July 26, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

Based on my latest discussions with Willard Hanks, I am providing additional information concerning the pending draft permit for Georgia-Pacific Corporation (GP). Please consider this information in issuing the draft permit. The area of concern and our comments are presented below.

TRS Limit for No. 4 Recovery Boiler

The contemplated TRS limit for the No. 4 Recovery Boiler continues to be the most critical issue for GP. I am aware that the Department is considering a 12-month rolling average TRS limit of 5 ppmvd @ 8 percent oxygen for the No. 4 Recovery Boiler. The following additional technical information would support a higher TRS limit. Please consider this information in setting the BACT limit for the recovery boiler.

GP has great concern over the ability of RB4 to meet a 5 ppmvd limit on a 12-month rolling average. In GPs previous submittals, six months of continuous TRS data for the period October 1994 through March 1995 were presented. These data, which consist of 347 12-hour average TRS concentrations, reflect the current variability in boiler operation prior to increasing the boiler throughput. The average TRS concentration was 3.4 ppmvd, but the monthly averages ranged from 2.8 to 4.2 ppmvd (all at 8 percent oxygen). The data also show that while in general the TRS emissions are below 5 ppm, there are frequent periods with TRS levels above 5 ppm.

RB4 is over 20 years old and was never designed to meet a 5 ppmvd limit. It has undergone modifications over the years to improve the firing system, and these improvements have allowed it to reduce its TRS emissions to the current limit of 11.4 ppmvd. However, these improvements were not designed to meet a 5 ppmvd limit. The proposed increase in actual BLS throughput for the boiler is expected to result in an increase in TRS emissions. This is because TRS emissions are related to combustion conditions. As the boiler approaches it's maximum BLS firing capabilities, combustion conditions will change (i.e., air/fuel

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ratio, degree of air/fuel mixing, retention time of flue gases, etc.). Additional factors which can effect combustion conditions and therefore TRS emissions at higher operating rates include the following:

1. The ability of the combustion air system to provide good bed control so that all of the char is burned on the bed.

2. Increased gas velocities in the boiler, leading to higher carryover rates (of partially unburned liquor char particles and small smelt drops), causes more rapid plugging of the gas passages. The plugging reduces the heat transfer through the steam tubes, leading to higher flue gas temperatures, decreased gas flow area and higher flue gas velocity. As this occurs, control of air/fuel ratio becomes more difficult, resulting in higher TRS emissions

Since GP must be in continuous compliance with the TRS emission limit, and the proposed change is expected to increase TRS emissions, GP requests a 12-month rolling average TRS limit of 8 ppmvd @ 8 percent oxygen. As shown by the previously submitted data, the 95 percent confidence level value for the 12-hour TRS data was 8.1 ppmvd. Based upon the TRS data, a 12-month rolling average TRS limit of 8 ppmvd @ 8 percent O_2 is proposed. This limit is significantly less than the current limit of 11.4 ppmvd (30 percent lower than the current limit).

TRS Compliance Test Method for No. 4 Recovery Boiler

In Specific Condition 6 of the draft permit, the Department is indicating that the method of determining compliance with the TRS limits (both 12-hour average and 12-month rolling average) will be based on the TRS continuous emissions monitor system (CEMS). It is emphasized that this represents a significant change from the current operating permit and previously issued PSD permit. These permits specified annual testing using EPA Method 16 or 16A as the method of determining compliance. It is also pointed out that Florida Administrative Code (F.A.C.) Rule 296.404(4)(a) specifies that EPA Method 16 or 16A shall be used for compliance testing. The previous permits were consistent with this rule, by specifying EPA Methods 16 and 16A as the compliance methods, and further specifying that the continuous monitoring requirements of the TRS rule be complied with.

According to Rule 296.404, the CEM for TRS is not used for compliance purposes, but is used as an indicator of proper operation and maintenance of the boiler. The rule allows excess emissions for up to one percent of the time to occur and not be in violation. By specifying that the CEM for TRS will now be used for compliance purposes, the proposed limits (11.4 ppmvd, 12-hour avg., and 8 ppmvd, 12-month rolling average) are much more stringent than indicated by their numerical values. Therefore, in

conformance with the previous permits and Rule 296.404, GP requests that the TRS compliance method be specified as EPA Method 16 or 16A.

Thank you for consideration of this information. Please call if you have any questions.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

DAB/arz

cc: Myra Carpenter
Traylor Champion
File (2)

Georgia-Pacific Corporation

Palatka Operations
Packaged Products Division
P.O. Box 919
Palatka, Florida 32178-0919
Telephone (904) 325-2001

July 17, 1995

Mr. Clair Fancy, P.E.
Bureau Chief
State of Florida
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Georgia-Pacific has made a Corporate commitment to close the black liquor pond in Palatka by the end of 1997. This pond is used to temporarily store black liquor until it is recirculated back into the recovery process. It is our intent to eventually replace the pond with an adequate amount of storage tank capacity. As you know, tank installation can be a lengthy process dependent upon the availability of contract labor and materials. In order to meet the Corporate goal of timely pond closure, it was necessary to begin installing the storage tanks as soon as possible. For this reason, we began construction several weeks ago (June 12, 1995) of the first of the series of black liquor tanks with a capacity of 4 million gallons per tank.

The New Source Review Section, who is reviewing our PSD permit application, called several days ago to let me know that we need to permit the black liquor storage tank currently under construction. It was also suggested that we could handle the permitting of this tank under the PSD application mentioned above. However, the Northeast District staff do not think we need a permit since they agree with us that there will actually be a reduction in air emissions by storing black liquor in a tank as compared to storage in a pond.

We would greatly appreciate you clarifying the applicability of permitting in this case. It is my understanding, both with recent guidance and internal drafts of proposed New Source Review reform, the EPA is contemplating relaxing permitting requirements for such environmentally beneficial projects as this.

Please let me know as soon as possible if permitting is required since the tank construction will be complete sometime in August. If you have any questions, please call me at 904-329-0918.

Sincerely,

Myra J. Carpenter

Myra J. Carpenter
Environmental Superintendent

kb

cc: W. L. Baxter
B. T. Champion, GA030, G-09
Henry Hirschman
A. F. Hodges, GA030, G-09
Bob Leetch, FDEP, Northeast District
WH

Georgia-Pacific Corporation

Palatka Operations
Packaged Products Division
P.O. Box 919
Palatka, Florida 32178-0919
Telephone (904) 325-2001

June 13, 1995

Mr. Al Linero
State of Florida
Department of Environmental Protection
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: PSD Permit Application
Georgia-Pacific Corporation
Palatka Mill
DEP No. 548515762

Dear Mr. Linero:

As you know, Georgia-Pacific submitted a PSD Permit Application in March, 1995, in which proposed changes in certain emissions units were described: (1) the replacement of two batch digesters with bigger units; and (2) changes to the existing No. 4 Recovery Boiler. These two projects were linked in the application merely for administrative convenience and can be considered as totally separate projects. In fact, the digesters can be replaced while the mill continues to operate. However, the Recovery Boiler must be taken out of service in order to install the screen tubes. The only opportunity for tube installation would then be during the annual preventive maintenance outage scheduled for August of this year. These Recovery Boiler outages are planned well in advance because of the tremendous lead time required to stage equipment and manpower. They are very difficult to reschedule for this same reason.

With this in mind, we would like to move ahead with the tube project if at all possible. We would like to propose to the Department that we be allowed to install the screen tubes during the scheduled outage in August with the understanding that we will not increase black liquor throughput until after the PSD permit is issued. We would agree to maintain our liquor throughput to a maximum of 184,000 lbs/hour of BLS, which is our current average operating rate. This is well below the maximum rate allowed by our existing operating permit of 210,000 lbs/hr. We believe that

with this temporary restriction the screen tube project would not constitute a modification since there would be no increase in emissions. Therefore, the screen tube project could proceed in the interim without the necessity of obtaining a permit.

We would like to meet with you, Willard Hanks, and Clair Fancy to discuss the details of our proposal on the morning of Thursday, June 15, 1995.

If you have any questions, please do not hesitate to contact me at 904-329-0918.

Sincerely,

Myra J. Carpenter

Myra J. Carpenter
Environmental Superintendent

kb

cc: W. L. Baxter
B. T. Champion, GA030, G-48
Henry Hirschman
J. E. McKinley
T. R. Wyles, GA030, G-48
A. F. Hodges, GA030, G-11

Georgia-Pacific

Palatka Operations
P.O. Box 919
Palatka, Florida 32178-0919
Telephone: (904) 325-2001

FAX Number: (904) 328-0014

COVER SHEET FOR ALL FAX TRANSMITTALS

DATE: June 13, 1995

TO: Al Linero/Willard Hanks

3 **PAGES**

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FROM: Myra Carpenter

☐ FAX No. _____ (If different from (904) 328-0014) ☐ Phone No. _____ (If different from (904) 325-2001) ☐ Ext. _____

Comments:

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**Palatka Pride,
Dedicated People –
Delivering Quality:
On Time, Every Time!**

July 5, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

In follow up to our meeting the week before last concerning the above referenced permit application, the following information is submitted on behalf of Georgia-Pacific Corporation (G-P). This information is related to the proposed emissions limits for the No. 4 Recovery Boiler (RB4) and the TRS Incinerator.

NO_x Limits

The Department is contemplating a NO_x limit of 70 ppmvd @ 8% O_2 for the No. 4 RB. In G-P's May 17, 1995, submittal to the Department, updated stack test results, including preliminary 1995 results, were presented (table attached for your convenience). The test data consists of a total of 12 test runs since the last rate increase received by the No. 4 RB in 1991. The limited test data showed NO_x levels ranging from 25 to 67 ppmvd @ 8% O_2. Compliance test averages have ranged from 45 to 65 ppmvd @ 8% O_2. The data are very limited (four compliance tests), and the proposed BACT limit leaves very little margin for compliance. Therefore, G-P requests that the Department consider a higher limit of 90 ppmvd @ 8% O_2. Of all BACT determinations for NO_x in the BACT Clearinghouse, only two were lower than 90 ppmvd; one was set at 75 ppmvd, and one was set at 80 ppmvd. These were for newer boilers designed for lower levels of emissions. All others were set at 90 ppmvd, with the majority set at 100 ppmvd or greater.

VOC Limits

The Department is considering setting a BACT limit for VOC of 0.10 lb/ton BLS. However, recent 1995 VOC test results on No. 4 RB have demonstrated the potential for higher VOC emissions than indicated by the previous testing. The recent test results were 34 lb/hr and approximately 0.50 lb/ton of BLS (presented in the May 17 submittal). This test should be considered as representative of daily operational variability, and not as an anomaly to be disregarded. Based on these recent tests, it is requested that the current VOC limit of 0.52 lb/ton BLS and 54.6 lb/hr be retained (equivalent to 0.043 lb/MMBtu and 0.71 lb/ton ADUP). This proposed limit is comparable to or lower than all previous BACT determinations for VOC listed in the BACT/LAER Clearinghouse.

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TRS Limits

TRS-- G-P has two concerns regarding the TRS limit for RB4. The first is the ability of RB4 to meet a 5 ppmvd limit. The limited compliance test data for RB4 (i.e., once per year stack testing) does not reflect the true variability in boiler operation. In G-P's previous submittals, continuous TRS data for the period October 1994 through March 1995 were presented (attached Table A for your convenience). These data, which consist of 347 12-hour average TRS concentrations, reflect the real variability in boiler operation. The data reflect a maximum 12-hour TRS concentration of 11.2 ppm, with an average level of 3.36 ppmvd. These data indicate that while in general the TRS emissions are below 5 ppm, there are frequent periods when the 5 ppm level is not achieved.

To better understand the variability in TRS emissions, a frequency distribution of the data was constructed. This is shown in the attached Figure 1. As shown, approximately 20% of the 12-hour concentrations are above the 5 ppmvd level. About 10% of the values are above 7 ppmvd, and 1 percent are above 9.6 ppmvd.

Since G-P must be in continuous compliance with the TRS limit, and the proposed increased throughput may affect TRS emissions, G-P requests the Department retain the current maximum 12-hour limit of 11.4 ppmvd. This is the limit which was judged to be BACT in 1991, and is demonstrated to be the level achievable by this boiler on a continuous basis. However, G-P would be willing to establish a lower limit based on a 12-month rolling average, also based on the actual emissions the boiler has been able to achieve in practice. As shown by the previously submitted data, the 95% confidence level value for the 12-hour TRS data was 8.1 ppmvd. Based upon the TRS data, a 12-month rolling average TRS limit of 8.1 ppmvd @ 8% O_2 is proposed. This limit is significantly less than the current limit of 11.4 ppmvd.

The second issue concerns the listing in the BACT Clearinghouse of several "modified" boilers which have been issued BACT limits of 5 ppmvd. The Clearinghouse listed four such boilers: Penntech Papers, Pennsylvania; Leaf River Forrest, Mississippi; Chesapeake Corp., Virginia; and International Paper, Louisiana. KBN has contacted the state agencies for each of these facilities, and has learned that each of these boilers was subject to the NSPS, 40 CFR 60, Subpart BB. Therefore, NSPS requires each of these boilers to meet a 5 ppmvd limit, and these boilers have been designed to meet the 5 ppmvd limit. The boilers were either NSPS boilers when they were originally constructed, or if modified, would have had to implement design changes in order to meet the NSPS limit.

In contrast, RB4 is over 20 years old and was never designed to meet a 5 ppmvd limit. It has undergone modifications over the years to improve the firing system, and these improvements have allowed it to reduce its TRS emissions to the current limit of 11.4 ppmvd. However, these improvements were not for the purpose of meeting a 5 ppmvd limit. No further reductions in TRS emissions are envisioned as a result of the screen tube project. Also, the proposed increase in actual BLS throughput may affect TRS emissions.

Beryllium Limits

Due to the extremely low emissions of beryllium (Be) projected for the No. 4 RB, as well as predicted low ambient impacts, it is requested that a mass emission standard not be set for Be. BACT has already been established as the ESP control device. PSD/BACT regulations allow the establishment of control technology/work practice standards in lieu of numerical emission limits were such limits are impractical or unnecessary. It is also requested that the stack testing frequency for beryllium be once every 5 years, provided the stack test demonstrates compliance.

Sulfuric Acid Mist

G-P is currently negotiating this issue with the Department.

TRS Incinerator

The current visible emissions (VE) limitation for the TRS incinerator allows up to 5% opacity, except up to 20% opacity for 3 minutes/hour. In addition, due to the very low emissions of PM and TRS form the incinerator, the current permit requires stack testing for PM and TRS emissions only once every five years. The surrogate parameter of combustion temperature is also continuously monitored in the incinerator. For these reasons, it is requested that the current VE limitation and stack testing requirements for PM and TRS be retained in the revised permit.

Thank you for consideration of this information. Please call if you have any questions.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

DB/mk

cc: Myra Carpenter
Traylor Champion
File (2)

Willard

Post-it® Fax Note 7671	Date 9/5/95	# of Pages ▶ 3
To AL LINERO	From DAVE BUFF	
Co./Dept. FDEP	Co. KBN	
Phone # 904-488-1344	Phone # 904 336-5600	
Fax # 904-922-6979	Fax # 904-336-6603	

July 5, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

In follow up to our meeting the week before last concerning the above referenced permit application, the following information is submitted on behalf of Georgia-Pacific Corporation (G-P). This information is related to the proposed emissions limits for the No. 4 Recovery Boiler (RB4) and the TRS Incinerator.

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KBN ENGINEERING AND APPLIED SCIENCES, INC.

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May 31, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

In response to your request, attached is a revised overall facility process flow diagram for the G-P Palatka paper mill. If you have any questions concerning this information, please call.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

cc: Myra Carpenter
Traylor Champion

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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Files

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To Al LINERO	From DA. BUFF	
Co./Dept. FDEP, NSR	Co. KBN	
Phone #	Phone # 904-336-5600	
Fax # 904-922-6979	Fax # 904-336-6603	

May 31, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

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Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

cc: Myra Carpenter
Traylor Champion

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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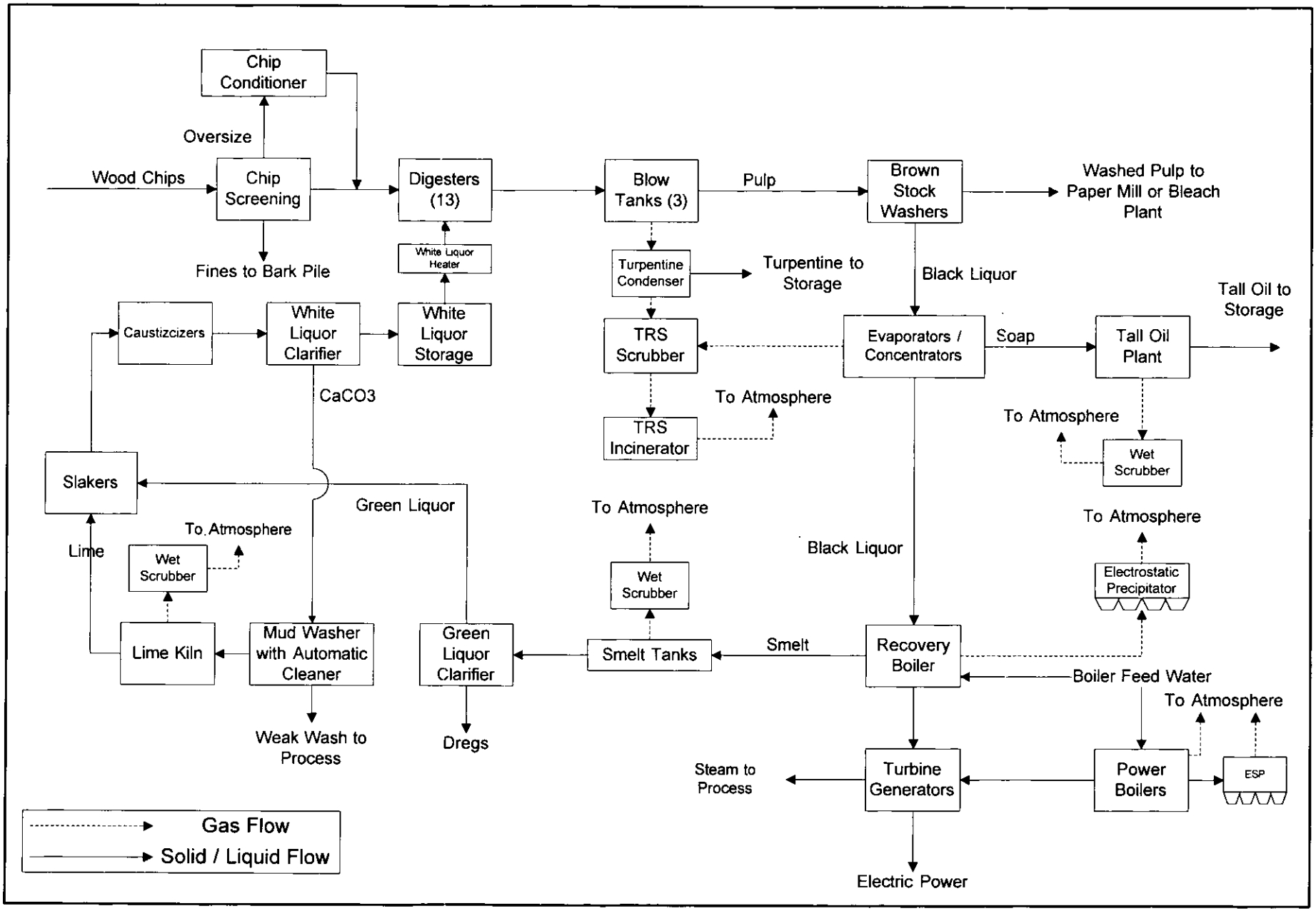

Figure 1. Facility Flow Diagram		*Emission Unit:* Overall Plant	KBN Engineering and Applied Sciences, Inc.
		Process Area: Overall Plant	
Georgia-Pacific Corporation	Palatka	*Filename:* GPPSD.VSD	
		Latest Revision Date: 5/31/95 05:39 PM	

Georgia-Pacific Corporation
Palatka Operations
Packaged Products Division
P.O. Box 919
Palatka, Florida 32178-0919
Telephone (904) 325-2001

May 25, 1995

Mr. Willard Hanks
State of Florida
Department of Environmental Protection
Permitting and Standards Section
Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Pending PSD Permit Application

Dear Mr. Hanks:

At our recent meeting with you and Mike Harley's group, we agreed that Georgia-Pacific would propose language that the Department would consider using in the PSD permit on which we are all working so hard. The following is the suggested language:

Specific Conditions:

Option 1:

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.

a. The initial and annual compliance tests for sulfuric acid mist shall be conducted using NCASI Method 106 for two years from the date of issuance of the permit. At the end of this time, appropriate limits will be established based upon emission testing methodology evaluations approved by the Department and conducted by Georgia-Pacific.

Option 2:

Sulfuric acid emissions shall be monitored annually for two years following permit issuance. At the end of which time, appropriate limits will be established based upon

emission testing methodology evaluations approved by the Department and conducted by Georgia-Pacific.

a. The sulfuric acid mist emissions will be monitored only for two years following the date of permit issuance in accordance with a testing methodology evaluation program approved by the Department.

Sincerely,

Myra J. Carpenter
Environmental Superintendent

kb

cc: W. L. Baxter
D. A. Buff, KBN
B. T. Champion, GA030, G-48
J. E. Taylor, Jr.

File

May 24, 1995

RECEIVED
MAY 25 1995
Bureau of
Air Regulation

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

In response to Willard Hanks recent request, attached is an overall facility process flow diagram for the Georgia Pacific Palatka paper mill. Since this information was not requested by the Department in its original completeness letter, this submittal should not affect the date the application was deemed complete. The application should be deemed complete as of May 17, 1995, when the last submittal was received by the Department. If you have any questions concerning this information, please call.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

Attachment

DABuff/ehj

cc: Myra Carpenter
Traylor Champion
File (2)

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 904-336-5600 FAX 904-336-6603
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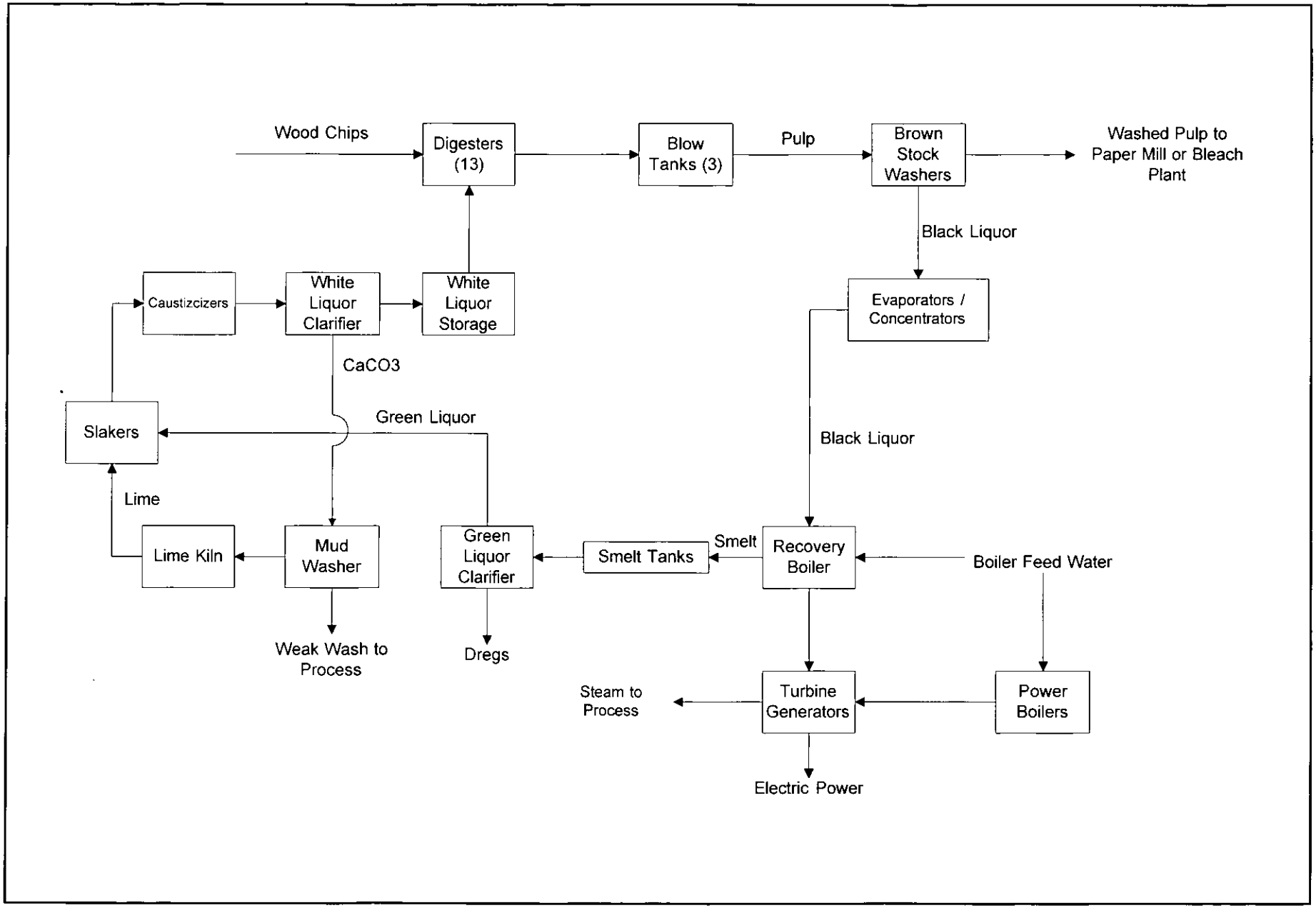

Figure 1. Facility Flow Diagram		*Emission Unit:* Overall Plant *Process Area:* Overall Plant	KBN Engineering and Applied Sciences, Inc.
Georgia-Pacific Corporation	Palatka	*Filename:* GPPSD.VSD *Latest Revision Date:* 5/24/95 01:30 PM	

FACSIMILE COVER SHEET

DATE: May 24, 1995

TO: Mr. Willard Hanks

ORGANIZATION: Florida Department of Environmental Protection

FAX NUMBER: (904) 922-6979 TELEPHONE NUMBER: (904) 488-1344

FROM: David A. Buff

OFFICE: ☒ Gainesville ☐ Tampa ☐ Boca Raton
☐ Washington D.C. ☐ Jacksonville

TOTAL NUMBER OF PAGES: 3 (including cover page)

MESSAGE/INSTRUCTIONS:

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May 17, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

The purpose of this correspondence is to respond to the U.S. EPA's comments concerning the above referenced PSD permit application. The EPA's comments were contained in a letter from Jewell A. Harper, Chief, Air Enforcement Branch, EPA Region IV, to Clair Fancy, FDEP, dated May 2, 1995 (attached for your convenience). Five comments were submitted for consideration by FDEP. Each of these is addressed below, in the same order as they appear in the letter.

1. Georgia-Pacific (G-P) believes it has followed the PSD regulations in determining the two-year average actual baseline emissions. There are two components to the baseline emissions. The first is the representative emission factor for each pollutant; the second is the activity factor. In determining the representative emission factor for each pollutant and each source, the PSD regulations do not restrict an applicant to the last two years. The best and most representative emission factor should be used. For continuously monitored data, such as TRS, actual continuous data from the last two years was utilized as the representative emission factor. However, when once a year stack tests are conducted, it is appropriate to consider all stack test data which is representative of current operation.

   In the case of the G-P No. 4 Recovery Boiler (RB4), No. 4 Smelt Dissolving Tanks (SDT4) and No. 4 Lime Kiln (LK4), a PSD permit was issued in 1991, and the changes under that permit were completed in January 1992. Compliance testing followed shortly after, as well as additional stack tests in 1993 and 1994. Thus, the stack tests in 1992, 1993 and 1994 are all considered representative of current actual operation, and were used to determine the representative emission factor. The representative emission factor was then applied to the 1993-1994 actual operating hours or production rates.

   For the Tall Oil plant, only one stack test in 1992 has been conducted on this source. This compliance source test was used to determine the representative emission factor, and was applied

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to the 1993-1994 actual production. For the TRS Incinerator, only two stack tests (in 1990 and 1994) have been conducted on this source. Since the batch digester system and other sources venting to the TRS Incinerator have not changed operation since 1990, these source tests were used to determine the representative emission factor, and was applied to the 1993-1994 actual operating hours.

The batch digester system, multiple effect evaporators, and condensate stripper system all vent to the TRS Incinerator, and as such emissions are reflected in the incinerator. The brown stock washer system was not considered in the PSD applicability analysis, since it is currently unpermitted and will be included in the facility Title V application. However, the washers emit only TRS and VOC. These pollutants are already subject to PSD review, and therefore including the washers in the applicability analysis would not affect the PSD applicability of the project. Further, the brown stock washers are not undergoing any physical change or change in the method of operation, and therefore would not be subject to a best available control technology analysis.

2. EPA focuses on specific emission tests for comparison to G-P's proposed emission rates for RB4. However, all of the test data presented in Table 6-3 are considered representative of normal source operation. The various stack tests reflect the variability that can occur in emissions due to normal process fluctuations. In addition, the maximum emission rate experienced must be considered in setting any emission limit. On April 13, 1995, G-P submitted a revised Table 6-3 to FDEP which presented statistical data for each pollutant. Also submitted was a table of continuous TRS data for the last 6 months for RB4.

   G-P conducted annual compliance testing on RB4 in April, 1995. Preliminary test results are now available, and have been included in a revised Table 6-3 which is attached.

   In determining an appropriate BACT emission limit for RB4 for each pollutant, several factors should be considered. These factors can affect all of the pollutants undergoing BACT review.

   1. RB4 is an existing boiler that was built in 1975. RB4 underwent upgrades in 1987 and in 1991, but still is an older boiler and has inherent design limitations. RB4 performance should not be expected to match the performance of a newer boiler. In addition, boiler and ESP performance can degrade somewhat over time, even when regular maintenance is performed on the boiler and ESP.

   2. G-P will be increasing black liquor throughput above the historical rates for RB4. Increasing the black liquor firing rate is expected to increase actual emissions from the boiler, while remaining within the current permit limits. While the black liquor

throughput will be increasing, there will be no changes to the black liquor firing system or the ESP system.

3. The variability in black liquor quality can affect hourly emissions from RB4. Black liquor quality is not something that can be controlled by the boiler operator. The quality is a function of daily and seasonal variations in wood quality and the pulp making process.

4. G-P is not requesting any change in the permitted throughput capacity for the boiler (5.04 million lb/day BLS). Only a minor change is being made to the boiler, which may potentially increase actual black liquor throughput by 3 percent to 5 percent. No change in the currently permitted emission limits is being requested. These permitted limits were determined to be BACT as recently as 1991.

5. Enhanced monitoring, although presently delayed, may be required within the next two to three years. At such time, continuous emission monitors may be required for the pollutants with permit limits. Therefore, G-P desires permit limits which have an adequate margin of safety considering continuous monitoring implications.

Considering the above factors, G-P reiterates its position that the current permit limits for RB4 represent BACT. The proposed BACT for each pollutant is discussed further below.

Particulate Matter

Based on all the source test data, the proposed (and current) PM emission limit of 0.033 gr/dscf is only 10 percent higher than the highest stack test result of 0.030 gr/dscf. The 95 percent confidence level for the test data reflects an emission rate of 0.032 gr/dscf, which is approximately equal to the proposed limit. Due to physical limitations (i.e., there is no more room in ESP), G-P cannot add any additional transformer-rectifier sets to the ESP to improve control efficiency. A BACT determination for a modified recovery boiler at Leaf River Forest in Mississippi was issued in 1992 with a PM limit of 0.040 gr/dscf.

Nitrogen Oxides

The proposed (and current) NO_x emission limit of 100 ppmvd is somewhat higher than the highest stack test result of 65 ppmvd. Considering the limited stack test data and potential variability in NO_x emissions, G-P cannot accept lower limits. It is also noted that NO_x emissions are inversely related to CO and VOC emissions. Therefore, if the NO_x limit is to be lowered, this would translate to higher CO and VOC limits. However, G-P is willing to accept the current limits for NO_x, CO, and VOC, even at the higher throughput rates.

It is noted that three BACT determinations for NO_x emissions were issued to recovery boilers in 1992; each of these specified BACT limits of 110 to 115 ppmvd @ 8 percent O_2. It is further noted that for the Weyerhaeuser recovery boiler issued a BACT for NO_x of 80 ppmvd in 1992, the original BACT limits set for the boiler could not be met. Therefore, based on actual test data for the boiler, the BACT limit was revised upward. The technology for achieving BACT did not change; the limit was revised to reflect actual boiler operation when maximizing black liquor combustion efficiency.

Carbon Monoxide

The proposed (and current) CO emission limit of 800 ppmvd is only 6 percent higher than the highest single run during any stack test of 756 ppmvd. Another test run resulted in a CO emission rate of 745 ppmvd. The stack test data demonstrate the variability in CO emissions and emphasize the need for the requested limit. As black liquor throughput to the boiler increases, the flue gas volume increases, resulting in decreased residence time of the flue gases within the boiler. This decreased residence time results in less time for complete combustion to occur, creating higher CO and VOC emissions. Since the proposed modifications will allow increased black liquor throughput, increased CO emissions are expected. Also, as discussed above, minimizing NO_x emissions will result in higher CO and VOC emissions. Therefore, any decrease in the NO_x emission limit would require an increase in the CO and VOC limits.

Volatile Organic Compounds

The recent 1995 stack test results for VOC demonstrate that wide variability in VOC emissions is possible from RB4. VOC emissions occur due to incomplete combustion in the boiler. As black liquor throughput to the boiler increases, the flue gas volume increases, resulting in decreased residence time of the flue gases within the boiler. This decreased residence time results in less time for complete combustion to occur, creating higher CO and VOC emissions. Since the proposed modifications will allow increased black liquor throughput, increased VOC emissions are expected. The proposed (and current) VOC emission limit of 54.6 lb/hr is only slightly higher than the maximum VOC emissions of 48 lb/hr experienced during the 1995 stack testing. Compliance with the VOC limit would be demonstrated with EPA Method 25A.

Total Reduced Sulfur

The TRS data shows that the proposed (and current) TRS emission limit of 11.4 ppmvd is only 2 percent higher than the highest single 12-hour TRS concentration during the last 6 months, i.e., 11.2 ppmvd. Several other 12-hour periods displayed TRS emissions near the proposed limit of 11.4 ppmvd.

3. G-P requests that the annual average CO limit be deleted and a single limit of 800 ppmvd and 1,025 lb/hr be set for CO. This limit is equal to the current 1-hour CO limit. This change

would eliminate the concern over the dual averaging times for CO. It is G-P's understanding that compliance with the CO limit would be based on the average of three test runs.

4. The ESP serving RB4 was upgraded in 1991. Due to physical constraints in the ESP (i.e., no more room in ESP), it is not possible to add additional transformer-rectifier sets to the ESP.

5. The solids content of black liquor at G-P is in the range of 66 percent to 68 percent.

One additional update to information previously submitted is as follows: in Attachment B - Design Information for New TRS Scrubber, the diameter of the scrubber was incorrectly stated as 36 feet. This was a typographical error and should have read "36 inches". Attached are revised pages of the application.

Thank you for consideration of this information. Please call if you have any questions.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

Enclosures

DABuff/ehj

cc: Myra Carpenter
Traylor Champion
File (2)

cc: W. Hanks
C. Holladay
C. Kirts, NED
NPA
EPA

GPRB4TST
5/15/95

Table 6-3. Summary of Source Test Data From No. 4 Recovery Boiler, Georgia-Pacific Palatka Mill (Revised 05/15/95)

		Particulate Matter		Nitrogen Dioxide		Carbon Monoxide		VOC		TRS	
Test Date	Run #	gr/dscf @8% O2	lb/hr	ppmvd @8% O2	lb/hr	ppmvd @8% O2	lb/hr	ppmvd @8% O2	lb/hr	ppmvd @8% O2	lb/hr
04/25/95	1	0.006	12.0	25	44	465	407	129	48	<1.8	<1.9
04/25/95	2	0.008	16.0	63	114	745	653	67	25	<1.7	<1.8
04/25/95	3	0.010	20.9	66	118	560	491	81	30	0.71	0.8
	Average	0.008	16.3	51	92	590	518	92	34	1.40	1.5
02/15/94	1	0.007	15.0	59	104	440	472	<3	<1.0	2.6	3.2
02/15/94	2	0.006	13.6	58	101	756	798	<5	<1.7	3.7	4.8
02/15/94	3	0.007	14.7	62	109	404	428	<2	<0.7	0.7	0.9
	Average	0.007	14.4	60	105	533	566	3	1.1	2.3	3.0
02/17/93	1	0.007	16.1	43	72	193	197	<10	<4.4	<0.2	<0.2
02/17/93	2	0.006	12.1	50	84	33	33	<10	<4.4	<0.3	<0.3
02/17/93	3	0.005	10.7	43	72	80	82	<10	<4.4	<0.3	<0.3
02/17/93	4	0.006	12.9	45	76	102	104	10	4.4	<0.3	<0.3
	Average										
03/11/92	1	0.029	65.2	61	121	167	200	8.1	4.0	2.3	3.4
03/11/92	2	0.026	55.5	65	125	164	191	7.1	3.6	4.2	5.9
03/11/92	3	0.035	77.9	67	128	330	382	4.2	2.1	1.9	2.6
	Average	0.030	66.2	65	125	220	258	6.5	3.2	2.8	4.0
Allowable Limit		0.033	83.2	100	210.6	800, 1-hr 400, annual	1,025.4 512.7	--	54.6	11.4	17.8
Statistical Analysis[a]											
Number of Tests		4	4	4	4	4	4	4	4		
Average		0.013	27.5	55	100	361	362	28	11		
Standard Deviation		0.010	22.4	7.8	18.0	206	189	37	14		
95% Confidence Limit[b]		0.032	71.4	70	135	764	733	101	37		
99% Confidence Limit[c]		0.039	85.3	75	146	892	850	124	46		

[a] Based on compliance test averages.
[b] Average + (1.96 x standard deviation)
[c] Average + (2.58 x standard deviation)

Post-it™ Fax Note 7671 | Date 5/2/95 | # of pages ▶ 4
To MYRA CHAMBERS | From William Harris
Co./Dept. G-P - PALATKA | Co. DEP
Phone # | Phone # (404) 488-1344
Fax # 904/328-0014 | Fax #

UNITED STATES ENVIRONMEN
REGION
345 COURTLAND
ATLANTA, GEORGIA 30365

MAY 02 1995

To: Dave Buff
904-336-6603

4APT-AEB

Mr. Clair H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

SUBJ: Georgia-Pacific Corporation (G-P), Palatka, Putnam County, Florida (PSD-FL-226)

Dear Mr. Fancy:

This is to acknowledge receipt of an application for a Prevention of Significant Deterioration (PSD) permit for the proposed major modification to the above referenced kraft pulp mill facility by your letter dated March 13, 1995. The proposed major modification consists of the replacement of two existing digesters (Nos. 11 and 12) with two larger digesters. Cimeon screen tube banks will also be added to the existing No. 4 recovery boiler (RB4). Other physical changes at the facility include the addition of a new chip conditioner system, white liquor heater, and automatic lime mud filter cleaner.

G-P expects pulp production to increase approximately 40 tons per day (TPD) using the larger digesters. The pulp production capacity of the existing digester system is 1850 TPD. G-P also expects about a 4 percent increase in black liquor solids (BLS) throughput with the RB4 modification. Current permitted RB4 capacity is 5.04 million pounds of BLS per day. As discussed between Mr. Willard Hanks of your staff and Mr. Stan Kukier of my staff on April 24, 1995, we have the following significant comments.

1. Calculations of current actual emissions used in G-P's netting analysis must be based on a two-year average. The definition of "actual emissions" in 40 CFR § 52.21 (b)(21) indicates that actual emissions shall be determined as follows:

> (ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The

Administrator shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period.

Tables A-1, A-2, and A-3 in Attachment A indicate that the calculations of actual emissions for the No. 4 lime kiln (LK4), RB4, and No. 4 smelt dissolving tanks (SDT4) are based on three-year averages of 1992, 1993, and 1994 stack test results, National Council for Air and Stream Improvements (NCASI) and AP-42 emission factors, and allowable emission rate limits. Table A-4 indicates that calculations of actual emissions for the tall oil plant (TOP) are based on a 1992 stack test result and a NCASI emission factor. Table A-5 indicates that calculations of actual emissions for the total reduced sulfur (TRS) incinerator are based on two-year averages of 1990 and 1994 stack test results, and AP-42 emission factors. The applicant should also clarify whether or not emission increases associated with the new batch digester system (DDS) as well as the existing multiple effect evaporator system (MEES), condensate stripper system (CSS), and brown stock washer system (BSWS) have been considered in the netting calculations. Pursuant to the definition of "actual emissions" in 40 CFR § 52.21 (b)(21)(ii) above, the applicant should recalculate both the current actual emissions and net emissions increases for each emissions unit. Table 3-3 as well as Tables A-1 through A-5 in Attachment A should be revised to reflect any corrections.

2. Reduced particulate matter (PM), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and TRS emission rate limits should be proposed by G-P based on the results of recent compliance stack testing. Particulate matter grains per dry standard cubic foot (gr/dscf) and pound per hour (lb/hr) emission limits proposed by G-P are up to 550 and 678 percent higher, respectively, than actual PM emission rates determined from 1993 stack testing. Proposed NO_x parts per million on volume dry basis (ppmvd) and lb/hr emission limits are up to 133 and 193 percent higher, respectively, than actual NO_x emission rates determined from 1993 stack testing. Proposed CO ppmvd and lb/hr emission limits are up to 2324 and 3007 percent higher, respectively, than actual CO emission rates determined from 1993 stack testing. The proposed VOC lb/hr emission limit is 7700 percent higher than an actual

VOC lb/hr emission rate determined from 1994 stack testing. Proposed TRS ppmvd and lb/hr emission limits are up to 5500 and 8800 percent higher, respectively, than actual TRS emission rates determined from 1993 compliance stack testing. Emission limits which more accurately reflect the actual operation of the process equipment should be proposed by the applicant. United States Environmental Protection Agency (USEPA)-Region 4 does not consider such extremely significant differences as representative of normal margins of safety. The proposed particulate matter, NO_x, CO, VOC, and TRS emission limits are unchanged from PSD permit limits previously determined Best Available Control Technology (BACT) in 1991. Clearly, these limits should be updated based on the results of recent stack testing. Table 6-3 in the application summarizes the results of RB4 stack testing for years 1992, 1993, and 1994.

3. G-P requests NO_x and CO emission limits of 100 and 400 ppmvd corrected to 8 percent oxygen (O_2), respectively, on an annual average basis. This is not acceptable. Limits based on a 24-hour average would be acceptable. A recent BACT determination for a Weyerhaeuser Company recovery boiler located in Columbus, Mississippi, (Permit No. 1680-00044) includes NO_x and CO emission limits of 80 and 300 ppmvd corrected to 8 percent O_2, respectively, on an 8-hour average basis. The corresponding Weyerhaeuser recovery boiler NO_x and CO mass emission rate permit limits are 194.7 and 444.3 lb/hr, respectively. The permit capacity of the Weyerhaeuser recovery boiler is also 5.0 million pounds of BLS per day.

4. The applicant's BACT analysis should include a technical and economic evaluation to determine the feasibility of improving existing electrostatic precipitator (ESP) particulate collection efficiency. It is unclear from information in the application whether or not the existing ESP may be upgraded with additional transformer-rectifier sets to achieve particulate matter emission rates as low as 0.021 gr/dscf corrected to 8 percent O_2. A recent USEPA-Region 4 Hammermill Papers Plant PSD permit application in Alabama included review of an ESP upgrade option in the BACT analysis for modified recovery boiler particulate matter emissions. A particulate matter emission limit of 0.021 gr/dscf corrected to 8 percent O_2 and 33.9 lb/hr was recently determined BACT for a Boise Cascade recovery boiler (Permit No. 102-0001-X016) located in Jackson, Alabama. The Boise Cascade recovery boiler also utilizes ESP

particulate control technology and has a permitted capacity of 3.26 million pounds of dry BLS per day.

5. The applicant should provide additional information which indicates the percent solids of the black liquor fired in RB4. The recent trend for recovery boilers has been to burn black liquor with about a 75 percent solids content. Increased liquor solids content, while reducing sulfur dioxide (SO_2) emissions, increases NO_x emissions.

The new RDS will be subject to the requirements of 40 CFR Part 60, Subpart BB - Standards of Performance for Kraft Pulp Mills.

Thank you for the opportunity to review and comment on this application. If you have any questions, please contact Mr. Stan Kukier of my staff at (404) 347-3555, voice mail box extension 4143.

Sincerely yours,

Jewell A. Harper
Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

ATTACHMENT B

DESIGN INFORMATION FOR THE NEW TRS SCRUBBER

(Revised 5/14/95)

TRS Scrubber Design Data (revised 5/14/95)

Scrubber Type: Packed Tower

Scrubber Dimensions: 36-inch diameter with 14 feet packing depth

Construction: Stainless steel

NCG Flow to Scrubber: 1,430 acfm @ 130°F

Scrubbing Liquor Flow Rate: 120 gpm (based on white liquor)

TRS Removal Efficiency: 50%

Georgia-Pacific Corporation

Palatka Operations
Packaged Products Division
P.O. Box 919
Palatka, Florida 32178-0919
Telephone (904) 325-2001

May 5, 1995

Mr. Willard Hanks
Permitting and Standards Section
Bureau of Air Regulation
State of Florida
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Hanks:

In the attached letter to Mr. Linero dated March 24, 1995, we described three small projects that were also included in our PSD permit application. This application was recently submitted for the installation of two digesters and modification of the Recovery Boiler.

It has come to my attention that we now have an opportunity to install the lime mud filter cleaner earlier than expected. You may recall that the automatic cleaner merely eliminates filter downtime for manual cleaning. It is my understanding from our phone conversation a couple of weeks ago (April 27, 1995) that we can proceed with installation of the cleaner since there is no potential to increase air emissions. Would you please send me a letter of approval for our files at your earliest convenience.

If you have any questions, please call me at 904-325-2001.

Sincerely,

Myra J. Carpenter

Myra J. Carpenter
Environmental Superintendent

kb

Attachment

cc: W. L. Baxter
David Buff, KBN
B. T. Champion, GA030, G-48
Henry Hirschman
J. E. McKinley
T. R. Wyles, GA030, G-48
W. R. Wilson
L. C. Yarbrough

cc Willard
Cleve
NE District
NPS
EPA

March 24, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill

Dear Mr. Linero:

Georgia-Pacific Corporation (G-P) recently submitted a PSD permit application for the Palatka mill. The permit application described proposed changes in certain emissions units at the Palatka mill: the addition of two new batch digesters and changes to the existing No. 4 Recovery Boiler. These proposed changes will also affect several other emission units: the Multiple Effect Evaporator (MEE) system, condensate stripper system, No. 4 Smelt Dissolving Tanks, No. 4 Lime Kiln, and the Tall Oil plant. These units will be affected by potential increased throughput rates due to the batch digester and recovery boiler changes.

G-P is now considering several other process changes and upgrades at the mill. Specifically, three separate projects are being considered, as described below:

1. Chip Conditioners

   The Palatka mill's existing chip conditioning system is used to condition wood chips before entering the digesters. The current system consists of primary chip thickness screens, high-density separators for removing foreign material, and slicers for reducing the thickness of oversize chips.

   G-P is contemplating replacing the separators and slicers with a new chip conditioner system. The new system will retain good fiber currently lost in the separators, increase wood yield by eliminating fines to the digesters and reduce maintenance costs. The chip conditioners consist of two horizontal steel rolls. The rolls turn at low rpm, and the chips fall between the rolls and are crushed or fissured.

   This process results in improved white liquor penetration into the wood in the digesters, resulting in improved yield. Therefore, a small increase in the pulp production capacity of the digesters is expected to result. However, the currently permitted capacity of the digesters, i.e., 118 TPH and 1,850 TPD, is adequate. This level of pulp production is reflected in the PSD permit application.

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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1616 'P' Street N.W., Suite 450, Washington, D.C. 20036, 202-462-1100, FAX 202-462-2270

2. White Liquor Heater
In the current operations at G-P, white liquor is pumped to the digesters at a temperature of about 180°F. The ideal temperature for use in cooking is somewhat higher. Therefore, steam is used to raise the white liquor temperature. However, this is an inefficient use of steam, and a heat exchanger system is preferable. G-P is considering installing a white liquor heating system (heat exchanger) to replace the current steam system. An added benefit of this system is that digester cooks will increase slightly due to less time to raise the digester pressure. Pulp uniformity will also increase. Therefore, a small increase in the pulp production capacity of the digesters is expected to result. However, the currently permitted capacity of the digesters, i.e., 118 TPH and 1,850 TPD, is adequate. This level of pulp production is reflected in the PSD permit application.

3. Lime Mud Filter Cleaner
G-P currently operates a lime mud filter in the causticizing area. The lime mud filter increases the consistency of lime mud before it is conveyed to the lime kiln. In the current system, there is no mechanism for continuous cleaning of the filter. The filter must be taken out of service for cleaning about three times per day for a total of about 1 hour of downtime. The installation of an automatic cleaning system for the filter will eliminate this downtime, as well as provide for a slight reduction in fuel oil usage per ton of lime mud.

Since these changes will not result in production rates or emissions which exceed those stated in the PSD permit application, these projects can be included in the PSD permit application.

In regard to the PSD permit application submitted, an error has been discovered in the operating hours for the TRS incinerator used determine PSD baseline emissions. Operating hours of 8,760 hr/yr were used, when in reality the unit operated at somewhat fewer hours during the past 2 years. This error was corrected and revised pages of the permit application prepared. These revised pages were left with you during our meeting on March 23rd. Please replace the respective pages in Emission Unit 4 and in the PSD report with the revised pages.

If you have any questions concerning this information, please call.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida Registration 19011

SEAL

DAB/vjp
cc: Myra Carpenter
Traylor Champion
File (2)

14379C/1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

MAY 02 1995

RECEIVED

MAY 8 1995

Bureau of
Air Regulation

4APT-AEB

Mr. Clair H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Department of Environmental
Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

SUBJ: Georgia-Pacific Corporation (G-P), Palatka, Putnam County, Florida (PSD-FL-226)

Dear Mr. Fancy:

This is to acknowledge receipt of an application for a Prevention of Significant Deterioration (PSD) permit for the proposed major modification to the above referenced kraft pulp mill facility by your letter dated March 13, 1995. The proposed major modification consists of the replacement of two existing digesters (Nos. 11 and 12) with two larger digesters. Sixteen screen tube banks will also be added to the existing No. 4 recovery boiler (RB4). Other physical changes at the facility include the addition of a new chip conditioner system, white liquor heater, and automatic lime mud filter cleaner.

G-P expects pulp production to increase approximately 40 tons per day (TPD) using the larger digesters. The pulp production capacity of the existing digester system is 1850 TPD. G-P also expects about a 4 percent increase in black liquor solids (BLS) throughput with the RB4 modification. Current permitted RB4 capacity is 5.04 million pounds of BLS per day. As discussed between Mr. Willard Hanks of your staff and Mr. Stan Kukier of my staff on April 24, 1995, we have the following significant comments.

1. Calculations of current actual emissions used in G-P's netting analysis must be based on a two-year average. The definition of "actual emissions" in 40 CFR § 52.21 (b)(21) indicates that actual emissions shall be determined as follows:

> (ii) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The

> Administrator shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period.

Tables A-1, A-2, and A-3 in Attachment A indicate that the calculations of actual emissions for the No. 4 lime kiln (LK4), RB4, and No. 4 smelt dissolving tanks (SDT4) are based on three-year averages of 1992, 1993, and 1994 stack test results, National Council for Air and Stream Improvements (NCASI) and AP-42 emission factors, and allowable emission rate limits. Table A-4 indicates that calculations of actual emissions for the tall oil plant (TOP) are based on a 1992 stack test result and a NCASI emission factor. Table A-5 indicates that calculations of actual emissions for the total reduced sulfur (TRS) incinerator are based on two-year averages of 1990 and 1994 stack test results, and AP-42 emission factors. The applicant should also clarify whether or not emission increases associated with the new batch digester system (BDS) as well as the existing multiple effect evaporator system (MEES), condensate stripper system (CSS), and brown stock washer system (BSWS) have been considered in the netting calculations. Pursuant to the definition of "actual emissions" in 40 CFR § 52.21 (b)(21)(ii) above, the applicant should recalculate both the current actual emissions and net emissions increases for each emissions unit. Table 3-3 as well as Tables A-1 through A-5 in Attachment A should be revised to reflect any corrections.

2. Reduced particulate matter (PM), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and TRS emission rate limits should be proposed by G-P based on the results of recent compliance stack testing. Particulate matter grains per dry standard cubic foot (gr/dscf) and pound per hour (lb/hr) emission limits proposed by G-P are up to 560 and 678 percent higher, respectively, than actual PM emission rates determined from 1993 stack testing. Proposed NO_x parts per million on volume dry basis (ppmvd) and lb/hr emission limits are up to 133 and 193 percent higher, respectively, than actual NO_x emission rates determined from 1993 stack testing. Proposed CO ppmvd and lb/hr emission limits are up to 2324 and 3007 percent higher, respectively, than actual CO emission rates determined from 1993 stack testing. The proposed VOC lb/hr emission limit is 7700 percent higher than an actual

VOC lb/hr emission rate determined from 1994 stack testing. Proposed TRS ppmvd and lb/hr emission limits are up to 5600 and 8800 percent higher, respectively, than actual TRS emission rates determined from 1993 compliance stack testing. Emission limits which more accurately reflect the actual operation of the process equipment should be proposed by the applicant. United States Environmental Protection Agency (USEPA)-Region 4 does not consider such extremely significant differences as representative of normal margins of safety. The proposed particulate matter, NO_x, CO, VOC, and TRS emission limits are unchanged from PSD permit limits previously determined Best Available Control Technology (BACT) in 1991. Clearly, these limits should be updated based on the results of recent stack testing. Table 6-3 in the application summarizes the results of RB4 stack testing for years 1992, 1993, and 1994.

3. G-P requests NO_x and CO emission limits of 100 and 400 ppmvd corrected to 8 percent oxygen (O_2), respectively, on an annual average basis. This is not acceptable. Limits based on a 24-hour average would be acceptable. A recent BACT determination for a Weyerhaeuser Company recovery boiler located in Columbus, Mississippi, (Permit No. 1680-00044) includes NO_x and CO emission limits of 80 and 300 ppmvd corrected to 8 percent O_2, respectively, on an 8-hour average basis. The corresponding Weyerhaeuser recovery boiler NO_x and CO mass emission rate permit limits are 194.7 and 444.3 lb/hr, respectively. The permit capacity of the Weyerhaeuser recovery boiler is also 5.0 million pounds of BLS per day.

4. The applicant's BACT analysis should include a technical and economic evaluation to determine the feasibility of improving existing electrostatic precipitator (ESP) particulate collection efficiency. It is unclear from information in the application whether or not the existing ESP may be upgraded with additional transformer-rectifier sets to achieve particulate matter emission rates as low as 0.021 gr/dscf corrected to 8 percent O_2. A recent USEPA-Region 4 Hammermill Papers Plant PSD permit application in Alabama included review of an ESP upgrade option in the BACT analysis for modified recovery boiler particulate matter emissions. A particulate matter emission limit of 0.021 gr/dscf corrected to 8 percent O_2 and 33.9 lb/hr was recently determined BACT for a Boise Cascade recovery boiler (Permit No. 102-0001-X016) located in Jackson, Alabama. The Boise Cascade recovery boiler also utilizes ESP

particulate control technology and has a permitted capacity of 3.26 million pounds of dry BLS per day.

5. The applicant should provide additional information which indicates the percent solids of the black liquor fired in RB4. The recent trend for recovery boilers has been to burn black liquor with about a 75 percent solids content. Increased liquor solids content, while reducing sulfur dioxide (SO_2) emissions, increases NO_x emissions.

The new BDS will be subject to the requirements of 40 CFR Part 60, Subpart BB - Standards of Performance for Kraft Pulp Mills.

Thank you for the opportunity to review and comment on this application. If you have any questions, please contact Mr. Stan Kukier of my staff at (404) 347-3555, voice mail box extension 4143.

Sincerely yours,

Jewell A. Harper
Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

KBN

al

April 21, 1995

Mr. Clair H. Fancy, Chief
Bureau of Air Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: File No. AC54-266676/PSD-FL-226 (Georgia-Pacific PSD Application)

Dear Clair:

The enclosed air modeling analysis for the Georgia-Pacific (GP) Palatka mill's hazardous air pollutants (HAPs) is being submitted in response to the Department's letter request of April 12, 1995. One hard and disk copy of the modeling printout has been provided. Should you have any questions relating to the analysis, please call me or Dave Buff at (904) 336-5600. Thank you.

Sincerely,

Steven R. Marks

Steven R. Marks, C.C.M.
Senior Meteorologist

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APR 24 1995
Bureau of
Air Regulation

SRM/vjp

cc: Dave Buff, KBN
Myra Carpenter, G-P
Traylor Champion, G-P
File (2)

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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1.0 DISPERSION MODELING ANALYSIS FOR G-P FACILITY HAPs

1.1 METHODOLOGY

The procedure used in the analysis followed the recommendations in the U.S. Environmental Protection Agency's (EPA's) modeling guidelines, which are approved by the Florida Department of Environmental Protection (FDEP) for general use. The recommendations are related to specific models and options that are preferred for use in particular situations. The guidelines provide recommendations for predicting impacts in both flat or gently rolling terrain by the use of simple terrain models (i.e., terrain less than stack height). These models are applicable to the Georgia-Pacific Palatka facility.

The Industrial Source Complex Short-Term Dispersion Model, Version 93109, (ISCST2; EPA, 1992) is preferred because EPA and FDEP have specifically recommended this model to provide refined air quality impacts in simple terrain. The ISCST2 model is a Gaussian plume model that can be used to assess the air quality impact of emissions from a wide variety of sources associated with an industrial facility.

The ISCST2 model is designed to calculate hour-by-hour concentrations or deposition values and to provide averages for time periods of 2, 3, 4, 6, 8, 12, and 24 hours and 1 year. The ISCST2 model has rural and urban options that affect the wind speed profile exponent law, dispersion rates, and mixing-height formulations used in calculating ground-level concentrations. Concentrations are readily obtainable from the model output for comparison to FDEP's ambient reference concentrations (ARCs).

For the application of the ISCST2 model, the general modeling approach followed EPA and FDEP modeling guidelines for determining compliance with regulatory standards, such as ARCs. For this analysis, the highest 8-hour average, the highest 24-hour average, and the annual average concentrations predicted using 5 years of meteorological data were compared to the proposed ARC.

Meteorological data used in the ISCST2 model to determine air quality impacts consisted of 5 years of hourly surface weather observations from the National Weather Service (NWS) station at the Jacksonville International Airport and twice-daily upper-air soundings from the NWS station at

Waycross, Georgia. The 5-year period of meteorological data was from 1983 through 1987. These data have been recommended by FDEP for projects in the Palatka area.

Receptors were located in sufficient quantity to estimate the highest concentrations and potential exceedances of the proposed ARC. Modeling was performed using a radial receptor grid centered at the TRS incinerator stack location. A total of 236 receptors were used in the dispersion modeling analysis. Receptors were located along 36 radials spaced at 10-degree increments. Along each radial, receptors were located on the property boundary, and at off-property distances of 1100, 1500, 2000, 2500, 3000, 3500, 4000, 4500, and 5000 m.

Short-term and annual HAP emission rates were developed for Recovery Boiler 4, Smelt Dissolving Tank 4, Lime Kiln 4, and the Tall Oil Plant. These emission rates are presented in Tables 1 through 4, respectively, for those sources. The short-term emission rates for each HAP were used in the modeling analysis for all averaging times.

Each source was modeled with the ISCST2 in separate source groups using a generic emission rate of 10.0 grams per second (g/sec) (i.e., 79.365 lb/hr). Modeling output consisted of data files containing the generic concentrations predicted at each receptor by each source for the annual, 24-hour, and 8-hour averaging times. The concentration files were obtained for each source and year modeled.

Maximum 8-hour, 24-hour, and annual impacts for each air toxic pollutant emitted by the facility were determined with the use of an in-house postprocessor program. The postprocessor program was developed to facilitate the process of determining the maximum impacts for numerous toxic pollutants due to multiple, separated sources. Specifically, the following functions were performed by the postprocessor program for each modeled year.

1. The generic concentration files were input by averaging time for each volume source.
2. For each time period in the year for that averaging time, the maximum toxic pollutant impacts for each building were determined at each receptor by multiplying the generic concentration in the file by the toxic pollutant emission rate and dividing the product by the generic emission rate of 10 g/sec. The maximum emission rates for each toxic pollutant are summarized by source in Table 5.

3. The toxic pollutant concentrations for each source, as determined in Step 2, were then summed by receptor and time period to determine the total toxic pollutant concentration obtained from all building sources.
4. The total toxic pollutant concentrations for each receptor were then compared for each time period in the year to determine the maximum toxic pollutant impact obtained for each averaging time.
5. The maximum air toxic concentration for the 8-hour, 24-hour and annual averaging times was then obtained for each of the 5 years of meteorological data utilized. The highest concentration obtained in any year was then used for comparison to the ARCs.

Direction-specific building heights and widths that were used for these sources in the PSD Application modeling were also used in the toxic model analysis.

1.2 MODELING RESULTS

The maximum predicted concentrations for the 8-hour, 24-hour, and annual averaging periods for each modeled year produced by the post-processor program are presented in Tables 6, 7, and 8, respectively. As shown in these tables, the maximum predicted impacts for all three averaging times (i.e., 8-hour, 24-hour, and annual) for all HAP are less than their corresponding ARC values.

Also provided with the analysis is a validation test for KBN's ISCST2 postprocessor. The test was performed for a single pollutant (methanol) by executing the ISCST2 model using the methanol short-term emission rate for each source. The maximum modeling results are provided in Table 9.

Table 1. Potential HAP Emissions from Georgia-Pacific Corporation Palatka Operations for No. 4 Recovery

Pollutant	Emission Factor	Ref.	Activity Factor	Hourly Emissions	Annual Emissions
	lb/TBLS (b)		TBLS/hr (a)	lb/hr	TPY
acetaldehyde	2.0E-02	1	105	2.14	9.36
methanol	6.5E-02	1	105	6.83	29.91
methylene chloride	< 4.6E-03	1	105	0.24	1.07
methyl ethyl ketone	3.5E-03	1	105	0.37	1.62
n-hexane	< 2.8E-04	1	105	0.015	0.064
chloroform	< 6.8E-03	1	105	0.36	1.56
1,2-dichloroethane	< 2.4E-03	1	105	0.13	0.55
1,1,1-trichloroethane	< 2.4E-03	1	105	0.13	0.56
benzene	1.3E-02	1	105	1.32	5.76
carbon tetrachloride	< 1.1E-02	1	105	0.59	2.58
trichloroethylene	< 2.4E-03	1	105	0.13	0.55
methyl isobutyl ketone	1.6E-03	1	105	0.17	0.73
1,1,2-trichloroethane	< 2.4E-03	1	105	0.13	0.56
toluene	6.0E-04	1	105	0.063	0.27
tetrachloroethylene	2.0E-03	1	105	0.21	0.91
chlorobenzene	< 6.8E-04	1	105	0.036	0.16
m,p-xylene	5.7E-04	1	105	0.060	0.26
o-xylene	5.2E-04	1	105	0.055	0.24
xylenes	2.4E-03	1	105	0.25	1.08
styrene	9.8E-04	1	105	0.10	0.45
1,2,4-trichlorobenzene	< 1.1E-03	1	105	0.058	0.25
acrolein	< 9.5E-04	1	105	0.050	0.22
formaldehyde	9.8E-03	1	105	1.03	4.52
PAH	1.1E-04	2	105	0.011	0.049
napthalene	5.8E-04	2	105	0.061	0.27
As	2.4E-04	2	105	0.025	0.11
Be	3.4E-06	2	105	3.5E-04	0.0015
Cd	1.2E-05	2	105	0.0013	0.0055
Cr (total)	3.1E-05	2	105	0.0033	0.014
Cr+6	1.7E-05	2	105	0.0018	0.0077
Mn	5.0E-05	2	105	0.0053	0.023
Ni	4.3E-05	2	105	0.0045	0.020
Pb	6.7E-05	2	105	0.0071	0.031
Hg	3.7E-05	2	105	0.0039	0.017
Se	2.4E-04	2	105	0.025	0.11
Sb	7.2E-05	2	105	0.0076	0.033
Grand Total HAPs (c)				14.59	63.92

References

1. Data is the average of Mills C, J, K and M for NDCE Recovery Furnaces studied in the NCASI MACT Sampling Program, pg. 68.
2. Data is from NCASI Bulletin No. 650, Tables 11B and 11E, for NDCE Recovery Furnaces with dry botton ESP were conversion factors of 6000 Btu/lb solids and 3000 lb solids/Ton Pulp were used.

Footnotes:

(a) Activity factor is based on maximum allowable BLS rate permited for the No. 4 Recovery Boiler

(b) For sumary calculations organic species below quantitation limit values were included at 1/2 the quantitation limit.

(c) For summation totals Cr+6 emissions were included in the Cr value.

Table 2. Potential HAP Emissions from Georgia-Pacific Corporation Palatka Operations for No. 4 Smelt Dissolving Ta

Pollutant	Emission Facto	Ref.	Activety Factor	Hourly Emissions	Annual Emissions
	lb/TBLS (b)		TBLS/hr (a)	lb/hr	TPY
acetaldehyde	5.8E-04	1	105	0.060	0.26
methanol	3.0E-01	1	105	31.64	138.58
methylene chloride	< 5.1E-04	1	105	0.027	0.12
methyl ethyl ketone	8.1E-04	1	105	0.085	0.37
chloroform	< 9.5E-04	1	105	0.050	0.22
1,2-dichloroethane	< 2.6E-04	1	105	0.014	0.060
1,1,1-trichloroethane	< 2.6E-04	1	105	0.014	0.061
benzene	1.2E-04	1	105	0.013	0.055
carbon tetrachloride	< 1.2E-03	1	105	0.064	0.28
trichloroethylene	2.3E-04	1	105	0.024	0.11
methyl isobutyl ketone	3.5E-04	1	105	0.037	0.16
1,1,2-trichloroethane	2.6E-04	1	105	0.027	0.12
toluene	1.6E-04	1	105	0.017	0.075
tetrachloroethylene	3.0E-04	1	105	0.031	0.14
chlorobenzene	7.7E-05	1	105	0.008	0.035
m,p-xylene	1.3E-04	1	105	0.014	0.062
o-xylene	3.5E-04	1	105	0.037	0.16
xylenes	1.1E-04	1	105	0.011	0.05
styrene	1.5E-04	1	105	0.016	0.071
1,2,4-trichlorobenzene	8.6E-05	1	105	0.0090	0.039
acrolein	2.3E-05	1	105	0.0024	0.011
formaldehyde	3.5E-03	1	105	0.369	1.6
carbon disulfide	3.3E-05	2	105	0.003	0.015
cumene	2.5E-03	2	105	0.263	1.1
ethyl benzene	2.0E-04	2	105	0.021	0.092
n-hexane (H)	1.9E-04	2	105	0.020	0.087
napthalene	5.0E-04	2	105	0.053	0.230
vinyl acetate	4.4E-05	2	105	0.0046	0.020
As	7.0E-07	2	105	7.4E-05	3.2E-04
Be	1.4E-07	2	105	1.5E-05	6.4E-05
Cd	1.1E-07	2	105	1.2E-05	5.1E-05
Cr (total)	1.2E-05	2	105	0.0013	0.0055
Cr+6	3.4E-06	2	105	3.6E-04	0.0016
Mn	3.3E-05	2	105	0.0035	0.015
Ni	4.1E-06	2	105	4.3E-04	0.0019
Pb	1.7E-05	2	105	0.0018	0.0078
Hg	1.8E-07	2	105	1.9E-05	8.3E-05
Se	8.6E-07	2	105	9.0E-05	4.0E-04
Sb	5.6E-06	2	105	5.9E-04	0.0026
P	6.4E-05	2	105	0.0067	0.029
Grand Total HAPs (c)				32.95	144.30

References

1. Data is the average of Mills C, D and K for Smelt Dissolving Tanks with Scrubbers studied in the NCASI MACT Sampling Program, pg. 15.
2. Data is averages from NCASI Bulletin No. 650, Tables 14A and 14B, for smelt dissolving tanks.

Footnotes:

(a) Activity factor is based on maximum allowable BLS rate permited for the No. 4 Recovery Boiler.

(b) For sumary calculations organic species below quantitation limit values were included at 1/2 the quantitation limit.

(c) For summation totals Cr+6 emissions were included in the Cr value.

Table 3. Potential HAP Emissions from Georgia-Pacific Corporation Palatka Operations for No. 4 Lime Kiln

Pollutant	Emission Factor	Reference	Activety Factor	Hourly Emissions	Annual Emissions
	lb/TCaO (b)		TCaO/hr (a)	lb/hr	TPY
acetaldehyde	1.4E-02	1	19.44	0.28	1.23
methanol	9.3E-02	1	19.44	1.81	7.95
methylene chloride	< 3.4E-03	1	19.44	0.033	0.14
methyl ethyl ketone	2.0E-03	1	19.44	0.039	0.17
n-hexane (H)	< 4.1E-04	1	19.44	0.004	0.018
chloroform	< 5.6E-03	1	19.44	0.055	0.24
1,2-dichloroethane	< 2.2E-03	1	19.44	0.021	0.092
1,1,1-trichloroethane	< 2.2E-03	1	19.44	0.021	0.093
benzene	9.4E-04	1	19.44	0.018	0.080
carbon tetrachloride	< 1.0E-02	1	19.44	0.10	0.43
trichloroethylene	< 2.2E-03	1	19.44	0.021	0.092
methyl isobutyl ketone	5.9E-04	1	19.44	0.011	0.050
1,1,2-trichloroethane	< 2.2E-03	1	19.44	0.021	0.093
toluene	2.4E-03	1	19.44	0.047	0.20
tetrachloroethylene	2.1E-03	1	19.44	0.040	0.18
chlorobenzene	< 6.1E-04	1	19.44	0.0060	0.026
m,p-xylene	1.5E-03	1	19.44	0.029	0.13
o-xylene	9.3E-04	1	19.44	0.018	0.079
styrene	5.5E-04	1	19.44	0.011	0.047
1,2,4-trichlorobenzene	9.9E-03	1	19.44	0.19	0.84
acrolein	8.1E-04	1	19.44	0.016	0.069
formaldehyde	5.6E-03	1	19.44	0.11	0.48
carbon disulfide	4.4E-03	2	19.44	0.086	0.37
napthalene	2.0E-02	2	19.44	0.39	1.70
PAH	4.8E-03	2	19.44	0.093	0.41
As	5.0E-04	2	19.44	0.010	0.043
Be	1.0E-05	2	19.44	1.9E-04	8.5E-04
Cd	6.5E-05	2	19.44	0.0013	0.0055
Cr (total)	6.3E-04	2	19.44	0.012	0.054
Cr+6	7.6E-05	2	19.44	0.0015	0.0065
Mn	3.5E-04	2	19.44	0.0068	0.030
Ni	5.1E-04	2	19.44	0.010	0.043
Pb	6.3E-04	2	19.44	0.012	0.054
Hg	5.0E-07	2	19.44	9.7E-06	4.3E-05
Se	5.0E-04	2	19.44	0.010	0.043
Sb	3.2E-04	2	19.44	0.0062	0.027
Grand Total HAPs (c)				3.54	15.51

References

1. Data is the average of Mills J, F K and L for Lime Kilns with Scrubbers studied in the NCASI MACT Sampling Program, pg. 14.
2. Data is averages from NCASI Bulletin No. 650, Tables 13A and 13C, for lime kilns with scrubbers.

Footnotes:

(a) Activity factor is based on maximum allowable TCaO rate permited for the No. 4 Lime Kiln.

(b) For sumary calculations organic species below quantitation limit values were included at 1/2 the quantitation limit.

(c) For summation totals Cr+6 emissions were included in the Cr value.

Table 4. Potential HAP Emissions from Georgia–Pacific Corporation Palatka Operations for the Tall Oil Plant

Pollutant	Emission Factor	Ref.	Activity Factor (a)		Hourly Emissions	Annual Emissions
	lb/TTO (b)		TTO/hr 12 hr ave	TTO/hr year	lb/hr	TPY
acetaldehyde	1.2E–02	1	4.58	20020	0.056	0.12
methanol	1.4E+00	1	4.58	20020	6.61	14.44
methylene chloride	< 1.9E–03	1	4.58	20020	0.0044	0.019
methyl ethyl ketone	4.0E–02	1	4.58	20020	0.18	0.40
chloroform	< 3.8E–03	1	4.58	20020	0.0086	0.038
1,2–dichloroethane	< 1.0E–03	1	4.58	20020	0.0024	0.010
1,1,1–trichloroethane	< 1.1E–03	1	4.58	20020	0.0024	0.011
benzene	3.1E–03	1	4.58	20020	0.014	0.031
carbon tetrachloride	< 4.9E–03	1	4.58	20020	0.011	0.049
trichloroethylene	3.0E–03	1	4.58	20020	0.014	0.030
methyl isobutyl ketone	3.6E–03	1	4.58	20020	0.016	0.036
1,1,2–trichloroethane	1.4E–02	1	4.58	20020	0.063	0.14
toluene	2.8E–02	1	4.58	20020	0.13	0.28
tetrachloroethylene	2.0E–02	1	4.58	20020	0.091	0.20
chlorobenzene	2.5E–03	1	4.58	20020	0.012	0.025
m,p–xylene	1.1E–02	1	4.58	20020	0.049	0.11
o–xylene	4.7E–02	1	4.58	20020	0.21	0.47
xylenes	1.7E–03	1	4.58	20020	0.008	0.017
styrene	4.4E–03	1	4.58	20020	0.020	0.044
1,2,4–trichlorobenzene	< 5.9E–04	1	4.58	20020	0.001	0.006
n–hexane	5.1E–02	2	4.58	20020	0.23	0.51
carbon disulfide	2.6E–03	2	4.58	20020	0.012	0.026
cumene	6.7E–02	2	4.58	20020	0.31	0.67
Grand Total HAPs					8.06	17.68

References

1. Data is the average of Mills C and D for Tall Oil Scrubber Outlets studied in the NCASI MACT Sampling Program pg. 26.
2. Data is from NCASI Bulletin No. 650, Tables 15, for Tall Oil Reactor Vents with packed scrubbers, average emission factor.

Footnotes:

(a) Activity factor is based on maximum allowable TTO rate permited for the Tall Oil Plant.

(b) For sumary calculations organic species below quantitation limit values were included at 1/2 the quantitation limit.

Table 5. Potential HAP Short-Term Emissions (lb/hr) from Georgia-Pacific Corporation Palatka Operations

Pollutant	Source			
	rb4	sdt4	top	lk
acetaldehyde	2.14	0.060	0.056	0.28
methanol	6.83	31.64	6.61	1.81
methylene chloride	0.24	0.027	0.0044	0.033
methyl ethyl ketone	0.37	0.085	0.18	0.039
n-hexane	0.015	0.020	0.23	0.004
chloroform	0.36	0.050	0.0086	0.055
1,2-dichloroethane	0.13	0.014	0.0024	0.021
1,1,1-trichloroetha	0.13	0.014	0.0024	0.021
benzene	1.32	0.013	0.014	0.018
carbon tetrachlorid	0.59	0.064	0.011	0.10
trichloroethylene	0.13	0.024	0.014	0.021
methyl isobutyl ket	0.17	0.037	0.016	0.011
1,1,2-trichloroetha	0.13	0.027	0.063	0.021
toluene	0.063	0.017	0.13	0.047
tetrachloroethylene	0.21	0.031	0.091	0.040
chlorobenzene	0.036	0.008	0.012	0.0060
m,p-xylene	0.060	0.014	0.049	0.029
o-xylene	0.055	0.037	0.21	0.018
xylenes	0.25	0.011	0.008	0
styrene	0.10	0.016	0.020	0.011
1,2,4-trichlorobenz	0.058	0.0090	0.001	0.19
acrolein	0.050	0.0024	0	0.016
formaldehyde	1.03	0.369	0	0.11
carbon disulfide	0	0.003	0.012	0.086
cumene	0	0.263	0.31	0.00
ethyl benzene	0	0.021	0	0.00
PAH	0.011	0	0	0.093
napthalene	0.061	0.053	0	0.39
vinyl acetate	0	0.0046	0	0.00
As	0.025	7.4E-05	0	0.010
Be	3.5E-04	1.5E-05	0	1.9E-04
Cd	0.0013	1.2E-05	0	0.0013
Cr	0.0033	0.0013	0	0.012
Cr+6	0.00176	0.00036	0	0.001477
Mn	0.0053	0.0035	0	0.0068
Ni	0.0045	4.3E-04	0	0.010
Pb	0.0071	0.0018	0	0.012
Hg	0.0039	1.9E-05	0	9.7E-06
Se	0.025	9.0E-05	0	0.010
Sb	0.0076	5.9E-04	0	0.0062
P	0.0000	0.0067	0	0
Grand Total HAPs	14.59	32.95	8.06	3.54

Table 6. Maximum 8–Hour HAP Concentrations as Compared with Ambient Reference Concentrations

Pollutant	CAS No.	Concentration ($\mu g/m^3$)	Period Ending	Receptor Location Distance (m)	Receptor Location Direction (deg)	Ambient Reference Concentration ($\mu g/m^3$)	Meets ARC?
1,1,1–trichloroethane	71–55–6	0.02526	86121524	610	180	38200	YES
1,1,2–trichloroethane	79–00–5	0.38605	83110308	457	130	550	YES
1,2–dichloroethane	107–06–2	0.02526	86121524	610	180	400	YES
1,2,4–trichlorobenzene	120–82–1	0.11281	87071416	700	140	370	YES
acetaldehyde	75–07–0	0.35899	83110308	457	130	1800	YES
acrolein	107–02–8	0.00977	87071416	700	140	2.3	YES
arsenic	7440–38–2	0.00599	87071416	700	140	1.6	YES
benzene	71–43–1	0.08887	83110308	457	130	30	YES
beryllium	7440–41–7	0.00011	87071416	700	140	0.02	YES
cadmium	7440–43–9	0.00077	87071416	700	140	0.5	YES
carbon disulfide	75–15–0	0.07259	83110308	457	130	310	YES
carbon tetrachloride	56–23–5	0.11559	86121524	610	180	310	YES
chlorobenzene	108–90–7	0.07479	83110308	457	130	3450	YES
chloroform	67–66–3	0.09027	86121524	610	180	490	YES
chromium	16065–83–	0.00716	87071416	700	140	5	YES
chromium VI	7440–47–3	0.0009	87071416	700	140	0.5	YES
cumene	98–82–8	1.95684	83110308	457	130	2460	YES
ethyl benzene	100–41–4	0.02416	85071716	457	110	4340	YES
formaldehyde	50–00–0	0.42522	85071716	457	110	12.0	YES
lead	7439–92–1	0.00721	87071416	700	140	0.5	YES
manganese	7439–96–5	0.00474	85060216	457	110	50	YES
mercury	7439–97–6	0.00015	86060816	2000	70	0.5	YES
methanol	67–56–1	62.32882	86121524	610	180	2620	YES
methyl ethyl ketone	78–93–3	1.10646	83110308	457	130	5900	YES
methyl isobutyl ketone	108–10–1	0.11479	85041408	533	170	2050	YES
methylene chloride	75–09–2	0.04765	86121524	610	180	1740.0	YES
m,p–xylene	108–38–3	0.29719	83110308	457	130	see xylenes	
napthalene	91–20–3	0.23325	87071416	700	140	520	YES
n–hexane	110–54–3	1.37486	83110308	457	130	1760.0	YES
nickel	7440–02–0	0.00593	87071416	700	140	10	YES
o–xylene	95–47–6	1.26354	83110308	457	130	see xylenes	
PAH		0.05475	87071416	700	140	2	YES
phosphorus	7723–14–0	0.00771	85071716	457	110	1	YES
selenium	7782–49–2	0.00599	87071416	700	140	2	YES
styrene	100–42–5	0.12582	83110308	457	130	2130	YES
tetrachloroethylene	127–18–4	0.55412	83110308	457	130	3390	YES
tin	7440–31–5	0.00372	87071416	700	140	20	YES
toluene	108–88–3	0.7796	83110308	457	130	3770	YES
trichloroethylene	79–01–6	0.09451	85041408	533	170	2690.0	YES
vinyl acetate	108–05–4	0.00529	85071716	457	110	350	YES
xylenes	1330–20–7	0.05235	83110308	457	130	4340.0	YES

Table 7. Maximum 24-Hour HAP Concentrations as Compared with Ambient Reference Concentrations

Pollutant	CAS No.	Concentration (μg/m³)	Period Ending	Receptor Location Distance (m)	Receptor Location Direction (deg)	Ambient Reference Concentration (μg/m³)	Meets ARC?
1,1,1-trichloroethane	71-55-6	0.0189	84011524	610	180	9168	YES
1,1,2-trichloroethane	79-00-5	0.24596	84011524	610	180	132	YES
1,2-dichloroethane	107-06-2	0.0189	84011524	610	180	96	YES
1,2,4-trichlorobenzene	120-82-1	0.04813	86082424	700	130	88.8	YES
acetaldehyde	75-07-0	0.24651	84011524	610	180	432	YES
acrolein	107-02-8	0.00437	86082424	700	130	0.552	YES
arsenic	7440-38-2	0.00253	86082424	700	130	0.48	YES
benzene	71-43-1	0.05982	84011524	610	180	7.2	YES
beryllium	7440-41-7	0.00005	87101124	1100	190	0.0048	YES
cadmium	7440-43-9	0.00032	86082424	700	130	0.12	YES
carbon disulfide	75-15-0	0.04587	84011524	610	180	74.4	YES
carbon tetrachloride	56-23-5	0.08654	84011524	610	180	74.4	YES
chlorobenzene	108-90-7	0.04893	84011524	610	180	828	YES
chloroform	67-66-3	0.06747	84011524	610	180	117.6	YES
chromium	16065-83-	0.0031	86082424	700	130	1.2	YES
chromium VI	7440-47-3	0.00042	87101124	1100	190	0.12	YES
cumene	98-82-8	1.30381	84011524	610	180	590.4	YES
ethyl benzene	100-41-4	0.0152	84011524	610	180	1041.6	YES
formaldehyde	50-00-0	0.26793	84011524	610	180	2.9	YES
lead	7439-92-1	0.00318	86082424	700	130	0.12	YES
manganese	7439-96-5	0.00258	84011524	610	180	12	YES
mercury	7439-97-6	0.0001	83021324	3000	220	0.12	YES
methanol	67-56-1	46.6612	84011524	610	180	628.8	YES
methyl ethyl ketone	78-93-3	0.7083	84011524	610	180	1416	YES
methyl isobutyl ketone	108-10-1	0.08433	84011524	610	180	492	YES
methylene chloride	75-09-2	0.03558	84011524	610	180	417.6	YES
m,p-xylene	108-38-3	0.18633	84011524	610	180	see xylenes	
napthalene	91-20-3	0.10201	86082424	700	130	124.8	YES
n-hexane	110-54-3	0.84058	84011524	610	180	422.4	YES
nickel	7440-02-0	0.00251	86082424	700	130	0.24	YES
o-xylene	95-47-6	0.78115	84011524	610	180	see xylenes	
PAH		0.02275	86082424	700	130	48	YES
phosphorus	7723-14-0	0.00485	84011524	610	180	0.24	YES
selenium	7782-49-2	0.00253	86082424	700	130	0.48	YES
styrene	100-42-5	0.08349	84011524	610	180	517.2	YES
tetrachloroethylene	127-18-4	0.34956	84011524	610	180	813.6	YES
tin	7440-31-5	0.00161	86082424	700	130	4.8	YES
toluene	108-88-3	0.47954	84011524	610	180	904.8	YES
trichloroethylene	79-01-6	0.0678	84011524	610	180	645.6	YES
vinyl acetate	108-05-4	0.00333	84011524	610	180	84	YES
xylenes	1330-20-7	0.0367	84011524	610	180	1041.6	YES

Table 8. Maximum Annual HAP Concentrations as Compared with Ambient Reference Concentrations

Pollutant	CAS No.	Concentration (µg/m³)	Period Ending	Receptor Location Distance (m)	Receptor Location Direction (deg)	Ambient Reference Concentration (µg/m³)	Meets ARC?
1,1,1-trichloroethane	71-55-6	0.00179	87123124	457	110	NA	
1,1,2-trichloroethane	79-00-5	0.0194	87123124	457	120	0.063	YES
1,2-dichloroethane	107-06-2	0.00179	87123124	457	110	0.038	YES
1,2,4-trichlorobenzene	120-82-1	0.00447	87123124	700	130	20	YES
acetaldehyde	75-07-0	0.02241	87123124	457	120	0.45	YES
acrolein	107-02-8	0.00043	87123124	700	130	0.02	YES
arsenic	7440-38-2	0.00023	87123124	1100	130	0.00023	YES
benzene	71-43-1	0.00488	87123124	457	120	0.12	YES
beryllium	7440-41-7	0	87123124	1100	130	0.00042	YES
cadmium	7440-43-9	0.00003	87123124	1100	130	0.00056	YES
carbon disulfide	75-15-0	0.00458	87123124	457	120	200	YES
carbon tetrachloride	56-23-5	0.00825	87123124	457	110	0.067	YES
chlorobenzene	108-90-7	0.00387	87123124	457	120	NA	
chloroform	67-66-3	0.00614	87123124	457	110	0.043	YES
chromium	16065-83-	0.0003	87123124	700	130	NA	
chromium VI	7440-47-3	0.00004	87123124	700	130	0.000083	YES
cumene	98-82-8	0.10109	87123124	457	120	1	YES
ethyl benzene	100-41-4	0.0014	87123124	457	110	1000	YES
formaldehyde	50-00-0	0.02612	87123124	457	110	0.077	YES
lead	7439-92-1	0.00032	87123124	700	130	0.09	YES
manganese	7439-96-5	0.00032	87123124	457	110	0.4	YES
mercury	7439-97-6	0	87123124	3500	230	0.3	YES
methanol	67-56-1	3.73143	87123124	457	110	NA	
methyl ethyl ketone	78-93-3	0.05559	87123124	457	120	80	YES
methyl isobutyl ketone	108-10-1	0.0066	87123124	457	120	NA	
methylene chloride	75-09-2	0.0033	87123124	457	110	2.1	YES
m,p-xylene	108-38-3	0.01487	87123124	457	120	NA	
napthalene	91-20-3	0.01006	87123124	700	130	NA	
n-hexane	110-54-3	0.06574	87123124	457	120	200	YES
nickel	7440-02-0	0.00023	87123124	1100	130	0.0042	YES
o-xylene	95-47-6	0.0612	87123124	457	120	NA	
PAH		0.002	87123124	1100	130	NA	
phosphorus	7723-14-0	0.00045	87123124	457	110	NA	
selenium	7782-49-2	0.00023	87123124	1100	130	NA	
styrene	100-42-5	0.00661	87123124	457	120	NA	
tetrachloroethylene	127-18-4	0.02771	87123124	457	120	NA	
tin	7440-31-5	0.00015	87123124	700	130	NA	
toluene	108-88-3	0.03801	87123124	457	120	300	YES
trichloroethylene	79-01-6	0.00547	87123124	457	120	NA	
vinyl acetate	108-05-4	0.00031	87123124	457	110	200	YES
xylenes	1330-20-7	0.00284	87123124	457	120	80	YES

NA = Not Applicable

Table 9. Maximum Predicted Methanol Concentrations for the ISCST2 Postprocessor Validation Test

Averaging Time	Concentration ($\mu g/m^3$)	Receptor Location[a] Direction (degrees)	Receptor Location[a] Distance (m)	Period Ending (YYMMDDHH)
Annual	3.19836	120.	457.	83123124
	2.91626	110.	457.	84123124
	2.84912	110.	457.	85123124
	2.79472	110.	457.	86123124
	3.73143	110.	457.	87123124
24-Hour[a]	24.62090	170.	533.	83011024
	46.66121	180.	610.	84011524
	24.13634	130.	457.	85121924
	37.01173	180.	610.	86121524
	30.45360	120.	457.	87102724
8-Hour[a]	59.06980	170.	533.	83121908
	56.95271	170.	533.	84011308
	59.03494	170.	533.	85041408
	62.32882	180.	610.	86121524
	53.59153	120.	457.	87020408

Note: YY=Year, MM=Month, DD=Day, HH=Hour

[b] All short-term concentrations indicate highest concentrations.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

APR 18 1995

IN REPLY REFER TO:

Mr. Clair H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Dear Mr. Fancy:

We have reviewed the information forwarded by your department regarding Georgia-Pacific Corporation's proposed modification of the digester system and recovery boiler at its Kraft pulp mill in Palatka, Florida. The facility is located approximately 111 km southeast of Okefenokee Wilderness Area (WA) and 150 km south of Wolf Island WA, Class I air quality areas, administered by the Fish and Wildlife Service (Service).

Best Available Control Technology

The Best Available Control Technology (BACT) analysis appears to be complete except for the discussion regarding control of total reduced sulfur (TRS) emissions from the reboiler. Data from the EPA's RACT/BACT/LAER clearinghouse indicate that virtually every BACT determination for reboilers has required that an emission level of 5 ppm TRS be met. This includes all of the determinations in the historical data base. Georgia-Pacific proposes a BACT emission rate of 11.4 ppm. The application indicates that continuous emission monitors (CEM) at Georgia-Pacific's reboiler have recorded an average rate of 2.4 ppm, with a maximum rate of 11.2 ppm. Prior to determining BACT, we request that you and Georgia-Pacific review the CEM data to determine if a BACT level lower than 11.4 is appropriate. The data should be examined to determine how often the high values occur, if they are avoidable, or how they can be minimized. At the very least, the BACT determination should require that 5 ppm be met on an average basis, perhaps with an allowance for higher values, according to what is discovered during examination of the CEM data.

Air Quality Analysis

Georgia-Pacific's air quality impact analysis is complete except for a regional haze visibility analysis. In this case, because of the distance from the Class I areas and Georgia-Pacific's relatively small amounts of visibility reducing emissions, we do

not believe that a regional haze analysis is required. However, future applicants should consult with us on the need to perform a regional haze visibility analysis. Guidance for such an analysis is found in the EPA document Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 1 Report: Interim Recommendation for Modeling Long Range Transport and Impacts on Regional Visibility (EPA-454/R-93-015, April 1993). In addition, we can provide technical assistance for the analysis to applicants.

Georgia-Pacific did perform a Level-1 visibility screening analysis for the Okefenokee WA using the VISCREEN visibility screening analysis model, as recommended in EPA's Workbook for Plume Visual Impact Screening and Analysis (EPA 1988). The proposed project passed the Level-1 screening test, and therefore, would have low potential for plume impacts at Okefenokee WA. However, Georgia-Pacific used a background visual range of 40 km. We now have several years of fine particle data from which we have reconstructed a visual range value that more accurately represents conditions at Okefenokee WA. We recommend that future applicants use a visual range of 77 km, the value that represents the 10 percent of days with best visibility at Okefenokee WA. It is Service policy to protect that 10 percent of days with best visibility at Class I areas.

Predicted impacts from the proposed modification were below Service Class I significant impact levels for nitrogen dioxide and PM-10. Therefore, a cumulative increment analysis was not performed.

Air Quality Related Values Analysis

The Air Quality Related Values analysis is complete. Because of the relatively low predicted impacts of cumulative emissions, resources at the two wilderness areas are not expected to be affected.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at telephone number 303/969-2617.

Sincerely yours,

Noreen K. Clough
Regional Director

CC: A. Hanks
C. Holladay
C. Kirts, NE Dist
J. Harper, EPA
D. Buff, KBN

April 17, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

This correspondence presents the response to Question 3 contained in the Department's letter dated March 29, 1995, requesting additional information on the above-referenced PSD permit application. On behalf of G-P, response to Question 3 is provided below.

3. The Department requests more justification, including cost data, on any air pollution control option that was eliminated from consideration in the BACT determination. This issue was discussed between G-P and FDEP staff during the March 23 meeting. To clarify further, it is noted that BACT is required only for the Digester System and the No. 4 Recovery Boiler. During the March 23 meeting, additional information was requested in regard to No. 4 Recovery Boiler only. Therefore, additional BACT information is provided below for PM, NO_x, and CO emissions from No. 4 Recovery Boiler.

   PM - FDEP requested that a baghouse be investigated for possible application to the No. 4 Recovery Boiler. There are no known applications of baghouses to recovery boilers. The pulp and paper industry has employed ESP technology on recovery boilers for more than 70 years, and the industry has spent considerable investment in improving the performance of these devices. As shown by the test data from the G-P recovery boiler, very low PM emissions are typically achieved.

   In contrast, baghouse technology has not been applied to recovery boilers. Before a baghouse could be applied on a commercial scale, significant research, engineering, pilot testing and full scale testing would be necessary. Technical considerations would include fire potential, plugging potential, moisture content of the flue gases, bag cleaning mechanism, type of bags to employ, maintenance procedures, etc. Due to the unproven nature of baghouses and lack of commercial demonstration on recovery boilers, this technology is considered to be technically infeasible. It would not be appropriate to replace a well operating ESP on an existing source with an unproven technology.

   NO_x- The Department requested that flue gas recirculation (FGR), selective non-catalytic reduction (SNCR), and selective catalytic reduction (SCR) be investigated further as possible options for NO_x control on No. 4 Recovery Boiler.

   SCR would not be technically feasible for No. 4 Recovery Boiler since the particulate loading is too high at the point where the SCR device would be employed (600°F - 750°F temperature). This point would normally be located between the economizer and the air preheater. Based on AP-42 uncontrolled PM factor for recovery boilers, the PM loading before the ESP on No. 4 Recovery

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 904-336-5600 FAX 904-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910 FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street N.W., Suite 450, Washington, D.C. 20036, 202-462-1100 FAX 202-462-2270

Boiler would be approximately 16,000 lb/hr, or 9 gr/dscf. Such a loading would immediately cover the catalyst and render it ineffective. As a result, SCR is considered technically infeasible for No. 4 Recovery Boiler.

Both SNCR and FGR will be considered for application to recovery boilers, although neither technology is known to have ever been applied to a recovery boiler. One SNCR vendor, Nalco-Fueltech indicated that SNCR application to a recovery boiler was feasible. As a result, a vendor quote was obtained. Vendor quotes previously obtained for FGR application to a municipal solid waste incinerator were used for the present analysis. A cost analysis for these two technologies applied to No. 4 Recovery Boiler are presented in Table A. As shown, the capital cost for SNCR is estimated at $3.7 million, and for FGR is $1.9 million. The total annualized operating cost is $1.7 million for SNCR, and $0.7 million for FGR. In order to determine cost effectiveness, the annual NO_x emissions were based on the average of the three recent stack tests on the recovery boiler, which averaged 109 lb/hr, and assuming 8,760 hr/yr operation. This results in annual uncontrolled NO_x emissions of 477 tons per year (TPY). The resulting cost effectiveness values are over $7,000 per ton NO_x removed for both SNCR and FGR. As a result, these technologies are considered economically infeasible.

CO- CO oxidation catalyst systems have not been applied to recovery boilers. For the same reasons that SNCR for NO_x control is not feasible for a recovery boiler, an oxidation catalyst for CO is not feasible for a recovery boiler. Catalyst systems require elevated temperatures (>500°F) and low PM loadings (<0.1 lb/MMBtu). There is no point along the flue gas flow for No. 4 Recovery Boiler where this condition is met. As a result, a CO oxidation catalyst is considered technically infeasible for the G-P recovery boiler.

Also included with this correspondence are copies of the stack test data for No. 4 Recovery Boiler, and copies of the current operating permits for affected units. These copies were inadvertently left out of the April 13, 1995, submittal.

Thank you for consideration of this information. Please call if you have any questions.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011

SEAL

Enclosures

DB/ehj

cc: Myra Carpenter
Traylor Champion
File (2)

cc: Willard Hanks
Cleve Holladay
Chris Kirts, NE
EPA
NPS

14379C/2

Table A. Estimated Costs for SNCR and FGR application to No. 4 Recovery Boiler at G-P, Palatka

Cost Items	Cost Factors	SNCR	FGR
DIRECT CAPITAL COSTS (DCC):			
(1) Purchased Equipment Costs			
(a) Basic Equipment/Services or	Based on Vendor Quotes (a)	–	$800,000
NOxOUT System Components	Based on Vendor Quotes (a)	$1,207,000	–
(b) Reductant Tank & Auxiliary System	Included	Included	–
(c) Instrumentation & Controls (b)	0.1 x (1a .. 1b)	$120,700	$80,000
(d) Structural Support	0.1 x (1a .. 1b)	$120,700	$80,000
(e) Freight (b)	0.05 x (1a .. 1d)	$72,420	$48,000
(f) Sales Tax (Florida)	0.06 x (1a .. 1d)	$86,904	$57,600
(g) Subtotal	(1a .. 1f)	$1,607,724	$1,065,600
(2) Direct Installation (b)	Based on Vendor Quote for SNCR	$300,000	
	0.30 for FGR x (1g)		$319,680
Total DCC:	(1g) + (2)	$1,907,724	$1,385,280
INDIRECT CAPITAL COST (ICC):			
(3) Indirect Installation Costs			
(a) Technology License Fee	Estimated from Vendor Quote	included	–
(b) Engineering & Supervision (b)	0.2 for SNCR or 0.1 for FGR x (DCC)	$381,545	$138,528
(c) Construction & Field Expenses (b)	0.2 for SNCR or 0.1 for FGR x (DCC)	$381,545	$138,528
(d) Construction Contractor Fee (b)	0.1 for SNCR or 0.05 for FGR x (DCC)	$190,772	$69,264
(e) Contingencies	0.4 for SNCR or 0.1 for FGR x (DCC)	$763,090	$138,528
(4) Other Indirect Costs			
(a) Start-up & Testing (b)	0.03 for FGR x (DCC)	included	$41,558
(b) Model Study	Estimated from Vendor Quote	N/A	–
(c) Working Capital	30-day DOC (c)	$64,620	$21,891
Total ICC	(3)+(4)	$1,781,572	$548,298
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	$3,689,296	$1,933,578
DIRECT OPERATING COST (DOC):			
(1) Operating Labor			
Operator	$22 /hr @ 8760 hr/yr	$192,720	–
Supervisor (b)	15% of operator cost	$28,908	–
(2) Maintenance (b)	5% of total DCC	$95,386	$69,264
(3) Utilities			
(a) Reductant Injection System	$85 /MW-hr @ 219 MWhr	$18,615	–
(b) Air Handling Fan	$85 /MW-hr @ 2276 MWhr	–	$193,429
(c) Dilution Water for SNCR	$0.27 /1000 gal 12.8 gpm	$1,816	
(4) Chemicals (Reductant)	$1.00 per gal@ 438,000 gal /yr	$438,000	–
Total DOC		$775,446	$262,693
INDIRECT OPERATING COST (IOC):			
(5) Overhead (b)	60% of operating labor & maintenance	$190,209	$41,558
(6) Property Taxes (b)	1% of TCI	$36,893	$19,336
(7) Insurance (b)	1% of TCI	$36,893	$19,336
(8) Administration (b)	2% of TCI	$73,786	$38,672
Total IOC	(5)+(6)+(7)+(8)	$337,780	$118,902
CAPITAL RECOVERY COST (CRC)	CFR of 0.1627 x TCI	$600,248	$314,593
ANNUALIZED COST (AC)	DOC + IOC + CRC	$1,713,475	$696,188
UNCONTROLLED NOx EMISSIONS:	477 TPY based on actual average emissions	477	477
TOTAL NOx REMOVAL	50% for SNCR or	239	
	20% for FGR		95
COST EFFECTIVENESS	$ per ton of NOx removed	$7,184	$7,298

Notes:

(a) Typical existing boiler 1,278 MMBtu/hr unit with exhaust flow rate of 430,000 acfm.

(b) Cost factors are based on EPA's OAQPS Control Cost Manual, Fourth Edition.

(c) 30 days of direct operating costs (i.e., total DOC / 12 months).

COPIES OF OPERATING PERMITS

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:	I.D. Number:	31JAX54000518&19
Georgia-Pacific Corporation	Permit/Certification Number:	A054-209650
Post Office Box 919	Date of Issue:	07-30-92
Palatka, Florida 32178-0919	Expiration Date:	June 10, 1997
	County:	Putnam
	Latitude/Longitude:	29°41'00"N; 81°40'45"W
	Project:	No. 4 Recovery Boiler No. 4 Smelt Dissolving Tanks
	UTM:	E-(17)434.0; N-3283.4

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of:

Pt. #

18 No. 4 Recovery Boiler (RB) which is low odor design with an electrostatic precipitator for particulate matter emissions control; and

19 No. 4 Smelt Dissolving Tanks (SDTs); two tanks, each vented through a Venturi scrubber to control particulate matter emissions.

Located north of S.R. 216, west of U.S. 17, north of Palatka, Putnam County, Florida.

In accordance with:

RB construction permit #AC54-192550 issued 06-07-91
SDTs construction permit #AC54-193841 issued 06-07-91
RB Certificate of Completion of Construction received 03-04-92
SDTs Certificate of Completion of Construction received 03-04-92
Additional information received 04-01-92
Additional information received 05-06-92

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

PERMITTEE:	I.D. Number:	31JAX54000518&19
Georgia-Pacific Corporation	Permit/Certification Number:	A054-209650
Post Office Box 919	Date of Issue:	
Palatka, Florida 32178-0919	Expiration Date:	June 10, 1997

SPECIFIC CONDITIONS:

1. The maximum input rate/production rate (operating rate) is SEE BELOW and shall not be exceeded without prior approval.

Rate	Material	To
210,000 lbs/hr[1]	BLS[2]	RB
85,890 lbs/hr	Smelt[3]	SDTs
5,400 gals/hr	No. 6 fuel oil[4]	RB

[1]Basis: 323,077 lbs/hr black liquor at 65% solids
[2]BLS - black liquor solids
[3]Smelt (green liquor solids)
[4]Sulfur content shall not exceed 2.5% by wt.

2. Testing of emissions must be performed at an operating rate of at least 90% of the rate in Specific Condition (SC) No. 1, or SC No. 3 will become effective.

3. The operating rate shall not exceed 110% of the operating rate during the most recent test except for testing purposes, but shall not exceed that rate in SC No. 1. After testing at an operating rate greater than 110% of the last test operating rate, the operating rate shall not exceed 110% of the last (submitted) test operating rate until the test report at the higher rate has been reviewed and accepted by the Department.

4. The permitted maximum allowable emission rate for each pollutant is as follows:

Pollutant	FAC Rule	lbs/hr	TPY
From RB:			
PM/PM_{10}[1]	---[2]	83.2[3]	364.4[4]
NO_x[5]	---[2]	210.6[6]	922.4[4]
CO[7]	---[2]	1025.4[8]	2245.6[4]
VOC[9]	---[2]	54.6[10]	239.1[4]
TRS[11]	---12	17.8[13]	78.0[4]
SO_2[14]	---12	109.9[15]	481.4[4]
SAM[16]	---12	3.2[17]	14.2[4]
VE[18]	---[2]	<20% opacity	
odor	17-2.620(2)	none objectionable off plant property	
From SDTs:			
PM/PM_{10}	---[19]	12.6[20]	55.2[4]
TRS	17-2.600(4)(c)4.a.	3.4[21]	14.9[4]
VE	---[19]	<20% opacity	
odor	17-2.620(2)	none objectionable off plant property	

SPECIFIC CONDITIONS:

SC No. 4 Cont'd.

[1]PM - particulate matter
[1]PM_{10} - PM less than or equal to 10 micrometers (see def. 151)
[2]Pursuant to BACT
[3]Basis: 0.033 gr/DSCF, corrected to 8% O_2
[4]Hours of operation are limited to 24 H/D, 7 D/W, 52 W/Y (8760 H/Y) and shall be recorded.
[5]NO_x - Nitrogen oxides
[6]Basis: 100 ppmvd, corrected to 8% O_2, 24-hr and annual avg.
[7]CO - carbon monoxide
[8]Basis: 800 ppmvd, corrected to 8% O_2, 1-hr level maximum.
TPY based on annual avg. of 512.7 lbs/hr (400 ppmvd, corrected to 8% O_2)
[9]VOC - volatile organic compounds
[10]Basis: 0.52 lb/ton BLS
[11]TRS - Total reduced sulfur
[12]From CP #AC54-192550
[13]Basis: 11.4 ppmvd, corrected to 8% O_2, as hydrogen sulfide (H_2S)
[14]SO_2 - sulfur dioxide
[15]Basis: in CP #AC54-192550, SC #5
[16]SAM - sulfuric acid mist
[17]Basis: 0.81 ppm in stack gases (NCASI Technical Bulletin No. 106) and 427,560 ACFM
[18]VE - visible emissions
[19]From CP #AC54-193841
[20]Basis: 0.12 lb/ton BLS to #4 RB, which is based on BACT
[21]Basis: 0.048 lb/3000 lbs BLS (as H_2S - hydrogen sulfide)

5. Test the emission for the following pollutant(s) at the interval(s) indicated, notify the Department 14 days prior to testing, and submit the test report documentation to the Department within 45 days after completion of the testing:

Pollutant	Interval	Test Method[1]
From RB:		
PM/PM_{10}	12 months from 03-10-92	EPA 5
NO_x	12 months from 03-10-92	EPA 7E
CO	12 months from 03-10-92	EPA 10
VOC	12 months from 03-10-92	EPA 25
TRS[2]	12 months from 03-10-92	EPA 16 or 16A
SO_2	12 months from 03-10-92	EPA 8
SAM	12 months from 03-10-92	EPA 8
VE	12 months from 03-10-92	EPA 9
From SDTs:		
PM/PM_{10}	12 months from 03-12-92	EPA 5
TRS[3]	12 months from 03-12-92	EPA 16 or 16A
VE	see SC #9	---

SPECIFIC CONDITIONS:

SC #5 Cont'd.

[1]From AP #AC54-192550 & CP #AC54-193841
[2]Also, see SC #7
[3]Also, see SC #8

Tests and test reports shall comply with the requirements of Florida Administrative Code Rule 17-2.700(6) and (7), respectively.

6. In each test report, submit the maximum input/production rate at which this source was operated since the most recent test.

7. Recovery Boiler TRS continuous monitoring system (CMS) report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the information required by Florida Administrative Code Rule 17-2.710(4). (now 17-297.500(4)

8. SDT continuous monitoring requirement is met by establishing the surrogate parameter of 119 gpm, minimum 12 hr. avg., of weak wash liquor flow rate to the scrubber per FAC Rule 17-2.710(3)(d). The surrogate parameter flow rate shall be monitored continuously and reported as required by FAC Rule 17-2.710(4).

9. Due to moisture interference, the visible emission limiting standard pursuant to FAC Rule 17-2.610(2) is not applicable and is deferred to FAC Rule 17-2.600(4)(a). 17-296.4(2)(b) However, if the Department observes visible emissions in excess of 20% opacity pursuant to FAC Rule 17-2.700(6)(b)9, it shall be considered good reason to believe that the applicable mass emission standard is in danger of being violated. The permittee shall be required to run a special compliance test in accordance with FAC Rule 17-2.700(2)(b). Such test shall be conducted within 14 days after the Department has notified the permittee of the applicability of this permit condition. 17-297.401(6)(b)(9)

10. Submit an annual operation report for this source on the form supplied by the Department for each calendar year on or before March 1.

11. Any revision(s) to a permit (and application) must be submitted and approved prior to implementing.

12. The ID No. and ID Name for this source is to be used on all correspondence.

PERMITTEE:	I.D. Number:	31JAX54000518&19
Georgia-Pacific Corporation	Permit/Certification Number:	A054-209650
Post Office Box 919	Date of Issue:	
Palatka, Florida 32178-0919	Expiration Date:	June 10, 1997

SPECIFIC CONDITIONS:

13. Forms for the renewal will be sent 5 months prior to 06-10-97 and the completed forms with test results are due 90 days prior to 06-10-97.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Ernest E. Frey
Director of District Management

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 , Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged. 7/30/92

Clerk Date

CERTIFICATION

PROJECT NAME: Georgia-Pacific Corporation
No. 4 Recovery Boiler
No. 4 Smelt Dissolving Tanks

APPLICATION NO: A054-209650

I HEREBY CERTIFY that the engineering features described in application No. A054-209650 provide reasonable assurance of compliance with the applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title 17. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including, but not limited to, the electrical, mechanical, structural, hydrological, and geological features).

Andrew G. Kutyna, P.E.
Name, P.E.

Andrew G. Kutyna
Signature and Seal

7-28-92
Date

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:
Georgia-Pacific Corporation
Post Office Box 919
Palatka, Florida 32178-0919

I.D. Number:	31JAX54000531
Permit/Certification Number:	A054-209098
Date of Issue:	09-18-92
Expiration Date:	June 30, 1997
County:	Putnam
Latitude/Longitude:	29°41'00"N; 81°40'45"W
Project:	Tall Oil Plant
UTM:	E-(17)434.0; N-3283.4

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of the Tall Oil Plant with the TRS emissions from the reactor controlled by a scrubber.

Located: West of U.S. 17, north of S.R. 216, north of Palatka, Putnam County, Florida.

In accordance with:

Operate permit application dated 01-05-87
Additional information received 03-20-87
Request to revise proposed permit dated 05-29-87
Permit No. AC54-108945 revision dated 01-11-88
Renewal application received 02-25-92
Additional information received 09-01-92

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Recycled Paper

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

SPECIFIC CONDITIONS:

1. The maximum operating rate is SEE BELOW and shall not be exceeded without prior approval.

Rate	Material
55 T/12-hr[1]	CTO[1]
20,020 T/yr[1]	CTO

[1]One cook of 55 tons of crude tall oil (CTO) per 12-hr period per amendment to CP# AC54-108945 dated 01-11-88. Also, yearly max of 20,020 tons of CTO.

2. Testing of emissions must be performed at an operating rate of at least 90% of the rate in Specific Condition (SC) No. 1, or SC No. 3 will become effective.

3. The operating rate shall not exceed 110% of the operating rate during the most recent test except for testing purposes, but shall not exceed that rate in SC No. 1. After testing at an operating rate greater than 110% of the last test operating rate, the operating rate shall not exceed 110% of the last (submitted) test operating rate until the test report at the higher rate has been reviewed and accepted by the Department.

4. The permitted maximum allowable emission rate for each pollutant is as follows:

Pollutant	FAC Rule	Emission Rate lbs/hr	Emission Rate TPY
TRS	17-2.600(4)(c)2.a.	4.23[1]	0.50[1]
Odor	17-2.620(2)	None objectionable off plant property	

[1]Basis: 55 Ton (CTO prod)/12-hr.
0.05 lb TRS/Ton CTO prod as 12-hr average; see 1/11/88 revisions to AC54-108945

Hours of operation are limited to 8760 H/Y and shall be recorded.

5. Test the emission for the following pollutant(s) at the interval(s) indicated, notify the Department 14 days prior to testing, and submit the test report documentation to the Department within 45 days after completion of the testing:

Pollutant	Interval	Test Method[1]
TRS[2]	5 years from 02/15/92[3]	EPA 16 or 16A or 16B

[1]From 17-2.700(1), FAC in Table 700-1.
[2]Surrogate parameter & reporting -- see SCs. 8 & 9
[3]Basis: FAC Rule 17-2.700(2)(a)3.

Tests and test reports shall comply with the requirements of Florida Administrative Code Rule 17-2.700(6) and (7), respectively.

PERMITTEE:	I.D. Number:	31JAX54000531
Georgia-Pacific Corporation	Permit/Certification Number:	A054-209098
Post Office Box 919	Date of Issue:	
Palatka, Florida 32178-0919	Expiration Date:	June 30, 1997

SPECIFIC CONDITIONS:

6. In each test report, submit the maximum input/production rate at which this source was operated since the most recent test.

7. As the surrogate parameter for TRS control, the scrubber liquor outlet flow rate (in GPM) shall be monitored and maintained at 149 GPM or greater during the entire acidulation and neutralization process of each cook. The quality of the scrubber liquor which is "white" liquor shall be maintained at process specifications.

8. A TRS surrogate parameter data report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the information required by Florida Administrative Code Rule 17-2.710(4).

9. Submit an annual operation report for this source on the form supplied by the Department for each calendar year on or before March 1.

10. Any revision(s) to a permit (and application) must be submitted and approved prior to implementing.

11. The ID No. and ID Name for this source is to be used on all correspondence.

12. Forms for the renewal will be sent 5 months prior to 06-30-97 and the completed forms with test results are due 90 days prior to 06-30-97.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Ernest E. Frey, P.E.
Director of District Management

DER Form 17-1.201(5) Effective November 30, 1982

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

Date

CERTIFICATION

PROJECT NAME: Georgia-Pacific Corporation
Tall Oil Plant

APPLICATION NO: A054-209098

I HEREBY CERTIFY that the engineering features described in application No. A054-209098 provide reasonable assurance of compliance with the applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title 17. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including, but not limited to, the electrical, mechanical, structural, hydrological, and geological features).

Andrew G. Kutyna, P.E.
Name, P.E.

Signature and Seal

9-17-92
Date

Florida Department of Environmental Regulation

Northeast District • Suite 200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577 • 904-448-4300

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary
Ernest Frey, Deputy Assistant Secretary

PERMITTEE:	I.D. Number:	31JAX54000532
	Permit Number:	A054-166018
	Date of Issue:	01-22-91
Georgia-Pacific Corporation	Expiration Date:	December 31, 1995
Post Office Box 919	County:	Putnam
Palatka, Florida 32078	Latitude/Longitude:	29°41'00"N; 81°40'45"W
	Project:	TRS Incinerator
	UTM:	E-(17)434.0; N-3283.4

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of TRS (Total Reduced Sulfur) incinerator to incinerate the noncondensable gases (NCG) from the following:

Digester System (13 units)
Multiple Effect Evaporation (MEE) System (4 units)
Condensate Stripper System

Located west of U.S. 17; north of S.R. 216, north of Palatka, Putnam County, Florida.

In accordance with:

1. TRS incinerator CP#AC54-142291 issued 04-26-88
2. Digester system CP#AC54-142282 issued 04-26-88
3. MEE system CP#AC54-142283 issued 04-26-88
4. Condensate stripper system CP#AC54-142288 issued 04-26-88
5. CP revisions for (#1-4 above) dated 07-18-88
6. Certificate of Completion of Construction for (#1-4 above) dated 06-08-89
7. CP revisions for (#1-4 above) dated 12-06-89
8. Nos. 10 & 13 digester system CP#AC54-170420 issued 01-26-90
9. CP revisions for (#1-4 above) dated 09-05-90
10. Certificate of Completion of Construction for #8 above dated 09-20-90
11. Additional information for (#1-4 above) received 10-25-90

PERMITTEE:
Georgia-Pacific Corporation
Post Office Box 919
Palatka, Florida 32078

I.D. Number: 31JAX54000532
Permit/Cert: AO54-166018
Date of Issue:
Expiration Date: December 31, 1995

SPECIFIC CONDITIONS:

1. The maximum operating rate is shown below and shall not be exceeded without prior approval.

Rate[1]	Material	Unit/System
118 TPH[2,3]	ADUP[4]	From digester
1,850 TPD[5]	ADUP	From digester
259,121 lbs/hr[6,7]	Dry BLS[8]	From MEE
109,500 lbs/hr[9]	Condensate	To condensate stripper
8.0 MMBTU/hr[10]	Fuel[10]	To incinerator

[1]All rates are from the construction permits
#AC54-142282 Digester system
#AC54-142283 Multiple effect evaporator (MEE)
#AC54-142288 Condensate stripper system
#AC54-142291 TRS incinerator
[2]This production rate is for testing and NSPS applicability purposes.
[3]For testing, the operating rate shall be no less than 85% of this rate.
[4]ADUP - air dried unbleached pulp.
[5]This production rate is for PSD purposes and it based on the usage rates of 291,417 lbs/hr dry wood chips; 566,501 lbs/hr of white liquor and 167,078 lbs/hr of liquor to the digester system.
[6]At the concentrator outlet.
[7]Based on nominal input of 259,121 lbs of dry BLS/hr to the pre-evaporator; 40,208 lbs of dry BLS/hr to the No. 1 multiple effect evaporators (MEE); 71,482 lbs of dry BLS/hr to each of the No. 2 and No. 3 MEE; 75,949 lbs of dry BLS/hr to the No. 4 MEE; and 259,121 lbs of dry BLS/hr to the concentrator stage of evaporation.
[8]BLS - black liquor solids
[9]Based on 220 gals of condensate/min. Also, shall not exceed a 24-hr average of 180 gals of condensate/min. (89,700 lbs/hr)
[10]Total heat input firing methanol and natural gas (NG).
Natural gas sulfur content shall not exceed 0.1%.
Natural gas may be fired during periods of startup, shutdown, malfunction and, also, as a supplemental fuel.
NG input rate shall be recorded hourly.

2. Testing of emissions must be performed at an operating rate of at least 90% of the rate in Specific Condition (SC) No. 1, or SC No. 3 will become effective.

3. The operating rate shall not exceed 110% of the operating rate during the most recent test except for testing purposes, but shall not exceed that rate in SC No. 1. After testing at an operating rate greater than 110% of the last test operating rate, the operating rate shall not exceed 110% of the last (submitted) test operating rate until the test report at the higher rate has been reviewed and accepted by the Department.

PERMITTEE:
Georgia-Pacific Corporation
Post Office Box 919
Palatka, Florida 32078

I.D. Number: 31JAX54000532
Permit/Cert: A054-166018
Date of Issue:
Expiration Date: December 31, 1995

SPECIFIC CONDITIONS:

4. The permitted maximum allowable emission rate for each pollutant is as follows:

Pollutant	F.A.C. Rule	lbs/hr	TPY
PM[1]	---[2]	5.5 [2]	24.1 [2,3]
TRS[4,5]	17-2.600(4)(c)6.a.	0.12[2]	0.53[2,3]
SO_2[6]	---[2]	1200[2]	3434[2]
Odor	---[2]	None objectionable[7]	
VE[8]	---[2]	5% opacity, except 20% opacity for 3 mins/hr	

[1]PM - Particulate matter
[2]From CP#AC54-142291
[3]Hours of operation are limited to 8760 hrs/yr and shall be recorded.
[4]TRS - Total reduced sulfur
[5]All TRS gases burned in the TRS incinerator shall be subjected to a minimum temperature of at least 1200° F for at least 0.5 second.
[6]SO_2 - sulfur dioxide
[7]Off plant property
[8]VE - Visible emissions

5. Test the emission for the following pollutant(s) at the interval(s) indicated, notify us 14 days prior to testing, and submit the test report documentation to this office within 45 days after completion of the testing:

Pollutant	Interval	Test Method
PM	5 Years from 01-25-90[1]	EPA 5[1]
TRS[2]	5 Years from 01-25-90[3]	EPA 16 or 16A[1]
SO_2	5 Years from 01-25-90[4]	EPA 6[1]
VE	5 Years from 01-25-90	DER 9[1]

[1]From CP#AC54-142291
[2]For continuous monitoring, recording and reporting requirements (See 7,8 & 10)
[3]From letter dated 04-05-90
[4]Basis: FAC Rule 17-2.700(2)(a)3.

Tests and test reports shall comply with the requirements of Florida Administrative Code Rule 17-2.700(6) and (7), respectively.

PERMITTEE:
Georgia-Pacific Corporation
Post Office Box 919
Palatka, Florida 32078

I.D. Number: 31JAX54000532
Permit/Cert: A054-166018
Date of Issue:
Expiration Date: December 31, 1995

SPECIFIC CONDITIONS:

6. In each test report, submit the maximum input/production rate at which this source was operated since the most recent test.

7. A continuous monitoring system (CMS) shall monitor and record combustion temperature at the point of incineration pursuant to all applicable requirements of 40 CFR 60.284(b)(1).
All monitoring and recording systems shall be regularly calibrated and maintained pursuant to written procedures and schedules in accordance with applicable regulations and accepted industry practice.

8. Excess emissions of TRS from the TRS incinerator shall be reported and evaluated pursuant to FAC Rule 17-2.710(4). For the purposes of this Specific Condition the excess emissions to be reported shall be those defined by 40 CFR 60.284 (c)(3)(ii).

9. All excess emissions from the digester system, the multiple effect evaporation system, the condensate stripper system, the noncondensable gas handling (NCG) system, and the TRS incinerator shall be subject to the applicable requirements of FAC Rules 17-2.240, 17-2.250, 17-2.600(4)(c)1.c., and 17-2.130.

10. A temperature continuous monitoring system (CMS) report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the information required by Florida Administrative Code Rule 17-2.710(4).

11. The TRS incinerator contingency plan to vent through elevated vents is approved with the following requirements:
    1. The venting time shall be as short as possible and limited to required maintenance.
    2. The cumulative venting time shall not exceed 10 days in any annual period unless authorized.
    3. The cumulative venting time shall be in the incinerator temperature CMS quarterly reports (see SC #10).

12. For the purposes of future permits and PSD determinations, the mass emissions of pollutants listed in Table 500-2 and the associated emission changes are:

Pollutant	Pre-Compliance		Post-		Changes	
	lbs/hr[1]	T/Y[2]	lbs/hr[1]	T/Y[2]	lbs/hr[1]	T/Y[2]
Particulate	--	--	2.4	10.7	+2.4	+10.7
TRS[3]	637.5	1824.3	0.1	0.5	-637.4	-1823.8
SO_2	--	--	1200	3433.9	+1200	+3433.9
NOx	--	--	1.5	6.8	+1.5	+6.8
CO	--	--	0.4	1.7	+0.4	+1.7
VOC	--	--	0.1	0.3	+0.1	+0.3

PERMITTEE:
Georgia-Pacific Corporation
Post Office Box 919
Palatka, Florida 32078

I.D. Number: 31JAX54000532
Permit/Cert: A054-166018
Date of Issue:
Expiration Date: December 31, 1995

SPECIFIC CONDITIONS:

SC No. 12 Cont'd.

[1]Based on maximum 3-hour estimate.
[2]Based on maximum daily estimate.
[3]Based on information supplied by the company that the TRS gases emitted by the pre-evaporators and condensate stripper were previously emitted to the air.

13. The Nos. 10 and 13 batch digester systems are subject to all applicable provisions of F.A.C. Chapters 17-2 and 17-4 and 40 CFR (July 1, 1988 version).

14. The emissions from the two new batch digester systems (Nos. 10 and 13), are defined in 40 CFR 60.281(d), shall be collected and transported by the noncondensible gas handling system to the incinerator in accordance with 40 CFR 60.283(a)(1)(iii).

15. Submit an annual operation report for this source on the form supplied by the Department for each calendar year on or before March 1.

16. Any revision(s) to a permit (and application) must be submitted and approved prior to implementing.

17. The ID Number and ID Name for this source is to be used on all correspondences.

18. Forms for the renewal will be sent 5 months prior to 12-31-95 and the completed forms with the compliance report is due 90 days prior to 12-31-95.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Ernest E. Frey, P.E.
Deputy Assistant Secretary

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to S120.52 , Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

1-22-91
Date

CERTIFICATION

PROJECT NAME: Georgia Pacific Corporation
TRS Incinerator

Application No. A054-166018

I HEREBY CERTIFY that the engineering features described in application No. A054-166018 provide reasonable assurance of compliance with the applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title 17. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including, but not limited to, the electrical, mechanical, structural, hydrological, and geological features).

Andrew G. Kutyna, P.E.
Name, P.E.

Signature and Seal

1-17-91
Date

Florida Department of Environmental Regulation

Northeast District • Suite B200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577

Lawton Chiles, Governor — Carol M. Browner, Secretary

PERMITTEE:	I.D. Number:	31JAX54000517
Georgia-Pacific Corporation	Permit/Certification Number:	A054-209858
Post Office Box 919	Date of Issue:	07-29-92
Palatka, Florida 32178-0919	Expiration Date:	May 31, 1997
	County:	Putnam
	Latitude/Longitude:	29°40'51"N; 81°40'54"W
	Project:	No. 4 Lime Kiln
	UTM:	E-(17)434.0; N-3283.4

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-2 and 17-4. The above named permittee is hereby authorized perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of No. 4 Lime Kiln with the particulate matter emissions controlled by a Zurn variable throat venturi scrubber.

Located north of S.R. 216, west of U.S. 17, north of Palatka, Putnam County, Florida.

In accordance with:

Construction permit No. AC54-192551 issued 06-07-91
Certificate of Completion of Construction received 03-09-92
Additional information received 05-06-92

Administration 448-4300
Air 448-4310
Waste Management 448-4320

Water Facilities 448-4330
Water Management 448-4340
FAX 448-4366

PERMITTEE:	I.D. Number:	31JAX54000517
Georgia-Pacific Corporation	Permit/Certification Number:	AO54-209858
Post Office Box 919	Date of Issue:	
Palatka, Florida 32178-0919	Expiration Date:	May 31, 1997

SPECIFIC CONDITIONS:

1. The maximum input rate is SEE BELOW and shall not be exceeded without prior approval.

Rate		Material
62,500 lbs/hr		$CaCO_3$
3,889 lbs/hr		inerts
15,625 lbs/hr		Recycle $CaCO_3$
972 lbs/hr		Recycle inerts
82,986 lbs/hr	Total	$CaCO_3$ and inerts
870[1] gals/hr		#6 fuel oil[2]

[1]See SC #8.
[2]Sulfur content shall not exceed 2.5% by wt.

2. Testing of emissions must be performed at an operating rate of at least 90% of the rate in Specific Condition (SC) No. 1, or SC No. 3 will become effective.

3. The operating rate shall not exceed 110% of the operating rate during the most recent test except for testing purposes, but shall not exceed that rate in SC No. 1. After testing at an operating rate greater than 110% of the last test operating rate, the operating rate shall not exceed 110% of the last (submitted) test operating rate until the test report at the higher rate has been reviewed and accepted by the Department.

4. The permitted maximum allowable emission rate for each pollutant is as follows:

Pollutant	FAC Rule	lbs/hr	TPY
PM/PM_{10}[1]	---	26.0[2,3]	113.9[4,3]
SO_2 [5]	---	10.9[6,3]	47.7[4,3]
TRS [7]	17-2.600(4)(c)5.a.	4.0[8,3]	17.5[4,3]
NO_x [9]	---	50.3[10,3]	223.3[4,3]
CO [11]	---	7.3[12,3]	32.0[4,3]
VOC[13]	---	17.2[14,3]	75.3[4,3]
VE [15]	---	<20% opacity[16,3]	
odor	17-2.620(2)	none objectionable off plant property	

[1]PM - particulate matter
[1]PM_{10} - PM less than or equal to 10 micrometers (see def. 151).

SPECIFIC CONDITIONS:

SC No. 4 Cont'd.

[2]Basis: 0.081 gr/dscf corrected to 10% O_2
[3]From CP #AC54-192551 pursuant to BACT
[4]Hours of operation are limited to 24 H/D, 7 D/W, 52 W/Y (8760 H/Y) and shall be recorded.
[5]SO_2 - Sulfur dioxide
[6]Basis: 0.3 lb. per TADP; 72.9 TADP/hr; 50% eff.
[7]TRS - Total Reduced Sulfur
[8]Basis: 20 ppm, vol., dry, standard condition, 10% O_2 corr., as 12-hr avg.
[9]NO_x - nitrogen oxides
[10]Basis: 290 ppmvd, corrected to 10% O_2
[11]CO - carbon monoxide
[12]Basis: 69 ppmvd, corrected to 10% O_2
[13]VOC - volatile organic compounds
[14]Basis: 185 ppmvd, corrected to 10% O_2
[15]VE - visible emissions
[16]Deferred per CP #AC54-192551 --- see SC #8

5. Test the emission for the following pollutant(s) at the interval(s) indicated, notify the Department 14 days prior to testing, and submit the test report documentation to the Department within 45 days after completion of the testing:

Pollutant	Interval	Test Method[1]
PM/PM_{10}	12 months from 02-05-92	EPA 5
TRS	12 months from 02-05-92	EPA 16 or 16A
SO_2	12 months from 02-05-92	EPA 8
NO_x	12 months from 02-05-92	EPA 7E
CO	12 months from 02-05-92	EPA 10
VOC	12 months from 02-05-92	EPA 25

[1]From CP #AC54-192551

Tests and test reports shall comply with the requirements of Florida Administrative Code Rule 17-2.700(6) and (7), respectively.

6. A TRS continuous monitoring system (CMS) report shall be postmarked by the 30th day following the end of each calendar quarter and shall include the information required by FAC Rules 17-2.710(3) & (4).

7. Unconfined particulate matter emissions shall be controlled by application of dust suppressants, unless an alternative method is requested and approved, to all areas necessary to reasonable control such emissions per Florida Administrative Code Rule 17-2.610(3).

PERMITTEE:	I.D. Number:	31JAX54000517
Georgia-Pacific Corporation	Permit/Certification Number:	A054-209858
Post Office Box 919	Date of Issue:	
Palatka, Florida 32178-0919	Expiration Date:	May 31, 1997

SPECIFIC CONDITIONS:

8. 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 FAC 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 FAC Rule 17-2.700(2)(b). Such test shall be conducted within 14 days after the Department has notified the permittee of the applicability of this permit condition.

9. In each test report, submit the maximum input/production rate at which this source was operated since the most recent test.

10. Submit an annual operation report for this source on the form supplied by the Department for each calendar year on or before March 1.

11. Any revision(s) to a permit (and application) must be submitted and approved prior to implementing.

12. The ID No. and ID Name for this source is to be used on all correspondence.

13. Forms for the renewal will be sent 5 months prior to 05-31-97 and the completed forms with test results are due 90 days prior to 05-31-97.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Ernest E. Frey, P.E.
Director of District Management

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

Date

CERTIFICATION

PROJECT NAME: Georgia-Pacific Corporation
No. 4 Lime Kiln

APPLICATION NO: AO54-209858

I HEREBY CERTIFY that the engineering features described in application No. AO54-209858 provide reasonable assurance of compliance with the applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Title 17. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including, but not limited to, the electrical, mechanical, structural, hydrological, and geological features).

Andrew G. Kutyna, P.E.
Name, P.E.

Signature and Seal

7-28-92
Date

COPIES OF STACK TESTS

WESTON Work Order No. 00414-016-006

NO. 4 RECOVERY FURNACE, NO. 4 SMELT DISSOLVING TANK VENTS AND NO. 4 LIME KILN EMISSION TEST REPORT GEORGIA-PACIFIC CORPORATION PALATKA, FLORIDA FEBRUARY 1994

Prepared For:

GEORGIA-PACIFIC CORPORATION
HIGHWAY 216
PALATKA, FL 32177

APPROVED FOR TRANSMITTAL
MARCH 1994

Prepared By:

Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830

SECTION 1

INTRODUCTION

Roy F. Weston, Inc. (WESTON®) was retained by Georgia-Pacific Corporation to conduct emission testing as outlined in Table 1-1. The purpose of the testing was to demonstrate compliance with Florida Department of Environmental Regulation (DER) permit limitations.

Table 1-1

Summary of Emission Testing Parameters

Source	Parameter						
	Particulate	SO_2	NO_x	CO	VOC	TRS	H_2SO_4
No. 4 Recovery Furnace	X	X	X	X	X	X	X
No. 4 Smelt Dissolving Tank Vents	X					X	
No. 4 Lime Kiln	X	X	X	X	X	X	

WESTON performed the emission testing during 15-17 February 1994 with a test team comprised of Mr. Rodney Padgett, Mr. Mike Chadwick, Mr. Wayne Roberts, Mr. Jack Short, and Mr. Jeff Hollingsworth. Mr. Greg Sims was the WESTON Project Manager and Mr. David Elam served as the Project Director. Appendix A includes copies of personnel professional profiles. Mr. James Norwood of Georgia-Pacific Corporation coordinated the testing with mill operations and served as WESTON's technical contact throughout the effort. Mr. Stan Mazur of the Florida DER was present during testing.

Section 2 of this report presents the results of the emission testing conducted by WESTON and opacity testing conducted by Georgia-Pacific personnel. Section 3 describes testing procedures and provides guidelines for data interpretation. Field and laboratory data, calculations, and general project information are provided in the appendices.

SECTION 2

RESULTS AND DISCUSSION

Table 2-1 summarizes the results of emission testing performed at the Georgia-Pacific Corporation mill in Palatka, Florida. The results are compared to Florida DER permit limitations. The following subsections provide detailed results of each aspect of the testing effort.

Table 2-1

Summary of Emission Test Results

	Mean Test Value	Permit Limit
No. 4 Recovery Furnace		
Particulate, gr/dscf[a]	0.007	0.033
Particulate lb/hr	14.4	83.2
Sulfur Dioxide, lb/hr	<9.3	109.9
Sulfuric Acid Mist, lb/hr	<0.72	3.24
Nitrogen Oxides, ppmvd[a]	60	100
Nitrogen Oxides, lb/hr	105	210.6
Carbon Monoxide, lb/hr	566	1025.4
Total Reduced Sulfur, ppmvd[a]	2.3	11.4
Total Reduced Sulfur[b], lb/hr	3.0	17.8
Volatile Organic Compounds[c], lb/hr	<1.1	54.6
Volatile Organic Compounds[c], lb/ton BLS[d]	<0.01	0.52
Opacity, %	2	20
No. 4 Smelt Dissolving Tank Vent		
Particulate, lb/hr	8.5	12.6
Particulate, lb/ton BLS	0.09	0.12
Total Reduced Sulfur, lb/hr[b]	2.1	3.4
Total Reduced Sulfur, lb/3000 lb BLS[d]	0.032	0.048
No. 4 Lime Kiln		
Particulate, gr/dscf[e]	0.040	0.081
Particulate lb/hr	15.3	26
Sulfur Dioxide, lb/hr	<1.7	10.9
Nitrogen Oxides, ppmvd[e]	134	290
Nitrogen Oxides, lb/hr	42.4	50.3
Carbon Monoxide, ppmvd[e]	16	69
Carbon Monoxide, lb/hr	3.1	7.3
Total Reduced Sulfur, ppmvd[e]	<6	20
Total Reduced Sulfur[b], lb/hr	<1.4	4.0
Volatile Organic Compounds, ppmvd[e]	<15	185
Volatile Organic Compounds[c], lb/hr	<0.9	17.2

[a]Corrected to 8% O_2.
[b]As H_2S.
[c]As carbon.
[d]Black liquor solids.
[e]Corrected to 10% O_2.

2.1 NO. 4 RECOVERY FURNACE

Tables 2-2 through 2-5 summarize the results of the emission testing performed on 15 February 1994 on the No. 4 Recovery Furnace. Field and laboratory data are provided in Appendices B and E, respectively. Sample calculations are presented in Appendix F.

Table 2-2

Particulate Emission Data - No. 4 Recovery Furnace

	Run 1	Run 2	Run 3	Mean
Date	2/15/94	2/15/94	2/15/94	----
Time Began	1100	1249	1435	----
Time Ended	1210	1356	1544	----
Stack Gas				
Temperature, °F	404	412	415	410
Velocity, ft/sec	51.3	51.0	51.0	51.1
Moisture, %	29.4	27.0	26.6	27.7
CO_2 Concentration, %	14.8	15.3	14.5	14.9
O_2 Concentration, %	4.2	3.8	4.5	4.2
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	4.19	4.17	4.16	4.17
At Standard Conditions[a], x 10^5 ft^3/min	1.83	1.86	1.87	1.85
Particulate				
Isokinetic Sampling Rate, %	100	95	97	97
Concentration, gr/dscf[b]	0.007	0.006	0.007	0.007
Emission Rate, lb/hr	15.0	13.6	14.7	14.4
Permit Limit,				
gr/dscf	----	----	----	0.033
lb/hr	----	----	----	83.2

[a]68°F, 29.92 in. Hg.
[b]Corrected to 8% O_2.

Table 2-3

SO_2, NO_x, CO, and VOC Emission Data - No. 4 Recovery Furnace

	Run 1[a]	Run 2	Run 3	Mean
Date	2/15/94	2/15/94	2/15/94	----
Time Began	1513	1646	1801	----
Time Ended	1613	1746	1901	----
Stack Gas				
Temperature, °F	415	416	415	415
Velocity, ft/sec	51.0	51.1	51.1	51.1
Moisture[b], %	26.6	27.7	27.7	27.3
CO_2 Concentration, %	14.5	14.8	14.7	14.7
O_2 Concentration, %	4.5	4.2	4.3	4.3
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	4.16	4.18	4.17	4.17
At Standard Conditions[c], x 10^5 ft^3/min	1.87	1.85	1.86	1.86
Sulfur Dioxide				
Concentration[d], ppmvd	<5	<5	<5	<5
Emission Rate, lb/hr	<9.3	<9.2	<9.2	<9.3
Permit Limit, lb/hr	----	----	----	109.9
Nitrogen Oxides				
Concentration, ppmvd @ 8% O_2	59	58	62	60
Emission Rate, lb/hr	104	101	109	105
Permit Limit, ppmvd	----	----	----	100
Permit Limit, lb/hr	----	----	----	210.6
Carbon Monoxide				
Concentration, ppmvd @ 8% O_2	440	756	404	533
Emission Rate, lb/hr	472	798	428	566
Permit Limit, lb/hr	----	----	----	1025.4
Volatile Organic Compounds, as Carbon				
Concentration[d], ppmvd	<3	<5	<2	<3
Emission Rate, lb/hr	<1.0	<1.7	<0.7	<1.1
Emission Rate, lb/ton BLS[e]	<0.01	<0.02	<0.01	<0.01
Permit Limit, lb/hr	----	----	----	54.6
Permit Limit, lb/ton BLS[e]	----	----	----	0.52

[a]Stack gas and volumetric flow data from particulate run 3.
[b]Runs 2 and 3 moisture data are average of particulate data.
[c]68°F, 29.92 in. Hg.
[d]Values reported as "less than" because some or all injections yielded concentrations below the detection limit. Instrument detection limits are shown in Appendix B.
[e]Black liquor solids.

Table 2-4

Sulfuric Acid Mist Emission Data - No. 4 Recovery Furnace

	Run 1	Run 2	Run 3	Mean
Date	2/15/94	2/15/94	2/15/94	----
Time Began	1400	1443	1520	----
Time Ended	1430	1513	1550	----
Stack Gas[a]				
Temperature, °F	----	415	----	----
Velocity, ft/sec	----	51.0	----	----
Moisture, %	----	26.6	----	----
CO_2 Concentration, %	----	14.5	----	----
O_2 Concentration, %	----	4.5	----	----
Volumetric Flow Rate[a]				
At Stack Conditions, x 10^5 ft^3/min	----	4.16	----	----
At Standard Conditions[b], x 10^5 ft^3/min	----	1.87	----	----
Sulfuric Acid Mist				
Concentration, mg/dscm	0.83	<1.01	1.24	<1.03
Emission Rate, lb/hr	0.58	<0.71	0.87	<0.72
Permit Limit, lb/hr	----	----	----	3.24

[a]Stack gas and volumetric flow data from particulate run 3.
[b]68°F, 29.92 in. Hg.

Table 2-5

TRS Emission Data - No. 4 Recovery Furnace

	Run 1	Run 2	Run 3	Mean
Date Time Began Time Ended	2/15/94 0725 1025	2/15/94 1132 1432	2/15/94 1543 1843	---- ---- ----
Measured TRS Concentration[a], ppmvd	3.0	4.5	0.9	2.8
Recovery, %	90.3	90.3	95.5	92.0
Oxygen Concentration[b], %	4.2	3.8	4.2	4.1
Oxygen Correction Factor	0.77	0.76	0.77	0.77
Corrected TRS Concentration[c], ppmvd TRS Emission Rate[d], lb/hr	2.6 3.2	3.7 4.8	0.7 0.93	2.3 3.0
TRS Permit Limit ppmvd lb/hr	 ---- ----	 ---- ----	 ---- ----	 11.4 17.8

[a]Only H_2S was detected and included in reduced sulfur total. Instrument lower detection limits for other reduced sulfur compounds are shown in Appendix B.
[b]Oxygen concentrations from Orsat analyses of integrated bags collected during TRS runs.
[c]The reported value is corrected for both recovery and oxygen concentration.
[d]As H_2S.

WESTON Work Order No. 00414-016-004

NO. 4 RECOVERY FURNACE, NO. 4 SMELT DISSOLVING TANK VENT, AND NO. 4 LIME KILN EMISSION TEST REPORT GEORGIA-PACIFIC CORPORATION PALATKA, FLORIDA FEBRUARY 1993

Prepared For:

GEORGIA-PACIFIC CORPORATION
HIGHWAY 216
PALATKA, FL 32177

APPROVED FOR TRANSMITTAL
APRIL 1993

Prepared By:

Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830

SECTION 2. RESULTS AND DISCUSSION

Table 2.1 summarizes the results of emission testing performed at the Georgia-Pacific Corporation mill in Palatka, Florida. These results are compared to FDER permit limitations.

TABLE 2.1. SUMMARY OF EMISSION TEST RESULTS

	MEAN TEST VALUE	PERMIT LIMIT
No. 4 Recovery Furnace		
Particulate, gr/dscf[a]	0.006	0.033
Particulate, lb/hr	12.9	83.2
Opacity, %	0	20
Sulfur Dioxide, lb/hr	301	109.9
Sulfuric Acid Mist (EPA 8), lb/hr	11.0	3.24[b]
Sulfuric Acid Mist (NCASI 106), lb/hr	4.29	3.24[b]
Nitrogen Oxides, ppmvd[a]	45	100
Nitrogen Oxides, lb/hr	76	210.6
Carbon Monoxide, ppmvd[a]	102	400
Carbon Monoxide, lb/hr	104	512.7
Total Reduced Sulfur, ppmvd[a]	≤0.3	11.4
Total Reduced Sulfur[c], lb/hr	≤0.3	17.8
Volatile Organic Compounds[d], lb/hr	<4.4	54.6
Volatile Organic Compounds[d], lb/ton BLS[e]	<0.05	0.52
No. 4 Smelt Dissolving Tank Vent		
Particulate, lb/hr	5.7	12.6
Particulate, lb/ton BLS[e]	0.06	0.12
Total Reduced Sulfur[c], lb/hr	0.7	3.4
Total Reduced Sulfur[c], lb/3000 lb BLS[e]	0.010	0.048

[a]Corrected to 8% O_2.
[b]Based on 0.81 ppm in gas (NCASI 106) and 427,560 acfm.
[c]As H_2S.
[d]As carbon.
[e]Black liquor solids.

TABLE 2.1. SUMMARY OF EMISSION TEST RESULTS
(Continued)

	MEAN TEST VALUE	PERMIT LIMIT
No. 4 Lime Kiln		
Particulate, gr/dscf[a]	0.069	0.081
Particulate, lb/hr	26	26
Sulfur Dioxide, lb/hr	<0.5	10.9
Nitrogen Oxides, ppmvd[a]	89	290
Nitrogen Oxides, lb/hr	28	50.3
Carbon Monoxide, ppmvd[a]	11	69
Carbon Monoxide, lb/hr	2.0	7.3
Total Reduced Sulfur, ppmvd[a]	≤8	20
Total Reduced Sulfur[b], lb/hr	≤1.8	4.0
Volatile Organic Compounds[c], ppmvd[a]	12	185
Volatile Organic Compounds[c], lb/hr	0.9	17.2

[a]Corrected to 10% O_2.
[b]As H_2S.
[c]As carbon.

2.1. NO. 4 RECOVERY FURNACE

Tables 2.2 through 2.5 summarize the results of the emission testing performed during 17-19 February 1993 on the No. 4 Recovery Furnace. Field and laboratory data are provided in Appendices B and E, respectively. Sample calculations are presented in Appendix F.

TABLE 2.2. PARTICULATE AND OPACITY EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/19/93	02/19/93	02/19/93	---
Time Began	0819	1052	1227	---
Time Ended	0927	1157	1331	---
Stack Gas				
Temperature, °F	402	406	408	405
Velocity, ft/sec	54.9	52.9	51.7	53.2
Moisture, %	26.4	27.6	27.1	27.0
CO_2 Concentration, %	14.0	14.2	14.0	14.1
O_2 Concentration, %	4.4	4.6	4.4	4.5
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	4.49	4.32	4.23	4.34
At Standard Conditions*, x 10^5 ft^3/min	2.02	1.90	1.87	1.93
Particulate				
Isokinetic Sampling Rate, %	98	98	96	98
Concentration, gr/dscf @ 8% O_2	0.007	0.006	0.005	0.006
Emission Rate, lb/hr	16.1	12.1	10.7	12.9
Permit Limit, gr/dscf @ 8% O_2	---	---	---	0.033
Permit Limit, lb/hr	---	---	---	83.2
Opacity				
Observed, %	0	---	---	0
Permit Limit, %	---	---	---	20

*68°F, 29.92 in. Hg.

TABLE 2.3. SO_2 AND H_2SO_4 EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 2[a]	RUN 3	RUN 4	MEAN
Date	02/17/93	02/17/93	02/17/93	---
Time Began	1135	1336	1552	---
Time Ended	1246	1448	1701	---
Stack Gas				
Temperature, °F	405	403	405	404
Velocity, ft/sec	51.6	50.7	50.2	50.8
Moisture, %	28.2	28.8	27.9	28.3
CO_2 Concentration, %	14.0	14.0	14.2	14.1
O_2 Concentration, %	4.6	4.6	4.6	4.6
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	4.22	4.14	4.10	4.15
At Standard Conditions[b], x 10^5 ft^3/min	1.86	1.81	1.81	1.83
Sulfur Dioxide				
Isokinetic Sampling Rate, %	101	101	102	101
Concentration, ppmvd	203	175	118	165
Emission Rate, lb/hr	375	315	214	301
Permit Limit, lb/hr	---	---	---	109.9
Sulfuric Acid Mist				
Concentration, mg/dscm				
EPA 8	14.1	18.7	15.7	16.2
NCASI 106	5.85	6.51	6.47	6.28
Emission Rate, lb/hr				
EPA 8	9.77	12.7	10.7	11.0
NCASI 106	4.07	4.41	4.38	4.29
Permit Limit, lb/hr	---	---	---	3.24[c]

[a]Run 1 was voided due to broken glassware.
[b]68°F, 29.92 in. Hg.
[c]Based on 0.81 ppm in gas (NCASI 106) and 427,560 acfm.

TABLE 2.4. NO_x, CO, AND VOC EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/17/93	02/17/93	02/17/93	---
Time Began	0840	1005	1125	---
Time Ended	0939	1104	1224	---
Stack Gas				
Temperature, °F	---	---	405	405
Velocity, ft/sec	---	---	51.6	51.6
Moisture, %	---	---	28.2	28.2
CO_2 Concentration, %	---	---	14.0	14.0
O_2 Concentration, %	---	---	4.6	4.6
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	---	---	4.22	4.22
At Standard Conditions[a], x 10^5 ft^3/min	---	---	1.86	1.86
Production Rate, ton BLS[b]/hr	95.7	95.9	97.4	96.3
Nitrogen Oxides				
Concentration, ppmvd @ 8% O_2	43	50	43	45
Emission Rate[c], lb/hr	72	84	72	76
Permit Limit, ppmvd @ 8% O_2	---	---	---	100
Permit Limit, lb/hr	---	---	---	210.6
Carbon Monoxide				
Concentration, ppmvd @ 8% O_2	193	33	80	102
Emission Rate[c], lb/hr	197	33	82	104
Permit Limit, ppmvd @ 8% O_2	---	---	---	400
Permit Limit, lb/hr	---	---	---	512.7
Volatile Organic Compounds[d]				
Concentration, ppmvd @ 8% O_2	<10	<10	<10	<10
Emission Rate[c], lb/hr	<4.4	<4.4	<4.4	<4.4
Emission Rate[c], lb/ton BLS[b]	<0.05	<0.05	<0.05	<0.05
Permit Limit, lb/hr	---	---	---	54.6
Permit Limit, lb/ton BLS[b]	---	---	---	0.52

[a]68°F, 29.92 in. Hg.
[b]Black liquor solids.
[c]Emission rates calculated using one volumetric flow rate.
[d]As carbon.

TABLE 2.5. TRS EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/17/93	02/17/93	02/17/93	---
Time Began	0809	1149	1529	---
Time Ended	1109	1449	1829	---
Stack Gas				
Temperature, °F	405	403	405	404
Velocity, ft/sec	51.6	50.7	50.2	50.8
Moisture, %	28.2	28.8	27.9	28.3
CO_2 Concentration, %	14.0	14.0	14.2	14.1
O_2 Concentration, %	4.6	4.6	4.6	4.6
Volumetric Flow Rate				
At Stack Conditions,				
x 10^5 ft^3/min	4.22	4.14	4.10	4.15
At Standard Conditions[a],				
x 10^5 ft^3/min	1.86	1.81	1.81	1.83
Total Reduced Sulfur				
Concentration[b], ppmvd @ 8% O_2	≤0.2	≤0.3	≤0.3	≤0.3
Emission Rate[c], lb/hr	≤0.2	≤0.3	≤0.3	≤0.3
Permit Limit, ppmvd @ 8% O_2	---	---	---	11.4
Permit Limit[c], lb/hr	---	---	---	17.8

[a]68°F, 29.92 in. Hg.

[b]Only H_2S was detected and included in reduced sulfur total. Values are shown as "≤" because concentrations that were below the detection limit during some injections were included in average and total. Instrument lower detection limits are shown in Appendix B.

[c]As H_2S.

2.2. NO. 4 SMELT DISSOLVING TANK VENT

Tables 2.6 and 2.7 summarize the results of the emission testing performed on 19 February 1993 on the No. 4 Smelt Dissolving Tank Vent. Field and laboratory data are provided in Appendices C and E, respectively. Sample calculations are presented in Appendix F.

TABLE 2.6. PARTICULATE EMISSION DATA - NO. 4 SMELT DISSOLVING TANK VENT

	RUN 1		RUN 2		RUN 3		MEAN	
	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack
Date	02/19/93		02/19/93		02/19/93		---	
Time Begun	0819		1009		1200		---	
Time Ended	0924		1128		1315		---	
Stack Gas								
Temperature, °F	169	163	173	163	176	161	173	162
Velocity, ft/sec	17.1	18.7	15.5	18.0	15.0	17.6	15.9	18.1
Moisture, %	38.1	34.8	41.1	34.8	43.9	33.1	41.0	34.2
CO_2 Concentration, %	0.6	0.6	0.6	0.4	0.6	0.4	0.6	0.5
O_2 Concentration, %	19.8	20.0	19.8	20.2	19.8	20.2	19.8	20.1
Volumetric Flow Rate								
At Stack Conditions, x 10^4 ft^3/min	1.98	2.17	1.79	2.09	1.74	2.04	1.84	2.10
At Standard Conditions[a], x 10^4 ft^3/min	1.03	1.20	0.88	1.15	0.81	1.16	0.91	1.17
Production Rate, ton BLS[b]/hr	96.0		94.5		96.2		95.6	
Particulate								
Isokinetic Sampling Rate, %	97	97	96	100	98	97	97	98
Concentration, gr/dscf	0.047	0.001[c]	0.055	0.022	0.067	0.016	0.057	0.013
Emission Rate, lb/hr	4.2	0.1[c]	4.2	2.2	4.7	1.6	4.3	1.3
Emission Rate, lb/ton BLS[b]	0.04	0.001[c]	0.04	0.02	0.05	0.02	0.05	0.01
Total Emission Rate, lb/hr	4.3		6.4		6.3		5.7	
Total Emission Rate, lb/ton BLS[b]	0.04		0.07		0.07		0.06	
Permit Limit, lb/hr	---		---		---		12.6	
Permit Limit, lb/ton BLS[b]	---		---		---		0.12	

[a]68°F, 29.92 in. Hg.
[b]Black liquor solids.
[c]Final filter weight was less than initial filter weight for this sample.

TABLE 2.7. TRS EMISSION DATA - NO. 4 SMELT DISSOLVING TANK VENT

	RUN 1		RUN 2		RUN 3		MEAN	
	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack
Date	02/19/93		02/19/93		02/19/93		---	
Time Began	0811		1202		1549		---	
Time Ended	1111		1502		1848		---	
Stack Gas								
Temperature, °F	169	163	176	161	164	177	170	167
Velocity, ft/sec	17.1	18.4	15.0	17.6	18.4	15.9	16.8	17.3
Moisture, %	38.1	34.8	43.9	33.1	35.5	47.8	39.2	38.6
CO_2 Concentration, %	0.6	0.5	0.6	0.4	0.6	0.4	0.6	0.4
O_2 Concentration, %	19.8	20.1	19.8	20.2	19.8	20.2	19.8	20.2
Volumetric Flow Rate								
At Stack Conditions, x 10^4 ft^3/min	1.98	2.13	1.74	2.04	2.13	1.85	1.95	2.01
At Standard Conditions[a], x 10^4 ft^3/min	1.03	1.18	0.81	1.16	1.16	0.80	1.00	1.05
Production Rate, 3000 lb BLS[b]/hr	63.6		63.5		63.4		63.5	
Total Reduced Sulfur								
Concentration[c], ppmvd	5.0	5.6	8.8	5.6	4.9	7.2	6.3	6.1
Emission Rate[d], lb/hr	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3
Emission Rate[d], lb/3000 lb BLS[b]	0.004	0.006	0.006	0.005	0.005	0.005	0.005	0.005
Total Emission Rate[d], lb/hr	0.7		0.7		0.6		0.7	
Total Emission Rate[d], lb/3000 lb BLS[b]	0.010		0.011		0.010		0.010	
Permit Limit[d], lb/hr	---		---		---		3.4	
Permit Limit[d], lb/3000 lb BLS[b]	---		---		---		0.048	

[a]68°F, 29.92 in. Hg.

[b]Black liquor solids.

[c]Only H_2S and MeSH were detected and included in reduced sulfur total. Instrument lower detection limits for other reduced sulfur compounds are shown in Appendix C.

[d]As H_2S.

2.3. NO. 4 LIME KILN

Tables 2.8 through 2.10 summarize the results of the emission testing performed on 20 February 1993 on the No. 4 Lime Kiln. Field and laboratory data are provided in Appendices D and E, respectively. Sample calculations are presented in Appendix F.

TABLE 2.8. PARTICULATE AND SO_2 EMISSION DATA - NO. 4 LIME KILN

	RUN 2[a]	RUN 3	RUN 4	MEAN
Date	02/20/93	02/20/93	02/20/93	---
Time Began	1700	1847	2015	---
Time Ended	1810	1955	2123	---
Stack Gas				
Temperature, °F	162	161	160	161
Velocity, ft/sec	63.3	57.6	59.9	60.3
Moisture, %	33.5	32.7	31.6	32.6
CO_2 Concentration, %	19.6	18.6	19.0	19.1
O_2 Concentration, %	5.4	6.0	5.8	5.7
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	5.82	5.30	5.51	5.54
At Standard Conditions[b], x 10^4 ft^3/min	3.31	3.06	3.23	3.20
Particulate				
Isokinetic Sampling Rate, %	89	93	92	91
Concentration, gr/dscf @ 10% O_2	0.067	0.071	0.069	0.069
Emission Rate, lb/hr	27	25	26	26
Permit Limit, gr/dscf @ 10% O_2	---	---	---	0.081
Permit Limit, lb/hr	---	---	---	26
Sulfur Dioxide				
Concentration, ppmvd	<1.3	<1.3	<1.3	<1.3
Emission Rate, lb/hr	<0.5	<0.4	<0.5	<0.5
Permit Limit, lb/hr	---	---	---	10.9

[a]Run 1 was voided due to bad leak check.
[b]68°F, 29.92 in. Hg.

TABLE 2.9. NO_x, CO, AND VOC EMISSION DATA - NO. 4 LIME KILN

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/20/93	02/20/93	02/20/93	---
Time Began	1005	1120	1249	---
Time Ended	1105	1220	1349	---
Stack Gas				
Temperature, °F	165	163	---	164
Velocity, ft/sec	64.0	64.1	---	64.1
Moisture, %	36.1	34.5	---	35.3
CO_2 Concentration, %	19.2	18.2	---	18.7
O_2 Concentration, %	5.8	6.6	---	6.2
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	5.89	5.89	---	5.89
At Standard Conditions[a], x 10^4 ft^3/min	3.20	3.30	---	3.25
Nitrogen Oxides				
Concentration, ppmvd @ 10% O_2	91	94	83	89
Emission Rate[b], lb/hr	29	29	26	28
Permit Limit, ppmvd @ 10% O_2	---	---	---	290
Permit Limit, lb/hr	---	---	---	50.3
Carbon Monoxide				
Concentration, ppmvd @ 10% O_2	10	11	11	11
Emission Rate[b], lb/hr	2.0	2.0	2.2	2.0
Permit Limit, ppmvd @ 10% O_2	---	---	---	69
Permit Limit, lb/hr	---	---	---	7.3
Volatile Organic Compounds[c]				
Concentration, ppmvd @ 10% O_2	14	10	10	12
Emission Rate[b], lb/hr	1.1	0.8	0.8	0.9
Permit Limit, ppmvd @ 10% O_2	---	---	---	185
Permit Limit, lb/hr	---	---	---	17.2

[a]68°F, 29.92 in Hg.
[b]Run 3 emission rates calculated using Run 2 volumetric flow rate.
[c]As carbon.

TABLE 2.10. TRS EMISSION DATA - NO. 4 LIME KILN

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/20/93	02/20/93	02/20/93	---
Time Began	0718	1114	1456	---
Time Ended	1036	1414	1756	---
Stack Gas				
Temperature, °F	165	163	162	163
Velocity, ft/sec	64.0	64.1	63.3	63.8
Moisture, %	36.1	34.5	33.5	34.7
CO_2 Concentration, %	19.2	18.2	19.6	19.0
O_2 Concentration, %	5.8	6.6	5.4	5.9
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	5.89	5.89	5.82	5.87
At Standard Conditions[a], x 10^4 ft^3/min	3.20	3.30	3.31	3.27
Total Reduced Sulfur				
Concentration[b], ppmvd @ 10% O_2	≤7	≤8	≤9	≤8
Emission Rate[c], lb/hr	≤1.5	≤1.8	≤2.1	≤1.8
Permit Limit, ppmvd @ 10% O_2	---	---	---	20
Permit Limit[c], lb/hr	---	---	---	4.0

[a]68°F, 29.92 in. Hg.

[b]Only H_2S and MeSH were detected and included in reduced sulfur total. Values are shown as "≤" because MeSH concentrations that were below the detection limit during some injections were included in average and total. Instrument lower detection limits are shown in Appendix D.

[c]As H_2S.

TABLE 2.2. PARTICULATE, SO_2, AND H_2SO_4 EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	03/11/92	03/11/92	03/11/92	---
Time Began	1316	1555	1716	---
Time Ended	1458	1635	1931	---
Stack Gas				
Temperature, °F	419	419	420	419
Velocity, ft/sec	55.0	54.5	54.6	54.7
Moisture, %	25.5	26.6	26.2	26.1
CO_2 Concentration, %	14.6	14.4	14.4	14.5
O_2 Concentration, %	4.0	4.2	4.0	4.1
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	4.49	4.45	4.46	4.47
At Standard Conditions[a], x 10^5 ft^3/min	2.01	1.96	1.98	1.98
Particulate				
Isokinetic Sampling Rate, %	100	98	99	99
Concentration, gr/dscf @ 8% O_2	0.029	0.026	0.035	0.030
Emission Rate, lb/hr	65.2	55.5	77.9	66.2
Permit Limit, gr/dscf @ 8% O_2	---	---	---	0.033
Permit Limit, lb/hr	---	---	---	83.2
Opacity				
Observed, %	7	---	---	7
Permit Limit, %	---	---	---	20
Sulfur Dioxide				
Isokinetic Sampling Rate, %	100	98	99	99
Concentration, ppmvd	8.7	19.3	6.4	11.5
Emission Rate, lb/hr	17.4	37.8	12.5	22.6
Permit Limit, lb/hr	---	---	---	109.9
Sulfuric Acid Mist				
Concentration, mg/dscm	6.74	3.47	2.20	4.13
Emission Rate, lb/hr	5.07	2.54	1.63	3.08
Permit Limit, lb/hr	---	---	---	3.24[b]

[a]68°F, 29.92 in. Hg.

[b]Based on 0.81 ppm in gas (NCASI 106) and 427,560 acfm.

TABLE 2.3. NO_x AND CO EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	03/10/92	03/10/92	03/10/92	---
Time Began	1357	1505	1627	---
Time Ended	1501	1605	1727	---
Stack Gas				
Temperature, °F	420	423	423	422
Velocity, ft/sec	55.0	55.0	55.0	55.0
Moisture, %	22.8	23.5	22.5	22.9
CO_2 Concentration, %	14.6	14.8	14.0	14.5
O_2 Concentration, %	3.8	4.0	4.4	4.1
Volumetric Flow Rate				
At Stack Conditions, x 10^5 ft^3/min	4.49	4.49	4.49	4.49
At Standard Conditions[a], x 10^5 ft^3/min	2.08	2.05	2.08	2.07
Nitrogen Oxides				
Concentration, ppmvd @ 8% O_2	61	65	67	65
Emission Rate, lb/hr	121	125	128	125
Permit Limit, ppmvd @ 8% O_2	---	---	---	100
Permit Limit, lb/hr	---	---	---	210.6
Carbon Monoxide				
Concentration, ppmvd @ 8% O_2	167	164	330	220
Emission Rate, lb/hr	200	191	382	258
Permit Limit, ppmvd @ 8% O_2	---	---	---	400
Permit Limit, lb/hr	---	---	---	512.7

[a]68°F, 29.92 in. Hg.

TABLE 2.4. TRS EMISSION DATA - NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	03/10/92	03/11/92	03/11/92	---
Time Began	1454	0734	1130	---
Time Ended	1748	1028	1424	---
Stack Gas				
CO_2 Concentration, %	14.6	14.4	14.4	14.5
O_2 Concentration, %	4.0	3.8	4.2	4.0
Total Reduced Sulfur				
Concentration, ppmvd @ 8% O_2	2.3	4.2	1.9	2.8
Emission Rate[ab], lb/hr	3.4	5.9	2.6	4.0
Permit Limit, ppmvd @ 8% O_2	---	---	---	11.4
Permit Limit[b], lb/hr	---	---	---	17.8

[a]Run 1 emission rate was calculated using 2.07×10^5 dscf/min (average of Runs 2 and 3 of NO_x and CO data). Runs 2 and 3 emission rates were calculated using 2.01×10^5 dscf/min (Run 1 of particulate data).

[b]As H_2S.

TABLE 2.5. VOC EMISSION DATA -
NO. 4 RECOVERY FURNACE

	RUN 1	RUN 2	RUN 3	MEAN
Date	03/13/92	03/13/92	03/13/92	---
Time Began	1147	1311	1432	---
Time Ended	1250	1415	1535	---
Stack Gas				
Temperature, °F	430	433	432	432
Velocity, ft/sec	54.6	54.7	54.2	54.5
Moisture, %	23.2	21.9	22.2	22.4
CO_2 Concentration, %	14.6	14.6	14.8	14.7
O_2 Concentration, %	4.0	4.2	4.2	4.1
Volumetric Flow Rate				
At Stack Conditions,				
x 10^5 ft^3/min	4.46	4.47	4.43	4.45
At Standard Conditions[a],				
x 10^5 ft^3/min	2.03	2.07	2.04	2.05
Production Rate, ton BLS[b]/hr	96.6	97.1	97.4	97.0
Volatile Organic Compounds[c]				
Concentration, ppmvd @ 8% O_2				
EPA 25	602.4	34.9	54.3	230.6
EPA 25A	8.1	7.1	4.2	6.5
Emission Rate, lb/hr				
EPA 25	299.0	17.5	26.8	114.4
EPA 25A	4.0	3.6	2.1	3.2
Emission Rate, lb/ton BLS[b]				
EPA 25	3.10	0.18	0.28	1.19
EPA 25A	0.04	0.04	0.02	0.03
Permit Limit, lb/hr	---	---	---	54.6
Permit Limit, lb/ton BLS[b]	---	---	---	0.52

[a]68°F, 29.92 in. Hg.
[b]Black liquor solids.
[c]As carbon.

TABLE 2.6. PARTICULATE EMISSION DATA - NO. 4 SMELT DISSOLVING TANK VENT

	RUN 1		RUN 2		RUN 3		MEAN	
	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack
Date	03/12/92		03/12/92		03/12/92		---	
Time Began	1240		1450		1657		---	
Time Ended	1345		1600		1800		---	
Stack Gas								
Temperature, °F	167	160	171	165	169	166	169	164
Velocity, ft/sec	16.6	16.3	16.7	16.3	16.2	16.7	16.5	16.4
Moisture, %	36.4	32.1	40.0	36.4	38.3	37.0	38.2	35.2
CO_2 Concentration, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O_2 Concentration, %	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Volumetric Flow Rate								
At Stack Conditions, x 10^4 ft^3/min	1.92	1.89	1.93	1.89	1.88	1.93	1.91	1.90
At Standard Conditions[a], x 10^4 ft^3/min	1.03	1.09	0.97	1.02	0.98	1.03	0.99	1.05
Production Rate, ton BLS[b]/hr	95.6		95.1		96.1		95.6	
Particulate								
Isokinetic Sampling Rate, %	94	89	105	102	98	96	99	96
Concentration, gr/dscf	0.039	0.019	0.051	0.022	0.041	0.024	0.044	0.021
Emission Rate, lb/hr	3.5	1.7	4.2	1.9	3.5	2.1	3.7	1.9
Emission Rate, lb/ton BLS[b]	0.04	0.02	0.04	0.02	0.04	0.02	0.04	0.02
Total Emission Rate, lb/hr	5.2		6.1		5.6		5.6	
Total Emission Rate, lb/ton BLS[b]	0.06		0.06		0.06		0.06	
Permit Limit, lb/hr	----		----		----		12.6	
Permit Limit, lb/ton BLS[b]	----		----		----		0.12	

[a]68°F, 29.92 in. Hg.
[b]Black liquor solids.

TABLE 2.7. TRS EMISSION DATA - NO. 4 SMELT DISSOLVING TANK VENT

	RUN 1		RUN 2		RUN 3		MEAN	
	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack	North Stack	South Stack
Date	03/12/92		03/12/92		03/12/92		---	
Time Began	0720		1130		1528		---	
Time Ended	1014		1424		1822		---	
Stack Gas[a]								
Temperature, °F	158	168	167	160	169	165	165	164
Velocity, ft/sec	17.1	16.9	16.6	16.3	16.2	16.3	16.6	16.5
Moisture, %	30.7	38.9	36.4	32.1	38.3	36.4	35.1	35.8
CO_2 Concentration, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O_2 Concentration, %	20.8	20.8	20.8	20.8	20.8	20.8	20.8	20.8
Volumetric Flow Rate[a]								
At Stack Conditions, x 10^4 ft^3/min	1.97	1.95	1.92	1.89	1.88	1.89	1.92	1.91
At Standard Conditions[b], x 10^4 ft^3/min	1.17	1.00	1.03	1.09	0.98	1.02	1.06	1.04
Production Rate, 3000 lb BLS[c]/hr	64.4	64.3	63.9	63.4	64.1	63.6	64.1	63.8
Total Reduced Sulfur								
Concentration, ppmvd	11.6	5.3	10.5	3.0	6.8	6.6	9.6	5.0
Emission Rate[d], lb/hr	0.72	0.28	0.57	0.18	0.35	0.36	0.55	0.27
Emission Rate[d], lb/3000 lb BLS[c]	0.011	0.004	0.009	0.003	0.005	0.006	0.008	0.004
Total Emission Rate[d], lb/hr	1.0		0.75		0.71		0.82	
Total Emission Rate[d], lb/3000 lb BLS[c]	0.015		0.012		0.011		0.013	
Permit Limit[d], lb/hr	----		----		----		3.4	
Permit Limit[d], lb/3000 lb BLS[c]	----		----		----		0.048	

[a]Run 2 data were taken from Run 1 of particulate data. Run 3 North data were taken from Run 3 of particulate data. Run 3 South data were taken from Run 2 of particulate data.

[b]68°F, 29.92 in. Hg.

[c]Black liquor solids.

[d]As H_2S.

SECTION 2. RESULTS AND DISCUSSION

Table 2.1 summarizes the results of emission testing performed at the Georgia-Pacific Corporation mill in Palatka, Florida. These results are compared to FDER permit limitations.

TABLE 2.1. SUMMARY OF NO. 4 LIME KILN EMISSION TEST RESULTS

	MEAN TEST VALUE	PERMIT LIMIT
Particulate, gr/dscf[a]	0.061	0.081
Particulate, lb/hr	20.0	26
Sulfur Dioxide, lb/hr	0.1	10.9
Nitrogen Oxides, ppmvd[a]	80	290
Nitrogen Oxides, lb/hr	23.6	50.3
Carbon Monoxide, ppmvd[a]	11	69
Carbon Monoxide, lb/hr	2.0	7.3
Total Reduced Sulfur, ppmvd[a]	10	20
Total Reduced Sulfur[b], lb/hr	2.2	4.0
Volatile Organic Compounds[c] (EPA 25), ppmvd[a]	602	185
Volatile Organic Compounds[c] (EPA 25), lb/hr	46.2	17.2
Volatile Organic Compounds[c] (EPA 25A), ppmvd[a]	6	185
Volatile Organic Compounds[c] (EPA 25A), lb/hr	0.5	17.2

[a]Corrected to 10% O_2.
[b]As H_2S.
[c]As carbon.

TABLE 2.2. PARTICULATE AND SO_2 EMISSION DATA - NO. 4 LIME KILN

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/04/92	02/04/92	02/05/92	---
Time Began	1520	1750	1339	---
Time Ended	1636	1850	1455	---
Stack Gas				
Temperature, °F	164	163	169	165
Velocity, ft/sec	57.3	53.0	67.8	59.4
Moisture, %	34.6	32.2	39.6	35.4
CO_2 Concentration, %	22.0	14.8	16.8	17.9
O_2 Concentration, %	4.4	8.0	6.8	6.4
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	5.26	4.87	6.24	5.46
At Standard Conditions*, x 10^4 ft^3/min	2.92	2.81	3.11	2.95
Particulate				
Isokinetic Sampling Rate, %	95	93	90	93
Concentration, gr/dscf @ 10% O_2	0.053	0.076	0.054	0.061
Emission Rate, lb/hr	20.0	21.5	18.5	20.0
Permit Limit, gr/dscf @ 10% O_2	---	---	---	0.081
Permit Limit, lb/hr	---	---	---	26
Sulfur Dioxide				
Concentration, ppmvd	0.1	0.2	1.1	0.5
Emission Rate, lb/hr	<0.1	0.1	0.4	0.1
Permit Limit, lb/hr	---	---	---	10.9

*68°F, 29.92 in. Hg.

TABLE 2.3. NO_x, CO, AND VOC EMISSION DATA - NO. 4 LIME KILN

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/05/92	02/05/92	02/05/92	---
Time Began	1915	2052	2315	---
Time Ended	2016	2152	0043	---
Stack Gas				
Temperature, °F	164	166	161	164
Velocity, ft/sec	60.9	60.0	60.5	60.5
Moisture, %	35.9	37.6	33.5	35.7
CO_2 Concentration, %	18.0	18.1	17.7	17.9
O_2 Concentration, %	5.8	5.8	6.0	5.9
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	5.60	5.52	5.56	5.56
At Standard Conditions[a], x 10^4 ft^3/min	3.00	2.87	3.11	2.99
Nitrogen Oxides				
Concentration, ppmvd @ 10% O_2	69	108	65	80
Emission Rate, lb/hr	20.4	30.6	19.6	23.6
Permit Limit, ppmvd @ 10% O_2	---	---	---	290
Permit Limit, lb/hr	---	---	---	50.3
Carbon Monoxide				
Concentration, ppmvd @ 10% O_2	12	11	11	11
Emission Rate, lb/hr	2.2	1.9	2.0	2.0
Permit Limit, ppmvd @ 10% O_2	---	---	---	69
Permit Limit, lb/hr	---	---	---	7.3
Volatile Organic Compounds[b]				
Concentration, ppmvd @ 10% O_2				
EPA 25	601	673	532	602
EPA 25A	15	1	3	6
Emission Rate, lb/hr				
EPA 25	46.6	49.9	42.2	46.2
EPA 25A	1.1	0.1	0.3	0.5
Permit Limit, ppmvd @ 10% O_2	---	---	---	185
Permit Limit, lb/hr	---	---	---	17.2

[a]68°F, 29.92 in Hg.
[b]As carbon.

TABLE 2.4. TRS EMISSION DATA - NO. 4 LIME KILN

	RUN 1	RUN 2	RUN 3	MEAN
Date	02/05/92	02/05/92	02/05/92	---
Time Began	1247	1647	2053	---
Time Ended	1541	1941	2347	---
Stack Gas[a]				
Temperature, °F	169	164	164	166
Velocity, ft/sec	67.8	60.9	60.3	63.0
Moisture, %	39.6	35.9	35.6	37.0
CO_2 Concentration, %	16.8	18.0	17.9	17.6
O_2 Concentration, %	6.8	5.8	5.9	6.2
Volumetric Flow Rate[a]				
At Stack Conditions, x 10^4 ft^3/min	6.24	5.60	5.54	5.79
At Standard Conditions[b], x 10^4 ft^3/min	3.11	3.00	2.99	3.03
Total Reduced Sulfur				
Concentration, ppmvd @ 10% O_2	11	8	11	10
Emission Rate[c], lb/hr	2.4	1.9	2.5	2.2
Permit Limit, ppmvd @ 10% O_2	---	---	---	20
Permit Limit[c], lb/hr	---	---	---	4.0

[a]Run 1 data were taken from Run 3 of particulate data. Run 2 data were taken from Run 1 of NO_x, CO, and VOC data. Run 3 data were taken from average of Runs 2 and 3 of NO_x, CO, and VOC data.

[b]68°F, 29.92 in. Hg.

[c]As H_2S.

WESTON Work Order No. 0414-16-03

TALL OIL REACTOR
TOTAL REDUCED SULFUR
EMISSION TEST REPORT
GEORGIA-PACIFIC CORPORATION
PALATKA, FLORIDA
JULY 1992

Prepared For:

GEORGIA-PACIFIC CORPORATION
HIGHWAY 216
PALATKA, FL 32177

APPROVED FOR TRANSMITTAL
AUGUST 1992

Prepared By:

Roy F. Weston, Inc.
1635 Pumphrey Avenue
Auburn, AL 36830-4303

TABLE 2.1. TRS EMISSION DATA - TALL OIL REACTOR

	RUN 1		RUN 2		RUN 3		MEAN	
	Cook Phase	Neut.[a] Phase	Cook Phase	Neut.[a] Phase	Cook Phase	Neut.[a] Phase	Cook Phase	Neut.[a] Phase
Date	07/22/92	07/22/92	07/23/92	07/23/92	07/24/92	07/24/92	---	---
Time Began	0918	1812	0825	2012	0837	1907	---	---
Time Ended	1218	1918	1225	2119	1233	2007	---	---
Stack Gas								
Temperature, °F	156	188	164	201	136	206	152	198
Velocity, ft/sec	42.8	42.7	40.8	39.6	40.4	39.5	41.3	40.6
Moisture, %	29.0	59.0	35.1	79.2	17.0	85.9	27.0	74.7
CO_2 Concentration, %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
O_2 Concentration, %	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
Volumetric Flow Rate								
At Stack Conditions, ft^3/min	3580	3580	3410	3320	3380	3310	3460	3400
At Standard Conditions[b], ft^3/min	2200	1210	1900	560	2510	370	2200	710
Tall Oil Processed, tons	50	50	50	50	50	50	50	50
Total Reduced Sulfur								
Concentration, ppm	28.5	36.7	38.2	97.8	29.8	68.5	32.2	67.7
Emission Rate, lb/ton[c]	0.023	0.008	0.037	0.009	0.038	0.004	0.033	0.007
Total Emission Rate, lb/ton[c]	0.031		0.046		0.042		0.040	
Permit Limit, lb/ton[c]	----		----		----		0.05	

[a]Neutralization.
[b]68°F, 29.92 in. Hg.
[c]Pounds of TRS per ton of tall oil processed.

WESTON Work Order No. 00414-016-006

NCG INCINERATOR
TOTAL REDUCED SULFUR AND SULFUR DIOXIDE
EMISSION TEST REPORT
GEORGIA-PACIFIC CORPORATION
PALATKA, FLORIDA
FEBRUARY 1994

Prepared For:

GEORGIA-PACIFIC CORPORATION
HIGHWAY 216
PALATKA, FL 32177

APPROVED FOR TRANSMITTAL
MARCH 1994

Prepared By:

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SECTION 2

RESULTS AND DISCUSSION

Tables 2-1 and 2-2 summarize the results of the TRS and SO_2 emission testing performed on 18 February 1994 on the NCG Incinerator. Field data are provided in Appendix B. Sample calculations are presented in Appendix C.

Table 2-1

TRS Emission Data - NCG Incinerator

	Run 1	Run 2	Run 3	Mean
Date	2/18/94	2/18/94	2/18/94	----
Time Began	0849	1245	1643	----
Time Ended	1149	1545	1943	----
Stack Gas				
Temperature, °F	515	504	515	511
Velocity, ft/sec	96.4	94.2	94.7	95.1
Moisture, %	6.0	6.5	6.5	6.3
CO_2 Concentration, %	1.1	1.0	1.1	1.1
O_2 Concentration, %	18.6	18.5	18.7	18.5
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	4.32	4.22	4.25	4.26
At Standard Conditions[a], x 10^4 ft^3/min	2.22	2.18	2.18	2.19
Total Reduced Sulfur				
Concentration[b], ppm	<0.95	<1.0	<0.93	<0.96
Emission Rate, lb/hr	<0.11	<0.12	<0.11	<0.11
Permit Limit, lb/hr	----	----	----	0.12

[a]68°F, 29.92 in. Hg.
[b]All reduced sulfur compounds were below the detection limit. Instrument lower detection limits can be found in Appendix B. Reported concentrations are corrected for recovery.

Table 2-2

SO_2 Emission Data - NCG Incinerator

	Run 1	Run 2	Run 3	Mean
Date	2/18/94	2/18/94	2/18/94	----
Time Began	1611	1803	1923	----
Time Ended	1711	1903	2023	----
Stack Gas				
Temperature, °F	510	515	505	510
Velocity, ft/sec	94.7	92.9	91.7	93.1
Moisture, %	6.5	6.5	6.5	6.5
CO_2 Concentration, %	1.1	1.1	1.0	1.1
O_2 Concentration, %	18.7	18.7	18.5	18.6
Volumetric Flow Rate				
At Stack Conditions, x 10^4 ft^3/min	4.25	4.16	4.11	4.17
At Standard Conditions[a], x 10^4 ft^3/min	2.18	2.13	2.12	2.14
Sulfur Dioxide				
Concentration, ppm	2000	2515	2432	2316
Emission Rate, lb/hr	435	534	514	494
Permit Limit, lb/hr	----	----	----	1200

[a]68°F, 29.92 in. Hg.

SECTION 2. RESULTS AND DISCUSSION

Emission testing on the NCG incinerator was performed on 25 January 1990. The results of the TRS, particulate, and SO_2 testing are summarized in Table 2.1. In addition, visible emission testing was performed according to EPA Method 9 between the hours of 0800 and 0920 on 25 January 1990 by GP personnel. A constant zero percent opacity was determined during the test, which is below the FDER allowable limit of five percent. Supporting field, laboratory, and process data are provided in Appendices B through F. Example calculations are illustrated in Appendix I.

TABLE 2.1. SUMMARY OF EMISSIONS
NCG INCINERATOR

	RUN 1	RUN 2	RUN 3	MEAN
Date	1/25/89	1/25/89	1/25/89	---
Time Began	0810	0952	1130	---
Time Ended	0910	1100	1230	---
Stack Gas				
Temperature, °F	466	496	529	497
Velocity, ft/sec	86.6	87.7	89.1	87.8
Moisture, %	6.5	6.4	7.5	6.8
Oxygen, %	18.7	18.8	18.5	18.7
Carbon Dioxide, %	1.0	1.0	1.0	1.0
Volumetric Flow Rate				
At Stack Conditions x 10^4 ft³/min	4.09	4.15	4.21	4.15
At Standard Conditions x 10^4 ft³/min	2.19	2.15	2.09	2.14
Total Reduced Sulfur*				
Concentration, ppm[b]	<2.1	<1.9	<2.2	<2.1
Allowable, ppm*	---	---	---	5.0
Particulate				
Isokinetic Sampling Rate, %	101	104	103	103
Concentration, gr/ft³	0.023	0.047	0.017	0.029
Emission Rate, lb/hr	4.3	8.7	2.9	5.3
Allowable, lb/hr	---	---	---	5.50
Sulfur Dioxide				
Concentration, ppm	2398	2320	1898	2211
Emission Rate, lb/hr	523	497	426	482
Allowable, lb/hr	---	---	---	1200

*TRS Sampling Time
Run 1: 0818-1118
Run 2: 1206-1506
Run 3: 1600-1900

[b]Corrected to 100 percent recovery and 10 percent oxygen

*Data biased to minimum detection of each TRS compound minimum detection of each TRS compound minimum detection limit for H_2S, MeSH, DMS, or DMDS were 0.1, 0.1, 0.1, and 0.1 ppm, respectively.

RECEIVED

APR 14 1995

Bureau of
Air Regulation

April 13, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill
AC54-266676/PSD-FL-226

Dear Mr. Linero:

Georgia-Pacific Corporation (G-P) has received the Department's letter, attached for your reference, dated March 29, 1995, requesting additional information on the above-referenced PSD permit application. On behalf of G-P, responses to the Department's questions are provided below. The responses are provided in the same order as they appear in the March 29 letter.

1. Boilers are designed to produce steam by indirect contact of water with hot flue gases. In a Recovery Boiler, the hot gases result from burning black liquor, a self-generated fuel with a high Btu value consisting primarily of dissolved organic compounds (lignin). Water passes through metal tubes with the hot gases contacting the outside of the tubes. Heat is transferred from the hot gases to the metal tubes which transfer the heat to the water. The particular tubes referred to as screen tubes are so named because of their special function. They screen, or protect, tubes in the boiler bank where steam is produced, simply by cooling the hot flue gases to an appropriate level. With inadequate heat transfer occurring through the screen tubes, the flue gases are too hot when reaching the boiler bank. At this elevated temperature, the particulate matter (salt cake) in the flue gas is "sticky" and plugs the tight spaces between the tubes in the boiler bank. Also, tube wastage is more pronounced at elevated flue gas temperatures. "Tube wastage" is a term used to describe the wearing of the tubes on the gas side through thermal stress, abrasion, corrosion, etc., which ultimately leads to tube failure.

   G-P is proposing to install additional screen tube modules in the No. 4 Recovery Boiler in August 1995. Each module consists of a bundle of 10 individual tubes. The boiler is currently equipped with 15 screen tube modules on 24-inch centers. G-P is proposing to install the additional tube modules on either side of the existing modules such that the distance between modules will be 12 inches. Heat transfer will be improved, resulting in a 30 to 50°F decrease in temperature of the flue gases.

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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1616 'P' Street N.W., Suite 450, Washington, D.C. 20036, 202-462-1100, FAX 202-462-2270

2. Copies of all of the stack test data for the No. 4 Recovery Boiler, No. 4 Smelt Dissolving Tanks, No. 4 Lime Kiln, TRS Incinerator, and Tall Oil Plant since January 1992, when the previous modifications were completed, are attached. The only exception to this is two stack tests conducted on No. 4 Recovery Boiler for SO_2 and H_2SO_4 mist. These are not included since these pollutants are not subject to PSD review. Also included is a stack test conducted on the TRS incinerator in 1990.

   It is noted that Table 6-3 from the PSD report, which summarized all of the available test data from No. 4 Recovery Boiler, did not include the CO test data from March, 1992. These data have been added to Table 6-3, and statistical analysis information has been included in the table. The revised table is attached. The results of the statistical analysis are discussed below in regard to the proposed BACT limits.

   PM--The statistical analysis shows that the 95 percent confidence level value is 79.7 lb/hr, which is nearly equal to the allowable limit of 83.2 lb/hr. The 99 percent confidence level is much higher. Therefore, the data support the proposed BACT limit as equal to the allowable limit, which was also judged to be BACT in 1991.

   NO_x--The statistical analysis shows that the 95 percent confidence level values are 73 ppmv and 141 lb/hr, and the 99 percent confidence level values are 79 ppmv and 154 lb/hr. These values are below the allowable limit of 100 ppmv and 210.6 lb/hr. However, the data are very limited (three compliance tests), and the proposed BACT limit does not leave much margin for continuous compliance. Therefore, G-P proposes to retain the current allowable limit as BACT, which was judged to be BACT in 1991.

   CO--The statistical analysis shows that the 95 percent confidence level value is 641 ppmv, and the 99 percent confidence level value is 754 ppmv. These values are up to the current allowable and proposed BACT of 800 ppmv. Considering the data are very limited (three compliance tests) and the variability in short-term CO concentrations, the proposed BACT limit does not leave any margin for continuous compliance. Therefore, G-P proposes to retain the current allowable limit as BACT, which was judged to be BACT in 1991.

   VOC--A statistical analysis could not be performed on the VOC test data from No. 4 Recovery Boiler due to only one compliance test indicating emissions above the detectable limit. It is noted that these test results are based on EPA Method 25A.

TRS--Continuous TRS data for the period October 1994 through March 1995 were analyzed. These data representing typical operating conditions are shown in the attached Table A (two 12-hour averages per day). The data display a maximum 12-hour TRS concentration of 11.2 ppm. The 95 percent confidence level for all the data is 8.1 ppm, while the 99 percent confidence level is 9.6 ppm. These confidence level limits are close to the current permitted limit of 11.4 ppm, which was judged to be BACT in 1991. Considering the variability in short-term TRS emissions (actual TRS emissions as high as 11.2 ppm 12-hour average), the proposed BACT limit of 11.4 ppm (12-hour average) does not leave any margin for continuous compliance. Therefore, G-P proposes to retain the current allowable limit as BACT.

3. The information on this is unavailable at this time but a response will be provided in the near future.

4. The only pollutants for which multi-averaging time limits are proposed are SO_2 for the TRS incinerator and CO for the recovery boiler. In the case of SO_2 from the TRS incinerator, the compliance method currently in use on TRS sources with scrubbers is proposed. The method is to determine surrogate parameter limits for the TRS scrubber through source testing, and then continuously operate the scrubber within those surrogate parameter limits. This will ensure that 50 percent TRS removal (and therefore 50 percent SO_2 removal) is continuously achieved. In G-P's case, the TRS scrubber precedes the TRS incinerator and thereby controls SO_2 emissions from the incinerator. It is further proposed that the stack testing be conducted once every five (5) years for SO_2 on the incinerator as required by the current permit, in order to further confirm the TRS scrubber efficiency.

   In the case of CO emissions from the recovery boiler, both a 1-hour and annual CO emission limit are proposed. In order to provide greater assurance that the annual CO limit is being achieved, it is proposed to implement semiannual stack testing for CO emissions for a 2-year period. At the end of a 2-year period, G-P will request to reduce the testing frequency to annual testing, if supported by the data.

5. There is currently not enough data to set an emission limit for H_2SO_4 mist based on EPA Method 8. Only three valid test runs on No. 4 Recovery Boiler have been made using Method 8. G-P is currently discussing with the Department the appropriate testing methodology for this source.

6. The maximum production rate for the Tall Oil plant is 55 tons of crude tall oil in a 12-hour period. This is correctly reflected in the application, except on the segment information form for the emission unit. A corrected page is attached.

7. The only effect of the proposed modification upon the brown stock washers is that the brown stock washers will experience increased throughput rates, corresponding to the minor increase in pulp

production in the digesters. As a result, any emissions from the brown stock washers may increase correspondingly. The brown stock washers at G-P have not been required to be permitted; however, they will be included in the Title V permit application.

The proposed modification does not trigger new source performance standards (NSPS) for the brown stock washers. NSPS are triggered due to a physical change or a change in the method of operation which results in an increase in emissions to the atmosphere of a regulated pollutant. There will be no physical change or change in the method of operation of the brown stock washers.

8. Attached are copies of current permits for all affected emission units at the facility.

Thank you for consideration of this information. Please call if you have any questions.

Sincerely,

Mark J. Aguilar for
David A. Buff, P.E.
Principal Engineer
Florida P.E. #19011
DB/mk

cc: Myra Carpenter
Traylor Champion
File (2)

cc: Willard Hanks
Marty Costello
Clive Holladay
E. Frey, NED
J. Harper, EPA
J. Bunyak, NPS

Table 6–3. Summary of Source Test Data From No. 4 Recovery Boiler, Georgia–Pacific Palatka Mill (Revised 04/08/95)

Test Date	Run #	Particulate Matter gr/dscf @8% O2	Particulate Matter lb/hr	Nitrogen Dioxide ppmvd @8% O2	Nitrogen Dioxide lb/hr	Carbon Monoxide ppmvd @8% O2	Carbon Monoxide lb/hr	VOC ppmvd @8% O2	VOC lb/hr	TRS ppmvd @8% O2	TRS lb/hr
02/15/94	1	0.007	15.0	59	104	440	472	<3	<1.0	2.6	3.2
02/15/94	2	0.006	13.6	58	101	756	798	<5	<1.7	3.7	4.8
02/15/94	3	0.007	14.7	62	109	404	428	<2	<0.7	0.7	0.9
	Average	0.007	14.4	60	105	533	566	<3	<1.1	2.3	3.0
02/17/93	1	0.007	16.1	43	72	193	197	<10	<4.4	<0.2	<0.2
02/17/93	2	0.006	12.1	50	84	33	33	<10	<4.4	<0.3	<0.3
02/17/93	3	0.005	10.7	43	72	80	82	<10	<4.4	<0.3	<0.3
02/17/93	4	0.006	12.9	45	76	102	104	<10	<4.4	<0.3	<0.3
	Average										
03/11/92	1	0.029	65.2	61	121	167	200	8.1	4.0	2.3	3.4
03/11/92	2	0.026	55.5	65	125	164	191	7.1	3.6	4.2	5.9
03/11/92	3	0.035	77.9	67	128	330	382	4.2	2.1	1.9	2.6
	Average	0.030	66.2	65	125	220	258	6.5	3.2	2.8	4.0
Allowable Limit		0.033	83.2	100	210.6	800, 1–hr 400, annual	1,025.4 512.7	--	54.6	11.4	17.8
Statistical Analysis[a]											
Number of Tests		3	3	3	3	3	3				
Average		0.014	31.2	57	102	285	309				
Standard Deviation		0.011	24.8	8	20	182	192				
95% Confidence Limit[b]		0.036	79.7	73	141	641	686				
99% Confidence Limit[c]		0.043	95.1	79	154	754	805				

[a] Based on compliance test averages.
[b] Average + (1.96 x standard deviation)
[c] Average + (2.58 x standard deviation)

Table A. 12-Hour TRS Concentrations for the No. 4 Recovery Boiler

Day	Oct 94 Period 1	Oct 94 Period 2	Nov 94 Period 1	Nov 94 Period 2	Dec 94 Period 1	Dec 94 Period 2	Jan 95 Period 1	Jan 95 Period 2	Feb 95 Period 1	Feb 95 Period 2	Mar 95 Period 1	Mar 95 Period 2
1			4.47	0.49	0.54	0.51	2.00	1.10	8.70	6.90	3.37	4.00
2			0.27	0.00	2.53	1.72	2.60	5.20	4.50	10.40	1.97	2.75
3	10.09	4.65	0.65	0.67	2.11	2.63	2.20	2.30	7.70	6.50	2.36	2.93
4	6.90	3.14	1.96	0.79	4.07	3.85	3.00	3.10	5.60	9.40	2.79	1.28
5	3.35	6.61	2.22	0.40	2.92	3.36	2.30	2.10	7.00	8.90	1.79	2.00
6	5.18	3.80	0.77	2.67	3.35	6.84	3.20	4.50	11.20	9.80	1.88	2.49
7	4.75	4.35	3.93	6.41	4.91	4.67	4.30	2.30			3.24	2.43
8	2.63	4.72	6.95	5.17	6.89	5.26	3.00	1.20	6.00	1.70	2.34	0.73
9	4.44	4.70	3.12	8.21	6.98	5.26	2.50	1.80	1.10	0.90	0.72	0.58
10	7.43	4.84	4.16	2.66	4.93	3.44	5.70	1.60	2.40	3.40	0.91	1.96
11	8.60		3.87	1.70	5.71	6.72	1.10	0.10	1.20	0.60	2.93	3.65
12	9.73	2.06	9.45	4.04	5.33	10.00	0.50	2.80	1.10	1.30	3.40	3.37
13	3.20	5.81	8.75	6.14	6.66	7.31	1.60	9.10	1.70	0.60	1.46	0.82
14	4.89	6.63	6.52	10.16	11.09	1.66	6.90	3.40	0.55	0.31	1.46	1.59
15	4.81	10.80	4.48	3.84	4.20	4.59	2.40	6.70	1.30	2.40	4.08	4.88
16	10.76	9.07	6.36	7.21	2.99	1.06	4.60	3.00	0.90	1.60	5.44	2.96
17	3.60	4.34	4.04	1.26	1.36	1.32	7.60	4.20	4.90	2.50	1.89	1.87
18	8.06	2.30	3.21	1.78	1.56	1.83	11.20	1.90	1.70	1.10	2.66	2.52
19	0.50	1.16	2.43	0.30	2.21	1.00	1.70	2.30	4.30	1.60	1.10	1.38
20	1.72	1.80	1.10	0.22	1.49	1.76	0.80	1.60	2.10	1.80	3.06	4.44
21	2.57	0.98	1.24	3.71	6.79	3.49	0.80	1.00	1.50	1.00	7.22	3.58
22	4.25	2.34	4.73	4.24	1.46	0.79	0.80	2.70	1.20	1.00	2.51	2.36
23	4.88	1.28	1.24	3.71	1.58	2.22	5.40	2.20	1.70	0.80	5.86	3.81
24	1.82	0.66	2.04	2.87	3.46	2.64	6.80	7.40	1.10	1.90	3.06	4.71
25	2.62	4.03	2.75	0.98	2.52	1.31	4.20	2.00	1.90	0.40	4.76	3.89
26	1.63	2.32	0.88	1.39	2.81	5.50	2.90	1.50	1.40	1.00	3.80	1.67
27	4.14	3.08	1.21	2.21	3.68	2.77	6.80	4.90	1.00	1.70		
28	2.66	6.30	1.52	1.71	1.54	0.86	3.20	4.50	4.50	2.20		
29	1.75	1.90	1.21	1.03	2.36	3.96	4.30	1.80				
30	2.44	3.74	0.89	0.80	5.36	2.54	6.60	4.50				
31	1.38	0.89			4.15	1.69	3.40	1.50				
Minimum	0.50		0.00		0.51		0.10		0.31		0.58	
Average	4.19		3.05		3.55		3.37		3.15		2.78	
Maximum	10.80		10.16		11.09		11.20		11.20		7.22	

Minimum for all Months	0.00	No. of Observations =	347
Average for all Months	3.35	Average =	3.36
Maximum for all Months	11.20	Standard deviation =	2.42
		95% confidence limit[a] =	8.11
		99% confidence limit[a] =	9.61

[a] 95% C.L. = Average + (1.96 x standard deviation).
99% C.L. = Average + (2.58 x standard deviation).

Emissions Unit Information Section 4 of 8

Segment Description and Rate Information: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): Natural gas burning	
2. Source Classification Code: 3-07-900-13	
3. SCC Units: Million cubic feet burned	
4. Maximum Hourly Rate: 0.00762	5. Maximum Annual Rate: 66.75
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 1,050	
10. Segment Comment: Average sulfur content = 2,000 gr/MMscf (0.3 lb/MMft^3)	

D. SEGMENT (PROCESS/FUEL) INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of segment data (Fields 1-10) must be completed for each segment required to be reported and for each alternative operating method or mode (emissions trading scenario) under Chapter 62-213, F.A.C., for which the maximum hourly or annual segment-related rate would vary. A segment is a material handling, process, fuel burning, volatile organic liquid storage, production, or other such operation to which emissions of the unit are directly related. See instructions for further details on this subsection of the Application for Air Permit.

Segment Description and Rate Information: Segment 1 of 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode): **Tall Oil Production**	
2. Source Classification Code (SCC): **3-99-999-96**	
3. SCC Units: **1,000 gallons**	
4. Maximum Hourly Rate: **55 tons/hr Crude Tall oil per 12 hours**	5. Maximum Annual Rate: **20,020 tons/yr Crude Tall oil**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment:	

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

March 29, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Myra Carpenter
Superintendent of Environmental Affairs
Georgia-Pacific Corporation
P. O. Box 919
Palatka, Florida 32178-0919

Dear Ms. Carpenter:

Re: File No. AC 54-266676/PSD-FL-226

As discussed during our March 23, 1995, meeting, the Department will need more information to process the application for permit to modify the digester system and recovery boiler at Georgia-Pacific Corporation's Palatka, Putnam County, Florida, pulp mill. Following is a list of the additional information the Department has requested.

1. Please provide a brief description of the proposed screen tubes for the recovery boiler.

2. Please provide a copy of all tests results of the regulated air pollutants from all affected units since the 1991 pulp mill modification and a statistical analysis of the data to support the requested BACT emission limits.

3. Please provide more justification, including cost data, on any air pollution control option you eliminated from consideration in the requested BACT determination.

4. Explain how compliance with each emission standard (1-hour, 24-hour, annual) can be determined.

5. What would be the requested sulfuric acid mist emission standard if compliance was to be determined by EPA Method 8 instead of the Alternate Sampling Procedure you have requested?

6. Please clarify the production rate or calculations for the Tall Oil Plant.

7. Are the emissions from the brown stock washer system affected by the proposed modification? If so, please describe changes.

8. Please provide a copy of all current permits to operate all affected units at this facility.

The ambient air modeling submitted with the application is being reviewed separately. Mr. Cleve Holiday will contact you if he has any questions on the modeling aspects of this application.

The Department will resume processing the application after receipt of the requested information. If you have any questions on this matter, please write to me or call Willard Hanks at (904)488-1344.

Sincerely,

for A. A. Linero, P.E.
Supervisor,
New Source Review Section

AL/wh/h

cc: David Buff, KBN
Chris Kirts, NED
Jewell Harper, EPA
John Bunyak, NPS

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

April 12, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Myra Carpenter
Superintendent of Environmental Affairs
Georgia-Pacific Corporation
Post Office Box 919
Palatka, Florida 32178-0919

Dear Ms. Carpenter:

Re: File No. AC54-266676/PSD-FL-226

As stated in the Department's March 29, 1995, letter to you requesting more information on this project, the ambient air modeling submitted with the application was reviewed separately. Based on this review, the Department is requesting the following additional modeling information.

If the affected emissions units at Georgia-Pacific emit any of the 189 hazardous air pollutants listed in Title III of the 1990 Clean Air Act Amendments, please provide emissions calculations and perform an impact analysis for each pollutant emitted for comparison with the applicable Florida Ambient Reference Concentrations.

The Department will resume processing the application after receipt of the requested information. If you have any questions on this matter, please write to me at the address above, or call Katherine Zhang or Cleve Holladay at 904/488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/al/h

cc: David Buff, KBN
Chris Kirts, NED
Jewell Harper, EPA
John Bunyak, NPS

Z 311 902 912

Receipt for Certified Mail

No Insurance Coverage Provided
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UNITED STATES POSTAL SERVICE

PS Form **3800**, March 1993

Sent to: Myra Carpenter	
Street and No.: Ga-Pacific	
P.O., State and ZIP Code: Palatka, Fl	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date: 4-13-95	

AC 54-J66676/PSD-Fl-226

[redacted] envelope to you.

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Myra Carpenter
Superintendent of Env. Affairs
Ga-Pacific Corp.
P O Box 919
Palatka, Fl 32178-0919

4a. Article Number: Z 311 902 912

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery: 4-17-95

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)

PS Form **3811**, December 1991 ★U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

March 29, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Myra Carpenter
Superintendent of Environmental Affairs
Georgia-Pacific Corporation
P. O. Box 919
Palatka, Florida 32178-0919

Dear Ms. Carpenter:

Re: File No. AC 54-266676/PSD-FL-226

As discussed during our March 23, 1995, meeting, the Department will need more information to process the application for permit to modify the digester system and recovery boiler at Georgia-Pacific Corporation's Palatka, Putnam County, Florida, pulp mill. Following is a list of the additional information the Department has requested.

1. Please provide a brief description of the proposed screen tubes for the recovery boiler.

2. Please provide a copy of all tests results of the regulated air pollutants from all affected units since the 1991 pulp mill modification and a statistical analysis of the data to support the requested BACT emission limits.

3. Please provide more justification, including cost data, on any air pollution control option you eliminated from consideration in the requested BACT determination.

4. Explain how compliance with each emission standard (1-hour, 24-hour, annual) can be determined.

5. What would be the requested sulfuric acid mist emission standard if compliance was to be determined by EPA Method 8 instead of the Alternate Sampling Procedure you have requested?

6. Please clarify the production rate or calculations for the Tall Oil Plant.

7. Are the emissions from the brown stock washer system affected by the proposed modification? If so, please describe changes.

8. Please provide a copy of all current permits to operate all affected units at this facility.

The ambient air modeling submitted with the application is being reviewed separately. Mr. Cleve Holiday will contact you if he has any questions on the modeling aspects of this application.

The Department will resume processing the application after receipt of the requested information. If you have any questions on this matter, please write to me or call Willard Hanks at (904)488-1344.

Sincerely,

for A. A. Linero, P.E.
Supervisor,
New Source Review Section

AL/wh/h

cc: David Buff, KBN
Chris Kirts, NED
Jewell Harper, EPA
John Bunyak, NPS

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SENDER:
- Complete items 1 and/or 2 for additional services.
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- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Myra Carpenter
Superintendent of Environmental Affairs
Georgia-Pacific Corp.
P. O. Box 919
Palatka, FL 32178-0919

4a. Article Number
P 872 563 676

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
4-3-95

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)
[signature]

PS Form **3811**, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

P 872 563 676

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
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UNITED STATES POSTAL SERVICE

Sent to	Ms. Myra Carpenter, GA-Pac
Street and No.	P. O. Box 919
P.O., State and ZIP Code	Palatka, FL 32178-0919
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	Mailed: 3-29-95 Permit: AC 54-266676 PSD-FL-226

PS Form **3800**, JUNE 1991

March 24, 1995

Mr. Al Linero, P.E.
Administrator, New Source Review
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: PSD Permit Application
Georgia-Pacific Corporation, Palatka Mill

Dear Mr. Linero:

Georgia-Pacific Corporation (G-P) recently submitted a PSD permit application for the Palatka mill. The permit application described proposed changes in certain emissions units at the Palatka mill: the addition of two new batch digesters and changes to the existing No. 4 Recovery Boiler. These proposed changes will also affect several other emission units: the Multiple Effect Evaporator (MEE) system, condensate stripper system, No. 4 Smelt Dissolving Tanks, No. 4 Lime Kiln, and the Tall Oil plant. These units will be affected by potential increased throughput rates due to the batch digester and recovery boiler changes.

G-P is now considering several other process changes and upgrades at the mill. Specifically, three separate projects are being considered, as described below:

1. Chip Conditioners
   The Palatka mill's existing chip conditioning system is used to condition wood chips before entering the digesters. The current system consists of primary chip thickness screens, high-density separators for removing foreign material, and slicers for reducing the thickness of oversize chips.

   G-P is contemplating replacing the separators and slicers with a new chip conditioner system. The new system will retain good fiber currently lost in the separators, increase wood yield by eliminating fines to the digesters and reduce maintenance costs. The chip conditioners consist of two horizontal steel rolls. The rolls turn at low rpm, and the chips fall between the rolls and are crushed or fissured.

   This process results in improved white liquor penetration into the wood in the digesters, resulting in improved yield. Therefore, a small increase in the pulp production capacity of the digesters is expected to result. However, the currently permitted capacity of the digesters, i.e., 118 TPH and 1,850 TPD, is adequate. This level of pulp production is reflected in the PSD permit application.

KBN ENGINEERING AND APPLIED SCIENCES, INC.

6241 Northwest 23rd Street, Suite 500, Gainesville, Florida 32653-1500, 904-336-5600 FAX 904-336-6603
5405 West Cypress Street, Suite 215, Tampa, Florida 33607, 813-287-1717 FAX 813-287-1716
1801 Clint Moore Road, Suite 105, Boca Raton, Florida 33487, 407-994-9910, FAX 407-994-9393
7785 Baymeadows Way, Suite 105, Jacksonville, Florida 32256, 904-739-5600 FAX 904-739-7777
1616 'P' Street N.W., Suite 450, Washington, D.C. 20036, 202-462-1100, FAX 202-462-2270

2. White Liquor Heater
In the current operations at G-P, white liquor is pumped to the digesters at a temperature of about 180°F. The ideal temperature for use in cooking is somewhat higher. Therefore, steam is used to raise the white liquor temperature. However, this is an inefficient use of steam, and a heat exchanger system is preferable. G-P is considering installing a white liquor heating system (heat exchanger) to replace the current steam system. An added benefit of this system is that digester cooks will increase slightly due to less time to raise the digester pressure. Pulp uniformity will also increase. Therefore, a small increase in the pulp production capacity of the digesters is expected to result. However, the currently permitted capacity of the digesters, i.e., 118 TPH and 1,850 TPD, is adequate. This level of pulp production is reflected in the PSD permit application.

3. Lime Mud Filter Cleaner
G-P currently operates a lime mud filter in the causticizing area. The lime mud filter increases the consistency of lime mud before it is conveyed to the lime kiln. In the current system, there is no mechanism for continuous cleaning of the filter. The filter must be taken out of service for cleaning about three times per day for a total of about 1 hour of downtime. The installation of an automatic cleaning system for the filter will eliminate this downtime, as well as provide for a slight reduction in fuel oil usage per ton of lime mud.

Since these changes will not result in production rates or emissions which exceed those stated in the PSD permit application, these projects can be included in the PSD permit application.

In regard to the PSD permit application submitted, an error has been discovered in the operating hours for the TRS incinerator used determine PSD baseline emissions. Operating hours of 8,760 hr/yr were used, when in reality the unit operated at somewhat fewer hours during the past 2 years. This error was corrected and revised pages of the permit application prepared. These revised pages were left with you during our meeting on March 23rd. Please replace the respective pages in Emission Unit 4 and in the PSD report with the revised pages.

If you have any questions concerning this information, please call.

Sincerely,

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida Registration 19011

SEAL

DAB/vjp
cc: Myra Carpenter
Traylor Champion
File (2)

14379C/1

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 1 of 7

1. Pollutant Emitted: **TRS**		
2. Total Percent Efficiency of Control:	**99.97%**	
3. Primary Control Device Code: **013**		
4. Secondary Control Device Code: **021**		
5. Potential Emissions:	**0.12** lbs/hr	**0.53** tons/yr
6. Synthetically Limited? [ ] Yes	[X] No	
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr		
8. Emission Factor: **5 ppm TRS in exhaust gases** Reference:		
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5		
10. Calculation of Emissions: **See Attachment A-1**		
11. Pollutant Potential/Estimated Emissions Comment:		

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: Rule	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 5 ppmvd TRS at 10% O_2	
4. Equivalent Allowable Emissions: 0.12 lbs/hr	0.53 tons/yr
5. Method of Compliance: Stack testing on incinerator outlet using Method 16 or 16A once every 5 years.	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): Rule 62-296.404(3)(a)1.	

B.

1. Basis for Allowable Emissions Code: Rule	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: Incineration at 1200°F for 0.5 second	
4. Equivalent Allowable Emissions: lbs/hr	tons/yr
5. Method of Compliance: Continuous monitor for combustion temperature	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): Rule 62-296.404(3)(f)	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 2 of 7

1. Pollutant Emitted: PM		
2. Total Percent Efficiency of Control:	%	
3. Primary Control Device Code:		
4. Secondary Control Device Code:		
5. Potential Emissions:	5.5 lbs/hr	24.1 tons/yr
6. Synthetically Limited? [ ] Yes	[X] No	
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr		
8. Emission Factor: Reference: Stack test results		
9. Emissions Method Code: [X] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5		
10. Calculation of Emissions: See Attachment A-1		
11. Pollutant Potential/Estimated Emissions Comment:		

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: Other	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 5.5 lb/hr	
4. Equivalent Allowable Emissions: 5.5 lbs/hr	24.1 tons/yr
5. Method of Compliance: Stack testing using Method 5 once every 5 years	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions: lbs/hr	tons/yr
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 3 of 7

1. Pollutant Emitted: **PM10**		
2. Total Percent Efficiency of Control:	%	
3. Primary Control Device Code:		
4. Secondary Control Device Code:		
5. Potential Emissions:	5.5 lbs/hr	24.1 tons/yr
6. Synthetically Limited? [ ] Yes	[X] No	
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2	[ ] 3 _____ to _____	tons/yr
8. Emission Factor: Reference: **Stack test results**		
9. Emissions Method Code: [X] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5		
10. Calculation of Emissions: **See Attachment A-1**		
11. Pollutant Potential/Estimated Emissions Comment:		

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 5.5 lb/hr		
4. Equivalent Allowable Emissions:	5.5 lbs/hr	24.1 tons/yr
5. Method of Compliance: Stack testing using Method 5 once every 5 years		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: **Pollutant 4 of 7**

1. Pollutant Emitted: SO_2	
2. Total Percent Efficiency of Control:	%
3. Primary Control Device Code:	
4. Secondary Control Device Code:	
5. Potential Emissions:	1,200 lbs/hr 1,677.5 tons/yr
6. Synthetically Limited? [X] Yes	[ ] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr	
8. Emission Factor: Reference: **Uncontrolled TRS and approximately 50% removal in scrubber**	
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5	
10. Calculation of Emissions: **See Attachment A-1**	
11. Pollutant Potential/Estimated Emissions Comment:	

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: ESCPSD	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 1,200 lb/hr, max; 784 lb/hr, 24-hr	
4. Equivalent Allowable Emissions: 1,200 lbs/hr	1,677.5 tons/yr
5. Method of Compliance: Test initially and once every 5 years for SO_2 using Method 8 at outlet of TRS incinerator. This testing will demonstrate surrogate parameter (scrubber liquor flow rate) for TRS removal.	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions: lbs/hr	tons/yr
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 5 of 7

1. Pollutant Emitted: NO_x
2. Total Percent Efficiency of Control: %
3. Primary Control Device Code:
4. Secondary Control Device Code:
5. Potential Emissions: 1.74 lbs/hr 7.60 tons/yr
6. Synthetically Limited? [ ] Yes [X] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: 14 lb/1000 gal Reference: AP-42 for propane
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [X] 4 [ ] 5
10. Calculation of Emissions: 124 gal/hr x 14 lb/1000 gal = 1.74 lb/hr 1.74 lb/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 7.60 TPY
11. Pollutant Potential/Estimated Emissions Comment:

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 6 of 7

1. Pollutant Emitted: CO
2. Total Percent Efficiency of Control: %
3. Primary Control Device Code:
4. Secondary Control Device Code:
5. Potential Emissions: 0.24 lbs/hr 1.03 tons/yr
6. Synthetically Limited? [ ] Yes [X] No
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
8. Emission Factor: 1.9 lb/1000 gal Reference: AP-42 for propane
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [X] 4 [ ] 5
10. Calculation of Emissions: 124 gal/hr x 1.9 lb/1000 gal = 0.24 lb/hr 0.24 lb/hr x 8,760 hr/yr ÷ 2,000 lb/ton = 1.03 TPY
11. Pollutant Potential/Estimated Emissions Comment:

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lbs/hr	tons/yr
5. Method of Compliance:		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):		

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: **Pollutant 7 of 7**

1. Pollutant Emitted: **SAM**	
2. Total Percent Efficiency of Control:	%
3. Primary Control Device Code:	
4. Secondary Control Device Code:	
5. Potential Emissions:	**58.8** lbs/hr **82.2** tons/yr
6. Synthetically Limited? [X] Yes [ ] No	
7. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr	
8. Emission Factor: **4% of SO_2 emissions, as SO_3** Reference: **AP-42**	
9. Emissions Method Code: [ ] 1 [ ] 2 [ ] 3 [ ] 4 [X] 5	
10. Calculation of Emissions: **See Attachment A-1**	
11. Pollutant Potential/Estimated Emissions Comment:	

Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: ESCPSD	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units: 58.8 lb/hr, max; 38.4 lb/hr, 24-hr	
4. Equivalent Allowable Emissions: 58.8 lbs/hr	82.2 tons/yr
5. Method of Compliance: Test initially and once every 5 years using NCASI Method 106 at outlet of TRS incinerator. This testing will demonstrate surrogate parameter (scrubber liquor flow rate) for TRS removal.	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

B.

1. Basis for Allowable Emissions Code:	
2. Future Effective Date of Allowable Emissions:	
3. Requested Allowable Emissions and Units:	
4. Equivalent Allowable Emissions: lbs/hr	tons/yr
5. Method of Compliance:	
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode):	

ATTACHMENT A-1
EMISSION ESTIMATES

I. SULFUR DIOXIDE (SO_2)

SO_2 emissions are based upon TRS content of gases to be incinerated. Fuel burning (methanol and natural gas) contributes negligible amounts of SO_2 to exhaust gases. Estimated TRS content of the gas streams vented to the incinerator and resulting uncontrolled SO_2 emissions are presented below:

	TRS Content (lb/hr)*		SO_2 Emissions (lb/hr)	
Gas Stream Source	Maximum 24-hour	Maximum 3-hour	Maximum 24-hour	Maximum 3-hour
(1) No. 3 Accumulator Tank	196	300	392	600
(2) Pre-Evaporators	69	106	138	212
(3) No. 1 B.L. Evaporator Set	17	26	34	52
(4) No. 2 B.L. Evaporator Set	17	26	34	52
(5) No. 3 B.L. Evaporator Set	17	26	34	52
(6) No. 4 B.L. Evaporator Set	17	26	34	52
(7) Turpentine Condenser	21	32	42	64
(8) Condensate Stripper	38	58	76	116
Totals	392	600	784	1,200

* TRS reported as sulfur

Maximum annual SO_2 emissions are based upon the maximum 24-hour average TRS content and 51% removal in the TRS scrubber:

$$392 \text{ lb/hr TRS} \times 2 \text{ lb } SO_2/\text{lb TRS} \times (1 - 0.51) = 383 \text{ lb/hr } SO_2$$

$$383 \text{ lb/hr} \times 8{,}760 \text{ hr/yr} / 2{,}000 \text{ lb/ton} = 1{,}677.5 \text{ TPY}$$

II. TOTAL REDUCED SULFUR (TRS)

Although it is expected that the TRS Incinerator will result in conversion of all TRS to SO_2, the TRS regulations allow a 5 ppm (dry basis at standard conditions, corrected to 10% O_2) TRS level

in the exhaust gases of an incineration device (12-hour average). Based upon this emission standard, maximum TRS emissions are calculated as follows:

Gas Flow Rate = 22,000 dscfm @ 18.7% O_2

Equate 5 ppm emission rate @ 10% O_2 to actual stack O_2

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

X = corrected O_2 = 10%

Y = actual O_2 = 18.7%

$C_{corr} = C_{act}\,[(21 - 10)/(21 - 18.7] = 4.8\ C_{act}$

$C_{act} = C_{corr} / 4.8 = 5 / 4.8 = 1.0$ ppm

TRS emissions:

PVC = mRT

m = PVC/RT

$$m = \frac{2116.8\ lb_f}{ft^2} \times \frac{22{,}000\ ft^3}{min} \times \frac{1.0}{10^6} \times \frac{34\ lb_m - °R}{1{,}545 ft - lb_f} \times \frac{1}{528°R} \times \frac{60\ min}{hr}$$

$$= 0.12\ lb/hr$$

0.12 lb/hr x 8,760 hr/yr / 2,000 lb/ton = 0.53 TPY

III. PM(TSP)/PM10

Emissions based on permit allowable of 5.5 lb/hr and 24.1 TPY.

IV. PRODUCTS OF COMBUSTION

A. METHANOL BURNING

Emission factors for methanol burning are not published in USEPA AP-42, "Compilation of Air Pollutant Emission Factors." As a result, emission factors in AP-42 for liquified petroleum gas (propane) were used as an estimate of emissions due to methanol burning. The emission factors are as follows:

Nitrogen oxides - 14 lb/1000 gal

Carbon monoxide - 1.9 lb/1000 gal

Volatile Organic Compounds - 0.5 lb/1000 gal

Emission estimates are presented below:

Maximum Methanol burning rate =

8.0 x 10^6 Btu/hr / 9,781 Btu/lb / 6.6 lb/gal = 124 gal/hr

Nitrogen oxides = 124 x 14/1000 = 1.74 lb/hr

Carbon monoxide = 124 x 1.9/1000 = 0.24 lb/hr

Volatile Organic Compound = 124 x 0.5/1000 = 0.06 lb/hr

B. NATURAL GAS BURNING

From AP-42, emission factors for natural gas burning are as follows:

Nitrogen oxides - 100 lb/10^6 ft^3

Carbon monoxide - 20 lb/10^6 ft^3

Volatile Organic Compounds - 5.3 + 2.7 = 8.0 lb/10^6 ft^3

Emission estimates are presented below:

Maximum natural gas burning rate = 8.0 x 10^6 Btu/hr / 1,050 Btu/ft^3

= 7,619 ft^3/hr

Nitrogen oxides - 7,619 ft^3/hr x 100/10^6 = 0.76 lb/hr

Carbon monoxide = 7,619 ft^3/hr x 20/10^6 = 0.15 lb/hr

Volatile Organic Compounds = 7,619 ft^3/hr x 8/10^6 = 0.061 lb/hr

C. ANNUAL EMISSIONS

Annual emissions estimates assumes highest emissions for either fuel

Nitrogen oxides = 1.74 lb/hr x 8,760 / 2,000 = 7.60 TPY

Carbon monoxide = 0.24 lb/hr x 8,760 / 2,000 = 1.03 TPY

Volatile Organic Compounds = 0.06 lb/hr x 8,760 / 2,000 = 0.27 TPY

V. SULFURIC ACID MIST

From AP-42, Table 1.3-2 for fossil fuel combustion, SO_3 emissions represent approximately 4 percent of SO_2 emissions. The SO_3 must then be converted to H_2SO_4 based on molecular weights.

Max. hourly = 1,200 lb/hr SO_2 x 0.04 x 98/80 = 58.8 lb/hr

Max. 24-hour = 784 lb/hr SO_2 x 0.04 x 98/80 = 38.4 lb/hr

Max. annual = 1,677.5 TPY x 0.04 x 98/80 = 82.2 TPY

Table 2–1. Current Actual Emissions From Affected Sources, Georgia–Pacific Palatka Operations

Regulated Pollutant	Current Actual Emissions (TPY)					
	No. 4 LK	No. 4 RB	No. 4 SDT	TALL OIL	TRS INCIN.	TOTAL
Particulate matter (TSP)	80.0	125.8	28.6	--	23.2	257.6
Particulate matter (PM10)	80.0	125.8	28.6	--	23.2	257.6
Sulfur dioxide	3.20	58.8	27.8	--	2,115.2	2,205.0
Nitrogen oxides	125.5	410.3	55.7	--	1.76	593.3
Carbon monoxide	9.60	1,246.2	--	--	0.30	1,256.1
Volatile organic compounds	3.20	11.7	71.3	23.5	0.10	109.8
Sulfuric acid mist	0.16	7.66	1.36	--	103.6	112.8
Total reduced sulfur	4.40	13.3	4.84	0.32	0[a]	22.9
Lead	0.034	0.070	0.017	--	--	0.12
Mercury	0.00037	0.031	6.68E–05	--	--	0.031
Beryllium	0.0015	0.0022	5.20E–05	--	--	0.0038
Fluorides	--	--	--	--	--	--
Asbestos	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--

[a] Stack tests indicated TRS levels were below detectable limits.

Table 2–2. Future Maximum Annual Emissions From Affected Sources, Georgia–Pacific Palatka Operations

Regulated Pollutant	Future Maximum Emissions (TPY)					
	No. 4 LK	No. 4 RB	No. 4 SDT	TALL OIL	TRS INCIN.	TOTAL
Particulate matter (TSP)	113.9	364.4	55.2	--	24.1	557.6
Particulate matter (PM10)	113.9	364.4	55.2	--	24.1	557.6
Sulfur dioxide	47.7	481.4	34.5	--	1,677.5	2,241.1
Nitrogen oxides	220.3	922.4	69.0	--	7.60	1,219.3
Carbon monoxide	32.0	2,245.6	--	--	1.03	2,278.6
Volatile organic compounds	75.3	239.1	88.3	29.0	0.27	432.0
Sulfuric acid mist	2.34	14.2	1.70	--	82.2	100.44
Total reduced sulfur	17.5	78.0	14.9	0.50	0.53	111.4
Lead	0.045	0.090	0.021	--	--	0.16
Mercury	0.00049	0.039	8.28E–05	--	--	0.040
Beryllium	0.0020	0.0028	6.44E–05	--	--	0.0049
Fluorides	--	--	--	--	--	--
Asbestos	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--

Table 2-7. Maximum Emissions from TRS Incinerator, Georgia-Pacific, Palatka Operations

Regulated Pollutant	TRS Incinerator (Natural Gas Burning) Emission Factor	Reference	Activity Factor[a]	Hourly Emissions (lb/hr)	TRS Incinerator (Methanol Burning) Emission Factor	Reference	Activity Factor[b]	Hourly Emissions (lb/hr)	Maximum Hourly Emissions (lb/hr)	Annual Emissions[c] (TPY)
Particulate (TSP)	Permit Allowable	1	--	5.5	Permit Allowable	1	--	5.5	5.5	24.1
Particulate (PM10)	Permit Allowable	1	--	5.5	Permit Allowable	1	--	5.5	5.5	24.1
Sulfur dioxide: 3-hr	5.085 lb S/ton ADUP	2	118 ton/hr ADUP	1,200	5.085 lb S/ton ADUP	2	118 ton/hr ADUP	1,200	1200	--
24-hr	5.085 lb S/ton ADUP	2	1,850 TPD ADUP	784	5.085 lb S/ton ADUP	2	1,850 TPD ADUP	784	784	--
Annual	5.085 lb S/ton ADUP; 50% control	3	1,850 TPD ADUP	383	5.085 lb S/ton ADUP; 50% control	3	1,850 TPD ADUP	383	383	1,677.5
Nitrogen oxides	100 lb/MMscf gas	4	7,620 ft^3/hr	0.76	14 lb/1000 gal	5	124 gal/hr	1.74	1.74	7.60
Carbon monoxide	20 lb/MMscf gas	4	7,620 ft^3/hr	0.15	1.9 lb/1000 gal	5	124 gal/hr	0.24	0.24	1.03
Volatile Org. Compds.	8 lb/MMscf gas	4	7,620 ft^3/hr	0.06	0.5 lb/1000 gal	5	124 gal/hr	0.06	0.06	0.27
Sulfuric acid mist	4 % of SO2 as SO3	6	--	58.8	4 % of SO2 as SO3	6	--	58.8	58.8	82.2
Total reduced sulfur	5 ppmvd @ 10% O2	1	4,590 dscfm	0.12	5 ppmvd @ 10% O2	1	4,590 dscfm	0.12	0.12	0.53
Lead	--	--	--	--	--	--	--	--		--
Mercury	--	--	--	--	--	--	--	--		--
Beryllium	--	--	--	--	--	--	--	--		--
Fluorides	--	--	--	--	--	--	--	--		--
Asbestos	--	--	--	--	--	--	--	--		--
Vinyl Chloride	--	--	--	--	--	--	--	--		--

[a] Natural gas heating value of 1,050 Btu/scf.
[b] Methanol heating value of 64,500 Btu/gal.
[c] Based on 8,760 hr/yr operation.

References

1. Emission factor based on permit allowables (AO54-166018).
2. Emission factor based on uncontrolled emissions (from permit application for TRS incinerator). Emission rate based on permit allowables (AO54-166018).
3. Based on uncontrolled 24-hour average emissions and assuming 51% control with TRS scrubber.
4. From AP-42, Table 1.4-1, 1.4-2, and 1.4-3, for natural gas burning.
5. Emission factors for methanol burning are not published in USEPA AP-42, therefore factors for propane were used to estimate the emissions (AP-42, Table 1.5-1).
6. From AP-42, Table 1.3-2 for fossil fuel combustion: SO3 represents 4% of SO2 emissions. Convert SO3 to H2SO4 based on molecular weights.

Table 3–3. Net Emissions Increase Associated With Proposed Project, Georgia–Pacific Palatka Operations

Regulated Pollutant	Current Actual Emissions (TPY)	Future Maximum Emissions (TPY)	Net Increase In Emissions (TPY)	PSD Significant Emission Rate (TPY)	PSD Review Applies?
Particulate matter (TSP)	257.6	557.6	300.0	25	Yes
Particulate matter (PM10)	257.6	557.6	300.0	15	Yes
Sulfur dioxide	2,205.0	2,241.1	36.1	40	No
Nitrogen oxides	593.3	1,219.3	626.0	40	Yes
Carbon monoxide	1,256.1	2,278.6	1,022.5	100	Yes
Volatile organic compounds	109.8	432.0	322.2	40	Yes
Sulfuric acid mist	112.8	100.4	−12.4	7	No
Total reduced sulfur	22.9	111.4	88.5	10	Yes
Lead	0.12	0.16	0.04	0.6	No
Mercury	0.031	0.040	0.009	0.1	No
Beryllium	0.0038	0.0049	0.0011	0.0004	Yes
Fluorides	--	--	--	3	No
Asbestos	--	--	--	0.007	No
Vinyl Chloride	--	--	--	1	No

Table A-5. Current Actual Emissions from TRS Incinerator, Georgia-Pacific, Palatka Operations

	TRS Incinerator (Natural Gas Fired)				TRS Incinerator (Methanol Burning)				
Regulated Pollutant	Emission Factor	Reference	Activity Factor[a]	Annual Emissions (TPY)	Emission Factor	Reference	Activity Factor[a]	Annual Emissions (TPY)	Total Annual Emissions (TPY)
Particulate (TSP)	5.3 lb/hr	1	8,669 hr/yr	23.0					23.0
Particulate (PM10)	5.3 lb/hr	1	8,669 hr/yr	23.0					23.0
Sulfur dioxide	488 lb/hr	2	8,669 hr/yr	2,115.2					2,115.2
Nitrogen oxides	100 lb/MMscf gas	3	18.3 $MMft^3/yr$	0.92	14 lb/1000 gal	5	120 Mgal/yr	0.84	1.76
Carbon monoxide	20 lb/MMscf gas	3	18.3 $MMft^3/yr$	0.18	1.9 lb/1000 gal	5	120 Mgal/yr	0.11	0.30
Volatile Org. Compds.	8 lb/MMscf gas	3	18.3 $MMft^3/yr$	0.07	0.5 lb/1000 gal	5	120 Mgal/yr	0.03	0.10
Sulfuric acid mist	4 % of SO2 as SO3	4	--	103.6					103.6
Total reduced sulfur	0 lb/hr	1	8,669 hr/yr	0.00					0.00
Lead	--	--	--	--					--
Mercury	--	--	--	--					--
Beryllium	--	--	--	--					--
Fluorides	--	--	--	--					--
Asbestos	--	--	--	--					--
Vinyl Chloride	--	--	--	--					--

[a] Activity factor based on average of 1993 and 1994 operation.

References

1. Based on average of stack test results from 1/25/90 and 2/18/94.
2. Based on average of stack test results from 1/25/90 and 2/18/94.
3. From AP-42, Table 1.4-1, 1.4-2, and 1.4-3, for natural gas burning.
4. From AP-42, Table 1.3-2 for fossil fuel combustion, SO3 represents 4% of SO2 emissions. Convert to H2SO4 based on molecular weights.
5. Emission factors for methanol burning are not published in USEPA AP-42, therefore factors for propane were used to estimate the emissions (AP-42, Table 1.5-1)

IV. Tall Oil Plant

A. VOC

Factor from NCASI Technical Bulletin No. 677, Table X1.A.3.
Factor is 2.9 lb/ton crude tall oil.
4.58 tons/hr x 2.9 lb/ton = 13.3 lb/hr
20,020 TPY x 2.9 lb/ton ÷ 2,000 lb/ton = 29.0 TPY

B. TRS

Emissions based on permit allowable of 0.23 lb/hr and 0.50 TPY.

V. TRS Incinerator

A. PM(TSP)/PM10 and TRS

Emissions based on permitted allowables:
PM(TSP)/PM10 - 5.5 lb/hr, 24.1 TPY
TRS - 0.12 lb/hr, 0.53 TPY

B. SO_2

Maximum 3-hr emissions based upon permit allowable of 1,200 lb/hr.
Maximum 24-hr emissions based on permit application for TRS incinerator, which showed 784 lb/hr.
Maximum annual emissions based upon average of 383 lb/hr or 1,677.5 TPY.
This represents approximately 51% removal of TRS by the TRS scrubber prior to incineration.

C. NO_x, CO, VOC

Emissions based AP-42 factors for natural gas and methanol burning.

D. Sulfuric Acid Mist

As for RB4, SDT4, etc., sulfuric acid mist based on 4% of SO_2 as SO_3, and converting to H_2SO_4.

March 14, 1995

Mr. Cleveland Holladay
Bureau of Air Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Georgia Pacific-Palatka Plant PSD Application Air Modeling Files

Dear Cleve:

Please find enclosed one hard and one disk copy of the PSD air modeling analysis ISCST2 model printout associated with the above-referenced application. Disk output files are compressed within archive files using the utility PKZIP. The unarchiving utility program PKUNZIP is included on the disks. A hard copy of the direction of each of these ZIPPED files is included. Should you have any questions relating to the enclosed material, please call me at (904) 336-5600. Thank you.

Sincerely,

Steven R. Marks
ehj

Steven R. Marks
Senior Meteorologist

Enclosures

SRM/ehj

cc: David Buff, KBN
File (2)

14379C\MODEL\1

6241 Northwest 23rd Street
Suite 500
Gainesville, Florida 32653-1500
904-336-5600 FAX 904-336-6603

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

March 13, 1995

Mr. John Bunyak, Chief
Policy, Planning and Permit Review Branch
National Park Service-Air Quality Division
P. O. Box 25287
Denver, Colorado 80225

RE: Georgia-Pacific Corporation
Digester System/Recovery Boiler Modification
Putnam County, PSD-FL-226

Dear Mr. Bunyak:

Enclosed for your review and comment is the above referenced PSD application. Please forward your comments to the Department's Bureau of Air Regulation as soon as possible. The Bureau's FAX number is (904)922-6979.

If you have any questions, please contact Willard Hanks or Cleve Holladay at (904)488-1344 or write to me at the above address.

Sincerely,

Patricia G. Adams for

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/pa

Enclosures

cc: Willard Hanks
Cleve Holladay

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

March 13, 1995

Ms. Jewell A. Harper, Chief
Air Enforcement Branch
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

RE: Georgia-Pacific Corporation
Digester System/Recovery Boiler Modification
Putnam County, PSD-FL-226

Dear Ms. Harper:

Enclosed for your review and comment is the above referenced PSD application. Please forward your comments to the Department's Bureau of Air Regulation as soon as possible. The Bureau's FAX number is (904)922-6979.

If you have any questions, please contact Willard Hanks or Cleve Holladay at (904)488-1344 or write to me at the above address.

Sincerely,

Patricia G. Adams

for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/pa

Enclosures

cc: Willard Hanks
Cleve Holladay