Georgia-Pacific

Palatka Pulp and Paper Operations
Consumer Products Division

P.O. Box 919
Palatka, FL 32178-0919
(386) 325-2001

September 29, 2003

Ms. Trina Vielhauer, Chief
Bureau of Air Regulations
State of Florida
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Georgia-Pacific Corporation
No. 4 Boiler and No. 4 Lime Kiln – MACT II Air Permit Application
DEP File No. 1070005-021-AC

Dear Ms. Vielhauer:

The attached is submitted in response to your letter received from the Department to Mr. Theodore Kennedy, dated June 27, 2003, requesting additional information to continue processing the request to obtain a Bubble Limit to meet the MACT II requirements, pursuant to 40 CFR 63.862.

If you have any questions, please contact me at (386) 329-0918.

Sincerely,

Myra J. Carpenter

Myra J. Carpenter
Environmental Superintendent

tk

Attachments

cc: W. M. Jernigan, Atlanta
S. D. Matchett, Atlanta
B. Mitchell
C. Kirts, NED
D. Wilson, EPA

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

September 25, 2003

0337515

Georgia-Pacific Corporation
Palatka Mill
P.O. Box 919
Palatka, Florida 32178-0919

Attention: Ms. Myra Carpenter

RE: NO. 4 BOILER AND NO. 4 LIME KILN -MACT II AIR PERMIT APPLICATION
DEP FILE NO. 1070005-021-AC

Dear Ms. Carpenter:

This letter is presented in response to the letter received from the Department of Environmental Protection (DEP) to Mr. Theodore Kennedy, dated June 27, 2003, requesting additional information to continue processing the request to obtain a Bubble Limit to meet the MACT II requirements, pursuant to 40 CFR 63.862. Golder Associates Inc. (Golder) on behalf of Georgia-Pacific (GP) has prepared the responses presented below, which have been organized and enumerated in the same manner as DEP's original letter.

Based on revisions to the original application, G-P will be resubmitting the MACT II air permit application and withdrawing the original submittal. Golder has prepared a revised application for G-P to submit to the DEP. The revised MACT II application addresses only particulate matter (PM) emissions (as a surrogate for HAP metals emissions), as this is the only pollutant regulated by MACT II for the Palatka Mill. G-P will address other pollutants emitted from the No. 4 Recovery Boiler (No. 4 RB) and the No. 4 Lime Kiln (No. 4 LK) as necessary through a separate submittal.

Comment 1:
In your applications for air construction (AC) permits, No. AC54-1925551/ PSD-FL-171, received February 13, 1991, and No. AC54-266676/PSD-FL-226, received March 7, 1995, for the No. 4 RB, the maximum flow rate was indicated as 210,000 dscfm, uncorrected, and under the Professional Engineering seal of Mr. David Buff. In Table 2, the flow rates in the years 1998 and 1999 seem to reflect this flow rate; however, the subsequent years of operation show that the flow rates are greater than these flow rates, with a couple of years, specifically 2000 and 2003, at flow rates greater than 15% of this value. Because of this noticeable difference and the increase in the flow rate from a previous maximum, please address the following issues:

a. **Please explain how you have been able to increase the flow rate that was considered the "maximum flow rate" when it was originally permitted for construction.**
b. **Have you ever modified or replaced any component of the No. 4 RB since it was installed? If so, please explain in detail and identify the specific changes made and include the affected dates.**
c. **Have you ever modified or replaced any component of the No. 4 RB's control system since it was installed? If so, please explain in detail and identify the specific changes made and include the affected dates.**
d. **Has the ID (industrial design) fan associated with the No. 4 RB's operation ever been modified or replaced? If so, please explain in detail and identify the specific changes made and include the affected dates.**
e. **If a physical modification did occur to the No. 4 RB and/or its control system, please explain in detail and provide the AC permit(s) that authorized the modification.**

Response 1:
Golder Associates Inc. (Golder) and GP have undergone an extensive review of past compliance test data and operational data for the No. 4 RB. Based on this review, it is our conclusion that the design flow for the boiler of 294,000 dscfm @ 8% O_2 is appropriate and should continue to be used as the basis of emission rates. The basis of this conclusion is explained in more detail below. It is also noted that the corrected, dry standard flow rate @ 8% O_2 is the appropriate flow rate to analyze, since all the permitted emissions for No. 4 RB are based on this flow rate.

The design flow rate for the No. 4 RB was presented as 210,000 dscfm @ 2.8% O_2 in the 1991 PSD permit application (see Attachment 1). This design flow rate, corrected to 8% O_2, was the basis of emission limits in this PSD permit (permit no. AC54-192550/PSD-FL-171; see Attachment 2). The calculation of the corrected design flow rate is shown below:

210,000 dscfm x (21- 2.8)/(21-8)= 294,000 dscfm corrected to 8% O_2

The No. 4 RB permitted operating rate in the 1991 PSD permit, and since that time, has been 5.04 MM lbs/day black liquor solids (BLS) (see Attachment 2).

In preparing the 1995 PSD permit application, stack test data for previous years were reviewed to determine if the design flow rate for No. 4 RB was still representative. These data are presented in the following table:

Stack Test Date	No. 4 RB Operating Rate (MM lb BLS/day)	Stack Flow Rate (dscfm)	Corrected Stack Flow Rate @ 8% O_2
1994	4.68	185,000 @ 4.2 % O_2	239,000
1993	4.75	194,000 @ 5.1 % O_2	237,300
1992	4.29	175,000 @ 7.8 % O_2	177,000

This review concluded that the previous design flow of 294,000 dscfm @ 8% O_2 was still valid (i.e., was conservatively high), and therefore was used in preparing the 1995 PSD application (see Attachment 3). This corrected flow rate was the basis of the subsequent PSD permit issued in 1995 (permit no. AC54-266676/ PSD-FL-226; see Attachment 4).

In Table 2 of GP's original MACT II application, actual measured stack flow rates were based on past compliance test data. All of these tests were conducted while operating at 4.5 MM lbs/day BLS or higher (i.e., at least 90 percent of permitted capacity). The compliance test data were reviewed for accuracy. For the 2003 test, it was found that the values were taken from a preliminary report and not the final report. The corrected values are shown in Table 2 of the revised MACT II application. The correct data for 2003 show an average gas flow rate of less than 294,000 dscfm @ 8% O_2.

For the year 2000, the only other test data which showed a flow rate higher than 294,000 dscfm @ 8% O_2, the data reported are correct based on the stack test report. However, it is noted from examination of Table 2 that beginning in the year 2000, the moisture content of the stack gases decreased significantly compared to previous years. Coincidentally, this year was also when GP started using a different stack testing firm. This same firm conducted the stack testing from the year 2000 through the year 2003. As shown, stack gas moisture contents were generally less, and in some cases significantly less, than previous moisture levels. The effect of these lower moisture levels is to increase the calculated stack gas flow rate in dscfm (since dscfm is calculated by using the measured stack velocity, calculating the acfm, and then adjusting for the moisture content and standard conditions).

The reasons for the lower measured moisture contents beginning in the year 2000 are not known. This could be an artifact of the measurement method, or normal variability of the method due to measurement inaccuracies. GP has made no changes to its recovery boiler operation that would account for such a

change in moisture content. Also, it is calculated that burning black liquor with 65% solids theoretically results in a stack gas with 20 percent moisture.

Even ignoring these inconsistencies in the historic moisture measurements, comparing the actual corrected flow rate for the April 11, 2000 test, presented in Table 2 in the attached revised application, with the corrected 294,000 dscfm @ 8% O_2, indicates that the corrected flow rate was actually only 2.8 percent higher than the design flow rate, as presented below:

(302,367 - 294,000)/294,000 x 100 = 2.8 % increase

This deviation is well within good engineering estimates and the accuracy of the testing methods

Prior to the April 11, 2000 test, the maximum measured corrected flow rate was about 252,000 dscfm @ 8% O_2. This is well below the design flow of 294,000 dscfm @ 8% O_2. Since that single test, the maximum measured flow rate has been 293,094 dscfm @ 8% O_2.

In conclusion, only during the one year and one test (i.e., April 11, 2000) was the actual flow rate for No. 4 RB higher than the design flow rate. As demonstrated above, this higher rate for year 2000 is only 2.8 % higher compared to the 15% stated by the Department. Furthermore, Table 2 includes the individual test runs from the compliance testing and the variability of flow rates within each compliance test. As shown, the variability in individual flow rates range as high as 8% (with the exception of one test, which showed 30% variation).

As demonstrated through the stack test data, No. 4 RB has operated at 90 percent of 5.04 MM lbs/day BLS during the compliance tests conducted since 1991. In summary, there is no upward trend in flow rate since 1991, just the normal variability associated with stack testing results. Therefore, items 1.b through 1.e of DEP's letter are not applicable.

As a result of these conclusions, corrected application pages for No. 4 RB using the design flow rate of 294,000 dscfm @ 8% O_2 are attached in the revised MACT II application. Also presented are corrected calculations using the design flow rate to establish the proposed bubble limits (see Table 4 of the revised application).

Comment 2:
In your application for an air construction (AC) permit, No. AC54-1925551/ PSD-FL-171, received February 13, 1991, for the No. 4 LK, the maximum flow rate was indicated as 24,200 dscfm, uncorrected, and under the Professional Engineering seal of Mr. David Buff. In Table 2, the flow rates for all of the years shown are considerably greater than this flow rate. Because of this noticeable difference and the increase in the flow rate from a previous maximum, please address the following issues:

a. **Please explain how you have been able to increase the flow rate that was considered the "maximum flow rate" when it was originally permitted for construction.**
b. **Have you ever modified or replaced any component of the No. 4 LK since it was installed? If so, please explain in detail and identify the specific changes made and include the affected dates.**
c. **Have you ever modified or replaced any component of the No. 4 LK's control system since it was installed? If so, please explain in detail and identify the specific changes made and include the affected dates.**
d. **Has the ID (industrial design) fan associated with the No. 4 LK's operation ever been modified or replaced? If so, please explain in detail and identify the specific changes made and include the affected dates.**
e. **If a physical modification did occur to the No. 4 LK and/or its control system, please explain in detail and provide the AC permit(s) that authorized the modification.**

Response 2:
The maximum flow rate stated as 24,000 dscfm by the Department is the uncorrected flow for the No. 4 LK. The design flow rate for the No. 4 LK was presented as 24,200 dscfm @ 4% O_2 in the 1991 PSD permit application (see Attachment 1). The calculation of the corrected design flow rate is as follows:

24,200 (21-4.0)/ (21-10) = 37,400 dscfm @ 10% O_2

The corrected flow rate was the basis of the emission limits in the 1991 PSD permit (permit no. AC54-192551/PSD-FL-171). The No. 4 LK permitted operating rate since the 1991 permit has been 82,986 lb/hr lime mud and 38,889 lbs/hr at 90-percent CaO (see Attachment 2).

In preparing the 1995 PSD permit application, stack test data for previous years was reviewed to determine if the No. 4 LK design flow rate was still representative. These data are presented in the following table:

Stack Test Date	Stack Flow Rate (dscfm)	Corrected Stack Flow Rate @ 10% O_2
1994	33,700 @ 6.4 % O_2	44,700
1993	32,000 @ 5.7 % O_2	44,500
1992	29,500 @ 6.4 % O_2	39,200

This review concluded that the previous design flow of 37,400 dscfm @ 10% O_2 was no longer appropriate. Therefore, the 1995 PSD application presented maximum flow rates of 56,000 acfm and 32,000 dscfm (both uncorrected) in the No. 4 LK emission unit information section of the application form (see Attachment 3). Although not specified on the application form, the 1993 stack test was the basis of the flow rates, and therefore the associated oxygen content was 5.7%. These uncorrected flow rates are equivalent to 44,500 dscfm @10% O_2, as shown below:

32,000 (21-5.7)/ (21-10) = 44,500 dscfm @ 10% O_2

However, in the 1995 PSD application, G-P elected to retain the same allowable PM mass emissions (in lbs/hr) for the No. 4 LK, as contained in the previous 1991 PSD permit. Therefore, the basis of the allowable emissions was still shown as 37,400 dscfm @ 10% O_2, even though this flow rate was no longer appropriate (permit No. AC54-266676/ PSD-FL-226; see Attachment 4). In other words, G-P was willing to accept the same lbs/hr PM limits that they previously had, although the stack flow rate had increased.

In Table 2 of GP's MACT II application, actual measured stack flow rates were based on past compliance test data. The compliance test data were reviewed for accuracy. Minor errors were found in Table 2, and these have been corrected, and are shown in Table 3 of the revised MACT II application attached. As shown, the 1998-2003 corrected flow rates are no greater than 44,500 dscfm @ 10% O_2. Therefore, this design flow rate remains valid. Therefore items 2.b. through 2.e. of DEP's letter are not applicable.

As a result of these conclusions, corrected application pages for the No. 4 LK using the 1995 design flow rate of 44,500 dscfm @ 10% O_2 are included in the revised MACT II application. Since the MACT II bubble limits are based on air flow, it is appropriate to use the correct air flow at this time.

Comment 3:
For the No. 4 RB, the value for the universal gas constant used in the calculations is inconsistent. In the calculations for TRS (total reduced sulfur) and SAM (sulfuric acid mist), the value used was 1545.3 ft-lbf/lb-mole-°R; and, for the rest of the calculations, the value used was 1545 ft-lbf/lb-mole-°R Please use one value for consistency purposes for all of the

calculations and recalculate the potential pollutant emissions and resubmit the appropriate application page that includes the emissions calculation.

Response 3:
Pollutants other than PM will be addressed in a separate application. The error in the universal gas constant is acknowledged. Revised application pages correcting the universal gas constant from 1,545.3 to 1,545 ft-lbf/lb-mole-°R will be included for the calculations of sulfuric acid mist (SAM) and total reduced sulfur (TRS) for the No. 4 RB under a separate application.

Comment 4:
Even though the particulate matter (PM) Best Available Control Technology (BACT) emissions limits for the Nos. 4 RB and LK were set on the basis of "gr/dscf", AC permit, No. AC54-266676/PSD-FL-226, established federally enforceable limits in gr/dscf (corrected to 8% O_2), lbs/hr and TPY for the No. 4 RB and AC permit, No. AC54-192551/PSD-FL-171, established federally enforceable limits in gr/dscf (corrected to 10% O_2), lbs/hr and TPY. The Bubble Plan requested by the application would relax the federally enforceable limits previously established. Since the relaxation of federally enforceable limits is being requested, which is a "modification" by definition; you are required to submit the appropriate emissions evaluation for all affected pollutants for PSD purposes pursuant to Rule 62-210.200, F .A.C., Definitions -Actual Emissions, and Chapter 62-212, F .A.C., Stationary Sources -Preconstruction Review. The average actual emissions value, in TPY, of each pollutant is to be compared to the future potential/allowable emissions, in TPY; and, if the net value is greater than the value(s) contained in Table 212.400-2, then please submit the appropriate application information to address the PSD New Source Review requirements of Rule 62-212.400(5), F.A.C.

Response 4:
Since the design air flow of 294,000 dscfm @ 8% O_2 for No. 4 RB is not changing, the permitted PM mass emission limit for No. 4 RB is not changing.

As previously described in response to Comment #2, a review made of the flow rates for the No. 4 LK concluded that the previous design flow of 37,400 dscfm @ 10% O_2 was revised to 44,500 dscfm @ 10% O_2 in 1995, although the basis of the permitted emissions was not revised. However, since the MACT II bubble limits are based on air flow, it seems appropriate to adjust the air flow rates to best represent actual conditions for the No. 4 LK, while maintaining the same BACT limit in terms of grain loading. Updating the air flow to current conditions does not change the BACT limit, but rather provides the basis for appropriately establishing the MACT II Bubble Limits with the most current data.

The No. 4 LK PSD permit (AC54-192551/PSD-FL-171), received February 13, 1991, states that the BACT limits for the No. 4 LK are in terms of grain loading (0.081 gr/dscf @ 10% O_2). An excerpt from the 1991 permit showing this determination is included in Attachment 2. Mass emissions were stated parenthetically, and were based on the design gas flow rate in the application.

Presented in Attachment 5 is a revised PSD applicability analysis assuming the No. 4 LK emissions were based on the higher design flow rate of 44,500 dscfm @ 10% O_2 in 1991. In 1991, PSD review was triggered for PM emissions. Shown in Table 1 of Attachment 5 are the revised future maximum PM emissions for the No. LK. The revised total annual PM emissions from all affected sources is shown in Table 2. The revised PSD applicability analysis for PM emissions, as well as the original PSD applicability, are shown in Table 3. This analysis shows that the PSD applicability for PM emissions would not have been affected if the higher gas flow for the No. 4 LK had been used.

The lbs/hr PM limits were established based on the flow rate available at the time and set as a permit limit. However, the revised air flow would not have changed the BACT determination of 0.81 gr/dscf @ 10% O_2. In addition, the air dispersion modeling analysis would not have resulted in a different determination.

Comment 5:
In the application section for the No. 4 RB, on page 16, the maximum dry standard flow rate is indicated as 325,677 dscfm. Yet, on page 19, the calculation for SAM used the actual volumetric flow rate of 447,000 acfm, when the standard is 0.81 ppmvd. In addition, the calculation for the emissions did not show the correction for moisture. Why did you use 860 °R instead of 528 °R for correcting the limit to standard conditions, specifically 68 °F? Please explain why the calculation methodology is different and, if appropriate, correct the calculation and resubmit the appropriate application page that includes the emissions calculation.

Response 5:
Pollutants other than PM will be addressed in a separate application.

Comment 6:
In the application section for the No. 4 RB, on page 19, the calculation for SO_2 (sulfur dioxide) emissions would have to be based on 37.5 ppmvd in order to get the answer that you present. Please explain how you arrived at the answer that was submitted. Please correct and resubmit the appropriate application page that includes the emissions calculation.

Response 6:
Pollutants other than PM and the averaging time for SO_2 for the No. 4 Recovery Boiler will be addressed in a separate application.

Comment 7:
For the proposed 40 CFR 63, Subpart MM MACT II Bubble Plan for the No. 4 RE and the No. 4 LK , you did not follow the requirements of 40 CFR 63.865(a), which requires that you use the average volumetric gas flow rates measured during the performance test to calculate the individual and overall PM limit. In Table 3, the application used a projected volumetric gas flow rate for each of these emissions units, which is unacceptable for the plan. If you still want to pursue a Bubble Plan, then please resubmit the proposed plan using the correct parameters; and, provide the calculations for all parts of the proposed plan.

Response 7:
The proposed 40 CFR 63, Subpart MM MACT II Bubble Plan for the No. 4 RB and No. 4 LK requires using the average volumetric gas flow rates measured during the performance test to calculate the individual and overall PM limit. However, the performance tests are not yet required to be performed. G-P's use of the projected volumetric gas flow rate is an acceptable method considering that the compliance date of the rule is March 13, 2004 and the facility has up to 180 days after the compliance date to conduct such performance tests. Using the projected volumetric flow rate in this application is no different than estimating parameters in any construction permit application that will require testing to confirm compliance. At the appropriate time, G-P will perform the required compliance testing and adjust, if necessary, the volumetric flow and PM bubble limits accordingly.

In regards to performance test requirements, 40 CFR 63.865(a)(vi) states: "After the Administrator has approved the PM emission limits for each kraft or soda recovery furnace, smelt dissolving tank and lime kiln, the owner or operator complying with an overall PM emission limit established in §63.862(a)(1)(ii) must demonstrate compliance with the HAP metals standard by demonstrating compliance with the approved PM emissions limits for each affected kraft or soda recovery furnace, smelt dissolving tank, lime kiln, using the test methods and procedures in paragraph (b) of this section."

Furthermore, 40 CFR 63.867(2)(b)(1), under the heading of additional reporting requirements for HAP metal standards states: "Any owner or operator of a group of process units in a chemical recovery system at a mill complying with the PM emission limits in §63.862(a)(1)(ii) must submit the PM emission limits determined in §63.865(a) for each affected kraft or soda recovery furnace, smelt dissolving tank, lime

kiln to the Administrator for approval. The emission limits must be submitted as part of the notification of compliance status required under subpart A of this part."

In addition, 40 CFR 63.867(2)(b)(2) states: "Any owner or operator of a group of process units in a chemical recovery system at a mill complying with the PM emission limits in §63.862(a)(1)(ii) must submit the calculations and supporting documentation used in §63.865 (a)(1) and (2) to the Administrator as part of the notification of compliance status required under subpart A of this part."

Based on the regulatory language, an applicant for a bubble permit must submit a notification and obtain approval of the bubble limits prior to performing testing.

Comment 8:
For the proposed 40 CFR 63, Subpart MM MACT II Bubble Plan for the No. 4 Smelt Dissolving Tanks (SDTs), you did not follow the requirements of 40 CFR 63.865(a), which requires that you use the average Black Liquor Solids (BLS) firing rate measured during the performance test to calculate the individual and overall PM limit. In Table 3 and for the No. 4 SDTs, the application states that the BLS used in the calculations were based on the permit limit of 105 tons/hr of BLS, which is unacceptable for the plan. If you still want to pursue a Bubble Plan, then please resubmit the proposed plan using the correct parameters; and, provide the calculations for all parts of the proposed plan.

Response 8:
See the response to Question 7 above. Performance tests under the MACT II rule are not yet required to be performed. Using the projected production rate in this application is no different than estimating parameters in any construction permit application that will require testing to confirm compliance. At the appropriate time, G-P will perform the required compliance testing and, if required, adjust the production rate and PM bubble limits accordingly.

Comment 9:
In the application section for the No. 4 LK, on page 16, the maximum dry standard flow rate is indicated as 45,853 dscfm, yet the emission calculations for CO (carbon monoxide), VOC (volatile organic compounds) and TRS, on page 19, use 45,833 dscfm. Please correct, recalculate, and resubmit the appropriate application page(s) for each pollutant; and, include the calculations.

Response 9:
Pollutants other than PM will be addressed in a separate application. The separate application will include the corrected flow rate to 44,500 dscfm @ 10% O_2 for the pollutants CO and VOC for the No. 4 LK. These corrections do not result in different calculated potential emissions.

Comment 10:
In the application section for the No. 4 LK, on page 19, the calculation for SO_2 emissions assumes a 50% removal efficiency through the venturi scrubber. What is the basis for the removal efficiency and has this value ever been proven through stack testing? If so, please provide the test results.

Response 10:
Pollutants other than PM will be addressed in a separate application.

Comment 11:
In the application section for the No. 4 LK, on page 19, the answer for the calculation for TRS emissions is not correct. Please correct and-resubmit the appropriate application page that includes the emissions calculation.

Response 11:
Pollutants other than PM will be addressed in a separate application.

Comment 12:
The use of statistics to establish unproven volumetric gas flow rates for the No. 4 RB and the No. 4 LK is not acceptable for the following reasons:

With regard to the use of a 95% confidence limit in Table 2. Volumetric Air Flow During Compliance Stack Tests, Georgia-Pacific, Palatka, Florida, the statistic used is invalid. The 95% confidence limit is applicable to data that meets the assumptions of a large number of normally distributed, random and independent samples. This sample size is too small for the normal distribution assumption. A sample of at least 30 would be needed. A small size alternative for a normally distributed data set would be to use a Student's t distribution. However, this set is not close enough to normal to do so.

Response 12:
The Student's t-distribution is a statistical method used for small samples that is codified in 40 CFR Part 60, Appendix C. As stated in Appendix C,

> "the following method shall be used to determine whether a physical or operational change to an existing facility resulted in an increase in the emission rate to the atmosphere. The method used is the Student's t test, commonly used to make inferences from small samples. Each emission test shall consist of n runs (usually 3) which produce n emission rates."

As with any statistical method, when dealing with a limited data set, the assumption of a normal distribution must be made. This infers that if enough samples could be obtained, the distribution would indeed follow the normal distribution.

Although the sample size may be too small for a normal distribution, the approach taken to establish the 95-percent confidence level is conservative. Using the Student's t-distribution method to calculate the 95-percent confidence level with a sample size of six would require a value of 2.571 ($t_{0.05}$) times the standard deviation versus the value of 2 used in Table 2 to determine the 95-percent confidence level. This would result in even greater flow rates for both the No. 4 RB and the No. 4 LK. It is concluded therefore that the method used in the MACT II application is a reasonable estimate of the maximum expected gas flow rates from the sources.

Although the methods used to establish maximum air flows are appropriate, as described above, G-P is now proposing to maintain the current design gas flow rates of 294,000 dscfm @ 8% O_2 for the No. 4 RB and 44,500 dscfm @ 10% O_2 for the No. 4 LK to establish the Bubble Limits, as described in the responses to Comments #1 and #2.

Comment 13:
For each emissions unit, specifically the No. 4 RB and the No. 4 LK, please justify the use of a flow rate well in excess of any previously demonstrated flow rate, especially in light of the previously submitted applications and performance tests conducted for these emissions units.

Response 13:
The flow rates utilized for the No. 4 RB and the No. 4 LK in the MACT II application as described in response 1 and 2 of this letter are well within the range of the estimated maximum volumetric flow estimated in the air construction permit applications (see responses 1 and 2).

Comment 14:

It appears that the calculations used to correct the dscfm to the 8 or 10% oxygen is incorrect. It looks like the following was used:

Corrected dscfm = dscfm x [(21-%O_2 measured)/(21-%O_2 desired)] instead of:
Corrected dscfm = dscfm x [(21-%O_2 desired)/(21-%O_2 measured)]

Response 14:
The Department would be correct if pollutant concentrations were being corrected. However, the calculation used to correct the gas flow rate in dscfm to 8 or 10% O_2 is correct and consists of the following:

Corrected dscfm= dscfm x [(21-%O_2 measured)/ (21-% O_2 corrected)]

Example:

180,000 dcfm @ 3.40 % O_2 corrected to 8% O_2

Corrected dscfm = 180,000 (21-3.40)/(21-8)= 243,692 dscfm

As a logical check on the use of the above equation, as oxygen is increased, the gas flow rate will increase, and therefore the oxygen corrected flow rates presented in Table 2 of the original application are correct. This equation has also been used in Tables 2 and 3 of the revised MACT II application.

If you have any questions concerning this information, please contact me at (352) 336-5600.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff
9/25/03

David Buff, P.E., Q. E. P.
Principal Engineer
Florida P. E. # 19011
SEAL

BS/DB/jkw

Attachments

Y:\Projects\2003\0337515 Georgia Pacific\4\4.1\C092203.doc

ATTACHMENT 1

EXCERPTS FROM 1991 PSD APPLICATION

Note: The following three pages were from the 1991 PSD Report contained in the 1991 PSD Application.

I. No. 4 Recovery Boiler

A. PM(TSP)

Maximum emissions based on NSPS of 0.044 gr/dscf at 8% O_2.
Maximum air flow from boiler: 210,000 dscfm at 2.8% O_2.
Equate maximum level at 8% O_2 to actual O_2.

$C_{corr} = C_{act}\ [(21-x)/(21-y)]$

x = corrected O_2 = 8%

y = actual O_2 = 2.8%

$C_{corr} = C_{act}\ [(21-8)/(21-2.8)]$

$= 0.714\ C_{act}$

$C_{act} = 1.40\ C_{corr}$

$C_{act} = 1.40\ (0.044) = 0.0616$ gr/dscf at 2.8% O_2

$$PM = \frac{210{,}000\ ft^3}{min} \times \frac{0.0616\ gr}{ft^3} \times \frac{1\ lb}{7{,}000\ gr} \times \frac{60\ min}{hr} = 110.9\ lb/hr$$

110.9 lb/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 485.7 TPY

B. PM10

To be conservative, PM10 emissions are assumed equal to PM(TSP) emissions.

C. SO_2

Annual SO_2 emissions will be limited to 75 ppm (dry) at 8% O_2.
Actual flow from boiler = 210,000 dscfm at 2.8% O_2.
Equate maximum level at 8% O_2 to actual O_2.

$C_{corr} = C_{act}[(21-x)/(21-y)]$
x = corrected O_2 = 8%
y = actual O_2 = 2.8%

$C_{corr} = C_{act}[(21-8)/(21-2.8)]$
$= 0.714\ C_{act}$

$C_{act} = 1.40\ C_{corr}$

$C_{act} = 1.40\ (75.0) = 105.0$ ppmvd at 2.8% O_2

$m = PV/RT$

$$SO_2 = \frac{2{,}116.8\ lb_f}{ft^2} \times \frac{210{,}000\ ft^3}{min} \times \frac{105.0}{10^6} \times \frac{64\ lb_m\text{-}°R}{1{,}545\ ft\text{-}lb_f} \times \frac{1}{528°R} \times \frac{60\ min}{hr}$$

II. No. 4 Smelt Dissolving Tank

A. PM(TSP)

Maximum based on process weight table: $E = 17.31\ P^{0.16}$
Maximum smelt input = 85,890 lb/hr = 42.95 TPH
$E = 17.31\ (42.95)^{0.16} = 31.6$ lb/hr
31.6 lb/hr x 8,760 ÷ 2,000 = 138.4 TPY

B. PM10

PM10 is 89.5% of PM emissions.
31.6 lb/hr x 0.895 = 28.3 lb/hr
138.4 TPY x 0.895 = 123.9 TPY

C. SO_2

Factor is 0.2 lb/ton ADUP and 50% control with scrubber
Equivalent pulp production = 210,000 lb/hr BLS ÷ 3,050 lb/ton
= 68.85 tons/hr ADUP

Maximum = 68.85 tons/hr x 0.2 lb/ton x 0.50 = 6.9 lb/hr
Annual = 6.9 lb/hr x 8,760 ÷ 2,000 = 30.2 TPY

D. TRS

Based on emission regulation of 0.0480 lb/3,000 lb BLS
210,000 lb/hr BLS x 0.0480/3,000 = 3.36 lb/hr
3.36 lb/hr x 8,760 ÷ 2,000 = 14.7 TPY

III. No. 4 Lime Kiln

A. PM(TSP)

Maximum emissions will not exceed current allowable--31.42 lb/hr; 137.24 TPY

B. PM10

PM10 is 98.3% of PM emissions
31.42 lb/hr x 0.983 = 30.9 lb/hr
137.24 TPY x 0.983 = 134.9 TPY

C. SO_2

Based on AP-42 factor of 0.3 lb/ton ADUP, with 50% control with scrubber.
Equivalent pulp production:
19.44 tons/hr x 0.90 ÷ 0.24 tons CaO/ton ADUP = 72.9 tons/hr ADUP
= 638,604 tons/yr

Maximum = 72.9 tons/hr x 0.3 lb/ton x 0.50 = 10.9 lb/hr
638,604 tons/yr x 0.3 x 0.5 ÷ 2,000 = 47.9 TPY

D. NO_x

Based on emision factor of 0.37 lb/10^6 Btu
Maximum = 136x10^6 Btu/hr x 0.37/10^6 = 50.3 lb/hr
50.3 lb/hr x 8,760 ÷ 2,000 = 220.3 TPY

E. CO

AP-42 factor is 0.1 lb/ton
Maximum = 72.9 tons/hr x 0.1 lb/ton = 7.3 lb/hr
7.3 lb/ton x 8,760 ÷ 2,000 = 32.0 TPY

F. VOC

Based on emission factor of 0.13 lb/10^6 Btu
Maximum = 136x10^6 Btu/hr x 0.13 lb/10^6 Btu = 17.7 lb/hr
17.7 lb/hr x 8,760 ÷ 2,000 = 77.5 TPY

G. TRS

Maximum emissions will be 20 ppm (dry) at 10% O_2.
Actual flow from lime kiln = 24,200 dscfm at 4.0% O_2.
Equate maximum level at 10% O_2 to actual O_2:

$$C_{corr} = C_{act}\,[(21-x)/(21-y)]$$

x = corrected O_2 = 10%
y = actual O_2 = 4%

$$C_{corr} = C_{act}[(21-10)/(21-4)]$$
$$= 0.647\ C_{act}$$

$$C_{act} = 1.55\ C_{corr}$$

$$C_{act} = (1.55)(20) = 31.0\ ppm$$

m = PV/RT

$$TRS = \frac{2,116.8\ lb_f}{ft^2} \times \frac{24,200\ ft^3}{min} \times \frac{31.0}{10^6} \times \frac{34\ lb_m\text{-}°R}{1,545\ ft\text{-}lb_f} \times \frac{1}{528°R} \times \frac{60\ min}{hr}$$

$$= 4.0\ lb/hr$$

4.0 lb/hr x 8,760 ÷ 2,000 = 17.5 TPY

ATTACHMENT 2

EXCERPTS FROM 1991 PSD PERMIT

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and,
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. The No. 4 Recovery Boiler (RB) may operate continuously (i.e., 8760 hrs/year).

2. The No. 4 RB's maximum process input rate/capacity is 323,077 lbs/hr black liquor @ 65% solids.

3. For the No. 4 RB and pursuant to BACT, the maximum allowable pollutant emission limiting standards/rates are:

*PM/PM_{10}	0.033 gr/dscf, corrected to 8% O_2 (83.2 lbs/hr; 364.4 TPY)
*NOx	100 ppmvd, corrected 8% O_2, 24-hr and annual avg. (210.6 lbs/hr; 922.4 TPY)
*CO	400 ppmvd, corrected to 8% O_2, annual average (512.7 lbs/hr; 2,245.6 TPY) 800 ppmvd, corrected to 8% O_2, 1-hr level (1,025.4 lbs/hr; 4,491.3 TPY)
*VOC	0.52 lb/ton BLS (54.6 lbs/hr; 239.1 TPY)
*VE	less than 20% opacity

4. Total reduced sulfur (TRS) emissions as hydrogen sulfide (H_2S) shall not exceed 11.4 ppmvd, corrected to 8% O_2 (17.8 lbs/hr; 78.0 TPY).

SPECIFIC CONDITIONS:

5. Sulfur dioxide (SO_2) emissions shall not exceed 109.9 lbs/hr (481.4 TPY).

6. Sulfuric acid mist emissions shall not exceed 3.24 lbs/hr (14.2 TPY; based on 0.81 ppm in the stack gases (NCASI Technical Bulletin No. 106) and 427,560 acfm).

7. Objectionable odors shall not be allowed off plant property in accordance with F.A.C. Rule 17-2.620(2).

8. a. The initial and annual compliance tests for PM/PM_{10} shall be conducted using EPA Method 5, Determination of Particulate Emissions from Stationary Sources, which includes EPA Methods 1-4, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

   b. The initial and annual compliance tests for TRS shall be conducted using EPA Method 16 or 16A, Determination of TRS Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

   c. The initial and annual compliance tests for SO_2 shall be conducted using EPA Method 8, Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

   d. The initial and annual compliance tests for NOx shall be conducted using EPA Method 7E, Determination of Nitrogen Oxide Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

   e. The initial and annual compliance tests for CO shall be conducted using EPA Method 10, Determination of Carbon Monoxide Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

   f. The initial and annual compliance tests for VOC shall be conducted using EPA Method 25, Determination of Total Gaseous Non-Methane Organic Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A; and,

   g. The initial and annual compliance tests for VE shall be conducted using EPA Method 9, Visual Determination of the Opacity Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and,
- the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

1. The No. 4 Lime Kiln (LK) may operate continuously (i.e., 8760 hrs/year).

2. The No. 4 LK's maximum total process input rate/capacity is 82,986 lbs/hr $CaCO_3$ and inerts; and, the maximum product rate is 38,889 lbs/hr (dry) @ 90% CaO.

3. For the No. 4 LK and pursuant to BACT, the maximum allowable pollutant emission limiting standards/rates are:

*PM/PM_{10}	0.081 gr/dscf, corrected to 10% O_2 (26.0 lbs/hr; 113.9 TPY) 99.0% efficiency
*NOx	290 ppmvd, corrected to 10% O_2 (50.3 lbs/hr; 223.3) kiln design and operation
*CO	69 ppmvd, corrected to 10% O_2 (7.3 lbs/hr; 32.0) kiln design and operation
*VOC	185 ppmvd, corrected to 10% O_2 (17.2 lbs/hr; 75.3 TPY) kiln design and operation
*VE	less than 20% opacity (deferred due to moisture interference)

SPECIFIC CONDITIONS:

4. Total reduced sulfur (TRS) emissions as hydrogen sulfide (H_2S) shall not exceed 20 ppmvd, corrected to 10% O_2 (4.0 lbs/hr; 17.5 TPY).

5. Sulfur dioxide (SO_2) emissions shall not exceed 10.9 lbs/hr (47.7 TPY; based on AP-42 factor of 0.3 lb/ton ADUP, 72.9 TPH ADUP, 638,604 TPY ADUP, and 50% efficiency on the control of SO_2).

6. Objectionable odors shall not be allowed off plant property in accordance with F.A.C. Rule 17-2.620(2).

7. Due to moisture interference, the visible emission limiting standard of "less than 20% opacity", in accordance with BACT, is not applicable. However, if the Department observes visible emissions of 20% opacity pursuant to F.A.C. Rule 17-2.700(6)(b)9, DER Method 9, it shall be considered good reason to believe that the applicable PM/PM_{10} mass emission standard is in danger of being violated and the permittee shall be required to conduct a special PM/PM_{10} mass emissions compliance test in accordance with F.A.C. Rule 17-2.700(2)(b). Such a test shall be conducted within 14 days after the Department has notified the permittee in writing of the applicability of this permit condition.

8. a. The initial and annual compliance tests for PM/PM_{10} shall be conducted using EPA Method 5, Determination of Particulate Emissions from Stationary Sources, which includes EPA Methods 1-4, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

b. The initial and annual compliance tests for TRS shall be conducted using EPA Method 16 or 16A, Determination of TRS Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

c. The initial and annual compliance tests for H_2SO_4 and SO_2 shall be conducted using EPA Method 8, Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

d. The initial and annual compliance tests for NOx shall be conducted using EPA Method 7E, Determination of Nitrogen Oxide Emissions from Stationary Sources, in accordance with F.A.C. Rule 17-2.700 and 40 CFR 60, Appendix A;

ATTACHMENT 3

EXCERPTS FROM 1995 PSD APPLICATION

Table 2–3. Maximum Emissions from No. 4 Lime Kiln, Georgia–Pacific, Palatka Operations

Regulated Pollutant	No. 4 Lime Kiln (No. 6 Fuel Oil Fired) Emission Factor	Reference	Activity Factor	Hourly Emissions (lb/hr)	Annual Emissions[b] (TPY)
Particulate (TSP)	0.081 gr/dscf @ 10% O2	1	37,400 dscfm @ 10% O2	26.0	113.9
Particulate (PM10)	0.081 gr/dscf @ 10% O2	1	37,400 dscfm @ 10% O2	26.0	113.9
Sulfur dioxide	0.15 lb/ton ADP[a]	1	73 tons (ADP)/hr	10.9	47.7
Nitrogen oxides	290.0 ppmvd @ 10% O2	1	37,400 dscfm @ 10% O2	50.3	220.3
Carbon monoxide	69.0 ppmvd @ 10% O2	1	37,400 dscfm @ 10% O2	7.3	32.0
Volatile Organic Compds.	185.0 ppmvd @ 10% O2	1	37,400 dscfm @ 10% O2	17.2	75.3
Sulfuric acid mist	4 % of SO2 as SO3	2	--	0.53	2.34
Total reduced sulfur	20.0 ppmvd @ 10% O2	1	37,400 dscfm @ 10% O2	4.0	17.5
Lead	530 lb/MMton CaO	3	19.44 TPH CaO	0.010	0.045
Mercury	5.8 lb/MMton CaO	3	19.44 TPH CaO	0.00011	0.00049
Beryllium	23 lb/MMton CaO	3	19.44 TPH CaO	0.00045	0.0020
Fluorides	--	--	--	--	--
Asbestos	--	--	--	--	--
Vinyl chloride	--	--	--	--	--

[a] Based 0.3 lb/ton ADP uncontrolled emissions rate and 50% control efficiency.
[b] Based on 8,760 hr/yr operation

References
1. Based on Permit Allowables (AO54–209858).
2. AP–42: Compilation of Air Pollutant Emission Factors, Table 1.3–2: SO3 is 4% of SO2 emissions.
3. NCASI Technical Bulletin No. 650, June 1993. Data for lime kiln burning oil and gas with scrubber control.

From 1995 PSD applic.

14379C
03/03/95

Table 2–4. Maximum Emissions from No. 4 Recovery Boiler, Georgia–Pacific, Palatka Operations

	No. 4 Recovery Boiler				
Regulated Pollutant	Emission Factor	Reference	Activity Factor	Hourly Emissions (lb/hr)	Annual Emissions[b] (TPY)
Particulate (TSP)	0.033 gr/dscf @ 8% O2	1	294,000 dscfm @ 8% O2	83.2	364.4
Particulate (PM10)	0.033 gr/dscf @ 8% O2	1	294,000 dscfm @ 8% O2	83.2	364.4
Sulfur dioxide	75 ppmvd @ 8% O2	1	294,000 dscfm @ 8% O2	109.9	481.4
Nitrogen oxides	100 ppmvd @ 8% O2[a]	1	294,000 dscfm @ 8% O2	210.6	922.4
Carbon monoxide: 1–hr	800 ppmvd @ 8% O2	1	294,000 dscfm @ 8% O2	1,025.4	--
Annual average	400 ppmvd @ 8% O2	1	294,000 dscfm @ 8% O2	512.7	2,245.6
Volatile Organic Compds.	0.52 lb/ton BLS	1	210,000 lbs BLS/hr	54.6	239.1
Sulfuric acid mist	0.77 ppmvd	1	450,000 acfm	3.20	14.2
Total reduced sulfur	11.4 ppmvd @ 8% O2	1	294,000 dscfm @ 8% O2	17.8	78.0
Lead	16 lb/10^{12} Btu	2	1,277.7 MMBtu/hr	0.020	0.090
Mercury	7 lb/10^{12} Btu	2	1,277.7 MMBtu/hr	0.0089	0.039
Beryllium	0.5 lb/10^{12} Btu	2	1,277.7 MMBtu/hr	0.00064	0.0028
Fluorides	ND	3	--	--	--
Asbestos	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--

[a] 24–hour and annual average.
[b] Based on 8,760 hr/yr operation.
ND = not detectable

References
1. From permit allowables (AO54–209650).
2. NCASI Bulletin No. 650, Table 11ED, non–direct contact evaporator.
3. From "Application of Combustion Modifications to Industrial Combustion Equipment" EPA–600/7–79–015a; one test from recovery boiler.

Note: The following two pages were from the Lime Kiln Emissions Unit, contained in the 1995 PSD Application.

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section: No. 4 Lime Kiln		
2. ARMS Identification Number: [ ] No Corresponding ID [ ] Unknown 31JAX54000517		
3. Emissions Unit Status Code: A	4. Acid Rain Unit? [ ] Yes [X] No	5. Emissions Unit Major Group SIC Code: 26
6. Initial Startup Date (DD-MON-YYYY):		
7. Long-term Reserve Shutdown Date (DD-MON-YYYY):		
8. Package Unit: Manufacturer:	Model Number:	
9. Generator Nameplate Rating:	MW	
10. Incinerator Information: Dwell Temperature: Dwell Time: Incinerator Afterburner Temperature:		°F seconds °F
11. Emissions Unit Comment:		

6. Stack Height:	131 ft
7. Exit Diameter:	4.42 ft
8. Exit Temperature:	150 °F
9. Actual Volumetric Flow Rate:	56,000 acfm
10. Percent Water Vapor:	34 %
11. Maximum Dry Standard Flow Rate:	32,000 dscfm
12. Nonstack Emission Point Height:	ft
13. Emission Point UTM Coordinates:	
Zone:	East (km): North (km):
14. Emission Point Comment:	

ATTACHMENT 4

EXCERPTS FROM 1995 PSD PERMIT

SPECIFIC CONDITIONS:

Emission Limitations

4. Maximum emissions from the No. 4 Recovery Boiler shall not exceed any of the following:

Pollutant	Emission Factor	lbs/hr	TPY
PM/PM_{10}[a]	0.030 gr/dscf @ 8% O_2	75.6	331.1
SO_2	75 ppmvd @ 8% O_2	109.9	481.4
NO_x	80 ppmvd @ 8% O_2	168.5	738.1
CO	800 ppmvd @ 8% O_2 (3-hr)	1025.4	
	400 ppmvd @ 8% O_2 (24-hr)	512.7	2245.6
VOC	0.30 lb/ton BLS	31.5	138.0
SAM	0.81 ppmvd	3.20	14.2
TRS*	7.0 ppmvd @ 8% O_2	10.9	47.7
Beryllium	0.5 lb/E+12 Btu	6.4E-4	2.8E-3

[a]Total PM measured by EPA Method 5
* 12-month rolling average. Maximum of 11.2 ppmvd @ 8 percent oxygen and 17.5 lbs/hr is maximum allowable TRS emissions during any 12 hour period.

Visible emissions shall not exceed 20 percent opacity (BACT).

5. Maximum emissions from the TRS incinerator controlling the emissions from the digester system, multi-effect evaporator systems, and condensate stripper system shall not exceed any of the following:

Natural Gas or Methanol Fuel

Pollutant	Emission Factor	lbs/hr	TPY
PM/PM_{10}[a]	permit	5.5	24.1
SO_2	5.085 lbs/ton ADUP	383 (24-hr)	1677.5
SAM	4% of SO_2 as SO_3	18.8	82.2
TRS	5 ppmvd @ 10% O_2	0.12	0.53

Note: [a]Total PM measured by EPA Method 5
[b]based on 50% TRS control efficiency of the scrubber

Visible emissions shall not exceed 5 percent opacity except 20 percent opacity is allowed for 3 minutes in any 1 hour period (Rule 62-296.401(1), F.A.C.).

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

BACT Analysis:

A. No. 4 RB:

1. PM/PM_{10}

A review of recent BACT determinations for PM/PM_{10} from kraft recovery boilers indicates that the emission rate proposed by the applicant does not represent BACT. The rationale for establishing BACT at a lower than proposed level is presented as follows:

The applicant indicated that an emission rate of 0.044 gr/dscf, corrected to 8% oxygen, is representative of BACT taking into consideration previously issued BACTs having emission rates of 0.021 - 0.044 gr/dscf, corrected to 8% O_2 (avg. of 0.033 gr/dscf). The summary of these determinations have been based on ESP control, which is the control technology employed by the No. 4 RB.

The No. 4 RB has achieved emission rates of 0.009 - 0.037 gr/dscf, corrected to 8% O_2, in previous PM compliance tests (average of 0.022 gr/dscf, corrected to 8% O_2).

During the next proposed mill outage, the applicant has proposed an upgrade of the ESP, but was not specific on the details. However, certain modifications can be made (i.e., addition of additional transformer-rectifier sets, change defective wires and warped plates, etc.) to improve collection efficiency. The applicant did not indicate that the ESPs wires, plates, transformer-rectifier sets, etc., would be inspected and, where necessary, be replaced.

A review of the proposed PM/PM_{10} increases in potential emissions have shown that there will not be an adverse affect to the environment.

Based on previous BACT determinations, actual test results, and ESP maintenance/upgrade, the Department feels that an emission rate of 0.033 gr/dscf, corrected to 8% O_2, is more realistic as a BACT requirement.

Previous BACT determinations have justified emissions rates of 0.054 - 0.130 gr/dscf, corrected to 10% O_2. Two of the previous BACT determinations set the emissions rate at 0.067 gr/dscf, corrected to 10% O_2, while firing liquid fossil fuel; also, each source was equipped with a wet venturi scrubber control system. The No. 4 LK will be firing No. 6 fuel oil and is also equipped with a wet venturi scrubber control system.

The NSPS emission rate for lime kilns (new/modified sources) firing liquid fossil fuel is 0.13 gr/dscf, corrected to 10% O_2. Section 111 of the Clean Air Act requires that each NSPS be revisited every 5 years for review and evaluation. Since the lowest BACT determination is 0.054 gr/dscf, corrected to 10% O_2, it seems likely that the allowable emission rate will be reduced. The NSPS, 40 CFR 60, Subpart BB is to be revisited this year.

The previous stack test results for the No. 4 LK exhibit emissions rates of 0.06 - 0.079 gr/dscf, corrected to 10% O_2. The Zurn scrubber's design control efficiency is 99.0% for PM at submicron size.

A review of the proposed PM/PM_{10} increases in potential emissions have shown that there will not be an adverse affect to the environment.

Therefore, based on previous BACT determinations and actual test results, the Department believes that an emission rate of 0.081 gr/dscf, corrected to 10% O_2, is more representative of BACT.

2. NOx

Previous BACT determinations have justified emissions rates of 100 - 336 ppmv, corrected to 10% O_2. In terms of lime produced, the range was 1.55 - 4.32 lbs/ton CaO produced. The proposed No. 4 LK BACT determination by the applicant is within the range of the previously issued BACT determinations.

A review of the proposed NOx increases in potential emissions have shown that there will not be an adverse affect to the environment.

The Department does not feel that a more stringent emission rate is justified and believes the emission rate that was requested by the applicant is representative of BACT.

3. CO

Previous BACT determinations have a CO emission rate range of 52 - 240 ppmvd, corrected to 10% O_2, and, in terms of lime produced, 0.48 - 26.16 lbs/ton CaO produced. For the No. 4 LK, the applicant used an AP-42 emission factor to propose a BACT of 45 ppmvd @ 4% O_2, corrected to 10% O_2 (0.38 lbs/ton CaO produced), which is at the lower end of previous BACT determinations.

ATTACHMENT 5

REVISED 1991 PSD APPLICABILITY ANALYSIS

Table 1. Revised 1991 PSD Permit Maximum Emissions from No. 4 Lime Kiln, Georgia-Pacific, Palatka Operations

Regulated Pollutant	Emission Factor	Reference	Activity Factor	Hourly Emissions (lb/hr)	Annual Emissions[a] (TPY)
Particulate (TSP)	0.081 gr/dscf @ 10% O2	1	44,500 dscfm @ 10% O2	30.9	135.3
Particulate (PM10)	0.081 gr/dscf @ 10% O2	1	44,500 dscfm @ 10% O2	30.9	135.3

*Maxiumum emissions based on updated air flows and the 1991 PSD BACT limits

[a]Based on 8,760 hr/yr operation and No. 6 Fuel Oil Fired

References

1. Based on Permit Allowables (AO54-209858).

Table 2. Revised 1991 PSD Permit Maximum Annual Future Emissions From From Affected Sources, Georgia-Pacific Palatka Operations

Regulated Pollutant	No. 4 LK	No. 4 RB	No. 4 SDT	TOTAL
Particulate matter (TSP)	135.3	364.2	55.2	554.7
Particulate matter (PM10)	135.3	364.2	55.2	554.7

*Note: only changes made to No. 4 Lime Kiln

Table 3. Net Emissions Increase Associated With 1991 PSD Project, Georgia-Pacific Palatka Operations

Regulated Pollutant	Current Actual Emissions[a] (TPY)	Future Maximum Emissions[b] (TPY)	Contemparaneous Reductions (TPY)	Revised Net Increase In Emissions[b] (TPY)	1991 Orginal Net Increase In Emissions[c] (TPY)	PSD Significant Emission Rate (TPY)	PSD Review Applies?
Particulate matter (TSP)	296.6	554.7	--	258.1	236.7	25	Yes
Particulate matter (PM_{10})	249.1	554.7	--	305.6	284.2	15	Yes

[a] Current Actual Emissions are those emissions in the 1991 PSD Application.

[b] Includes future maximum emissions for No. 4 Lime Kiln based on the updated air flow.

[c] Original Future Maximum Emissions, as permitted, were 533.3 TPY, calculated as follows:

No. 4 RB: 364.2 TPY
No. 4 LK: 113.9 TPY
No. 4 SDT: 55.2 TPY