

Prevention of Significant Air Quality Deterioration Review
Rayonier Wood Products LLC-Swainsboro Sawmill,
located in Swainsboro, Georgia (Emanuel County)

FINAL DETERMINATION
SIP/Title V Permit Application No. 16512
July 5, 2007



State of Georgia
Department of Natural Resources
Environmental Protection Division

Air Protection Branch

Heather Abrams – Chief, Air Protection Branch

Stationary Source Permitting Program
James Capp- Permitting Program Manager
John Yntema -Unit Manager
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Planning & Support Program
James Boylan -Modelling Unit Manager
Peter Courtney- Modeller

BACKGROUND

On December 28, 2005, Rayonier Wood Products LLC-Swainsboro Sawmill (hereafter Rayonier) submitted an application for an air quality permit to authorize an increase in lumber drying capacity to 220 MMBF/year by modification of their lumber drying kilns. The facility is located at 8796 Highway 297 in Swainsboro, Emanuel County. The modification of lumber drying kilns DK07 and DK08, converting them from batch to continuous type, will increase the lumber drying capacity to 220 MMBF/year.

On April 25, 2007, the Division issued a Preliminary Determination stating that the modifications described in Application No. 16512 should be approved. The Preliminary Determination contained a draft Air Quality Permit for the construction and operation of the modified equipment, and authorization to increase lumber drying capacity to 220 MMBF/year.

The Division requested that Rayonier place a public notice in a newspaper of general circulation in the area of the existing facility, notifying the public of the proposed construction and providing the opportunity for written public comment. Such public notice was placed in the Blade (legal organ for Emanuel County) on May 16, 2007. The public comment period expired on June 15, 2007.

During the comment period, comments were received from U.S. EPA and the facility. There were no comments received from the general public.

A copy of the final permit is included in Appendix A. A copy of written comments received during the public comment period is provided in Appendix B.

U.S. EPA REGION 4 COMMENTS

Comments were received from Jim Little, U.S. EPA Region 4, by email on June 15, 2007. The comments are typed, verbatim, below and were the result of reviews by Jim Little of U.S. EPA Region 4.

Comment 1:

Calculation of Emissions Increases - In Table 4-1 on page 18 in the preliminary determination, we believe that the "Future Potential Emissions" for lumber dry kilns should be the higher emissions calculated by GEPD as listed in Table 2-3 on page 12. Using the higher GEPD estimates, PM10 apparently would be subject to PSD review. If a reason exists for not using the higher emissions, this should be explained in the final determination.

EPD Response:

The Division agrees with the U.S. EPA that there appears to be a discrepancy in Table 4-1. EPD estimated future potential emissions based upon the maximum hourly production rate multiplied by 8760 hours per year, the usual method for calculating potential to emit (pte). However, EPD is limiting the lumber drying capacity in the permit amendment, because the Permittee stated that the maximum lumber drying capacity will be 220 MMBF/yr. Therefore, all pte estimations should be based on that maximum capacity limit, to determine the applicability of PSD. These facts were not explained well in the preliminary determination.

The permit has not been changed in response to this comment.

***Comment 2:**

Lack of VOC Emissions Limit - In the preliminary determination GEPD lists numerous comparable facilities with best available control technology (BACT) numeric emissions limits for lumber dry kiln volatile organic compounds (VOC) emissions. However, GEPD did not include numeric VOC emissions limits in the draft permit. Instead the draft permit contains a limit on production and a VOC emissions factor to be used in calculating VOC emissions. We have two recommendations on this approach for the final determination. (a) GEPD should explain why a numeric VOC BACT emissions limit for the lumber dry kilns has not been specified in view of the fact that many other lumber dry kiln permits have such limits. (b) The purpose of estimating emissions using the specified VOC emissions factor should be described.

EPD Response:

The Division agrees with the U.S. EPA regarding this comment, that BACT should be an emission limit even if there is "No Control". Below is a relevant portion of the definition for BACT:

"If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results."

It has been argued by sawmill companies that VOC emissions from kilns cannot be tested. However, the fact that NCASI has published VOC and HAP emission factors for kilns indicates that such testing is technically feasible. Because there are some work-practice standards included in the permit, there would be some value in testing, to demonstrate that these standards are effective. However, that so few kilns have been tested this far is evidence that such testing is difficult and expensive. It also appears that the work-practices would be followed by the operator anyway, in order to maintain the quality of the end product. Because there is no add-on control technology being required, source testing is not cost-effective.

That all being the case, EPD still agrees that a BACT emission limit should be set, based upon the BACT determinations for lumber drying kilns, as explained under 6.3 (4) (page 25) of preliminary determination, and recent NCASI test data. EPD has therefore included a VOC BACT limit in the final permit amendment. This limit is based on NCASI data and data presented by the facility. NCASI test data shows that, from a Direct-Fired kiln, the VOC (as carbon), emission rate is 3.8 lb per 1,000 board feet (Mbf). This data was then converted to a total VOC emission rate of 4.6 lb/MBF, as explained on page 34 of the Preliminary Determination.) EPD also notes that BACT limits found in the RBLC **vary from 3.5 to 5.2 lb VOC/MBF** per RBLC data. Assuming that the low-end emission rates are from steam heated kilns and are likely VOC (as carbon), EPD declined to consider these lower number as BACT. However, given the RBLC data and the NCASI test data, EPD determined that BACT was a VOC emission limit of 4.6 lb/MBF. No testing will be required to demonstrate compliance.

Note that, as the draft permit indicated, the 4.6 lb/MBF value will be used as the VOC emission factor for regulatory applicability purposes, in particular if future expansions are planned. However, since the emission limit of 4.6 is to be included in the permit, the permit need not explain this. It is therefore removed.

Condition 3.2.2 has been split into two conditions; new Condition 3.2.2 limits the annual lumber drying rate and Condition 3.2.4 sets the VOC BACT emissions limit, as shown below.

Condition 3.2.2 had read:

3.2.2 The Permittee shall not dry more than 220 million board feet of lumber per any twelve consecutive months in the lumber dry kilns (Source Codes DK07 and DK08). The VOC emissions from each lumber drying kiln shall be estimated by using an emission factor of 4.6 lbs VOC/1,000 board feet lumber dried. [40 CFR 52.21 and 391-3-1-.03(2)(c)]

Condition 3.2.2 now reads:

3.2.2 The Permittee shall not dry more than 220 million board feet of lumber per any twelve consecutive months in the lumber dry kilns (Source Codes DK07 and DK08). [40 CFR 52.21 and 391-3-1-.03(2)(c)]

New Condition 3.2.4 reads:

3.2.4 The Permittee shall not cause, let, suffer, permit or allow the rate of emissions from the modified lumber dry kilns (Source Codes DK07 and DK08), any gases that contain Volatile Organic Compounds (VOC) in excess of 4.6 lb /1,000 board feet lumber dried. [PSD/BACT, 40 CFR 52.21, and 391-3-1-.03(2)(c)]

Comment 3:

Dispersion Model Reference - On page 38 of the preliminary determination, GEPD states the following: “In analyzing the air quality impact of the modifications, the U.S. EPA Industrial Source Complex Short-Term Version 3 (ISCST3) model is normally used for modeling.” The current EPA-approved near-field dispersion model is AERMOD, not ISCST3. If ISCST3 was approved for use on this project before AERMOD became mandatory, this should be explained in the final determination.

EPD Response:

The Division agrees with EPA that AERMOD is now mandatory for PSD modeling. However, Rayonier was not required to do PSD modeling for its review, since the modification was only major for PM (but not PM₁₀) and VOCs. For hazardous air pollutants/air toxics modeling done per the Georgia Air Toxics Guidelines, sources are allowed to use the ISC model or AERMOD. Rayonier used ISCST3 modeling in their submission dated April 2006. However, their modeling report dated February 2007 was based on AERMOD. No permit change in the permit is required in response to this comment.

Rayonier Wood Products LLC-Swainsboro Sawmill COMMENTS

Comments were received from David Tudor, Manager Environmental Affairs, by their letter dated May 21, 2007, which was received by the Division on June 14, 2007. A copy of comments letter was also received by email on June 15, 2007.

The comments are reproduced below, followed by a discussion of the comments and any changes made to the permit as a result. [Note that comments marked with asterisks (*) resulted in changes to the permit.]

Comment 1:

There are several places in the Staff Summary indicating the Planer Mill is equipped with two control devices, a cyclone and then a baghouse. There is really only one control device as the cyclone is an integral part of the pneumatic conveying system. (See pages 6 of 58 and 7 of 58)

EPD Response:

The Division agrees with the Permittee regarding this comment. However, since this does not make any difference regarding the emission calculation done in the preliminary determination, the permit has not been changed in response to this comment.

***Comment 2:**

Page 1 of 9 in the permit, first paragraph second from last line, no bark is gasified only wood.

EPD Response:

The Division agrees with the Permittee regarding this comment. As the facility is not using bark as fuel, the process description is modified as requested by the Permittee.

The permit has been changed in response to this comment, as shown below:

1.3-Process Description of Modification had read:

Rayonier Wood Products LLC (Rayonier) currently operates the Swainsboro Sawmill plant with a capacity to manufacture 150 million board feet (MMBF) of lumber per year. The annual production through the dry kilns is limited to 118,421 Mbf of lumber by the current permit. Logs are debarked, sawn, kiln dried, planed and bundled for shipment as manufactured dimensional lumber. Lumber is currently dried using two wood gasifier driven direct heated dry kilns (DK7 and DK8). Each kiln has its own gasifier, combustion unit and blend chamber. Green sawdust supply the fuel needed to dry green lumber. In this process, wood and bark is gasified in a specially designed retort. This gas is then burned in a subsequent combustion chamber with secondary and tertiary air being supplied to the combustion chamber.

The proposed project includes the modification of these two dry kilns. Under the proposed modification, the batch operated kilns will be converted into continuous drying operation kilns, by increasing their length to about three times their existing length, adding a mechanism to move stacks of green wood through the kilns on two tracks, and reconfiguring the floor baffles. With this modification, the maximum annual lumber production capacity for the facility will increase to 220 MMBF per year

1.3-Process Description of Modification Now reads:

Rayonier Wood Products LLC (Rayonier) currently operates the Swainsboro Sawmill plant with a capacity to manufacture 150 million board feet (MMBF) of lumber per year. The annual production through the dry kilns is limited to 118,421 Mbf of lumber by the current permit. Logs are debarked, sawn, kiln dried, planed and bundled for shipment as manufactured dimensional lumber. Lumber is currently dried using two wood gasifier direct heated dry kilns (DK07 and DK08). Each kiln has its own gasifier, combustion unit and blend chamber. Each fires green sawdust. In this process, wood is gasified in a specially designed retort. This gas is then burned in a subsequent combustion chamber with secondary and tertiary air being supplied to the combustion chamber.

The proposed project includes the modification of these two dry kilns. Under the proposed modification, the batch operated kilns will be converted into continuous drying operation kilns, by increasing their length to about three times their existing length, adding a mechanism to move stacks of green wood through the kilns on two tracks, and reconfiguring the floor baffles. With this modification, the maximum annual lumber production capacity for the facility will increase to 220 MMBF per year

***Comment 3:**

Condition 3.2.3 contains an operating limit for the planer mill and its shaving system to 5000 hours per year. Rayonier and the Air Protection Branch disagree that the projected emissions increase for the planer mill qualify for demand growth exemption. Furthermore, we disagree that such emissions that result from an increase in the operating hours and/or rate are exempt from PSD review. However, the draft permit has provided sufficient hours to allow reasonable future operation. The purpose of the comment at this time is preserve the Rayonier's position on this issue.

The Division notes that, by an email dated April 16, 2007, the Permittee requested that EPD allow the operation of the planer mill up to 5250 hrs/year. Those emailed comments are below.

(i) Condition 3.2.3. We cannot live with the final sentence limiting the hours of operation to 4500 per year. Increases in hours of and rate of operation are exempted from the definition of modification. But further, we based the emissions increase calculations on the increase in shavings throughput, not on the hours of operation. There should be no need to limit the hours of operation. Operating at 8760 hours per year won't change the emissions."

(ii) Well my first number is 8760 hours, especially since increases in hours of operation or operating rate are exempt from PSD applicability analyses because such emissions are exempt from the definition of Modification. However, the mill probably would not exceed 5250 hours per year.

EPD Response:

The Division agrees with the Permittee that an increase in allowable hours of operation can be allowed. However, as illustrated below, the planer mill must have an annual hours limit to assure that the PM₁₀ emissions increase is less than 15 tpy. The Division finds that an increase to 5250 hours per year can be allowed without triggering PSD review for PM₁₀, if the allowable PM emission rate is slightly decreased.

The permit has been changed in response to this comment, as shown below:

Condition 3.2.3 had read:

- 3.2.3 The Permittee shall not cause, let, suffer, permit or allow the rate of emissions from the planer mill baghouse (APCD ID. No. BH01), any gases that contain particulate matter (PM) in excess of 1.13 lb/hr. The Permittee shall not operate the planer mill shaving system (PC01) for more than 5000 hours per year.
[PSD Avoidance limit, 40 CFR 52.21, and 391-3-1-.03(2)(c)]

Condition 3.2.3 now reads:

- 3.2.3 The Permittee shall not cause, let, suffer, permit or allow the rate of emissions from the planer mill baghouse (APCD ID. No. BH01), any gases that contain particulate matter (PM₁₀) in excess of 1.07 lb/hr. The Permittee shall not operate the planer mill shaving system (PC01) for more than 5250 hours per year.
[PSD Avoidance limit, 40 CFR 52.21, and 391-3-1-.03(2)(c)]

Note that revised Condition No. 3.2.3 requires the Permittee not to exceed an emission rate of PM₁₀ from the planer baghouse (APCD ID No. BH01) of 1.07 lb/hr, and not to exceed 5250 hours of planer mill operation per year. The revised limits ensure that the total increase of PM₁₀ emissions, due to this modification, will not exceed the PSD significance threshold of 15 tons per year. Note that, with the increase in allowable hours of operation of the planer mill from 5000 to 5250 hrs/yr, and the decrease in allowable PM₁₀ emission rate from the planer mill baghouse from 1.13 to 1.07 lb/hr, the annual PM₁₀ increase is insignificant, as shown below.

With these changes, the emissions from the planer mill baghouse do not cause the project's PM₁₀ increase to exceed the PSD de minimis level. With the revised increase in PM emissions (ignoring the planer, for a moment) estimated at 13.22 TPY, the facility is allowed a PM₁₀ emissions increase from the planer mill system, of up to 1.78 TPY (15 TPY threshold minus 13.22). It is conservatively estimated that the upgraded plant will operate the planer mill no more than 3250 hrs/yr more than it had before the modification, for a total of 5250 hrs/yr. With a PSD avoidance limit of 1.07 lb/hr PM₁₀ from the planer, the increased pte is 1.74 TPY. The total allowable PM₁₀ increase is then 14.96 tpy. The facility is required to keep records of the hours of operation of the planer; if they ever exceed 5250 in 12 months, they must inform the Division, to give EPD the option of requiring a test to verify the PM emission rate.

Comment 4:

Condition 3.3.4 refers to 40 CFR Part 63 Subpart DDDD – Plywood and Composite Wood Products MACT. The agency is surely aware this rule was challenged and under that challenge EPA has petitioned the court to remand and vacate the rule. It should be noted in a concluding phrase to the last sentence adding before the final period: “, unless the rule is remanded and other provision apply under Subpart DDDD”.

EPD Response

The sentence in question is: “Conditions within this permit that represent the requirements of 40 CFR Part 63, Subpart DDDD shall be effective on and after October 1, 2008.” Since the time of the submission of the comments by Rayonier, the D.C. Circuit Court has made a ruling (June 19, 2007), which partially vacates Subpart DDDD. In particular, the date for compliance has been set back to October 1, 2007. However, according to the Rules of the D.C. Circuit Court, the vacatur is not in force until any timely

requests for review have been satisfied (timely being within 45 days). Since the compliance date will not be clearly known until after the issuance of this permit and since there are no applicable requirements for sawmills (except initial notification), the sentence is removed. The condition now reads:

- 3.3.4 The Permittee shall comply with all applicable provisions of the National Emission Standard for Hazardous Air Pollutants (NESHAP) as found in 40 CFR Part 63, in Subpart A – “General Provisions” and Subpart DDDD– “Plywood and Composite Wood Products,” in so far as they apply to lumber kilns.
[40 CFR 63, Subpart A and 40 CFR 63, Subpart DDDD]

Comment 5:

Condition 6.1.7(b)(iv) and (v) makes an exceedance any averaging period the combustion chamber and/or blend box exit temperature is outside the range determined to be indicative of good operating practice. These temperatures are indicators only of emissions and should be excursions and moved to Condition 6.1.7(c). Being outside the range may or may not indicate an emission exceedance. They should not automatically become an exceedance or violations of a permit condition.

EPD Response:

The Division agrees with the Permittee regarding this comment, and Conditions 6.1.7(b)(iv) and (v) have been moved to Section 6.1.7c., as requested.

Comment 6:

The permit is somewhat unclear as to when some of the monitoring applies to the new kilns. Conditions 5.2.5, 5.2.6 and 6.2.9, and possible elsewhere, it should be clear that these conditions apply to the modified kilns No. DK07 and DK08.

EPD Response:

The Division agrees with the Permittee regarding this comment. It is understood that the permit amendment is for the modified kilns and all conditions are applicable to the newly constructed kilns. However, the permit has been revised by indicating “modified” wherever the lumber drying kilns (DK07 and DK08) are mentioned in the final permit amendment. These permit changes now clearly specify that the conditions are for the modified drying kilns.

EPD CHANGES

EPD has made the following additional changes in the permit amendment.

Change 1:

Front page of the permit indicated the lumber drying kiln's Source Codes as "DK7 and DK8". Source Codes have been changed to DK07 and DK08 to match them as indicated in the rest of the permit.

It had read:

The modification and operation of lumber drying kilns (DK7 and DK8), converting them from batch to continuous type. This permit also authorizes an increase in the lumber drying capacity to 220 MMBF/year.

It now reads:

The modification and operation of the lumber drying kilns (DK07 and DK08), converting them from batch to continuous type. This permit also authorizes an increase in the lumber drying capacity to 220 MMBF/year.

Change 2:

As per the final permit amendment, the Permittee is allowed to operate the planer mill up to 5250 hours per year per Condition 3.2.3. Condition 6.1.7(v), which has been moved to 6.1.7c in the final permit amendment, now specifies 5250 hr/yr, in place of 5000 hr/year mentioned in this condition.

APPENDIX A

AIR QUALITY PERMIT

2421-107-0011-V-02-3

APPENDIX B

WRITTEN COMMENTS RECEIVED DURING COMMENT PERIOD

WRITTEN COMMENTS

(1) EPA REGION 4 COMMENTS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MEMORANDUM

To: Hem Sharma - Georgia Environmental Protection Division (GEPD)

From: Jim Little - U.S. Environmental Protection Agency, Region 4 (404-562-9118)

Subj: Draft PSD Permit for Rayonier Swainsboro Sawmill

Date: June 15, 2007

Thank you for sending the preliminary determination and draft prevention of significant deterioration permit for a modification of the Rayonier Wood Products LLC sawmill in Swainsboro, Georgia. Here are our brief comments.

1. Calculation of Emissions Increases - In Table 4-1 on page 18 in the preliminary determination, we believe that the "Future Potential Emissions" for lumber dry kilns should be the higher emissions calculated by GEPD as listed in Table 2-3 on page 12. Using the higher GEPD estimates, PM₁₀ apparently would be subject to PSD review. If a reason exists for not using the higher emissions, this should be explained in the final determination.
2. Lack of VOC Emissions Limit - In the preliminary determination GEPD lists numerous comparable facilities with best available control technology (BACT) numeric emissions limits for lumber dry kiln volatile organic compounds (VOC) emissions. However, GEPD did not include numeric VOC emissions limits in the draft permit. Instead the draft permit contains a limit on production and a VOC emissions factor to be used in calculating VOC emissions. We have two recommendations on this approach for the final determination. (a) GEPD should explain why a numeric VOC BACT emissions limit for the lumber dry kilns has not been specified in view of the fact that many other lumber dry kiln permits have such limits. (b) The purpose of estimating emissions using the specified VOC emissions factor should be described.
3. Dispersion Model Reference - On page 38 of the preliminary determination, GEPD states the following: "In analyzing the air quality impact of the modifications, the U.S. EPA Industrial Source Complex Short-Term Version 3 (ISCST3) model is normally used for modeling." The current EPA-approved near-field dispersion model is AERMOD, not ISCST3. If ISCST3 was approved for use on this project before AERMOD became mandatory, this should be explained in the final determination.

(2) FACILITY COMMENTS

DRAFT May 21, 2007

Environmental Protection Division
Air Protection Branch
4244 International Parkway, Suite 120
Atlanta, GA 30354
ATTN: John Yntema

RE: Comments on Permit Amendment No. 2421-107-0011-V-02-3
PSD Permit for Continuous Dry Kilns and Production Increase

Dear Mr. Yntema:

The Notice of the Opportunity for Public Comment appeared in the Forest Blade Wednesday May 16, 2007. Below are Rayonier Wood Products LLC's comments on the draft permit.

1. There are several places in the Staff Summary indicating the Planer Mill is equipped with two control devices, a cyclone and then a baghouse. There is really only one control device as the cyclone is an integral part of the pneumatic conveying system. (See pages 6 of 58 and 7 of 58)
2. Page 1 of 9 in the permit, first paragraph second from last line, no bark is gasified only wood.
3. Condition 3.2.3 contains an operating limit for the planer mill and its shaving system to 5000 hours per year. Rayonier and the Air Protection Branch disagree that the projected emissions increase for the planer mill qualify for demand growth exemption. Furthermore, we disagree that such emissions that result from an increase in the operating hours and/or rate are exempt from PSD review. However, the draft permit has provided sufficient hours to allow reasonable future operation. The purpose of the comment at this time is preserve the Rayonier's position on this issue.
4. Condition 3.3.4 refers to 40 CFR Part 63 Subpart DDDD – Plywood and Composite Wood Products MACT. The agency is surely aware this rule was challenged and under that challenge EPA has petitioned the court to remand and vacate the rule. It should be noted in a concluding phrase to the last sentence adding before the final period: “, unless the rule is remanded and other provision apply under Subpart DDDD”.
5. Condition 6.1.7(b)(iv)and (v) makes an exceedance any averaging period period the combustion chamber and/or blend box exit temperature is outside the range determined to be indicative of good operating practice. These temperatures are indicators only of emissions and should be excursions and moved to Condition 6.1.7(c). Being outside the range may or may not indicate an emission exceedance. They should not automatically become an exceedance or violations of a permit condition.
6. The permit is somewhat unclear as to when some of the monitoring applies to the new kilns. Conditions 5.2.5, 5.2.6 and 6.2.9, and possible elsewhere, it should be clear that these conditions apply to the modified kilns No. DK07 and DK08.

If you have questions regarding these comments, or find that you are unable to make the changes indicated please contact David Tudor at david.tudor@rayonier.com or by phone 904-557-8332.