

INTEROFFICE MEMORANDUM

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To: _____	Loctn.: _____
To: _____	Loctn.: _____
To: _____	Loctn.: _____
From: _____	Date: _____

TO: Jacob D. Varn  
Secretary

FROM: Steve Smallwood, *JS* Acting Chief  
Bureau of Air Quality Management

DATE: January 18, 1980

SUBJECT: BACT Determination - St. Regis Paper Company,  
No. 4 Bark Boiler, Escambia County

Facility: A bark fired boiler with maximum design input rate of 666 million BTU per hour. Natural gas and fuel oil are to be used as a standby auxillary fuel. Estimated potential emissions based upon 100% firing with bark are: 36,811 tons/year of particulate, 61 tons/year of SO<sub>2</sub>, 54 tons per year of volatile organic compounds, 688 tons per year of carbon monoxide and 3,443 tons/year of oxides of nitrogen.

BACT Determination Requested by the Applicant:

TSP, bark, oil or gas	0.10 lb/10 <sup>6</sup> BTU
NO <sub>x</sub> , oil	0.30 lb/10 <sup>6</sup> BTU
gas	0.20 lb/10 <sup>6</sup> BTU
SO <sub>2</sub> , oil	0.64 lb/10 <sup>6</sup> BTU

Date of Receipt of a Complete BACT Application:

October 22, 1979

Date of Publication in the Florida Administrative Weekly:

December 14, 1979

Date of Publication in a Newspaper of General Circulation:

October 29, 1979

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Study Group Members:

Michael Harley, DER Bureau of Air Quality Management, Tallahassee;  
 Jack Preece, DER Northwest District, Pensacola;  
 John Svec, DER Bureau of Air Quality Management, Tallahassee

Study Group Recommendations:

Pollutant	Fuel	Emissions/# MMBTU		
		Harley	Svec	Jack Preece
Particulate	Bark	0.1	0.1	0.1
	Gas	0.015	0.1	0.1
	Oil	0.1	0.1	0.1
	Bark/Gas	0.1	Prorated	---
	Bark/Oil	0.1	Prorated	---
Sulfur Dioxide	Bark	0.03	.003	.003
	Gas	0.0006	.051	.051
	Oil	0.641	.641	.641
	Bark/Gas	0.03	Prorated	---
	Bark/Oil	**	Prorated	---
Nitrogen Oxide	Bark	0.25*	0.25*	---
	Gas	0.20	0.20	---
	Oil	0.30	0.30	---
	Bark/Gas	0.25	Prorated	---
	Bark/Oil	**	Prorated	---
Hydrocarbons	Bark	0.020	---	---
	Gas	0.001	---	---
	Oil	0.007	---	---
	Bark/Gas	0.02	---	---
	Bark/Oil	0.02	---	---
Carbon Monoxide	Bark	0.237	0.237	0.237
	Gas	0.017	0.237	0.237
	Oil	0.035	0.237	0.237
	Bark/Gas	0.237	0.237	---
	Bark/Oil	0.237	0.237	---

\* Determined on three hour average.

\*\* Emission Rate = (Proportion of Heat from Oil x Allowable Emission for Oil) + (Proportion of Heat from Bark x Allowable Emission from Bark).

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Applicable EPA New Source Performance Standards (NSPS) for Fossil Fuel Fired Steam Generators\*:

TSP - bark, oil or gas	0.10 lb/10 <sup>6</sup> BTU
NO <sub>x</sub> oil	0.30 lb/10 <sup>6</sup> BTU
gas	0.20 lb/10 <sup>6</sup> BTU
SO <sub>2</sub> oil	0.80 lb/10 <sup>6</sup> BTU

\*See attachment D for text of NSPS

EPA Preliminary BACT Determination for this Facility\*:

<u>Fuel Fired</u>	<u>Allowable Limits (Pound per Million BTU)</u>			
	<u>SO<sub>2</sub></u>	<u>NO<sub>x</sub></u>	<u>TSP</u>	<u>CO</u>
Gas Firing	0.051	0.2	0.1	0.237
Oil Firing	0.641	0.3	0.1	0.237
Wood Firing	0.003	0.25 <sup>a</sup>	0.1	0.237
Gas/Wood	0.051	0.2	0.1	0.237
Oil/Wood	0.641	0.3	0.1	0.237

\*See attachment C for full text of EPA's Preliminary Determination

<sup>a</sup>Determined on a three-hour average.

BACT Determination by Florida Department of Environmental Regulation:

<u>Pollutant</u>	<u>Fuel</u>	<u>Max. Allowable (#/MMBTU)</u>	
Particulate	Bark	0.10	Opacity not to exceed 20%
	Gas	0.01*	
	Oil	0.10	Opacity not to exceed 20%
Sulfur Dioxide	Bark	0.03*	
	Gas	0	
	Oil	0.64	
Nitrogen Oxides	Bark	0.25 <sup>a</sup>	
	Gas	0.20	
	Oil	0.30	

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Pollutant	Fuel	Max. Allowable (#/MMBTU)
Carbon Monoxide	Bark	0.24
	Gas	0.02*
	Oil	0.03*

\*This emission factor is only applicable when firing fuel combinations.

Fuel Combinations:  $\sum H_i E_i$  where  $H_i$  denotes proportion of heat input from fuel type  $i$  and  $E_i$  denote the emission factor (in lb/MMBTU as given in the above table).

Test Requirements:

	Particulate	SO <sub>2</sub>	NO <sub>x</sub>	CO
Bark	*		*	*
Gas			*	
Oil	*	*	*	

\*Test required

Test Methods: EPA reference methods - Title 40 Part 60 of the Code of Federal Regulations, Dated July 1, 1978, or other State approved methods.

Justification of DER Determination:

The source in question is a major addition to a facility under the designation of Kraft Pulp Mills, as such it is subject to PSD review and to a BACT Determination.

Particulate: Florida's emission limitation for new bark boilers is 0.2 lb/MMBTU heat input. However, 0.1 lb/MMBTU is attainable with the proposed multi-cyclone and venturi scrubber. The 0.1 lb/MMBTU limit is also Florida's standard for fossil fuel steam generators and the EPA's New Source Performance Standards for fossil or combination fired industrial generating facilities. A more stringent standard for bark or oil firing was not justified by the impact on air quality of this pulp mill expansion (see Table V-I in attached application - Attachment A). We therefore concurred with both the applicant's and the study groups analyses and determined 0.1 lb/MMBTU as BACT.

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An emission limitation for firing with 100% gas was omitted because the potential emission of 28 tons/year (see Table IV in Attachment A) using 100% gas yielded undetectable controlled emissions.

Sulfur Dioxide: No emission limitation for firing with 100% bark was included because potential emissions from bark burning are only 61 tons/year. The applicant listed this potential emissions as 7.4 tons/year but his estimate resulted from use of an incorrect emission factor (see Table IV-I in the attached copy of the application). Likewise for use of 100% gas as a fuel, the potential of 1 ton/year SO<sub>2</sub> did not justify an emission limitation for this fuel.

The emission limitation of .64 lb/MMBTU for oil resulted from the applicant's claim that such limit was attainable with .8% sulfur residual oil because the scrubber could efficiently remove at least 20% of the emissions. The NSPS in this case is higher at 0.8 lb/MMBTU. However, we accepted the applicant's lower limit as BACT in agreement with the study-group's recommendations.

Nitrogen Oxides: The emission limitation of .25 for bark firing was based on data developed by the applicant which showed emissions from wood residue fired boilers ranging from .05 to .19 lb/MMBTUs (see EPA's Preliminary BACT Determination for this facility - Attachment C). The selected NO<sub>x</sub> emission limits for oil and gas firing equalled those required by Chapter 17-2 and by the EPA NSPS; they also agree with recommendations of the study group. We did not have information supporting lower NO<sub>x</sub> emissions for the boiler and therefore accepted the proposed emission rates as BACT.

Carbon Monoxide: The .24 lb/MMBTU limit was based on the applicant's proposed bark input and AP 42 factors. The applicant proposed to limit CO emission by boiler design and control of combustion conditions. No data could be found to support a lower emission rate than the proposed limit which was accepted by the study group and declared BACT. Because emission levels were, 95 and 19 tons/year, respectively, when firing fuel oil and natural gas, no BACT limit was declared for these fuels.

Volatile Organic Compounds: Because of the low emission estimates for this pollutant when firing with all types of fuels (see Table IV-I in the attached application - Attachment A) no BACT was determined for control of volatile organic compounds.

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Details of the Analysis May be Obtained by Contacting:

Victoria Martinez, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Twin Towers Office Building  
Tallahassee, Florida 32301

Recommendation from: Bureau of Air Quality Management

By:   
Stephen Smallwood

Date: Jan 18, 1980

Approved by:   
Jacob D. Varn

Date: January 18, 1980

SS:es

Attachments



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV  
345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

*File* → **E01.A05**  
**PSD PERMIT**  
*PUR BLR #34 #4*

PERMIT TO CONSTRUCT UNDER THE RULES FOR THE  
PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY

Pursuant to and in accordance with the provisions of Part C, Subpart 1 of the Clean Air Act, as amended, 42 U.S.C. § 7470 et seq., and the regulations promulgated thereunder at 40 C.F.R. § 52.21, as amended at 45 Fed. Reg. 52676, 52735-41 (August 7, 1980),

St. Regis Paper Company  
Gulf Life Tower  
Jacksonville, Florida

is hereby authorized to construct/modify a stationary source at the following location:

Highway 29  
Cantonment, Escambia County, Florida

UTM Coordinates: 469 East, 3386 North,

Upon completion of this authorized construction and commencement of operation/production, this stationary source shall be operated in accordance with the emission limitations, sampling requirements, monitoring requirements and other conditions set forth in the attached Specific Conditions (Part I) and General Conditions (Part II).

This permit shall become effective 30 days from receipt of this permit.

If construction does not commence within 18 months after the effective date of this permit, or if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time this permit shall expire and authorization to construct shall become invalid.

This authorization to construct/modify shall not relieve the owner or operator of the responsibility to comply fully with all applicable provisions of Federal, State, and Local law.

JUN 26 1981

Date Signed

*Howard D. Zeller*  
Howard D. Zeller  
Acting Director  
Enforcement Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

8-6-81

4E-CP

REGION IV

345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

JUL 31 1981

Mr. D. M. Ferguson  
St. Regis Paper Company  
Gulf Life Tower  
Jacksonville, Florida 32207

Re: PSD Permit PSD-FL-066

Dear Mr. Ferguson:

As requested in your letter to EPA dated July 16, 1981, we have taken under consideration your suggested modification to Specific Condition No. 8 in your PSD Permit PSD-FL-066 issued by this office on June 26, 1981. We understand your concern and believe that Special Condition No. 8 can be phrased as suggested in your letter dated July 16, 1981, with one minor difference.

In reviewing your application and our determinations on that application, we found that the emission limit assigned to Boiler #3 for SO<sub>2</sub> when burning oil was wrong. In order to be consistent with our determination that Boiler #3 is now subject to NSPS and consistent with the State of Florida's determination, that limit has been changed to 0.64 lb/mmBtu. This correction will also eliminate the need for two equations to determine the prorated SO<sub>2</sub> standard for the boilers.

Enclosed with this letter is the revised Special Condition No. 8 and the revised Table I listing all the emission rates. Please insert these revisions in your PSD Permit PSD-FL-066.

If you have any questions, please contact Mr. Richard Schutt at 404/881-2017.

Sincerely yours,

Howard D. Zeller  
Acting Director  
Enforcement Division

Enclosure

cc: Mr. Steve Smallwood  
FL Dept. of Environmental Regulation



PART I: SPECIFIC CONDITIONS.

1. The new and modified facilities shall be constructed in accordance with the capacities and specifications stated in the application. The maximum firing rates of Bark Boilers #3 and #4 are 268 and 546 MM Btu/hr, respectively, when fueled by coal. The coal handling equipment shall handle up to 7,000 tons of coal per day.
2. The conditions of this permit relate to all operations of Bark Boilers #3 and #4 when fueled with coal or with coal and any combination of other fuels. All conditions of the PSD permit (PSD-FL-041) issued for construction and operation of Bark Boiler #4 with fuels other than coal shall remain in effect. A summary of emission limits under all firing conditions are listed in Table 1.
3. Visible emissions from the coal handling system from both point sources and fugitive sources shall not exhibit 20 percent opacity or greater as required by the NSPS for coal preparation plants (40 CFR 60 Subpart Y).
4. Emissions of particulate matter from Bark Boilers #3 and #4 shall not exceed 27 and 55 pounds per hour, respectively, while operating at the maximum allowable operating rates of 268 and 546 MM Btu/hr of heat input, respectively. At lesser operating

rates the emissions shall not exceed 0.1 lb/mmBtu of heat input, as required by the NSPS for Fossil Fuel Fired Steam Generators (40 CFR 60 Subpart D).

5. Visible emissions from Bark Boilers #3 and #4 shall not exhibit greater than 20 percent opacity except for one 6-minute period per hour of not more than 27 percent opacity (NSPS 40 CFR 60 Subpart D).
6. Emissions of sulfur dioxide (SO<sub>2</sub>) from Bark Boilers #3 and #4 shall not exceed 322 and 655 lb/hr, respectively, while operating at the maximum allowable coal firing rates. At lesser operating rates the emissions shall not exceed 1.2 lb/mmBtu of heat input.
7. Emissions of nitrogen oxides (NO<sub>x</sub>) from Bark Boilers #3 and #4 shall not exceed 188 and 382 lb/hr, respectively, while operating at the maximum allowable operating rates. At lesser operating rates the emissions shall not exceed 0.7 lb/mmBtu heat input (NSPS 40 CFR 60 Subpart D).
8. ~~When firing coal in combination with other fuels the allowable emissions limit for each pollutant (lb/mmBtu) will be determined through proration based on heat input from each fuel and the respective allowable limits for each pollutant. (The quantity and heat content of each fuel fired in each boiler will be monitored and recorded for use in determining compliance with allowable emissions limits.~~
9. The applicant shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide (SO<sub>2</sub>) emissions, NO<sub>x</sub> emissions, and either oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>) on Bark Boilers #3 and #4 in accordance with the provisions of 40 CFR 60 Subpart D paragraph 60.45. The applicant shall also comply with all other applicable requirements of 40 CFR 60 (NSPS).

188 #/HR  
368 MM/HR  
70 #/MMBTU

See Revised  
condition No 8.  
Attached

If opacity interference due to water droplets is experienced (or anticipated by the applicant) monitoring of scrubber pressure drop shall be used in lieu of opacity. In this instance, the pressure drop across the scrubber shall be maintained at or above the level demonstrated during compliance testing to achieve allowable emissions rates.

10. Compliance with the emission limits (Conditions 3-8) shall be determined by performance tests scheduled in accordance with the General Conditions attached. The performance tests shall be in accordance with the provisions of reference methods in Appendix A of 40 CFR 60, except as provided under 40 CFR 60.8(b), as follows:

- a. Method 5 for concentration of particulate matter (PM) and associated moisture content;
- b. Method 1 for sample and velocity traverses;
- c. Method 3 for gas analysis;
- d. Method 6 for SO<sub>2</sub> concentration;
- e. Method 7 for NO<sub>x</sub> concentration; and
- f. Method 9 for visible emissions.

All other procedures for these compliance tests shall be in accordance with 40 CFR 60 subpart D paragraph 60.46.

Each facility shall operate within 10 percent of maximum operating rate during sampling. The parameters of operating rate, control equipment variables and all continuous monitoring results shall be recorded during compliance testing and made a part of the reported results.

The performance tests for visible emissions from Bark Boilers #3 and #4 shall be observed during the compliance tests for the PM mass emissions rates.

11. Within 90 days of commencement of operations, the applicant will determine and submit to EPA the pH level in the scrubber effluents from #3 and #4 boiler scrubbers that will ensure compliance with the SO<sub>2</sub> allowable emissions limit in Condition 6 (82% SO<sub>2</sub> removal while firing a maximum 4% sulfur coal as specified in the BACT analysis or lesser percent removal efficiencies as calculated for coals of lesser sulfur content and different heating values). The minimum percent removal efficiency for the coal selected for firing will be determined and submitted to EPA Region IV, with the results from performance tests conducted in accordance with Condition 10. Should at some future date another coal be selected for firing, the minimum removal efficiency and necessary minimum effluent pH will be redetermined from coal properties and continuous SO<sub>2</sub> monitor emissions data and submitted to EPA Region IV. Moreover, the applicant is required to operate a continuous pH meter equipped with an upset alarm, to ensure that the pH level of the scrubber effluent does not fall below this level. The minimum value pH may be revised at a later date provided notification to EPA is made demonstrating the minimum percent removal will be achieved on a continuous basis.
12. The source shall comply with the requirements of the attached General Conditions.

PART II: GENERAL CONDITIONS

1. The permittee shall notify the permitting authority in writing of the beginning of construction of the permitted source within 30 days of such action and the estimated date of start-up of operation.
2. The permittee shall notify the permitting authority in writing of the actual start-up of the permitted source within 30 days of such action and the estimated date of demonstration of compliance as required in the specific conditions.
3. Each emission point for which an emission test method is established in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the permitting authority of the scheduled date of compliance testing at least thirty (30) days in advance of such test. Compliance test results shall be submitted to the permitting authority within forty-five (45) days after the complete testing. The permittee shall provide (1) sampling ports adequate for test methods applicable to such facility, (2) safe sampling platforms, (3) safe access to sampling platforms, and (4) utilities for sampling and testing equipment.
4. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of two (2) years from the date of recording.
5. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall provide the permitting authority with the following information in writing within five (5) days of such conditions:
  - (a) Qualitative and quantitative description of noncomplying emission(s),
  - (b) cause of noncompliance,
  - (c) anticipated time the noncompliance is expected to continue or, if corrected, the duration of the period of noncompliance,
  - (d) steps taken by the permittee to reduce and eliminate the non-complying emission,and
  - (e) steps taken by the permittee to prevent recurrence of the noncomplying emission.

Failure to provide the above information when appropriate shall constitute a violation of the terms and conditions of this permit. Submittal of this report does not constitute a waiver of the emission limitations contained within this permit.

6. Any change in the information submitted in the application regarding facility emissions or changes in the quantity or quality of materials processed that will result in new or increased emissions must be reported to the permitting authority. If appropriate, modifications to the permit may then be made by the permitting authority to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.
7. In the event of any change in control or ownership of the source described in the permit, the permittee shall notify the succeeding owner of the existence of this permit by letter and forward a copy of such letter to the permitting authority. Such notification must be given prior to transfer of ownership.
8. The permittee shall allow representatives of the State environmental control agency and/or representatives (including contractors) of the Environmental Protection Agency, upon the presentation of credentials:
  - (a) to enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of the permit;
  - (b) to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit, or the Act;
  - (c) to inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
  - (d) to sample at reasonable times and emission of pollutants;
  - (e) to perform at reasonable times an operation and maintenance inspection of the permitted source.
9. All correspondence required to be submitted by this permit to the permitting agency shall be mailed to the:

Chief, Consolidated Permits Branch  
Enforcement Division  
U.S. Environmental Protection Agency  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365
10. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

The emission of any pollutant more frequently or at a level in excess of that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

**Table 1**  
**Allowable Emission Limits**

<u>Facility</u>	<u>Emissions Limit<sup>a</sup></u>	<u>Standard<sup>b</sup></u>	<u>Basis</u>
Coal Handling System	<20% opacity		NSPS
<b>Bark Boiler #3 (Fueled by Coal)</b>			
PM	27	0.1	NSPS
SO <sub>2</sub>	322	1.2	NSPS, BACT
NO <sub>2</sub>	188	0.7	NSPS, BACT
Visible	<20% opacity		NSPS
<b>Bark Boiler #4 (Fueled by Coal)</b>			
PM	55	0.1	NSPS
SO <sub>2</sub>	655	1.2	NSPS, BACT
NO <sub>2</sub>	382	0.7	NSPS, BACT
Visible	<20% opacity		NSPS
<b>Bark Boiler #3 (Fueled by Oil, Gas or Wood Waste)</b>			
PM (gas)	3	0.01	SIP
PM (oil, wood, gas combinations)	27	0.1	SIP, NSPS
SO <sub>2</sub> (oil)	171	0.64	SIP, NSPS
SO <sub>2</sub> (wood)	8	0.03	SIP
NO <sub>2</sub> (gas)	54	0.2 (0.3)	SIP, NSPS
NO <sub>x</sub> (oil)	81	0.3	SIP, NSPS
NO <sub>x</sub> (wood) .25	68	0.25	SIP
Visible	<20% opacity		NSPS
<b>Bark Boiler #4 (Fueled by Oil, Gas or Wood Waste)</b>			
PM (gas)	7	0.01	SIP
PM (oil, wood, gas combinations)	67	0.1	NSPS, PSD-FL-041
SO <sub>2</sub> (gas)	0.4	0.0006	PSD-FL-041
SO <sub>2</sub> (oil)	426	0.64	PSD-FL-041
SO <sub>2</sub> (wood)	20	0.03	PSD-FL-041
NO <sub>2</sub> (gas)	133	0.2	NSPS, PSD-FL-041
NO <sub>x</sub> (oil)	200	0.3	NSPS, PSD-FL-041
NO <sub>x</sub> (wood)	166	0.25	PSD-FL-041
Visible	<20% opacity		NSPS, PSD-FL-041

Emissions limits for coalfiring in combination with Oil, Gas, and/or Wood Waste shall be prorated in accordance with Special Condition No. 8.

<sup>a</sup>Pounds pollutant per hour or percent opacity.

<sup>b</sup>Pounds pollutant per million Btu heat input.

8. When firing coal in combination with other fuels, the allowable emission limits for NO<sub>x</sub> and PM (lb/mmBtu) will be determined through proration based on heat input from each fuel and the respective allowable limit for each pollutant. The allowable emission limit for SO<sub>2</sub> will be determined using the following formula:

$$PS_{SO_2} = \frac{y(0.64) + z(1.2)}{y + z}$$

where:

PS<sub>SO<sub>2</sub></sub> is the prorated standard for sulfur dioxide when burning different fuels simultaneously, in pounds per million Btu heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired, and

y is the percentage of total heat input derived from liquid fossil fuel, and

z is the percentage of total heat input derived from solid fossil fuel and wood residue.

The quantity and heat content of each fuel fired in each boiler will be monitored and recorded for use in determining compliance with allowable emissions limits.