board-feet per year to 85 million board-feet per year and total facility kiln throughput from 176 million to 195 million board-feet per year.

Kiln 1 will be lengthened from 84 feet to 204 feet by adding two 60-feet long conditioning chambers at the ends. Pushers, controls and other associated equipment will also be added as part of the project. After the changes, two streams of green lumber will enter at opposite ends of the kiln and travel in opposite directions, allowing incoming green lumber to be preheated by the outgoing dry lumber. The green wood will slowly advance on trams through the kiln from preconditioning to drying to post-conditioning and emerge at the other end as dry lumber.

No changes are proposed for the waste wood-fired boilers (EU 001 and EU 002) or the waste wood handling and storage operations (EU 014).

Processing Schedule

11/09/2012 Received the application for a minor source air pollution construction permit.

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

<u>PSD Applicability for Project</u>

The following two evaluations are presented in this analysis to determine whether the proposed project will be subject to PSD permitting: (1) identify the change in emissions of the PSD pollutants that is projected to occur as a

result of the project; and (2) determine if the change in emissions results in both a significant emissions increase and a significant net emissions increase. If the project does not satisfy these criteria of a "major modification," then PSD permitting requirements do not apply per Rule 62-212.400(2), F.A.C., – Applicability, which specifies the following:

> *The requirements of subsections 62-212.400(4) through (12), F.A.C., apply to the construction of any new major stationary source or the major modification of any existing major stationary source.*

Rule 62-212.400(2)(a)1., F.A.C., requires that the PSD applicability analysis be conducted using the Baseline Actual to Potential Actual Applicability Test for modifications at existing emission units. If the change in emissions, comparing Potential Actual Emissions (PAE) to Baseline Actual Emissions (BAE), equals or exceeds the significant emissions rate for that pollutant, then the emissions change is considered to be significant. Rule 62-210.200(36), F.A.C., defines BAE for the purposes of this analysis as follows:

> *For an existing emissions unit (other than an electric utility steam generating unit), baseline actual emissions means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding the date a complete permit application is received by the Department, except that the 10-year period shall not include any period earlier than November 15, 1990.*

BAE CALCULATION

The BAE represents the average annual rate (tpy) emitted for each listed PSD pollutant during a consecutive 24-month period within the 10-year period immediately prior to the proposed project. Rex Lumber experienced its maximum kiln production period in the 2010- 2011 period. Therefore, Rex Lumber evaluated baseline actual emissions from that consecutive 24-month period (January 2010 – December 2011), using maximum production rates and available operations data.

Historical production amounts and test results are utilized for the January 2010 – December 2011 period (consecutive 24 months). Actual emissions were calculated using the average annual kiln production (120.307 MM BF/yr) from this consecutive 24-month period. The baseline actual emissions are determined using NCASI emission factors, AP-42 emission factors, and factors recommended by the FDEP.

Baseline Actual Emissions (BAE) tons/year, for 24-month period: 2010 – 2011.

EU #	Equipment	CO	NOx	SO2	PM	PM10	PM2.5	CO2	HAP	VOC	CH3OH	CH2O
001	Boilers #1 + #3	95	35	4	55	50	30	30,726	2.67	6.15		0.20
002	Boiler #2	62	23	3	21	21	20	20,200	1.75	4.04		0.13
014	Sawmill Cyclones				9							
015	Kilns #1, #2, #3, #4								20.45	285.01	14.44	0.60
Total		157	58	7	85	71	50	50,926	24.87	295.2	14.44	0.93

PAE CALCULATION

With the BAE determined, the next step is to calculate the Projected Actual Emissions (PAE) in accordance with Rule 62-210.200(252), F.A.C. Since the proposed updates to Kiln 1 could result in the debottlenecking of Sawmill production at the facility, Rex Lumber evaluated the potential change in projected actual emissions with associated emission units.

Projected actual emissions for Boilers #1 and #3 (EU 001) were calculated using the past actual emissions rates and maximum heat input rates multiplied by an 85% utilization rate. This is performed utilizing maximum annual hours of operation, maximum fuel input, emission rates per AP-42, and the 85% utilization rates.

Projected actual emissions for Boiler #2 (EU 002) were calculated using the past actual emissions rates and maximum heat input rates multiplied by an 85% utilization rate. This is performed utilizing maximum annual hours of operation, maximum fuel input, emission rates per the facility's air permit or AP-42 when appropriate, and the 85% utilization rates.

Projected actual emissions for the Wood Waste Handling and Storage (EU 014) were calculated using the past actual emissions rates and maximum production rates for the sawmill cyclones. This is performed utilizing maximum annual hours of operation and hourly emission rates per AP-42.

Projected actual emissions for the Kilns (EU 015) were calculated using the past actual emissions rates and maximum production rates multiplied by a 90% utilization rate for kilns 1, 2, and 4 and an 85% utilization rate for Kiln 3. This is performed utilizing maximum annual hours of operation, maximum raw material input, emission rates per AP-42, and the appropriate utilization rates.

Projected Actual Emissions (PAE) tons/year

EU #	Equipment	CO	NOx	SO2	PM	PM10	PM2.5	CO2	HAP	VOC	CH3OH	CH2O
001	Boilers #1 + #3	130	48	6	76	69	41	42,325	3.67	8.46		0.28
002	Boiler #2	96	35	4	32	32	30	31,145	2.70	6.23		0.21
014	Sawmill Cyclones				9	0						
015	Kilns #1, #2, #3, #4								28.41	391.72	19.84	0.83
	Total	226	83	10	117	101	71	73,470	34.79	406.41	19.84	1.32

DEMAND GROWTH EXCLUSION

Rule 62-210.200(252)(c), F.A.C., identifies that the calculation of PAE:

> *Shall exclude that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project including any increased utilization due to product demand growth.*

The demand growth exclusion is subtracted from the overall emissions increase calculation. Based on the definition, projected emissions increases are exempted when (1) a unit could have accommodated the emissions during the baseline 24-month period, and (2) the increases are unrelated to the particular project (such as product demand growth).

The PAE were based on past actual operation, using maximum historical production operation rates.

In defining the component of PAE unrelated to the proposed Kiln 1 expansion project, a conservative assessment of the emissions increase that could potentially be related to the project was completed. To define the maximum emissions increase that could be related to the project and not qualify for the demand growth exclusion, Rex Lumber analyzed the Kiln production increase associated with the changes to Kiln 1 that may occur as a result of increased throughput. When compared with the Maximum Anticipated Actual Emissions for the Kiln 1 expansion project, all of the PAE qualifies for the demand growth exclusion. The project associated emissions changes are listed in the table below.

Project Associated Emissions Changes Considering Demand Growth Exclusion ~~(~~tons/year~~)~~

	CO	NOx	SO2	PM	PM10	PM2.5	CO2e	HAP	VOC	CH3OH	CH2O
Projected Actual Emissions	226	83	10	117	101	71	73,470	34.79	406.41	19.84	1.32
Baseline Actual Emissions	157	58	7	85	71	50	50,926	24.87	295.2	14.44	0.93
Actual Emissions Change	69	25	3	32	30	21	22,544	9.92	111.21	5.40	0.39
Demand Growth Exclusion	109	39	5	130	49	35	35,509	13.58	139.25	6.68	0.47
Actual Change vs Exclusion	-40	-14	-2	-56	-19	-14	-12,965	-3.66	-28.04	-1.28	-0.08
Project Emissions Increase*	0	0	0	0	0	0	0	0	0	0	0

* If the difference between the actual emissions change and the demand growth exclusion is zero or less than zero, the project emissions increase for PSD applicability analysis purposes is said to be zero.

Since the potential project emissions are less than the demand growth exclusion for each pollutant, Rex Lumber concluded that all of the PAE could have been accommodated during the baseline period.

PSD ANALYSIS SUMMARY

Applying this determination of the emissions that could have been accommodated and are unrelated to the project, the PSD applicability analysis can be completed. A summary of the results of the PSD applicability analysis is presented in the following table. Demand Growth Exclusion is that portion of the unit's emissions following the project that could have been accommodated during the baseline period and that is also unrelated to the project.

TABLE A - POTENTIAL EMISSIONS AND PSD APPLICABILITY

Pollutant (TPY)	Pre Project Potential Emissions	Baseline Actual Emissions (BAE)	Projected Actual Emissions (PAE)	Demand Growth Exclusion	Project Emissions Increase	Significant Emissions Rate	Subject to PSD
CO	266	157	226	109	0	100	NO
NO_X	97	58	83	39	0	40	NO
SO_2	12	7	10	5	0	40	NO
PM	136	85	117	130	0	25	NO
PM_{10}	120	71	101	49	0	15	NO
$PM_{2.5}$	85	50	71	35	0	10	NO
CO_2e	86,435	50,926	73,470	35,509	0	75,000	NO
VOC	434	295	406	139	0	40	NO
HAP	38	25	35	14	0	N/A	NO
CH_3OH	21	14	20	7	0	N/A	NO
CH_2O	1.4	1	1	0.5	0	N/A	NO

This facility is a major stationary source with respect to PSD because potential emissions of CO and VOC are greater than 250 TPY. As shown in the table above, this project is not a major modification under PSD regulations, since the differences between the baseline actual emissions and projected actual emissions, including consideration of demand growth, do not reach or exceed the significant emissions thresholds. Based on these facts it is determined that the project is not subject to PSD preconstruction review.

Note: The Kiln 1 expansion is similar in scope to the Kiln 2 expansion permitted by 0770007-014-AC (PSD-FL-407), issued on August 4, 2009. The Kiln 2 project triggered the significant emissions threshold for VOC emissions and was subject to a PSD preconstruction review, whereas the Kiln 1 project does not. The Department's BACT determination for VOC emissions from Kiln 2 requires best operating practices to: minimize over-drying in the lumber kiln, maintain consistent moisture content for the given charge of lumber, and dry lumber at the minimum kiln temperature.

3. APPLICATION REVIEW

Application Fee

No application fee is required for a Title V facility.

Discussion of Emissions

The project affects only lumber drying Kiln 1 in EU-015. No other changes are proposed for the other kilns in EU-015, the waste wood-fired boilers (EU-001 and EU-002) or the waste wood handling and storage operations (EU-014). The two tables below compare the facility potential to emit at the current permitted throughput of 176 MM BF/year and at the increased project throughput of 195 MM BF/year.

Facility Potential to Emit (tons/year) at Current Permitted Throughput at 176 MM BF/year.

EU #	Equipment	CO	NOx	SO2	PM	PM10	PM2.5	CO2e	HAP	VOC	CH3OH	CH2O
001	Boilers 1 + 3	153	56	7	89	82	49	49,794	4.32	9.96		0.30
002	Boiler #2	113	41	5	38	38	36	36,641	3.18	7.33		0.22
014	Sawmill Cyclones				9	0						
015	Kilns 1, 2, 3, 4								30.95	417.16	21.12	0.88
Totals		266	97	12	136	120	85	86,435	38.45	434.45	21.12	1.40

Facility Potential to Emit (tons/year) with Kiln 1 Expansion Project and throughput at 195 MM BF/year.

EU #	Equipment	CO	NOx	SO2	PM	PM10	PM2.5	CO2e	HAP	VOC	CH3OH	CH2O
001	Boilers 1 + 3	153	56	7	89	82	49	49,794	4.32	9.96		0.33
002	Boiler #2	113	41	5	38	38	36	36,641	3.18	7.33		0.24
014	Sawmill Cyclones				9							
015	Kilns 1, 2, 3, 4								33.49	462.19	23.40	0.98
Totals		266	97	12	136	120	85	86,435	40.99	479.48	23.40	1.55

There are no expected increases in the boilers' potential S02 or NOx emissions. The estimated increase in PM emissions is from the handling and processing of additional logs, which is capable of being accommodated by the existing equipment and could have been deducted from the estimated emissions increase.

State Requirements

Rules 62-4.160(2), 62-210.700(1), 62-296.320(4), 62-212.400(12)(b), 62-213.430(6)(b)(3,d), 62-213.440(3), F.A.C.

Federal NSPS Provisions

NSPS SUBPART Dc – STANDARDS OF PERFORMANCE FOR SMALL INDUSTRIAL-COMMERCIAL-INSTITUTIONAL STEAM GENERATING UNITS

Federal NESHAP Provisions

NESHAP SUBPART DDDD – PLYWOOD AND COMPOSITE WOOD PRODUCTS

Other Draft Permit Requirements

Permittee shall develop, and operate in accordance with, a written plan to implement the best operating practices for Kiln 1.

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Howard Ard is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at 850.595.0622 or howard.ard@dep.state.fl.us.