Prevention of Significant Air Quality Deterioration Review
Of the International Paper Company, Inc.-Augusta Lumber Mill
Augusta, Georgia (Richmond County)

PRELIMINARY DETERMINATION
Permit Application No. 15723
October 25, 2004

Reviewing Authority

Georgia Department of Natural Resources
Environmental Protection Division
Air Protection Branch

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Stationary Source Permitting Program
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SUMMARY

International Paper Company, Inc.-Augusta Lumber Mill operates a lumber mill located in Augusta, Georgia. The Augusta Lumber Mill is proposing an expansion project in which lumber production capacity would be increased. The facility has requested to remove production restrictions on two kilns (Emission Unit ID Nos. KD02 and KD03), which have been subject to a total kiln dried lumber PSD avoidance limit of 131.5 million board feet per any twelve consecutive months; to obtain authorization to make changes to each of the three kilns (Emission Unit ID Nos. KD01, KD02, and KD03) to improve drying efficiency; and to modify the infeed of the sharp chain in the sawmill area by installing a mini double length infeed. Because of the magnitude of the proposed increase in air emissions, the project is subject to New Source Review for air quality impacts. Specifically, Best Available Control Technology (BACT) and air quality analyses are required under the Prevention of Significant Deterioration (PSD) permitting program, as administered by the Georgia Environmental Protection Division ("the Division" or "EPD"), and Georgia's Rules for Air Quality Control. A PSD review is required to remove PSD avoidance limits according to 40 CFR 52.21(r)(4). In accordance with 40 CFR Part 70 regulations, a significant modification to the Tile V permit must be issued for the proposed changes.

EPD has reviewed the application to modify Title V Permit No. 2421-245-0047-V-01-0, dated April 27, 2000, issued to the Augusta Lumber Mill, for the proposed project. The only emissions increase from the proposed modification that will exceed a PSD significance level, is volatile organic compounds (VOCs) emitted from the wood drying process. The Augusta Lumber Mill proposes that the BACT for this modification is the efficient operation of the kilns, and that no add-on emission control devices should be required. The emissions from the kilns would then be limited only by the capacity of the lumber dry kilns.

The Augusta Lumber Mill is located in Richmond County, which is classified "attainment" or "unclassified" for the criteria air pollutants of PM_{10}, SO_2, NOx, CO and Ozone (VOC) in accordance with Section 107 of the Clean Air Act, as amended August 1997. Note that this county is also classified as "attainment" for the $PM_{2.5}$ and 8-hour ozone standards.

The Augusta Lumber Mill is currently considered a major source, with potential to emit VOCs greater than 250 tons per year, due to drying kilns and associated fuel burning equipment. The Augusta Lumber Mill would have triggered PSD in December of 1995, when a permit was issued that authorized the facility to construct kiln No. 1, had the facility not opted to take a PSD avoidance limit which was to limit the annual lumber drying throughput of Kilns 2 and 3 to 131.5 million board feet. Air Quality Permit No. 2421-245-0047-V-01-0 included that lumber drying limit which has kept the VOC emissions from kilns KD02 or KD03 below the PSD threshold limit of 250 tpy. [The PTE for new kiln No. KD01 was well under 250 tpy VOCs.]

It is the Preliminary Determination of the Division that the current proposal provides for the application of best available control technology (BACT) for the control of VOC emissions from the kilns as required by Federal PSD regulation 40 CFR 52.21(j). However, it has also been determined that a system of monitoring must be carried out in order to minimize VOC emissions.

The EPD review of the data submitted by the International Paper Company, Inc.-Augusta Lumber Mill, related to the proposed modification, indicates that the project will be in compliance with all applicable state and federal air quality regulations.

Since the increase in emissions of all criteria pollutants, other than VOC, will be less than the corresponding PSD significance levels, ambient air quality modeling was not conducted. It has been determined that the proposal will not cause impairment of visibility or detrimental effects on soils or vegetation. Also, any air quality impacts produced by project-related growth should be inconsequential.

The preliminary determination indicates that an Air Quality Permit for the Augusta Lumber Mill should be amended to remove the production limitations on Kilns 2 and 3, and to authorize the proposed changes in the kilns and infeed chain, which will allow an increase in the lumber production capacity of the mill. Additional permit conditions will be made a part of the Permit to assure that VOC emissions are minimized and insure and confirm compliance with all applicable regulations. A copy of the Draft Permit Amendment is attached in Appendix A.

1.0 INTRODUCTION

On October 25, 2004, International Paper Company, Inc.-Augusta Lumber Mill submitted an application (Application No. PSD-15723, received on Oct 25, 2004) for an air quality permit amendment (1) to remove the PSD avoidance production restrictions on two kilns (Emission Units ID No. KD02 and KD03), now limited to a total of 131.5 million board feet per any twelve consecutive months; (2) to obtain authorization to make changes to each of the three kilns (Emission Unit ID Nos. KD01, KD02, and KD03) to improve drying efficiency (the primary measure proposed at this time is the installation of moisture meters); and (3) to increase the infeed capacity of the sharp chain in the sawmill area by installing a mini double length infeed. The PSD modification will be made at the plant located at 4206 Mike Padgett Highway, in Augusta (Richmond County), Georgia. This facility produces kiln-dried dimensional lumber.

The Augusta Lumber Mill is located in an attainment area for all criteria air pollutants. Any proposed project at the plant is therefore required to undergo a PSD applicability analysis in order to determine if the project triggers a PSD review for any pollutant. Sawmills are not one of the 28 named source categories whose PSD threshold is 100 tons per year, so its major source threshold is 250 tons per year. The Augusta Lumber Mill emits in excess of 250 tons per year of at least one criteria pollutant (i.e., VOC). The facility is therefore considered a major source under the PSD program. As a major source, any project that results in a significant increase of any PSD regulated compound triggers a PSD review.

The lifting of the annual production limit on Kilns No. 2 and 3 will subject Kiln No. 1 to retroactive PSD. Since it has a capacity to emit over 40 tpy VOC, and the facility is not accepting a cap on Kiln 1 production, the proposed modifications will result in an increase of VOC emissions exceeding the PSD significance level of 40 tons per year; and this modification is therefore subject to a PSD review. The associated increase in emissions does not exceed the significance level for PM or PM10, nor is above the significance level for any other pollutant. Thus the requested increase in production and the process modifications are considered a major modification to a major source regarding PSD applicability for only VOCs.

2.0 HISTORY

This facility has been in operation since 1969 and was first issued a state air quality permit on June 11, 1981. In 1995, the facility brought back into production rebuilt Kiln #1 (KD01). At that point, the potential to emit (pte) of the two existing kilns, Kilns #2 (KD02) and #3 (KD03), exceeded 250 tons per year VOCs (using a VOC emission factor of 3.8 pounds per thousand board feet of lumber processed). The potential VOC emissions from rebuilt KD01 were 65.12 tons, which exceeds 40 ton/yr, thus potentially making this a major modification. In order that the restart of Kiln #1 not be considered a major modification, the facility accepted a total production limit of 131.5 million board feet of lumber per any 12 consecutive months for Kilns #2 (KD02) and #3 (KD03), which made the "existing source" minor for PSD, with pte of 249 ton/yr VOC. Given the emission factor of 3.8 pounds VOC per thousand board feet of lumber processed, and that the potential VOC emission rate from kiln KD01 is 65.12 ton/yr, as estimated in the narrative for initial Title V permit, the VOC potential to emit from the entire facility was therefore 249.85+65.12 = 315 ton/yr. The heat input capacities of the kilns, along with the dates of construction/modification, are shown in Table 1 below.

Table 1

Emission Unit				
ID No.	**Description**	**Heat input capacity (MMBtu/hr)**	**Fuel fired**	**Year installed/modified**
KD01	Direct Fired Lumber Drying kiln 1	24	Wood	1995 (rebuilt)
KD02	Direct Fired Lumber Drying kiln 2	30	Wood	1987/1996
KD03	Direct Fired Lumber Drying kiln 3	60	Wood	1991/ 2004

Note: The above values are as provided in the initial Title V application. The Permittee provided higher heat input capacities, compared to the values in this table, for the kilns in this PSD application, but these values were not used for retroactive PSD review.

Based on the proposed new project, the potential increases of regulated pollutants from the Augusta Lumber Mill's kiln No. 1, as provided in PSD application No. 15723, are listed in Table 2.

Table 2
Emissions Increases from the Emission Unit ID Nos. KD01

Pollutant	Potential Emissions Increase (tpy)	PSD Significant Emission Rate (tpy)	Subject to PSD Review
PM	4.88	25	No
PM-10	4.88	15	No
SO_2	-	40	No
NO_x	2.77	40	No
CO	11.7	100	No
VOC*	65.12	40	Yes
Pb	-	0.6	No
H_2SO_4	-	7	No

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Note: Kiln # 1 (KD01) was installed without an air quality permit in 1973, with a 17 MM BTU/HR burner fired with oil/natural gas. In 1981, the Permittee applied for a permit to construct and operate the facility and also requested authorization to switch the fuel fired in the burner from oil/natural gas to wood waste. Permit to Operate No. 2421-121-8032-0 was issued to the Permittee on June 11, 1981. In 1985, the Permittee replaced KD01's 17 MM BTU/HR burner with a 24 MM BTU/HR burner without obtaining a permit. In 1987, Kiln No. 2 (KD02) with a 24 MM BTU/HR burner was installed without permit. On May 14, 1991, the Permittee applied for a permit to construct one kiln (KD03) with two (2) burners, each with a 15 MM BTU/HR capacity. An amendment to Permit No. 2421-121-9119 was issued on June 4, 1992. This amendment reflected a total burner capacity of 30 MM BTU/HR for KD03 as stated in Permittee's application of May 14, 1991. However, instead, the Permittee actually installed two (2) burners on KD03, each with a capacity of 30 MM BTU/HR, for a total of 60 MM BTU/hr. In mid 1992, KD01 was shut down. On August 25, 1995, the facility requested authorization to install one additional kiln and utilize heat from the existing burners attached to KD03 that were permitted in 1992. An amendment to Permit No. 2421-121- 9119, granting authorization to install the new kiln (KD01), was issued on December 1, 1995. In June 1996, KD02 was completely reskinned and its dry shavings 24 MM BTU/HR burner was replaced with a 30

MM BTU/HR burner fired with green sawdust. This change was accommodated in Permit No. 2421-121-12053 issued on September 3, 1996.

The Table 2 indicates that the VOC emissions increase exceeded the PSD significance level with the reconstruction of Kiln No. 1. This modification of the Augusta Lumber Mill should have been, therefore, classified as a major modification under PSD, because the potential emissions increase of at least one PSD pollutant exceeded its PSD significance level. Therefore, lifting of the annual production limit on Kilns No. 2 and 3 will subject Kiln No. 1 to retroactive PSD.

The emissions calculations for numbers in Table 2 can be found in detail in the Augusta Lumber Mill's PSD submittal (see Section 3.2.1 of Application No. 15723). These calculations have been reviewed and approved by EPD, except VOC. The VOC emission rate calculated by the facility is 47.5 tpy, which is lower than the increase shown above. [See footnote] The Potential increases in EPD's review were calculated by assuming a maximum annual production rate of 26,4000 Mbf for kiln # 1 as indicated by the facility. International Paper Company, Inc.-Augusta Lumber Mill is not taking any creditable reductions. Therefore, the only emissions associated with these projects is the increase due to removal of production limitations of the kilns (Emission Unit ID Nos. KD02 and KD03).

The Augusta Lumber Mill's Title V permit was amended in February 5, 2004 for the modification involving the installation of a new curve saw to replace the existing band saw in the sawmill area. The installation of the new curve saw also enabled the Augusta facility to increase the production of lumber. The narrative for this permit amendment (Permit No. 2421-245-0047-V-01-1) indicates that there was no increase in the emission rate above significant for any pollutant. The highest increase was in the emission rate of VOC, 39.3 tons per year (ton/yr). All increases were less than the PSD significant thresholds. Therefore, PSD was not an issue. The production limit of 131.5 million board feet per 12 consecutive months that was imposed in 1995 for kilns 2 and 3, to foreclose any PSD issue when Kiln 1 was rebuilt, was maintained. However, an overall cap of 148.5 million board feet through all 3 kilns, per 12 consecutive months, was imposed on the facility to preclude a significant increase in emissions that could arise from the expected increase in production capacity (Condition No. 3.2.2). This permit amendment indicates that there will not be any increase in the drying capacity of these kilns without going through PSD.

The Augusta Lumber Mill's permit was amended again on July 7, 2004. This second amendment to the original Title V permit (Permit No. 2421-245-0047-V-01-2) was to authorize the reskinning of Kiln No. 3 which consisted of repairing the structural components of the kiln to more evenly dry lumber and produce a high quality product. This modification was not subjected to PSD because it was not a physical change or a change in the method of operation. It was considered to be part of normal maintenance for a dry kiln. Since it was constructed in 1991, it required reskinning to maintain its efficiency.

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*Note that the facility was not allowed to use an emission factor of 3.6 lbs per thousand board feet of lumber at the time of review of Title V permit. VOC emissions were estimated by EPD using an emission factor of 3.8 lbs per thousand board feet. To this date, AP-42 has not published a final emission factor for this process. However, the information that is available from other sources indicates that VOC emissions are more likely to be 3.8 or higher This

Retroactive PSD review of kiln KD01 is the only way to remove the production limit which subjects both Kiln KD02 and Kiln KD03.

Based on the information provided, the Augusta Lumber Mill's proposed modifications, as specified per Georgia Air Quality Application No. 15723, are classified as major modifications under PSD because the net increase in VOC emissions from the facility, based on a comparison of the average actual emissions for the two years before reconstruction of Kiln No. 1 with the future potential emissions of VOC after proposed modification, as indicated in Table 3, are more than the 40 tpy PSD significant emission rate. Therefore, all the kilns are subject to the PSD review. With this PSD review, the production limitations on all three kilns are increased, as requested by the applicant.

3.0 PROCESS DESCRIPTION

The Augusta Lumber Mill receives raw pine logs, which are debarked and then cut into appropriate dimensions in the sawmill. The green dimensioned lumber is dried in one of three direct-fired kilns from approximately 50 percent to between 15 and 20 percent moisture content using high temperature drying. The dried lumber is planed and then sorted by length, size, and grade, and transported by truck or rail for delivery to the customer.

Secondary products generated at this facility are wood chips, sawdust, bark, and shavings. The majority of the green sawdust is used as fuel for the wood-fired lumber kilns. The remainder of the green sawdust and the wood particles from the cutting and planning of dried wood are transported to a particleboard manufacturer.

The Augusta Lumber Mill's permit applications and supporting data are included in Appendix B.

4.0 PSD APPLICABILITY

The Augusta Lumber mill is currently classified as a major source under the PSD definition of major source because it has the potential to emit a pollutant (VOC) regulated under the Act in amounts equal to or exceeding the specified threshold (250 tpy) which is predicated on the source's industrial category. A major modification is a physical change or change in the method of operation at an existing major source that causes a significant "net emissions increase' at the source of any pollutant regulated under the Act. Thus, the proposed expansion is subject to PSD review for those pollutants whose emissions will increase above the corresponding PSD significance level. For the purposes of determining whether a significant increase occurs, future potential emissions must be compared to current actual emissions. Note that EPD has assumed that the facility potentially was major for PSD, prior to the installation of new Kiln # 1(KD01) in 1996. Therefore, the facility was requested to determine the past-actual emissions of Kilns 2 and 3 for the year 1994-95 and the future potential with three kilns. Table 3 below summarizes the projected increase in those pollutants whose emissions increased as a result of the dry kiln addition (in the year 1996) and the currently proposed modification, and the applicability of PSD, per information submitted by the facility by their letter dated May 31, 2005. Tables 4 and 5 below provide emission estimates from the kilns and cyclones, which control PM emissions from the planer mill.

Table 3
Estimated increase in PSD regulated pollutants from the Augusta Lumber Mill Kilns, TPY

Year	Lumber Dried (MBF/Yr)	PM	NOx	CO	VOC		HAPs: Methanol/ Total
					IP	EPD	
1994	127,097	23.5	13.3	56.5	229	241.5	10.2/14.5
1995	131,063	24.2	13.8	58.3	236	249.1	10.5/14.9
Average	129,080	23.8	13.5	57.4	232	245.3	10.4/14.7
Future PTE	157,000	29.0	16.5	69.9	283	298.3	12.6/17.9
Net Increase	**27,920**	**5.2**	**3.0**	**12.5**	**51.0**	**53.0**	**2.2/3.2**

Note: 1. Emission estimates as provided in facility's letter dated May 31, 2005, and PSD application.
2. For PM emissions from the kilns, it has been assumed that all PM is PM_{10}.
3. The VOC emission estimate provided by the applicant has been revised by using emission factor of 3.8 lb of VOC per MBF, in place of 3.6 lb of VOC per MBF used by the applicant.
4. Because the fuel is wood waste, which contains insignificant sulfur, the SO_2 emissions have not been calculated.

Table 4
Estimated increase in PSD regulated pollutants from the Augusta Lumber Mill cyclones, TPY

Year	Cyclone 1	Cyclone 2	Cyclone 3	Cyclone 4	Total	
					PM	PM_{10}
1994	4.54	4.54	7.81	7.81	24.7	7.41
1995	4.68	4.68	8.05	8.05	25.5	7.65
Average	4.61	4.61	7.93	7.93	25.1	7.53
Future PTE	-	-	-	-	35.0	10.5
Net Increase					**9.9**	**2.97**

Table 5
Summary of Facility-Wide Net Emissions Increase and PSD Applicability for all Pollutants

Pollutant	Lumber Kilns (TPY)	Cyclones (TPY)	Total Net Change (TPY)	PSD Significant Emission Rate (TPY)	PSD Applicability (TPY)
PM	5.2	9.9	15.1	25	No
PM10	5.2	2.97	8.17	15	No
SO_2	-	-	0	40	No
NOx	3.0	0	3.0	40	No
CO	12.5	0	12.5	100	No
VOC	53.0	0	53.0	40	**Yes**
HAPs	2.2/3.2	0	2.2/3.2	**NA**	NA

It can be seen from the tables above that the net emission increase in VOC exceeds the specified PSD significance rate. The exceedance of this threshold triggers PSD review; therefore only VOC emissions are subject to PSD.

5.0 PRELIMINARY DETERMINATION

It is the Preliminary Determination of the Division that the proposal provides for the application of best available control technology (BACT) for the control of VOC emissions from the kilns as required by Federal PSD regulation 40 CFR 52.21(j).

The EPD review of the data submitted by the Augusta Lumber Mill related to the proposed modification indicates that the project will be in compliance with all applicable state and federal air quality regulations.

Since the increase in emissions of all criteria pollutants, other than VOC, will be less than the corresponding PSD significance levels, ambient air quality modeling was not conducted. It has been determined that the proposal will not cause impairment of visibility or detrimental effects on soils or vegetation. Also, any air quality impacts produced by project-related growth should be inconsequential.

The preliminary determination indicates that an Air Quality Permit for the Augusta Lumber Mill should be amended to remove operating production limitations on the kilns (Emission Unit ID Nos. KD01, KD02, and KD03), and to authorize the proposed changes in the kilns and infeed chain, which will allow an increase in the lumber production capacity of the mill. Additional permit conditions will be made a part of the Permit to insure and confirm compliance with all applicable regulations. A copy of the Draft Permit Amendment is attached in Appendix A.

Through its new source review procedure, EPD has evaluated Augusta Lumber Mills' proposal for compliance with State and Federal requirements. The findings as indicated above have been assembled in this Preliminary Determination.

6.0 REVIEW OF APPLICABLE RULES AND REGULATIONS

Georgia Rule for Air Quality Control (Georgia Rule) 391-3-1-.03(1)

Applicability: Georgia Rule 391-3-1-.03(1) requires that any person prior to beginning the construction or modification of any facility which may result in air pollution shall obtain a permit for the construction or modification of such facility from the Director upon a determination by the Director that the facility can reasonably be expected to comply with all the provisions of the Act and the rules and regulations promulgated thereunder.

Georgia Rule 391-3-1-.03(8)(b)

Applicability: Georgia Rule 391-3-1-.03(8)(b) specifies that no permit to construct a new stationary source or modify an existing stationary source shall be issued unless such proposed source meets all the requirements for review and for obtaining a permit prescribed in Title I, Part C of the Federal Act.

Georgia Rule 391-3-1-.03(10) – Title V Operating Permits

Applicability: Georgia Rule 391-3-1-.03(10) specifies that the provisions of this section shall apply to any source and the owner and operator of any such source subject to any requirements under 40 CFR 70 as amended.

Georgia Rule 391-3-1-.02(2)(e) – Particulate Matter Emission from Manufacturing Processes

Georgia Rule (e), commonly known as the process weight rule, limits PM emissions from kilns and other manufacturing processes. The Permittee may not discharge or cause the discharge into the atmosphere from the lumber dry kilns (KD01, KD02, and KD03), and other processes, any gases that contain particulate matter in excess of the rates derived from the following equations:

For sources constructed or modified after July 2, 1968,

$E = 4.1\ P^{0.67}$; for process input weight rate up to and including 30 tons per hour, and

$E = 55\ P^{0.11}$; for process input weight rate above 30 tons per hour.

Where E equals the allowable particulate emission rate in pounds per hour and P equals the dry process input weight rate in tons per hour.

Georgia Rule 391-3-1-.02(2)(b) – Visible Emissions

Applicability: Georgia Rule 391-3-1-.02(2)(b) [a.k.a. Georgia Rule (b] is an applicable requirement for the lumber drying kilns, planer mill operation because said units are subject to another emission standard in Georgia rule 391-3-1-.02(2) [i.e., Georgia Rules (e) and/or (g)]

Emission Standard: Georgia Rule (b) [391-3-1-.02(2)(b)] and Georgia Rule (e) [391-3-1-.02(2)(e)] are general rules limiting the visible emissions and PM emissions from kilns and planer mill cyclones. Georgia Rule (b) limits visible emissions to not equal or exceed forty (40) percent from each kiln and cyclone.

Georgia Rule 391-3-1-.02(2)(d) – Fuel Burning Equipment

Applicability: The wood fired burners installed to provide drying heat to the kilns do not meet the definition of "fuel-burning equipment" as found in Georgia Rule 391-3-1-.01(cc) because the heat energy from the combustion of fuels is transferred directly to the lumber drying kilns and not indirectly. Therefore, lumber drying kilns are not subject to this rule.

Georgia Rule 391-3-1-.02(2)(g) – Sulfur Dioxide

Applicability: Georgia Rule 391-3-1-.02(2)(g) [a.k.a. Georgia Rule (g)] applies to all "fuel burning" sources. The "fuel burning" sources at the Augusta Lumber Mill include wood fired burners installed to provide direct heat to the drying kilns.

Emission Standard: The fuel sulfur content limit for fuels burned in the kilns is 2.5 percent sulfur by weight in accordance with Georgia Rule 391-3-1-.02(2)(g) 2 for all fuel burning sources below 100 MMBtu/hr of heat input per hour. Since wood is used as fuel in these kilns, the sulfur content will always be much less than 2.5%.

40 CFR 60, Subparts Dc – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

Applicability: The affected facility to which Subpart Dc applies is each steam generating-unit that commences construction, modification, or reconstruction after June 9, 1989, and that has a maximum design heat input capacity of 100 MMBtu/hr or less, but greater than or equal to 10 MMBtu/hr.

The lumber drying kilns (KD01, DK02, and DK03) are heated with wood fired combustion system (burners). Direct-fired lumber drying kiln # 2 is heated by a Dutch oven type (2 stage) green sawdust burner systems. Kiln # 3 is heated by two Model SGDF 30 green sawdust burners of 49.45 MMBtu/hr. Kiln # 1 shares the Kiln # 3 burner system. The energy systems provide hot combustion gases (directly) to all three lumber drying kilns. These energy systems are not subject to Subpart Dc as these are not steam generating units or process heaters in accordance 40 CFR 60 Subpart Dc. Note that, as the energy systems are not boilers, therefore 40 CFR 63, Subpart DDDDD-National Emission Standards for Institutional Boilers and Process Heaters is also not applicable.

40 CFR Part 63, Subpart DDDD – National Emission Standard for Hazardous Air Pollutants for Plywood and Composite Wood Products

Applicability: Subpart DDDD ["4D"] regulates HAP emissions from Plywood and Composite Wood Products (PCWP) facilities that are major sources. The Plywood and Composite Wood Products (PCWP) MACT, 40 CFR Part 63 Subpart DDDD, published in the Federal Register (Vol. 69, No. 146/Friday, July 30, 2004), indicates that the MACT is applicable to sawmills with lumber kilns (SIC # 2421) which are major for HAPs. The potential to emit methanol is over 10 tons per year, which is the major source threshold for any single HAP. Therefore, this facility is major for HAPs and the MACT is applicable.

The provisions of 40 CFR 63, Subpart DDDD, include no control requirements for lumber kilns. However, the rule indicates that facilities with non-colocated (i.e., lumber kilns located at stand-alone kiln-dried lumber manufacturing facilities or at any other type of facility) lumber kilns that are classified as major sources of HAP must submit an initial notification form by January 26, 2005. The Permittee submitted the required initial notification on December 13, 2004.

Georgia Rule 391-3-1-.02(7) – Prevention of Significant Deterioration

Applicability: Georgia Rule 391-3-1-.02(7) adopts by reference 40 CFR 52.21. PSD requires that any new major source or modification of an existing major source be reviewed to determine the potential emissions of all pollutants subject to regulations under the Clean Air Act. The PSD review requirements apply for any new or modified source which belongs to one of 28 specific source categories having potential emissions of 100 tons per year or more of any regulated pollutant, and any other source having potential emissions of 250 tons per year or more of any regulated pollutant; or modification of a major stationary source which results in a significant net emission increase of any regulated pollutant. [Note that a lumber mill is not one of the 28 named source categories under PSD.] Augusta Lumber Mill is an existing major source under PSD. A PSD review is also required in order to dissolve any PSD avoidance limit. In 1995, this facility accepted a limit on two existing kilns (KD02 and KD03) to avoid PSD review for new kiln KD01. To dissolve that limit, the PSD significant emission rates apply in assessing PSD applicability for the installation of kiln KD01 in 1995. Based on the information in various tables above, Augusta Lumber Mills' proposal to increase production capacity is classified as a PSD major modification for volatile organic compounds.

The PSD regulations require that any major stationary source or major modification subject to the regulations meet the following requirements:

- Application of Best Available Control Technology (BACT) for each regulated air pollutant that would be emitted in significant amounts (significant levels);
- Analysis of the ambient air impact;
- Analysis of the impact on soils, vegetation, and visibility;
- Analysis of the impact on Class I areas; and
- Public notification of the proposed modification in a newspaper of general circulation.

Emission Limitation: Georgia Rule 391-3-1-.02(b)(7) incorporates and adopts by reference, among other things, the definition of BACT in 40 CFR 52.21(b)(12). BACT, as defined in 40 CFR 52.21(b)(12), means:

An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under [the]Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs,

determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of [BACT] result in emissions of any pollutant, which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. If the Administrator determines the 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 [BACT]. 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.

Federal Rule – 40 CFR 64 – Compliance Assurance Monitoring

Applicability: 40 CFR 64, *Compliance Assurance Monitoring* applies to pollutant specific emission units (PSEUs) as defined in the subpart. PSEUs are units for which there exists an emission standard for which there is a Part 64 control device and where the pre-control potential emission rate is equal to or greater than 100 percent of the major source threshold. The frequency of data collection under Part 64 depends on whether the controlled potential to emit exceeds 100 tons per year, in which case it is considered to be a "large PSEU."

Pre-control potential emission rates of only one pollutant VOC from each kiln (PSEU) are equal to or greater than 100 percent of the major source threshold; however, kilns are also without any control devices. Therefore, CAM is not applicable. The cyclones on the planer mill also are not subject to CAM rules because pre-control PTE PM for each cyclone is less than 100 tpy.

7.0 BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

The PSD regulation requires that BACT be applied to all regulated air pollutants emitted in significant amounts. Section 169 of the Clean Air Act defines BACT as an emission limitation reflecting the maximum degree of reduction, which the permitting authority on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such a modification through application of production processes and available methods, systems, and techniques. In all cases BACT must establish emission limitations or specific design characteristics at least as stringent as applicable New Source Performance Standards (NSPSs). In addition, if EPD determines there is no economically reasonable or technologically feasible way to measure the emissions to enforce an emission standard, it may require the source to use a design, equipment, work practice or operations standard or combination thereof, to reduce emissions of the pollutant to the maximum extent practicable.

EPD uses the top down BACT analysis approach as described in the Draft New Source Review Workshop Manual (Manual), dated October 1990, published by the United States Environmental Protection Agency (US EPA). One critical step in the BACT analysis is to determine if a control option is technically feasible. If a control is determined to be infeasible, it is eliminated from further consideration. The Manual applies several criteria for determining technical feasibility. The first is straightforward. If the control has been installed and operated by the type of source under review, it is demonstrated and technically feasible.

For controls not demonstrated using this straightforward approach, the Manual applies a more complex approach that involves two concepts for determining technical feasibility: availability and applicability. A technology is considered available if it can be obtained through commercial channels. An available control is applicable if it can be reasonably installed and operated on the source type under consideration. A technology that is available and applicable is technically feasible.

The Manual provides some guidance for determining availability. For example, a control is generally considered available if it has reached the licensing and commercial sales stages of development. However, the Manual further provides that a source would not be required to experience extended time delays or resource penalties to allow research to be conducted on new technologies. In addition, the applicant is not expected to experience extended trials learning how to apply a technology on a totally new and dissimilar source type. Consequently, technologies in the pilot scale testing stages of development are not considered available for BACT.

The Manual also requires available technologies to be applicable to the source type under consideration before a control is considered technically feasible. For example, deployment of the control technology on the existing source with similar gas stream characteristics is generally sufficient basis for concluding technical feasibility. However, even in this instance, the Manual would allow an applicant to make a demonstration to the contrary. For example, the applicant could show that unresolved technical difficulties with applying a control to the source under consideration (e.g., size of the unit, location of the proposed site and operating problems related to the specific circumstances of the source) make a control technically infeasible. A demonstration of technical infeasibility is ultimately based on a technical assessment considering physical, chemical and engineering principles, and/or imperial data showing that the technology would not work on the emissions unit under review, or that unresolvable technical difficulties would preclude the successful deployment of the technique.

According to the Environmental Appeals Board (See In re Kawaihae Cogeneration Project, 7 E.A.D. 107 at page 1996, EAB 1997), the section on "collateral environmental impacts" of a proposed technology has been interpreted to mean that "if application of a control system results directly in the release (or removal) of pollutants that are not currently regulated under the Act, the net environmental impact of such emissions is eligible for consideration in making the BACT determination." The Appeals Board continues, "The Administrator has explained that the primary purpose of the collateral impacts clause 'is...to temper the stringency of the technology requirements whenever one or more of the specified collateral impacts – energy, environmental or economic - renders the use of the most effective technology inappropriate." Lastly, the Appeals Board states, "Unless it is demonstrated to the satisfaction of the permit issuer that such unusual circumstances exist, then the permit applicant must use the most effective technology."

The five steps of a top-down BACT review procedure as identified by United States Environmental Protection Agency per BACT guidelines are listed below:

Step 1:	Identify all control technologies
Step 2:	Eliminate technically infeasible options
Step 3:	Rank remaining control technologies by control effectiveness
Step 4:	Evaluate most effective controls and document results
Step 5:	Select BACT

Now that the PSD BACT standards have been defined, the next step is to review the remaining applicable requirements. The following paragraphs of this section address VOC emissions from the new kiln and the proposed method to establish VOC emission limitations that represent BACT.

8.0 BACT REVIEW – LUMBER DRYING KILNS IN COMBINATION WITH BURNERS

The energy system exhausts to the atmosphere through the kilns and therefore a BACT review for the kilns in combination with the energy system was performed. The energy system/kilns combined uncontrolled exhaust stream, discharged through kiln vents, consists of wood dust, mineral dust, aerosols of organic substances, aerosols of mineral salts, ash, combustion gases, and products of incomplete combustion.

The aerosol portions include condensable PM and some VOCs and these aerosol portions leave the uncontrolled stack as a vapor but condense at normal atmospheric temperatures to form liquid particles or mist that creates a visible blue haze. Both the VOCs and condensable PM are primarily compounds evaporated from the wood in the kilns, with a minor constituent being combustion products. Operational factors affecting VOC emissions include wood species, the "green nature" of the wood processes, and kiln operating temperature.

The Augusta Lumber Mill has identified available control technologies by reviewing the EPA's RBLC (RACT/BACT/LAER clearinghouse) database. They found a total of 24 determinations made for lumber mills and the furniture industry, which utilize kilns for drying. None of the kilns used add-on controls. Table 6 lists the determinations.

Table 6

Facility Name	RBLC ID	State	Date Permit Issued	Control Requirement	VOC Emission Limit (lb/Mbf)	Notes
Bowater, Inc./Albertville Sawmill	AL-0195	AL	6/4/03	No (P)	7.0	Retroactive PSD
Weyerhaeuser Company	AL-0157	AL	10/2/97	No	4.52	BACT-PSD
Weyerhaeuser Company	AL-0079	AL	10/28/94	No	4.52	Retroactive PSD
Gulf States Paper Corp.	AL-0122	AL	10/14/98	No	5.48	BACT-PSD
Georgia Pacific Corp.	AR-0062	AR	11/7/02	No (P)	-	Limit in lb/charge
West Frazier (South), Inc.	AR-0065	AR	11/7/02	No	3.5	BACT-PSD
International Paper Company/ Leola Lumber Mill	AR-0064	AR	11/1/02	No	-	Limit in lb/charge

Bearden Lumber Company	AR-31	AR	6/8/98	No	3.5	-
Potlatch-Ozan Unit	AR-0046	AR	3/8/01	No	3.5	BACT-PSD
Freeman/Bibler Bros.	AR-0032	AR	11/24/98	No (P)	3.5	Retroactive PSD
Champion International Corp.	L-0138	FL	9/15/99	No	-	Control Estimate $7,051/ton
Willamette Industries, Inc.	LA-0116	LA	8/18/98	No	-	Retroactive PSD
Elliot Sawmill Company	SC-0085	SC	5/23/04	No	4.5	LAER Determination
New South Lumber Company	SC-0090	SC	9/5/03	No	4.2	LAER Determination
New South Lumber Company	SC-0082	SC	3/7/03	No	4.2	LAER Determination
Collum's Lumber Mill	SC-0059	SC	4/8/02	No	-	LAER Determination
Charles Ingram Lumber Company	SC-0070	SC	8/15/01	No/(P)	-	LAER Determination
Chesterfield Lumber Comp.	SC-0050	SC	4/10/00	No	3.5	LAER Determination
Willamette-Chester Division	SC-0052	SC	9/30/99	No	3.8	BACT-PSD
International Paper Company	MS-0048	MS	9/5/01	No	-	LAER Determination
Weyerhaeuser	MS-0054	MS	12/28/00	P	4.2	Retroactive PSD
Weyerhaeuser Company	MS-0035	MS	8/27/97	No	4.0	-
Hankins Lumber Company	MS-0034	MS	9/24/96	No	3.6	BACT-PSD

Vaughan Furniture Company	VA-0237	VA	8/28/96	No	-	-

Note: P = Good operating practices, routine equipment inspection, record keeping for operation of kilns.

The Augusta Lumber Mill identified available control technologies by reviewing the EPA's RACT/BACT/LAER Clearinghouse (RBLC) database for the furniture industry as indicated above; however, the Division's search of clearinghouse data for lumber drying kilns (Code 30.008) indicated 25 facilities with lumber drying kilns. Note that 18 facilities are common out of 25 listed in Table 6; the additional 7 facilities are listed in Table 7 below.

Table 7

Facility Name	RBLC ID	State	Date Permit Issued	Control Requirement	VOC Emission Limit (lb/Mbf)	Notes
Macmillan Blowedel Packaging	AL-0119	AL	5/28/98	No	4.52	BACT-PSD
Potlatch Corporation	AR-0073	AR	9/8/95	No	-	BACT-PSD
Deltic Timber Corp.-Waldo Unit	AR-0080	AR	1/12/05	No	3.5	BACT-PSD
Rayonier, Inc.-Swainsboro	GA-0080	GA	11/5/98	P	-	BACT-PSD
Weyerhaeuser Co.-Wright City Mill	OK-0061	OK	3/15/95	No	-	BACT-PSD
Weyerhaeuser Co.-Wright City Mill	OK-0081	OK	12/10/96	No	-	Limit in lb/hour
Weyerhaeuser Co.-Wright City Mill	OK-0082	OK	6/19/98	No	-	BACT-PSD

Note: P = Good operating practices, routine equipment inspection, record keeping for operation of kilns.

The RBLC search results as provided in Tables 6 and 7 indicate that the operation of the kilns without VOC controls is the only economically feasible approach and is consistent with approved industry practices for other new kiln projects. However, it is indicated that a number of PSD determinations require Good operating practices, routine equipment inspection, recordkeeping" and included BACT emission limits based on a Method 25A test on the kilns. The Augusta Lumber Mill has not proposed any good operating practices for their kilns, in their application. However, the facility agreed to include "Work

Practice Standards" conditions proposed by the Division for the efficient operation of the kilns, by their e-mail dated November 16, 2005.

Top-Down BACT Alternatives Review: Common VOC control methods are:

1. Carbon Adsorption,

2. Incineration: Thermal, Catalytic, and regenerative oxidizer (RTO)

The major disadvantages that would be posed for the above common VOC control methods are as follows:

Carbon Adsorption: Carbon adsorption would not be practical because of the high moisture content of the exhaust air from the kilns.

Incineration: An incinerator would be excessively expensive to build and operate because of the high moisture content, high flow rate, low VOC concentration, and low exit temperature of the exhaust air. Essentially all of the heat needed to achieve oxidation temperature would have to be furnished by combustion of an auxiliary fuel, which would be cost prohibitive with the high flow rates and moisture content involved. In addition, the fluctuations in exhaust air VOC concentrations and the start-and-stop nature of kiln operations are not well suited to control by incineration.

So far as is known, no direct fired (flue gas heated) or indirect fired (steam-heated) lumber dry kilns in the U.S. are equipped to control VOC emissions. This conclusion is based on the following: (1) a review of the U. S. Environmental Protection Agency (EPA) RACT/BACT/ LAER Clearinghouse which disclosed no entries for lumber dry kilns: (2) a review of National Council of the Paper Industry for Air and Steam Improvement (NCASI) documents, (3) a review of PSD documents received from South Carolina and Alabama, and (4) a review of recent lumber kiln projects in Georgia, all of which were permitted without VOC controls.

In conclusion, operation of the new kiln without VOC controls is the only economically feasible approach and is consistent with approved industry practices for other new kiln projects. The Augusta Lumber Mill is not planning to modify any other process equipment that can be subjected to BACT as per PSD requirements.

9.0 VOLATILE ORGANIC COMPOUNDS (VOC) BACT SUMMARY

Emissions of VOCs (primarily terpenes) will increase as a result of the increased kiln throughput at the Augusta Lumber Mill. These emissions result from the drying of green wood. The net increase in potential VOC emissions is projected to be 53.0 tpy. Because this increase exceeds the PSD significance level for VOC (i.e., 40 tpy), affected VOC emissions sources must apply BACT.

BACT for Kiln #1 (retroactive PSD) and Kilns # 2 and 3 have been shown to be operating the kilns without add-on control devices. As illustrated in Tables 6 and 7, there have been no instances in which air emissions controls were required for a lumber drying kiln, either as a BACT or LAER requirement. For the facility in which the cost of control was evaluated (FL-0138), the resulting cost of control of $7,051 per ton was judged to be not economically feasible. This implies that, although there are add-on equipment that can control VOC emissions from lumber drying kilns, it is cost prohibitive to require such controls.

EPA approved emission factors for emissions from lumber drying kilns have not been finalized at present; this work is in progress. Based on the initial Title V Permit and modifications issued, VOCs from drying southern yellow pine lumber is currently estimated to be at 3.8 lbs VOC/1000 board feet for direct fired lumber kilns. This emission factor was deemed acceptable for regulatory applicability purposes. However, the Augusta Lumber Mill need to reevaluate the compliance status of this source with respect to applicable air regulatory requirements after final publication of EPA approved emission factor and, if requested, submit compliance documentation to the Division.

As this is the case, BACT for all the three kilns (retroactive BACT for kiln No. 1) at the Augusta Lumber Mill is “No Control” with “Good Operating Practice.” The uncontrolled VOC emissions will continue to be estimated with an emission factor of 3.8 lbs/MBF, until EPA approved AP-42 emission factors are published. [Note that the facility has proposed uncontrolled emission rate of 3.6 lbs/MBF, which is not acceptable, as indicated earlier.] The facility has reported a maximum production capacity of 157.96 MMBF/yr for all three kilns, and has requested for 157 million board feet per year production. Thus this permit amendment allows an increase of the production limit on the lumber drying kilns # 1, 2, and 3 from 148.5 MMBF to 157.0 MMBF per year.

Based on information provided in the Augusta Lumber Mill's permit application, the Permittee will limit the plant lumber drying capacity to 157 MMBF/yr and to operate the modified kilns without air pollution control devices, but with good operating practice. The Division believes that this determination is consistent with recent BACT determinations.

10.0 AMBIENT AIR QUALITY REVIEW

10.1 General

PSD requires a demonstration that the allowable emissions from the proposed source, in conjunction with all other applicable emissions increases or decreases, will not cause or contribute to a violation of:

1. Any National Ambient Air Quality Standard (NAAQS) in any air quality control region (AQCR); or

2. Any applicable maximum allowable increase over the baseline concentration in any area (i.e., PSD Increment).

For the Augusta Lumber Mill's proposed lumber dry kiln addition, only emission increases of VOC exceed the significant emission levels established by the PSD regulation. Unlike the other criteria pollutants, there is no established NAAQS for the specific chemical pollutants emitted at the source. Rather, VOCs are recognized as precursor compounds that contribute to the secondary atmospheric formation of the criteria pollutant, ozone (O_3).

Since the Augusta Lumber Mill is outside the Atlanta ozone non-attainment area, EPD does not require an ambient air quality impact analysis from VOC sources regarding the secondary formation of O_3. Therefore, the Augusta Lumber Mill did not conduct dispersion modeling analysis for O_3 impacts from this facility.

10.2 Monitoring

As Georgia EPD does not require an ambient air quality analysis for O_3 by sources of VOC, no background O_3 concentration needed to be estimated for the purposes of this PSD application.

10.3 Modeling

As indicated above, dispersion modeling was not required. So, EPD did not evaluate the impact of the proposed Augusta Lumber Mill project on O_3 concentrations in Richmond County. The facility is subject to the Georgia Air Toxics Guideline. However, the modeling analysis, which was conducted for a previous application as indicated in Section 11.0, demonstrated that this modification would comply with the toxic guidelines.

10.4 Increment Consumption

In 1977, EPA promulgated PSD regulations related to the requirements for classifications, increments, and area designations as set forth by Congress. A PSD increment "is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant." The PSD regulations establish specific maximum allowable

increases in ambient concentrations (or increments) for PM_{10}, NO_x, SO_2, and CO for all areas in compliance with the NAAQS. All areas of the country are categorized as a function of overall use. The regulations were designed to prevent significant air quality deterioration by specifying allowable incremental changes in PM_{10}, NO_X, SO_2 and CO concentrations within each area category. EPA has established three air quality classifications as a function of land use:

1. Class I Areas - Those areas where almost any deterioration of current air quality is unwanted, and little or no industrial development is normally allowed (e.g., national parks, wilderness areas, etc.);

2. Class II Areas - Those areas where moderate, well-controlled energy or industrial growth is desired without air quality deterioration up to the NAAQS (all attainment areas that are not Class I areas were originally designated as Class II areas); and

3. Class III Areas - Those areas where substantial energy or industrial development is intended and where modest increases in ambient concentrations above Class II increments, but below the NAAQS, would be allowed (designation to Class III must follow strict redesignation procedures).

The current federal PSD increments (μg/m3) for different area classifications are shown in Table 8. Class I increments are the most stringent, allowing the smallest amount of air quality deterioration, while the Class II increments allow moderate deterioration. Georgia EPD has adopted the EPA class designations and allowable PSD increments for TSP, SO2, and NO2. There are no Class III PSD areas currently designated

Richmond County and all other attainment areas in Georgia are designated as Class II areas. Because no Federal increments are established for O_3, increment consumption is not evaluated for VOC sources.

10.5 Classification of Ambient Air Quality

The 1970 Amendments to the CAA gave the EPA specific authority to establish minimum standards for air quality that all states would be required to achieve. These standards were developed in order to protect the public health (primary standards) and welfare (secondary standards). The federally promulgated standards, and similar standards adopted by the State of Georgia, are presented in Table 9. Areas of the country that have ambient concentrations consistently less than a standard are designated as "attainment areas," while those where monitoring indicates air quality is worse than standards are known as "nonattainment areas." The designation of an area has particular importance for a proposed project as it determines the type of permit review the application will undergo.

Major new sources or major modifications to existing sources located in attainment areas are required to obtain Prevention of Significant Deterioration (PSD) permits prior to initiation of construction. Similarly sources located in nonattainment areas, or those which adversely impact such areas, must undergo more stringent New Source Review (NSR). In

either case it is necessary, as a first step, to determine the air quality classification of a project site.

Table 8
PSD Increments and Significant Impact Levels

Pollutant	Averaging Time	PSD Increments (µg/m3)		Significant Impact Levels
		Class I	Class II	
PM	Annual Geometric Mean	5	19	1
	24-hour Maximum	10	37	5
PM_{10}	Annual Arithmetic Mean	4	17	1
	24-hour Maximum	8[a]	30[a]	5
SO_2	Annual Arithmetic Mean	2	20	1
	24-hour Maximum	5	91	5
	3-hour Maximum	25	512	25
CO	8-hour Maximum	NA	NA	500
	1-hour Maximum	NA	NA	2,000
NO_2	Annual Arithmetic Mean	2.5	25	1

Source: Federal Register, Vol. 43, NO. 188, June 19, 1978; 40CFR50; 40CFR52.21; Chap. 335-3-14-.04, A.A.C, and new source review workshop manual.
a: not to be exceeded more than once a year.
Note: Particulate Matter (TSP) = total suspended particulate matter.
Particulate Matter (PM-10) = particulate matter with aerodynamic diameter =10 µm
µg/m3 = micrograms per cubic meter.
NA = Not applicable; i.e., no standard exists.

Table 9
National and State Ambient Air Quality Standards (µg/m3)

Pollutant	Averaging Period	EPA Standards		Georgia Standards
		Primary Standard	Secondary Standard	
PM_{10}	24-hour (1)	150	150	150
	Annual	50	50	50
SO_2	3-hour (3)	-	1,300	1,300
	24-hour (3)	365	-	365
	Annual	80	-	80
CO	1-hour (3)	40,000	-	40,000
	8-hour (3)	10,000	-	10,000
NO_2	Annual (2)	100	100	100
O_3	1-hour (3)	235	235	235
	8-hour (3)	0.08 (ppm)	0.08 (ppm)	0.08 (ppm)

Sources: 40CFR50; 36FR22384 and Georgia Air Quality Rules
(1) Not to be exceeded on more than 3 days over 3 years,
(2) Never to be exceeded, and
(3) Not to be exceeded more than once per year.

Table 10
Classification of Richmond County For Each Criteria Pollutant

Carbon Monoxide	Unclassifiable/Attainment
Oxides of Nitrogen	Unclassifiable/Attainment
Sulfur Dioxide	Better than Standards
Particulate Matter (PM-10)	Not Designated
Total Suspended Particulate	Better than Standards
Ozone	Unclassifiable/Attainment

Sources: 40 CFR 81.300, 1991
FR56694

The NAAQS are established by the Clean Air Act to protect human health and welfare and they must be attained and maintained. These standards are applicable to all AQCR's and are compared to measured ambient air quality concentrations to determine an AQCR's attainment classification. The primary NAAQS for O_3 is 0.12 ppm or 235 micrograms per cubic meter of air ($\mu g/m^3$), one-hour average.

The 1990 CAA Amendments called for a review of the ambient air quality of all regions of the United States. States were required to file with the EPA by March 15, 1991 designations of all areas as attainment, nonattainment, or unclassifiable. The EPA was then to issue this list of area classifications. The current classification of Richmond County is listed in Table 10 for each criteria pollutant.

10.6 Impact on Class I areas

An ambient air quality impact analysis must be performed for a proposed major source or major modification subject to PSD for each pollutant for which the increase in emissions exceeds the significant emission rate (Table 2). The main purpose of the air quality analysis is to demonstrate that emissions emitted from the proposed new major stationary source, in conjunction with other applicable emissions from existing sources (including secondary emissions from growth associated with the new project), will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) or PSD increment in a Class I or Class II area. NAAQS exist for NO_2, CO, PM_{10}, SO_2, Ozone (O_3), and lead (P_b). PSD increments exist for SO_2, NO_2, and PM_{10}.

The PSD regulations specifically provide for the use of atmospheric dispersion models in performing the impact analysis, which is used for determining compliance with NAAQS and PSD increments. Designated EPA models must normally be used in performing the impact analysis. Specific applications for other than EPA approved models require EPA's consultation and prior approval. Guidance for the use and application of dispersion models is presented in the EPA publication Guideline on Air Quality Models (EPA 1993). The source impacts analysis for criteria pollutants may be limited to only the new or modified source, if the net increase in impacts due to the new or modified source is below significance levels, as presented in Table 11.

Compliance with any NAAQS is based upon the total estimated air quality impact from all possible sources, which is the sum of the ambient estimates resulting from existing sources of air pollution (modeled source impacts plus measured background concentrations) and the modeled ambient impact caused by the applicant's proposed emission increase and associated growth. It is important to note that the air quality cannot be allowed to deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed.

As previously stated, a review of Table 5 indicates that the project will be significant for VOC only. An exceedance of the significance level would generally indicate that dispersion modeling be conducted for the significant pollutant. In the case of VOC, the national and state air quality standards are expressed as ozone and not VOC, there is no PSD increment established for either ozone or VOC. Therefore in cases such as this, where the only pollutant proposed to be emitted in significant quantities is VOC, no dispersion modeling is required.

PSD policies require that sources located within 200 kilometers (km) of a Class I area be evaluated for possible significant impact on that area. No Class I areas are located within 200 km of the Augusta Lumber Mill. Note that the Wolf Island Wilderness Area and Okefenokee Wilderness Area are beyond 200 km of this facility. Therefore, EPD concludes that the expanded facility operation will not significantly impact any Class I area.

11.0 HAZARDOUS AIR POLLUTANT/AIR TOXIC REQUIREMENTS

Regulations that have been developed to control emissions of so-called hazardous air pollutants (HAPs) are the NESHAPs, initially codified in 40 CFR Part 61 only. This part contains a listing of those pollutants that have been designated as being hazardous along with standards applicable to specific industries. Unlike the NSPS, NESHAPs are applicable to both new and existing sources that emit pollutants regulated by this part.

The 1990 CAA Amendments significantly expanded the number of HAPs to be regulated. Under the Amendments, 189 (revised to 187) compounds or classes of compounds are to be regulated. Maximum Achievable Control Technology (MACT) standards are to be applied to sources with controlled HAPs emissions of 10 tpy of any single compound or 25 tpy or more of all 187 regulated HAPs in combination. These requirements are codified in 40 CFR 63.

The Plywood and Composite Wood Products (PCWP) NESHAP, 40 CFR Part 63 Subpart DDDD, published in the Federal Register (Vol. 69, No. 146/Friday, July 30, 2004), indicates that the MACT is applicable to sawmills with lumber kilns (SIC # 2421) which are major for HAPs. This facility is major for HAPs and therefore MACT is applicable. The provisions of 40 CFR 63, Subpart DDDD include no control requirements for lumber kilns. However, the rule indicates that facilities with non-colocated lumber kilns (i.e., lumber kilns located at stand-alone kiln-dried lumber manufacturing facilities or at any other type of facility) that are classified as major sources of HAP must submit an initial notification form, by January 26, 2005. Note that the Permittee already submitted the required initial notification on December 13, 2004.

The impacts of HAPs, along with other air toxics, must also be evaluated through dispersion modeling. The requirement to conduct dispersion modeling for air toxics is in the Georgia Air Toxics Guideline. A toxic air pollutant is defined as any substance, which may have an adverse effect on public health, excluding any specific substance that is covered by a State or Federal ambient air quality standard. The impact is evaluated by comparing the modeled results to a threshold limit value for a given air toxic taking into consideration a safety factor.

Air toxic modeling was conducted as part of the permit application that was prepared in August 2003 for the permitted curve saw project. The ISCST3 computer dispersion model was used to predict the maximum 24-hour and 15-minute average ground level concentration (referred to as MGLCs) for each pollutant in question. The permit application evaluated the impacts from the kilns using a worst-case analysis (air toxics emissions based on design rate of kilns). The results of that modeling demonstrated that the maximum impacts would be well below the acceptable ambient concentrations (AACs). Note that the modeling report indicates that the maximum emission rates were calculated based on the emission factors and the minimum cycle time per kiln. The average hourly charging rate capacity for all kilns has been determined to be 23.26 MBF/hr or 203.75 million board feet (= 23.26 * 8760hr/yr * 1 million bf /1000MBF) based on the kiln capacities as give below:

Kiln #	Capacity MBF/batch	Cycle time (hrs)
1	70	17
2	140	22
3	230	18

The maximum theoretical capacity of 203.75 MMBF/yr, as estimated above, is much more than the presently indicated maximum capacity of 157 million board feet per year. According to the PSD application, the Permittee now believes that the production capacity of Kiln # 1 is 26.4 million and that of Kilns # 2 and # 3 is 131.5 million; total is therefore around 157.9 million. Since this permit application does not increase the capacity or production capability of the kilns at the Augusta Lumber Mill beyond that already evaluated, the previous air toxics modeling that was included in the application for the curve saw project suffices for this permit application review. [The production capacity requested is 157 million board feet]. The summary of the previous modeling results for air toxics, using worst-case assumptions, is provided in Table 11 below.

Table 11
Summary of Air Toxics Analysis

Air Toxic	Threshold Limit value (mg/m^3)	Acceptable Value (mg/m^3)	Max. Hour Conc. (mg/m^3)	Short Term Exposure Limit (mg/m^3)	Acceptable Value (mg/m^3)	Max. 15 min Conc. (mg/m^3)	Exceeds Guidelines (Yes/No)
Acetaldehyde*	-	-	-	45	4.5	0.007	No
Formaldehyde	-	-	-	0.37	0.037	0.008	No
Methanol	260	2.6	0.010	655	65.5	0.034	No

In accordance with Georgia Air Toxics Guideline the Acceptable Value has been determined based on dividing the TLV by 100 and the STEL by 10. The maximum 24-hour concentration is equivalent to multiplying the 1-hour concentration by 0.4 and the 15-minute concentration is equivalent to multiplying the 1hour concentration by 1.32.

*Acetaldehyde also has an Inhalation Reference Concentration (RfC) of 0.009 mg/m^3 that will not be exceeded.

Air toxic modeling done by the Permittee, as indicated above, was not done correctly. EPD believes that Screen 3 modeling should be done assuming that each kiln acts as a volume source and not as a point source. Using EPD's Screen 3 modeling results, the maximum ground level concentrations were calculated for 24 hours and 15 minutes and annual basis. Based on a review of the emission rate and toxicity levels of the compounds, formaldehyde was determined to be the "worst case" pollutant. Therefore, if formaldehyde passes Georgia's toxic guidelines, all other compounds should also pass. Because Screen 3 showed that the maximum ground level concentrations of formaldehyde, as calculated above, are less than the AAC on both 24-hour average and 15-minute average bases, the Permittee was not requested to redo the screen modeling.

Note: Thus far, all modeling of kilns done by EPD has shown that the emissions of toxic pollutants do not exceed any AAC. This plant is comparable with the Gilman Building Products, for which a draft permit was issued for the construction of a 3rd kiln in January 2006. The total kiln capacity of International Paper is 440 MBF/cycle, with a total lumber production capacity of 157.0 MMBF/yr. That of Gilman is 375 MBF/cycle with a total lumber production capacity of 149.25 MMBF/yr. According to the results of modeling the Gilman plant, the average hourly emission rate of formaldehyde will be 0.58 lb/hr as compared to 0.86 lb/hr for Augusta Lumber Mill. The ISCST results predict that the average annual formaldehyde concentrations off the plant site is 5.38 micrograms

per cubic meter (59 percent), which is less than the acceptable ambient concentration of 9 micrograms per cubic meter recommended by U.S. EPA on the Air Toxics website. The Screen modeling for Augusta Lumber Mill was therefore likely to pass easily as the height of vent for kilns is 8.9 m, as compared to 3.39m (Gilman), so it will have much better dispersion of air pollutants than Gilman.

12.0 ADDITIONAL IMPACT ANALYSIS

PSD regulations require an analysis of possible impairment to visibility and adverse impacts on soils and vegetation that may result from the new or modified source. Furthermore, these rules require a review of the air quality impact from adjacent commercial, residential, industrial or other growth that will accompany the affected facility. Other impact analysis requirements may also be required (such as Georgia's Toxic Guidelines).

12.1 Visibility

Visibility impairment is any perceptible change in visibility (visual range, contrast, atmospheric color, etc.) from that which would have existed under natural conditions. Poor visibility is caused when fine solid or liquid particles, usually in the form of volatile organics, nitrogen oxides, or sulfur oxides, absorb or scatter light. This light scattering or absorption actually reduces the amount of light received from viewed objects and scatters ambient light in the line of sight. This scattered ambient light appears as haze. Certain atmospheric conditions, such as temperature inversions, can exacerbate hazy conditions by trapping exhaust plumes and inhibiting rapid dispersion.

Another form of visibility impairment in the form of plume blight occurs when particles and light-absorbing gases are confined to a single elevated haze layer or coherent plume. Plume blight, a white, gray, or brown plume clearly visible against a background sky or other dark object, usually can be traced to a single source such as a smoke stack. Visibility impairment is of most concern for PSD Class I areas.

Since VOC is the only pollutant of concern in this proposed modification, no visibility screening analysis was performed. EPA's visibility impairment model, VISCREEN, considers primarily PM, NO_x, SO_x, and sulfate ion (SO_4^{-2}) formation in evaluating the visibility changes that may result from an increase in criteria air pollutant emissions near Class I areas. The theoretical basis of this model does not consider VOC to be a principal factor in visibility impairment.

Also, there are no Class 1 areas in the vicinity (within 200 kilometers) of the Augusta Lumber Mill; the nearest PSD Class I area, Wolf Island Wilderness Area and Cape Romain, are over 200 km from this facility. Therefore, a Class I area significant impact assessment is not required. EPD does not believe that this project will impair the visibility of any Class I area.

12.2 Soils and Vegetation

The EPA document, *A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals* (EPA 1980), lists threshold concentrations for injury to vegetation from exposure to several pollutants. In each case the emissions of each of these pollutants was essentially unchanged or decreased as a result of this proposed project. Therefore, no adverse impact to soils and vegetation in the project impact area should occur.

12.3 Regional Population Growth

EPD does not anticipate that the Augusta Lumber Mill project will result in additional commercial or industrial growth that would adversely impact the ambient air quality in the mill impact area.

There should be no incremental air pollution effects from regional population increases due to the proposed project. The number of new jobs generated by any physical changes that would be made for this project would easily be supported by the existing area infrastructure. In addition, significant permanent employment increases, as a direct result of the proposed project, are not likely to occur.

13.0 COMPLIANCE SUMMARY

International Paper Company's Augusta Lumber Mill will comply with all applicable statutes and regulations that address each of the modified and new sources that are part of this project. A review of the NSPS and NESHAPs (both Parts 61 and 63) identifies no NSPS or NESHAP that will apply to this project at this time. Dispersion modeling was not required other than air toxics modeling to comply with Georgia's EPD air toxics policy. This modeling analysis, which was conducted for a previous application, demonstrated that there would be no problems complying with the guidance. Finally, it was determined that the project would have no difficulty in complying with the State of Georgia's air quality regulations.

14.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

The permit requirements for this proposed modification are included in draft Permit Amendment No. 2421-245-0047-V-01-3.

Section 1.0 Facility Description

EPD has included a description of the project.

Section 3.0 Requirements for Emission Units

Condition No. 3.2.1 is deleted in order to remove the lumber drying restrictions on kiln # 2 and kiln # 3 (Emission Units ID No. KD02 and KD03). Note that kilns # 2 and #3 no longer need a PSD avoidance limit.

Condition No. 3.2.2 is modified to delete references to the PSD avoidance limits. As requested by the Permittee, a production rate of 157 million board feet per year (MBF/year) has been established as the maximum amount of kiln-dried lumber that can be produced by the three kilns combined.

Section 6.0 Other Record Keeping and Reporting Requirements

Condition No. 6.1.7 is modified to include reporting the exceedance of the work practice standards conditions Nos. 6.2.5 and 6.2.6 for lumber drying kilns.

Condition No. 6.2.3 is deleted because there are no longer PSD avoidance limits on kiln # 2 and kiln # 3 (Condition No. 3.2.1). This condition had required the Permittee to notify the Division if the total production of drying kilns #2 and #3 exceeded the production limit of Condition No. 3.2.1, which has also been deleted.

Condition No. 6.2.4 is modified to delete references to the PSD avoidance limits, and to establish a new production limit notification threshold of 13,083,333 MBF for three kilns (157 MMBF/yr * 1yr/12 months) during any month, in place of 12,375,000, for two kilns in view of modified Condition No. 3.2.2.

New Condition No. 6.2.5 requires the Permittee to develop and implement a work practice and preventive maintenance program for lumber drying kilns to assure efficient operation of the kilns.

New Condition No. 6.2.6 requires the Permittee to maintain operation and maintenance records related to work practice and preventive maintenance requirements for the kilns.

15.0 ATTACHMENTS

A. Draft PSD Permit

B. PSD Permit Application and Supporting Data

APPENDIX A: Draft PSD Permit

International Paper Company, Inc.-Augusta Lumber Mill (Richmond County), Georgia

Part 70 Operating Permit Amendment No. 2421-245-0047-V-01-3.

APPENDIX B: PSD Permit Application and Supporting Data

International paper Company, Inc.-Augusta Lumber Mill (Richmond County), Georgia

Contents include:

1. PSD/Title V Permit Application dated October 22, 2004, Received on October 25, 2005 as Application No. 15723.

2. Air Toxic Modeling Analysis previously submitted by the facility.

3. A letter dated May 31, 2005 submitted by the facility to provide additional information.

4. A Copy of e-mail dated Oct 27, 2005 received from the facility regarding air toxic modeling.

5. A Copy of e-mail dated Nov 16, 2005 received from the facility regarding work practice standard conditions for lumber drying kilns.