Bauer's Copy

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMITS

Mr. J. Franklin Mixson
V.P. and General Manager
Jefferson Smurfit Corporation
1915 Wigmore Street
Post Office Box 150
Jacksonville, Florida 32201

July 20, 1988

Enclosed are permits Nos. AC 16-141868 and -141870 for Jefferson Smurfit Corporation to make some changes at its existing mill in order to achieve compliance with the total reduced sulfur (TRS) regulations contained in Florida Administrative Code Rule 17-2, which includes the replacement of some existing equipment and the addition of some new equipment. The existing facility is located in Jacksonville, Duval County, Florida. These permits are issued pursuant to Section 403, Florida Statutes.

Any Party to these permits has the right to seek judicial review of the permits pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and, by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date these permits are filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

W E Stamey for

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

Copies furnished to:

B. Stewart, NE Dist.
B. Williams, JSC
J. Cox, JSC
D. Buff, P.E, KBN
B. Pittman, Esq., DER

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 7-20-88.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha Jane Wise 7-20-88
Clerk Date

Final Determination

Jefferson Smurfit Corporation
Duval County
Jacksonville, Florida

Construction Permit Numbers:
AC 16-141868
AC 16-141870

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

July 18, 1988

Final Determination

The construction permit applications have been reviewed by the Department. Public Notice of the Department's Intent to Issue was published in The Florida Times Union on May 31, 1988. The Technical Evaluation and Preliminary Determination (TE & PD) were available for public inspection at the Duval County's Bio-Environmental Services Division office and the DER's Bureau of Air Quality Management office.

Comments were received from Mr. J. Franklin Mixson, with Jefferson Smurfit Corporation (JSC), in a letter received on June 14, 1988. The comments will be addressed by the Bureau and the responses follow:

A. TE & PD

1. The Bureau acknowledges that the revised smelt dissolving tank (SDT) vent scrubber description was received in JSC's submittal of April 14, 1988. The revised description was correctly described on the SDT's cover page of the construction permit.

2. The Bureau agrees with the statement and the correct visible emissions (VE) standard for the No. 9 Recovery Boiler (RB) is FAC Rule 17-2.600(4)(a)1, which is "not greater than 45% opacity."

3. No comment required.

4. See # 2 above.

B. No. 9 Recovery Boiler

1. Expiration Date

The Bureau agrees with the request and the following will be changed:

From: September 24, 1989
To: December 31, 1989

2. Specific Conditions

a. The Bureau agrees with the request to delete Specific Condition (SC) No. 3.

b. The Bureau agrees with the request and the following shall read:

No. 4:

The No. 6 fuel oil utilization rate shall not exceed 157 MMBtu/hr. The sulfur content of the fuel oil shall not exceed 2.5% by weight.

c. The Bureau agrees with the requests and the following shall read:

No. 5:

The No. 9 Recovery Boiler emissions shall not exceed:

a) TRS: 17.5 ppmvd @ standard conditions, 8% O_2, 12-hr average. For testing purposes, TRS emissions shall not exceed 20.4 lbs/hr. For PSD purposes, TRS emissions shall not exceed 89.4 TPY.

b) PM: 3 lbs/3000 lbs black liquor solids fed (120.1 lbs/hr, 525.9 TPY)

c) VE: not greater than 45% opacity

Note: PM emissions are controlled by an electrostatic precipitator, Koppers # KPN 2744.

d. The Bureau agrees with the request and the following shall read:

No. 7:

Initial and annual compliance tests shall be conducted in accordance with FAC Rule 17-2.700 using:

a) EPA Method 5, Determination of Particulate Emissions from Stationary Sources
b) EPA Method 9, Determination of Visible Emissions from Stationary Sources
c) EPA Method 16 or 16A, Determination of TRS Emissions from Stationary Sources

Other EPA approved test methods may be used only if previously approved by the Department for this type of source.

e. The Bureau agrees with the request and the following shall read:

No. 16: 2nd paragraph

If the construction permit expires prior to the permittee filing an application for a permit to operate, then all

activities at the project must cease pursuant to FAC Rule 17-4.

f. The Bureau agrees with the request and the following shall read:

No. 17:

Any change in the method of operation, raw materials and chemicals processed, equipment, or operating hours shall be submitted for approval to the BAQM office and BESD office pursuant to 40 CFR 60, Appendix A.

g. The Bureau agrees with the request and the following shall read:

No. 18:

Except for this construction permit, all existing permits for this source shall be surrendered to the Department by May 12, 1989.

C. No. 9 Smelt Dissolving Tank

1. Expiration Date

The Bureau agrees with the request and the following will be changed:

From: September 24, 1989
To: December 31, 1989

2. Specific Conditions

a. The Bureau acknowledges the typographical error and the following shall read:

No. 4:

The maximum PM mass allowable emissions shall not exceed 36.4 lbs/hr or 159.6 TPY, pursuant to FAC Rule 17-2.650(2)(c)10.a.

b. The Bureau agrees with the approach by JSC and the industry to reconcile the problems associated with wet plume type of stacks (moisture interference) and the imposition of visible emission (VE) standards. At such time that moisture interference in a stack can be demonstrated, a VE standard will only be used as an indicator, of which a noted violation will necessitate a mass emission test. Therefore, no change will be made to SCs No. 5 or No. 7 at this time.

c. The Bureau agrees with the request and the following shall read:

No. 9:

Other EPA approved test methods may be used only if previously approved by the Department for this type of source.

d. The Bureau agrees with the request and the following shall read:

No. 15: 2nd paragraph

If the construction permit expires prior to the permittee filing an application for a permit to operate, then all activities at the project must cease pursuant to FAC Rule 17-4.

e. The Bureau agrees with the request and the following shall read:

No. 16:

Any change in the method of operation, raw materials and chemicals processed, equipment, or operating hours shall be submitted for approval to the BAQM office and the BESD office pursuant to 40 CFR 60, Appendix A.

D. Attachment to be Incorporated: (both permits)

6. Mr. J. Franklin Mixson's letter dated June 13, 1988, and received June 14, 1988.

The Bureau will incorporate the changes in the appropriate construction permits, as reflected in the final determination. It is recommended that the construction permits be issued as drafted with the above revisions and attachment incorporated.

The Florida Times-Union | Jacksonville Journal

PM
6-7-88

FLORIDA PUBLISHING COMPANY

Publishers

JACKSONVILLE, DUVAL COUNTY, FLORIDA

- 141870

STATE OF FLORIDA
COUNTY OF DUVAL

Before the undersigned authority personally appeared Bill Champion who on oath says that he is Retail Advertising Supervisor of The Florida Times-Union, and Jacksonville Journal, daily newspapers published at Jacksonville in Duval County, Florida; that the attached copy of advertisement, being a Legal Notice in the matter of Notice of Intent in the ______ Court, was published in The Florida Times Union in the issues of May 31, 1988

Affiant further says that the said The Florida Times-Union and Jacksonville Journal are each newspapers published at Jacksonville, in said Duval County, Florida, and that the said newspapers have each heretofore been continuously published in said Duval County, Florida, The Florida Times-Union each day, and Jacksonville Journal each day except Sundays, and each has been entered as second class mail matter at the postoffice in Jacksonville, in said Duval County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in said newspaper.

Sworn to and subscribed before me this .....31st....... day of ......May... A.D. 19 88

Frances L Young   Bill Champion

Notary Public,
State of Florida at Large.

My Commission Expires ... Notary Public, State of Florida My Commission Expires June 15, 1990

DA 444

State of Florida
Department of Environmental Regulation
Notice of Intent

The Department of Environmental Regulation hereby gives notice of its intent to issue permits to Jefferson Smurfit Corporation (JSC) to make some changes at JSC's existing pulp mill in order to achieve compliance with the total reduced sulfur regulations contained in Florida Administrative Code Rule 17-2. The changes include replacement of some existing equipment and the addition of some new equipment. The No. 9 Recovery Boiler will have additional air supply ports provided, new stationary guns installed, and improved electronic firing controls implemented. The No. 9 Smelt Dissolving Tank will have a new wet scrubber installed and will use weak wash as the scrubbing medium. The project will occur at JSC's existing facility in Jacksonville, Duval County, Florida.

The Department is issuing this intent to issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative determination (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a petition within this time period constitutes a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Rule 28-5.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

The applications are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Health, Welfare and Bio-Environmental Services
421 West Church Street
Suite 412
Jacksonville, Florida 32202

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

RECEIVED
JUN 08 1988
DER - BAQM

JEFFERSON SMURFIT CORPORATION
401 ALTON STREET, P.O. BOX 276
ALTON, ILLINOIS 62002-2276
618/463-6000

6-7-88
Jacksonville, FL

File Copy

Reply to: **Containerboard Mill Division**
1915 WIGMORE STREET
P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3611

June 7, 1988

FEDERAL EXPRESS

RECEIVED
JUN 8 1988
DER - BAQM

Mr. C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
State of Florida
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Permit Nos. AC16-141868 and AC16-141870

Dear Mr. Fancy:

Pursuant to instructions included in the Intent to Issue of the proposed permit Nos. AC16-141868 and AC16-141870, enclosed is proof of publication of the Notice of Intent in the Tuesday, May 31, 1988 edition of the Florida Times Union, for the Recovery Boiler and Smelt Dissolving Tank at the Jacksonville Mill of Jefferson Smurfit Corporation.

Very truly yours,

J. F. Mixson

J. Franklin Mixson
Vice President & General Manager

JFM/bem

Enclosure

Copied: Bruce Mitchell
Betsy Pittman, DER-Eog
Khurshid Mehta, BESD
} 6.8.88

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

PERMITTEE:
Jefferson Smurfit Corp.
P. O. Box 150
Jacksonville, FL 32201

Permit Number: AC 16-141868
Expiration Date: December 31, 1989
County: Duval
Latitude/Longitude: 30° 25' 15"N
81° 36' 00"W
Project: No. 9 Recovery Boiler

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. The above named permittee is hereby authorized to 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 construction of secondary air supply ports, the replacement of oscillating liquor guns with new stationary guns, and improved electronic firing controls on the No. 9 Recovery Boiler. The location of the project will be at the Jefferson Smurfit Corporation's existing facility in Jacksonville, Duval County, Florida. The UTM Coordinates are Zone 17, 439.8 km East and 3359.4 km North.

The Standard Industrial Codes are:
Industry No. 2631: Paperboard Mills
The Standard Classification Codes are: Pulp & Paper Industry
Major Group 26: Sulfate (Kraft) Pulping
o Recovery Boiler/Direct Contact Evaporator 3-07-001-04

The source shall be in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments to be Incorporated:
1. Mr. J. Franklin Mixson's cover letter and application package dated November 9, 1987, and received November 12, 1987.
2. Mr. J. Woosley's letter dated/received December 10, 1987.
3. Mr. C. H. Fancy's letter dated December 11, 1987.
4. Mr. J. Franklin Mixson's letter of additional information dated April 14, 1988, and received April 19, 1988.
5. The Technical Evaluation and Preliminary Determination dated May 18, 1988.
6. Mr. J. Franklin Mixson's letter dated June 13, 1988, and received June 14, 1988.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

1. The No. 9 Recovery Boiler may operate continuously i.e., 8760 hours/year.

2. The maximum black liquor solids feed rate to the No. 9 Recovery Boiler shall not exceed 120,070 lbs/hr (dry basis).

3. Deleted. See Final Determination.

SPECIFIC CONDITIONS:

4. The No. 6 fuel oil utilization rate shall not exceed 157 MMBtu/hr. The sulfur content of the fuel oil shall not exceed 2.5% by weight.

5. The No. 9 Recovery Boiler emissions shall not exceed:

a) TRS: 17.5 ppmvd @ standard conditions, 8% O_2, 12-hour average. For testing purposes, TRS emissions shall not exceed 20.4 lbs/hr. For PSD purposes, TRS emissions shall not exceed 89.4 TPY.
b) PM: 3 lbs/3000 lbs black liquor solids fed (120.1 lbs/hr, 525.9 TPY)
c) VE: not greater than 45% opacity

Note: PM emissions are controlled by an electrostatic precipitator, Koppers # KPN 2744.

6. The No. 9 Recovery Boiler shall be tested one-time only for SO_2 emissions, to establish the level of SO_2 for PSD tracking purposes, using EPA Method 6 pursuant to FAC Rule 17-2.700.

7. Initial and annual compliance tests shall be conducted in accordance with FAC Rule 17-2.700 using:

a) EPA Method 5, Determination of Particulate Emissions from Stationary Sources
b) EPA Method 9, Determination of Visible Emissions from from Stationary Sources
c) EPA Method 16 or 16A, Determination of TRS Emissions from Stationary Sources

Other EPA approved test methods may be used only if previously approved by the Department for this type of source.

8. The permittee shall install, calibrate, certify, maintain and operate a TRS continuous emissions monitoring system pursuant to FAC Rule 17-2.710(3).

9. The No. 9 Recovery Boiler is subject to the provisions of FAC Rules 17-4.130: Plant Operation-Problems; 17-4.140: Reports; 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-2.710(4): Quarterly Reporting Requirements.

10. Pursuant to FAC Rule 17-2.960(1)(d)2., the permittee shall be in final compliance by May 12, 1989, and proof of final compliance shall be submitted to the Duval County's Bio-Environmental Services Division (BESD) office by June 26, 1989.

SPECIFIC CONDITIONS:

11. The project shall comply with all applicable provisions of FAC Rules 17-2 and 17-4.

12. All process equipment shall be inspected regularly and maintained in good operating condition to minimize fugitive gaseous emissions.

13. Objectionable odors shall not be allowed off the plant property pursuant to FAC Rule 17-2.620(2).

14. The BESD office shall be notified in writing at least 15 days prior to source testing pursuant to FAC Rule 17-2.700(2)(a)5. Written reports of the tests shall be submitted to the BESD office within 45 days of the test completion pursuant to FAC Rule 17-2.700(7).

15. The construction shall reasonably conform to the plans and schedule submitted in the application. If the permittee is unable to complete construction and achieve final compliance on schedule, the DER's Bureau of Air Quality Management (BAQM) office and the BESD office must be notified in writing 60 days prior to the final compliance date of the construction permit and the permittee shall submit appropriate information pursuant to FAC Rule 17-2.960(1)(e).

16. To obtain a permit to operate, the permittee must demonstrate compliance with the conditions of the construction permit and submit an application for an operating permit, including the application fee, along with the compliance test results and the Certificate of Completion, to the BESD office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date in accordance with FAC Rules 17-2 and 17-4.

If the construction permit expires prior to the permittee filing an application for a permit to operate, then all activities at the project must cease pursuant to FAC Rule 17-4.

17. Any change in the method of operation, raw materials and chemicals processed, equipment, or operating hours shall be submitted for approval to the BAQM office and the BESD office pursuant to 40 CFR 60, Appendix A.

18. Except for this construction permit, all existing permits for this source shall be surrendered to the Department by May 12, 1989.

PERMITTEE:
Jefferson Smurfit Corp.

Permit Number: AC 16-141868
Expiration Date: Dec. 31, 1989

Issued this 19 day of July, 1988.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Dale Twachtmann

Dale Twachtmann, Secretary

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

PERMITTEE:
Jefferson Smurfit Corp.
P. O. Box 150
Jacksonville, FL 32201

Permit Number: AC 16-141870
Expiration Date: December 31, 1989
County: Duval
Latitude/Longitude: 30° 25' 15"N
81° 36' 00"W
Project: No. 9 Smelt Dissolving Tank

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. The above named permittee is hereby authorized to 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 installation of a new Ducon UW-4 low energy entrainment type scrubber which utilizes fresh weak wash as the scrubbing medium on the No. 9 Smelt Dissolving Tank (SDT). The location of the project will be at the Jefferson Smurfit Corporation's existing facility in Jacksonville, Duval County, Florida. The UTM Coordinates are Zone 17, 439.8 km East and 3359.4 km North.

The Standard Industrial Codes are:
Industry No. 2631: Paperboard Mills
The Standard Classification Codes are: Pulp & Paper Industry
Major Group 26: Sulfate (Kraft) Pulping
o Smelt Dissolving Tank 3-07-001-05

The source shall be in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments to be Incorporated:
1. Mr. J. Franklin Mixson's cover letter and application package dated November 9, 1987, and received November 12, 1987.
2. Mr. J. Woosley's letter dated/received December 10, 1987.
3. Mr. C. H. Fancy's letter dated December 11, 1987.
4. Mr. J. Franklin Mixson's letter of additional information dated April 14, 1988, and received April 19, 1988.
5. The Technical Evaluation and Preliminary Determination dated May 18, 1988.
6. Mr. J. Franklin Mixson's letter dated June 13, 1988, and received June 14, 1988.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

1. The smelt dissolving tank (SDT) may operate continuously (i.e., 8760 hrs/yr).

2. Total reduced sulfur (TRS) emissions as hydrogen sulfide (H_2S) shall not exceed 0.0480 pound per 3000 pounds black liquor solids (1.92 lbs/hr, 8.4 tons/yr; based on a projected maximum processing capacity of 120,070 lbs/hr black liquor solids (BLS) in the No. 9 recovery boiler (RB) - equivalent to 84,050 lbs/hr smelt (green liquor solids)).

SPECIFIC CONDITIONS:

3. Based on the final compliance test results and their evaluations, this permit may be amended to reflect the actual maximum processing capacity of raw materials and chemicals of the SDT and its associated RB. Also, since the SDT's TRS emission limiting standard is based on the RB's processing capacity of BLS, a change in the PSD associated TRS allowable emission limits may be required (lbs/hr, TPY). The particulate matter (PM) mass allowable emission limits will change if the SDT's actual processing capacity is less than the capacity that its emission limits are based, which is 84,050 lbs/hr smelt.

4. The maximum PM mass allowable emissions shall not exceed 36.4 lbs/hr or 159.6 TPY, pursuant to FAC Rule 17-2.650(2)(c)10.a.

5. Visible emissions shall not exceed 10% opacity in accordance with FAC Rule 17-2.650(2)(c)10.b.

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

7. Initial and annual compliance tests shall be conducted using the following test methods in accordance with FAC Rule 17-2.700.

a) EPA Method 5, Determination of Particulate Emissions from Stationary Sources
b) EPA Method 9, Visual Determination of the Opacity of Emissions from Stationary Sources

8. An initial compliance test for TRS emissions shall be performed using EPA Method 16 or 16A pursuant to FAC Rule 17-2.700.

9. Other EPA approved test methods may be used if previously approved by the Department for this type of source.

10. Pursuant to FAC Rule 17-2.960(1)(d)1., the permittee shall be in final compliance by May 12, 1989, and proof of final compliance shall be submitted to the Duval County's Bio-Environmental Services Division (BESD) by June 26, 1989.

11. The project shall comply with all applicable provisions of FAC Rules 17-2 and 17-4.

SPECIFIC CONDITIONS:

12. Pursuant to FAC Rule 17-2.710, Continuous Monitoring Requirements, the SDT is subject to the provisions of FAC Rules 17-2.710(3)(d), Establishing Specific Surrogate Parameters, and 17-2.710(4), Quarterly Reporting Requirements. The SDT is subject to the provisions of FAC Rule 17-4.140, Reports.

13. The SDT is subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operation-Problems.

14. The BESD office shall be notified in writing at least 15 days prior to source testing pursuant to FAC Rule 17-2.700(2)(a)5. Written reports of the tests shall be submitted to the BESD office within 45 days of test completion pursuant to FAC Rule 17-2.700(7).

15. To obtain a permit to operate, the permittee must demonstrate compliance with the conditions of the construction permit and submit an application for an operating permit, including the application fee, along with the compliance test results, the specific surrogate parameters to be monitored, and the Certificate of Completion, to the BESD office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date in accordance with FAC Rules 17-2 and 17-4.

If the construction permit expires prior to the permittee filing an application for a permit to operate, then all activities at the project must cease pursuant to FAC Rule 17-4.

16. Any change in the method of operation, raw materials and chemicals processed, equipment, or operating hours shall be submitted for approval to the BAQM office and the BESD office pursuant to 40 CFR 60, Appendix A.

Issued this 19 day of July, 1988.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Dale Twachtmann

Dale Twachtmann, Secretary

ATTACHMENT 6

JEFFERSON SMURFIT CORPORATION
401 ALTON STREET, P.O. BOX 276
ALTON, ILLINOIS 62002-2276
618/463-6000

FEDERAL EXPRESS

June 13, 1988

Reply to: **Containerboard Mill Division**
1915 WIGMORE STREET
P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3611

Mr. William A. Thomas, P.E.
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2600

SUBJECT: Proposed Construction Permits
No. 9 Recovery Boiler AC16-141868
No. 9 Smelt Dissolving Tank AC-16-141870

Dear Mr.Thomas:

The purpose of this letter is to confirm our understanding of agreements developed in the meeting of yourself, Mr. Mitchell and Mr. Raval for the Department; and Mr. Tonn and Mr. Millican for Jefferson Smurfit Corporation on June 2, 1988.

We appreciate your cooperation and the opportunity to discuss with you the final conditions of the subject permits.

As discussed with you, JSC considers it appropriate to request an extension of time for filing a petition for administrative proceedings to allow the Company additional time to seek resolution of certain conditions in the proposed construction permits. With no objection from the Department, a motion for extension of sixty (60) days was submitted to the Department on June 3, 1988, by Oertel & Hoffman, P.A., Attorneys for the Company.

Technical Evaluation and Preliminary Determination

On page 2, second paragraph, JSC has noted that the description of the scrubber to be installed on the smelt dissolving tank vent has been revised to reflect selection of a scrubber of a different design. The revised description was submitted in Attachment 3 of the Company's submittal of additional information on April 14, 1988. While we understand that the existing description in the Technical Evaluation and Preliminary Determination will not be revised, the description as found in the proposed permit will be revised by the Department where appropriate.

On page 3, last paragraph, JSC has noted that the citing for a visible emission standard for the No. 9 Recovery Boiler is in error and is correctly cited in Chapter 17-2.600(4)(a)1 FAC.

On page 5, Table 2, the maximum allowable limit for TRS from the No. 9 Recovery Boiler is exhibited as 20.4 lbs./hr. The Company believes that because the emission standard is based on a 12 hour average, the maximum mass emission rate should also be based on a 12 hour average. A maximum

mass emission rate based on a 1 hour period could be exceeded without having exceeded the maximum allowable emission standard based on a 12 hour average, creating a more strigent limit than the standard provided in Chapter 17-2.600(4)(c)3.a.(i) FAC. While the Department does not agree with the Company's position, JSC does object to the maximum mass TRS emission rate based on a 1 hour period and will seek resolution to this issue by its request in Specific Condition 5 a) below.

On page 5, Table 2, the VE limit exhibited for the No. 9 Recovery Boiler is in error and is to be changed by the Department to: "45% opacity or less."

Proposed Permit - No. 9 Recovery Boiler

On each page of the proposed permit, the Department has agreed to extend the expiration date from September 24, 1989 to December 31, 1989.

Specific Condition 3 - The Department has agreed to delete the requirement of this specific condition.

Specific Condition 4 - The Department has agreed to delete "1046 gals./hr." This specific condition will provide a fuel oil rate based only on heat input or "157 MMBTU/hr."

Specific Condition 5 - a) The Company has stated its objection to a mass TRS emission rate based on a 1 hour period. It is therefore requested that the mass emission limits of this condition be qualified as follows:

From: a) TRS: 17.5 ppmvd @ standard conditions, 8%O_2, 12-hour average (20.4 lbs./hr., 89.4 TP4).

To: a) TRS: 17.5 ppmvd @ standard conditions, 8%O_2, 12-hour average. For testing purposes TRS emissions shall not exceed 20.4 lbs./hr. For PSD purposes TRS emissions shall not exceed 89.4 TP4.

c) The Department has agreed to revise the VE emission limit from "less than 20% opacity" to "not greater than 45% opacity."

Specific Condition 7 - The Department has agreed to revise the last sentence from "Other EPA approved test methods may be used only after prior Departmental approval." to: "Other EPA approved test methods may be used only if previously approved by the Department for this type of source."

Specific Condition 16 - The Department has agreed to revise the second paragraph of this specific condition from: "..., then all activities at the project must cease. (FAC Rule 17-4)" to: "..., then all activities at the project must cease pursuant to FAC Rule 17-4."

Specific Condition 17 - The Department has agreed to add the phrase, "pursuant to 40 CFR Appendix A." following "... and the BESD office."

Specific Condition 18 - The Department has agreed to delete the provisions of this specific condition and substitute language which will require that all existing permits for this source be surrendered to the Department on May 12, 1989.

Proposed Permit - No. 9 Smelt Dissolving Tank

On each page of the proposed permit, the Department has agreed to extend the expiration date from September 24, 1989 to December 31, 1989.

Specific Conditon 4 - The Department has agreed to correct an apparent typographical error of 16.2 lbs./hr." to "36.4 lbs./hr."

Specific Condition 5 & 7 - After a discussion of visible emission limits for saturated plumes, the Company understands that if data is furnished the Department to demonstrate saturated conditions in the source emission, the VE determination may be established as an indicator to request a particulate emission determination, or surrogate parameters may be established to replace a VE requirement. The Company intends to pursue this approach.

Specific Condition 9 - The Department has agreed to revise this condition to read: "Other EPA approved test methods may be used only if previously approved by the Department for this type of source."

Specific Condition 15 - The Department has agreed to revise the second paragraph of this specific condition from: "..., then all activities at the project must cease. (FAC Rule 17-4)" to: "..., then all activities at the project must cease pursuant to FAC Rule 17-4."

Specific Condition 16 - The Department has agreed to add the phrase, "..., pursuant to 40 CFR Appendix A." following "... and the BESD office."

We sincerely appreciate the cooperation of you and your staff.

If you have any questions concerning these proposed permits, please call Mr. Gene Tonn at (904)-353-3611, Extension 287 or write to me at the above address.

Very truly yours,

J. Franklin Mixson

J. Franklin Mixson
Vice President & General Manager

JFM/bem

cc: Khurshid Mehta, P.E., BESD

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

May 17, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. J. Franklin Mixson
V. P. and General Manager
Jefferson Smurfit Corporation
1915 Wigmore Street
Jacksonville, Florida 32201

Dear Mr. Mixson:

Re: Amendments to Construction Permit No. AC 16-095614
No. 3 Lime Kiln

The Department received your letters on May 3 and 11, 1989, requesting some amendments to the above referenced construction permit. Based on discussions in a meeting held April 27, 1989, at the Bureau of Air Quality Management, each request is addressed in the same order as it is numbered in the letter. The Department's comments are as follows:

A. Letter received May 3, 1989

1. Comment:

o The Department agrees with the request and the following will be changed:

Specific Condition No. 6:

From:

All vehicular deliveries of purchased lime to the lime silo shall be verifiable on a per month basis. On an annual basis, the amount of purchased lime shall be submitted as part of the annual operating report (AOR) to Jacksonville's Bio-Environmental Services Division (BES).

To:

Deleted. Incorporated in Specific Condition No. 19.

2. Comment:

   o The permittee can be assured that any permitting request made to the Department will be reviewed on a case-by-case basis and in accordance with the Department's regulations. There will be no change made to Specific Condition No. 14.

3. Comment:

   o Based on the response in No. 2 above, there will be no change made to Specific Condition No. 15.

4. Comment:

   o The Department agrees with the request and the following will be changed:

   Specific Condition No. 18:

   From:

   Lime production by the lime kiln shall not exceed 9.17 tons per hour, 220 tons per day, and 80,329.2 tons per year. Lime production shall be verifiable on a hourly, daily, and per month basis. On an annual basis, lime production shall be reported in the AOR and submitted to BES.

   To:

   Lime production by the lime kiln shall not exceed 9.2 tons per hour, 220 tons per day, and 80,329 tons per year. Lime production shall be verifiable on a daily and per month basis. On an annual basis, lime production shall be reported in the AOR and submitted to BES.

5. Comment:

   o The Department agrees with the request and the following will be changed:

Specific Condition No. 19:

From:

Input to the lime silo shall not exceed a total of 15.00 tons per hour of lime feed from either, or both, the lime kiln and the delivery of purchased lime. The deliveries of purchased lime shall be verifiable on a hourly, daily, and per month basis. The annual amount of purchased lime shall be reported in the AOR and submitted to BES.

To:

Input to the lime silo shall not exceed a total of 15.0 tons per hour of lime feed from either, or both, the lime kiln and the delivery of purchased lime. The deliveries of purchased lime shall be verifiable on a daily and per month basis. The annual amount of purchased lime shall be reported in the AOR and submitted to BES.

6. Comment:

- The Department agrees with the request. Since the permittee is soliciting in a subsequent request an amendment to allow the burning of TRS gases from the batch digester system, language will be added to allow for the transport of TRS gases from other sources and to require their inclusion when demonstrating compliance with the lime kiln. Therefore, the following will be changed:

  Specific Condition No. 20:

  From:

  The lime kiln shall demonstrate compliance with the permitted emissions limits pursuant to the provisions of Rule 17-2.600(3)(b) and 40 CFR 60.8 while:

  a. Operating at production rate of 9.17 tons per hour calcium oxide, burning 345 gallons per hour of liquid fossil fuel, and burning 714.53 pounds per hour (590.93 pounds per hour dry) or 10,415 cubic feet per hour @ 68°F (7,770 cubic feet per hour at

dry standard conditions and 68°F) of total reduced sulfur gases from the NSPS multiple effect evaporators.

b. Operating at a production rate of 9.17 tons per hour calcium oxide, burning 54,644 cubic feet per hour @ 68°F of gaseous fossil fuel, and burning 714.53 pounds per hour (590.93 pounds per hour dry) or 10,415 cubic feet per hour @ 68°F (7,770 cubic feet per hour at dry standard conditions and 68°F) of total reduced sulfur gases from the NSPS multiple effect evaporators. The permittee shall satisfy the requirements of this condition when gaseous fossil fuel becomes a fuel for lime kiln production. The permittee shall notify BES when gaseous fossil fuel becomes a fuel for lime kiln production.

To:

Compliance shall be demonstrated with the lime kiln with the permitted emission limits pursuant to the provisions of F.A.C. Rule 17-2.660(3)(b) and 40 CFR 60.8 while:

a. Operating at production rate of 90 to 100% of the permitted capacity of calcium oxide, burning not more than 345 gallons per hour of liquid fossil fuel, and burning 100% of the total reduced sulfur gases from the NSPS multiple effect evaporators and any other source as provided for by this permit.

b. Operating at a production rate of 90 to 100% of the permitted capacity of calcium oxide, burning not more than 54,644 cubic feet per hour @ 68°F of gaseous fossil fuel, and burning 100% of the total reduced sulfur gases from the NSPS multiple effect evaporators and any other source as provided for by this permit. The permittee shall satisfy the requirements of this condition when gaseous fossil fuel becomes a fuel for lime kiln production. The permittee shall notify BES when gaseous fossil fuel becomes a fuel for lime kiln production.

7. Comment:

o The Department's regulations provide the requirements

and procedures for processing and obtaining a construction and operation permit for an air pollution source to be constructed, modified, and operated in the State of Florida. The applicant/permittee can be assured that any permitting request made to the Department will be reviewed on a case-by-case basis and in accordance with these regulations. Therefore, no change will be made to Specific Condition No. 21.

8. Comment:

- Specific Condition No. 27 does require compliance with F.A.C. Rule 17-2.610(3). Also, and in addition to the reasonable precautions required and listed in F.A.C. Rule 17-2.610(3)(c), some additional precautions were listed in accordance with F.A.C. Rule 17-2.610(3)(c), which states, "but shall not be limited to the following:." Therefore, no change will be made to Specific Condition No. 27.

9. Comment:

- This specific condition is a guarantee made to the Department for the purpose of establishing "reasonable assurance" and the eventual issuance of the construction permit. Therefore, no change will be made to Specific Condiiton No. 35.

10. Comment:

- Since the present requirement is acceptable to the Department and was to the permittee during the construction permitting process, there will be no change made to Specific Condition No. 28.

11. Comment:

- The Department agrees with the request and the following will be added:

  Specific Condition No. 43: (New)

  Gaseous emissions of TRS will be collected from the batch digester system (AC 16-141869) and the NSPS multiple effect evaporator system (AC 16-5003 and AO

16-102189), delivered to and incinerated in the No.3 Lime kiln (AC 16-095614) in accordance with F.A.C. Rule 17-2.600(4)(c)1.a.

12. Comment:

- o If the permittee has satisfactorily complied with Specific Condition No. 12, the permittee should request a letter from the Department's representative, to whom the SO_2 performance test results were submitted, acknowledging compliance with this condition, which should negate any future concerns about this one-time requirement.

B. Letter received May 11, 1989

1. Comment:

- o The Department agrees with the request and the following will be changed:

  From: December 31, 1988

  To: May 31, 1989

Attachments to be Incorporated:

27. Mr. J. Franklin Mixson's letter hand delivered and received May 3, 1989.

28. Mr. J. Franklin Mixson's letter hand delivered and received May 11, 1989.

This letter must be attached to your construction permit, No. AC 16-095614, and shall become a part of the permit.

Sincerely,

Dale Twachtmann
Secretary

DT/BM/plm

Attachments

cc: B. Stewart, NE District
R. Roberson, BESD
G. Tonn, JSC
J. Millican, O & H, PA

JEFFERSON SMURFIT CORPORATION
401 ALTON STREET, P.O. BOX 278
ALTON, ILLINOIS 62002-2278
618/463-6000

May 3, 1989

Reply to: Containerboard Mill Division
1915 WIGMORE STREET
P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3811

Mr. Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: JEFFERSON SMURFIT CORPORATION
CAUSTICIZING SYSTEM
CONSTRUCTION PERMIT NO. AC16-095614

Dear Mr. Fancy:

We appreciate the consideration granted to Jefferson Smurfit Corporation (JSC) representatives Mr. Gene Tonn and Mr. John Millican in the meeting on April 27,1989, by you, Mr. Bill Thomas, Mr. Bruce Mitchell and Mr. Mi Harley of the Department. We also want to thank Mr. Ron Roberson fro BESD for attending and participating in the meeting.

The purpose of this letter is to confirm the agreements that we reached during the aforementioned meeting regarding the amendments to the Specif Conditions in the causticizing system construction permit AC16-095614.

In accordance with those discussions and the resolution of differences, JSC hereby requests that the construction permit be amended as follows:

1. Specific Condition No. 6 - JSC requests deletion of this Specific Condition because it is covered in specific condition No. 19.

2. Specific Condition No. 14 - Our discussion resulted in an agreement to include a reference in this letter outlining the position that the department represented to us with regard to reporting requirements. This is to confirm our agreement that if the DER rule on reporting requirements is amended to adopt changes to 40 CFR 60.7 and/or 40 CFR 284, then JSC will request a change in this amended Specific Condition so that it conforms with revisions in the Federal and State rules. It is our understanding that such a request would be granted.

3. Specific Condition No. 15 - See discussion under Specific Condition No. 14 in the previous paragraph.

4. Specific Condition No. 18 - In accordance with our discussions, the word "hourly" in the second sentence on the third line is to be deleted.

5. Specific Condition No. 19 - In accordance with our discussions, the word "hourly" in the second sentence on the fourth line is to be deleted.

6. Specific Condition No. 20 - In accordance with our discussions and agreement, Specific Condition No. 20 will be amended to read as follows:

5-10-89 RAL

20. The lime kiln shall demonstrate compliance with the permitted emissions limits pursuant to the provisions of Rule 17-2.660(3)(b) and 40 CFR 60.8 while:

a). Operating at a production rate of 90 to 100% of the permitted capacity of calcium oxide, burning not more than 345 gallons per hour of liquid fossil fuel, and burning 100% of the total reduced sulfur gases from NSPS multiple effect evaporators.

b). Operating at a production rate of 90 to 100% of the permitted capacity of calcium oxide, burning not more than 54,644 cubic feet per hour @ 68 F of gaseous fossil fuel, and burning 100% of the total reduced sulfur gases from the NSPS multiple effect evaporators. The permittee shall satisfy the requirement of this condition when gaseous fossil fuel becomes a fuel for lime kiln production. The permittee shall notify BESD when gaseous fossil fuel becomes a fuel for lime kiln production.

5-10-89 RAL

7. Specific Condition No. 19 and No. 21 - In accordance with our agreement, if JSC submits test data demonstrating that the unloading rate can be increased without any increase in mass particulate emissions, then the Department would approve a request to amend these Specific Conditions. If the test data shows an increase in mass particulate emission then a modification by rule would be required. Test data cannot be generated in time to meet the May 12, 1989, compliance date, and thus will be addressed separately. JSC would therefore request that the following language be added to Specific Condition No.21:

Input to the lime silo may exceed 15.00 tons per hour of lime feed from either, or both, the lime kiln and the delivery of purchased lime, upon demonstration that the exceedance will not result in an increase in mass particulate emissions.

8. Specific Condition No. 27 - JSC requests that Specific Condition No.27 be amended to include all of Rule 17-2.610(3) verbatim, or else the rule should be cited without any rephrasing. The following language is suggested:

   Reasonable precautions shall be taken to control unconfined emissions of particulate matter in accordance with F.A.C. rule 17-2.610(3).

9. Specific Condition No. 35 was included in the construction permit at the insistence of the Department after lengthy negotiations to provide additional assurance to the Department that the new scrubber design would be capable of complying with applicable particulate emissions limits. This has been done, tests have been performed, and data submitted to demonstrate initial compliance and confirm the design capacity of the scrubber. Therefore, this condition has been satisfied and is no longer applicable. JSC requests that Specific Condition No. 35 be deleted or be designated as a condition which is not applicable to the operation permit.

   JSC firmly believes that it is inappropriate for a regulatory agency to require a permit condition that deprives a source operator of its right to apply for a variance under circumstances that are allowed under Florida Statutes and the Florida Administrative Code. However, if the Department elects not to delete Specific Condition No. 35 from the Construction Permit, then under protest, and without waiving any rights guaranteed by statute or regulation, the following language is suggested:

5-10-89 RBR

> Failure of the control system(s) because of design defect to demonstrate initial compliance with applicable and maximum allowable pollutant emission limiting standard(s) and limit(s) shall not by itself be grounds for requesting a variance or relaxation of that standard and limit.

It should be clear that JSC does not waive any rights to objecting to the inclusion of such (or similar) language in the final operating permit for this source.

10. Specific Condition No. 28 - JSC inadvertently failed to complete discussion of its concerns relating to Specific Condition No. 28 during our recent meeting. We have since discussed our concern with Mr. Bruce Mitchell subsequent to the meeting, and request that this Specific Condition be amended to read as follows:

> The introduction of TRS gases from any source other than the presently permitted NSPS multiple effect evaporator systems, shall require notification of the Department prior to the actual introduction of the TRS gases.

11. Specific Condition No. 16 of the Batch Digester System Construction Permit (AC16-14869) requires that the Construction Permit of the Causticizing System (AC16-095614) provide for the incineration of the TRS emissions from the new batch digester system prior to the final compliance date of the digester system. JSC requests that Specific Condition No. 16 of the Batch Digester Construction Permit be satisfied with the addition of Specific Condition No. 43 to the Causticizing System Construction Permit to read as follows:

> 43. Gaseous emissions (TRS) will be collected from the digester system (AC16-141869) and the multiple effect evaporators (AO16-102189), delivered to the causticizing system (AC16-095614) and incinerated in #3 Lime Kiln in accordance with F.A.C. 17-2.600(4)(c)1.a.

In addition to the above concerns which were discussed in our meeting of April 27, 1989, JSC has an additional concern for which it requests the Department's consideration. 5-10-89 RBR

12. Specific Condition No. 12 - This condition is a PSD requirement which has been satisfied as required, by this condition. One test has been performed and data submitted to document compliance with this requirement. Therefore, this Specific Condition is no longer applicable. JSC requests that Specific Condition No. 12 be deleted or amended to designate this condition as not applicable to the operating permit for this source.

Your open and candid discussion of our requests was critical to addressing our concerns and resolving the requests in a mutually acceptable manner. We appreciate this very much, and if you have any question please do not hesitate to contact Gene Tonn at 904-353-3611. It is my understanding that these amendments to the Construction Permit will be promptly acted upon by the Department.

Sincerely,

J. Franklin Mixson

J. Franklin Mixson
Vice President & General Manager

JFM:td
DRAFT-CS

cc: Bruce Mitchell
Ron Robinson, BESD } 5-4-89 am
CHF/BT

5-10-89
9:10-11 a.m. and date
Note: Initials indicate changes made by Mr. John Millican via a phone call. RAR

JEFFERSON SMURFIT CORPORATION
401 ALTON STREET, P.O. BOX 278
ALTON, ILLINOIS 62002-2276
618/463-6000

Reply to: Containerboard Mill Division
1915 WIGMORE STREET
P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3611

May 11, 1989

Mr. Clair Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2400 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Jefferson Smurfit Corporation
Causticizing System
Construction Permit No. AC16-095614

Dear Mr. Fancy:

The purpose of this letter is to request a five (5) month extension of the expiration date of the subject construction permit. The extension is being requested in order to allow time to incorporate into the construction permit amendments which have been discussed with the Department. The requested extension would establish an expiration date for the subject permit of May 31, 1989.

Should there be any questions, please call Gene Tonn at (904) 353-3611.

Very truly yours,

J. Franklin Mixson

J. Franklin Mixson
Vice President - Gen. Mgr.

JFM/mlc

c.c. Bill Stewart, P.E., DER
Ron Roberson, BESD

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

May 18, 1988

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. J. Franklin Mixson
V. P. - General Manager
Jefferson Smurfit Corporation
1915 Wigmore Street
Jacksonville, Florida 32201

Dear Mr. Mixson:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permits for Jefferson Smurfit Corporation to make some changes to the Nos. 9 Recovery Boiler and Smelt Dissolving Tank at the existing facility in Jacksonville, Duval County, Florida.

Please submit, in writing, any comments which you wish to have considered concerning the Department's proposed action to Mr. Bill Thomas of the Bureau of Air Quality Management.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/bm

Attachments

cc: K. Mehta, BESD
B. Williams, JSC
J. Cox, JSC
D. Buff, P.E., KBN
B. Pittman, Esq., DER

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Applications for Permits by:

Jefferson Smurfit Corporation
1915 Wigmore Street
Jacksonville, Florida 32201

DER File Nos. AC 16-141868
AC 16-141870

INTENT TO ISSUE

The Department of Environmental Regulation hereby gives notice of its intent to issue permits (copies attached) for the proposed project as detailed in the applications specified above. The Department is issuing this Intent to Issue for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Jefferson Smurfit Corporation (JSC), applied on November 12, 1987, to the Department of Environmental Regulation for permits to make some changes at JSC's existing pulp mill in order to achieve compliance with the total reduced sulfur regulations contained in Florida Administrative Code Rule 17-2. The changes include the replacement of some existing equipment and the addition of some new equipment. The No. 9 Recovery Boiler will have additional air supply ports provided, new stationary guns installed, and improved electronic firing controls implemented. The No. 9 Smelt Dissolving Tank will have a new wet scrubber installed and will use weak wash as the scrubbing medium. The project will occur at JSC's existing facility in Jacksonville, Duval County, Florida.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that air construction permits were needed for the proposed work.

Pursuant to Section 403.815, F.S. and DER Rule 17-103.150, FAC, you (the applicant) are required to publish at your own expense the enclosed Notice of Proposed Agency Action on permit applications. The notice must be published one time only in a section of a major local newspaper of general circulation in the county in which the project is located and within thirty (30) days from receipt of this intent. Proof of publication must be provided to the Department within seven days of publication of the notice. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permits.

The Department will issue the permits with the attached conditions unless petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S. A person whose substantial interests are affected by the

Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. Petitions must comply with the requirement of Florida Administrative Code Rules 17-103.155 and 28-5.201 (copy enclosed) and be filed with (received by) the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant must be filed within fourteen (14) days of receipt of this intent. Petitions filed by other persons must be filed within fourteen (14) days of publication of the public notice or within fourteen (14) days of receipt of this intent, whichever first occurs. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes, concerning the subject permit applications. Petitions which are not filed in accordance with the above provisions will be dismissed.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

Copies furnished to:

K. Mehta, BESD
B. Williams, JSC
J. Cox, JSC
D. Buff, P.E., KBN
B. Pittman, Esq., DER

RULES OF THE ADMINISTRATIVE COMMISSION
MODEL RULES OF PROCEDURE
CHAPTER 28-5
DECISIONS DETERMINING SUBSTANTIAL INTERESTS

28-5.15 Requests for Formal and Informal Proceedings

(1) Requests for proceedings shall be made by petition to the agency involved. Each petition shall be printed, typewritten or otherwise duplicated in legible form on white paper of standard legal size. Unless printed, the impression shall be on one side of the paper only and lines shall be double spaced and indented.

(2) All petitions filed under these rules should contain:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name and address of the petitioner or petitioners;

(c) All disputed issues of material fact. If there are none, the petition must so indicate;

(d) A concise statement of the ultimate facts alleged, and the rules, regulations and constitutional provisions which entitle the petitioner to relief;

(e) A statement summarizing any informal action taken to resolve the issues, and the results of that action;

(f) A demand for the relief to which the petitioner deems himself entitled; and

(g) Such other information which the petitioner contends is material.

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF INTENT TO ISSUE and all copies were mailed before the close of business on May 19, 1988.

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Martha Jane Wise
Clerk

May 19, 1988
Date

State of Florida
Department of Environmental Regulation
Notice of Intent

The Department of Environmental Regulation hereby gives notice of its intent to issue permits to Jefferson Smurfit Corporation (JSC) to make some changes at JSC's existing pulp mill in order to achieve compliance with the total reduced sulfur regulations contained in Florida Administrative Code Rule 17-2. The changes include replacement of some existing equipment and the addition of some new equipment. The No. 9 Recovery Boiler will have additional air supply ports provided, new stationary guns installed, and improved electronic firing controls implemented. The No. 9 Smelt Dissolving Tank will have a new wet scrubber installed and will use weak wash as the scrubbing medium. The project will occur at JSC's existing facility in Jacksonville, Duval County, Florida.

The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

Persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative determination (hearing) in accordance with Section 120.57, Florida Statutes. The petition must conform to the requirements of Chapters 17-103 and 28-5, Florida Administrative Code, and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. Failure to file a petition within this time period constitutes a waiver of any right such person has to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the proposed agency action. Therefore, persons who may not wish to file a petition may wish to intervene in the proceeding. A petition for intervention must be filed pursuant to Rule 28-5.207, Florida Administrative Code, at least five (5) days before the final hearing and be filed with the hearing officer if one has been assigned at the Division of Administrative Hearings, Department of Administration, 2009 Apalachee Parkway, Tallahassee, Florida 32301. If no hearing officer has been assigned, the petition is to be filed with the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Failure to petition to intervene within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, Florida Statutes.

The applications are available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Dept. of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dept. of Health, Welfare and Bio-
Environmental Services
421 West Church Street
Suite 412
Jacksonville, Florida 32202

Any person may send written comments on the proposed action to Mr. Bill Thomas at the Department's Tallahassee address. All comments mailed within 14 days of the publication of this notice will be considered in the Department's final determination.

Technical Evaluation
and
Preliminary Determination

Jefferson Smurfit Corporation
Duval County
Jacksonville, Florida

Construction Permit Nos:
AC 16-141868
AC 16-141870

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

May 18, 1988

I. Application

A. Applicant

Jefferson Smurfit Corporation
1915 Wigmore Street
Post Office Box 150
Jacksonville, Florida 32201

B. Project and Location

The applicant is applying for construction permits and proposing several changes at its existing pulp mill in order to achieve compliance with the total reduced sulfur (TRS) regulations contained in Florida Administrative Code (FAC) Rule 17-2. The changes include replacement of existing equipment and the addition of new equipment. Specifically, the following changes are proposed:

- For the No. 9 Recovery Boiler (RB), additional air supply ports will be provided at the same level as the liquor guns and near the guns in order to provide secondary air supply at two levels, existing oscillating liquor guns will be replaced with new stationary guns, and improved electronic firing control will be implemented.

- For the No. 9 Smelt Dissolving Tank (SDT), the existing water spray/demister pad will be replaced with a new wet scrubber and will use weak wash as the scrubbing medium. The new scrubber will be a Ducon unit, Model UW-4, Size 114.

The proposed project will occur at the applicant's existing facility located in Duval County, Florida, with UTM coordinates of Zone 17, 439.8 km East and 3359.4 km North.

The Standard Industrial Codes are: No. 2631 - Paperboard Mills
The Standard Classification Codes are: Pulp and Paper Industry
Major Group 26: Sulfate (kraft) Pulping
- RB/Direct Contact Evaporator 3-07-001-04
- SDT 3-07-001-05

C. Process and Controls

The existing No. 9 recovery boiler (RB) fires concentrated black liquor at approximately 60-70% solids received from the multiple effect evaporator system. The RB can fire fuel oil simultaneously with the black liquor. The product from firing the black liquor is smelt, which falls to the bottom of the RB.

Particulate matter (PM) emissions and visible emissions (VE) are controlled from the RB with an electrostatic precipitator.

The smelt is transferred from the bottom of the RB to the existing No. 9 smelt dissolving tank (SDT), where it is dissolved with weak wash to form green liquor.

TRS and PM emissions from the SDT vent will be controlled with a new scrubber containing a venturi section of the flooded elbow type, followed by a packed tower absorber section, and finally a mist eliminator. The scrubber will use weak wash as the scrubbing medium and fresh water will be used when weak wash is not available. The scrubbing liquid will be recycled back to a weak wash tank. A caustic tank will provide makeup.

II. Rule Applicability

The project is subject to preconstruction review pursuant to Chapter 403, Florida Statutes, and FAC Rules 17-2 and 17-4.

The application packages were deemed complete on April 19, 1988.

The existing mill is located in the area of Duval County that has been designated nonattainment (NAA) for PM according to FAC Rule 17-2.410(2)(a)2.

The existing mill is a major emitting facility in accordance with FAC Rule 17-2.100(111) for the pollutants PM and TRS.

Based on the applicant's response, the Nos. 9 RB and SDT are existing non-NSPS (new source performance standards) sources.

The following table exhibits the projected potential pollutant emissions from the proposed project in tons per year (TPY):

Table 1

Source	Potential Pollutant Emissions (TPY) PM	TRS
No. 9 RB	525.9	89.4
No. 9 SDT	159.6	8.4
Total:	685.5	97.8

Note: o Annual hours of operation are 8760
o Emissions based on:

1. No. 9 RB

a. PM: 3 lbs/3000 lbs BLS (FAC Rule 17-2.600(4)(b)1.)
120,070 lbs/hr BLS (dry)

b. TRS: 17.5 ppmvd @ std. conditions corrected to 8%

O_2 as a 12-hr avg. (FAC Rule 17-2.600(4)(c) 3.a.(i)) 389,594 acfm; 195,114 dscfm; 30% H_2O; 278°F

2. No. 9 SDT

a. PM: Process Weight (FAC Rule 17-2.650(2)(c)10.) 84,050 lbs/hr smelt

b. TRS: 0.0480 lb/3000 lbs BLS as H_2S (FAC Rule 17-2.600(4)(c)4.a.) 120,070 lbs/hr BLS (dry)

Since the No. 9 RB and No. 9 SDT are not being modified, the emissions of TRS are not subject to review pursuant to FAC Rule 17-2.500, Prevention of Significant Deterioration (PSD), and the emissions of PM are not subject to review pursuant to FAC Rule 17-2.510, New Source Review for NAA. Therefore, the emissions of PM and TRS are subject to review pursuant to FAC Rule 17-2.520, Sources Not Subject to PSD or NAA Review.

The No. 9 RB is subject to the provisions of FAC Rule 17-2.600(4)(c)3., Kraft Recovery Furnaces. Pursuant to FAC Rule 17-2.600(4)(c)3.a.(i), the TRS emission limiting standard is 17.5 ppm by volume on a dry basis at standard conditions corrected to 8 percent oxygen as a 12-hour average. Compliance test(s) shall be performed using EPA Method 16 or 16A pursuant to FAC Rule 17-2.700(6)(b)16.

Pursuant to FAC Rule 17-2.600(4)(c)3.c., the source is subject to FAC Rule 17-2.710, Continuous Monitoring Requirements, and FAC Rule 17-2.960(1), Compliance Schedules.

Specifically, the No. 9 RB is subject to the provisions of FAC Rule 17-2.710(3), General Requirements-Kraft (sulfate) Pulp Mills, and FAC Rule 17-2.710(4), Quarterly Reporting Requirements -Kraft (sulfate) Pulp Mills. The No. 9 RB is subject to the provisions of FAC Rule 17-4.140, Reports.

Pursuant to FAC Rule 17-2.960(1)(d)2., the No. 9 RB shall be in final compliance by May 12, 1989.

The No. 9 RB is subject to the provisions of FAC Rule 17-2.600(4)(b)1., which limits PM emissions to 3 lbs/3000 lbs black liquor solids (BLS) fed. Compliance test(s) shall be performed using EPA Method 5 pursuant to FAC Rules 17-2.700(6)(b)5.

6-3-94 17-2.600(4)(a)1. Rom

The No. 9 RB is subject to the provisions of FAC Rule 17-2.610(2), General Visible Emission Standard, which states that no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere any air pollutants from new, or

existing sources, the density of which is equal to or greater than that designated as No. 1 on the Ringelmann Chart the opacity of which is equal to or greater than 20 percent. Compliance test(s) shall be performed using EPA Method 9 pursuant to FAC Rule 17-2.700(6)(b)9.

The No. 9 SDT is subject to the provisions of FAC Rules 17-2.600(4)(c)4.a. and 17-2.600(4)(c)4.b. According to FAC Rule 17-2.600(4)(c)4.a., the TRS emission limiting standard is 0.0480 pound per each 3000 pounds black liquor solids as hydrogen sulfide (H_2S). Compliance test(s) shall be performed using EPA Method 16 or 16A pursuant to FAC Rule 17-2.600(6)(b)16.

According to FAC Rule 17-2.600(4)(c)4.b., the SDT shall be in compliance with FAC Rule 17-2.710, Continuous Monitoring Requirements, and FAC Rule 17-2.960(1), Compliance Schedules.

Pursuant to FAC Rule 17-2.710, Continuous Monitoring Requirements, the No. 9 SDT shall be in compliance with FAC Rules 17-2.710(3)(d), Establishing Specific Surrogate Parameters, and 17-2.710(4), Quarterly Reporting Requirements. The No. 9 SDT is subject to the provisions of FAC Rule 17-4.140, Reports.

The No. 9 SDT is subject to the provisions of FAC Rules 17-2.650(2)(c)10.a. and 17-2.650(2)(c)10.b. According to FAC Rule 17-2.650(2)(c)10.a., the PM emissions limit is based on the Process Weight equation, $E = 3.59\ p^{0.62}$. According to FAC Rule 17-2.650(2)(c)10.b., no owner or operator of the No. 9 SDT shall cause, permit, or allow visible emissions (VE) greater than Number 1/2 (10% opacity) on the Ringelmann Chart. Compliance tests for PM emissions shall be performed using EPA Method 5 pursuant to FAC Rule 17-2.700(6)(b)5. Compliance tests for VE shall be performed using EPA Method 9 pursuant to FAC Rule 17-2.700(6)(b)9.

Pursuant to FAC Rule 17-2.960(1)(b)., the No. 9 SDT shall be in final compliance by May 12, 1989.

The BESD office shall be notified 15 days prior to compliance testing pursuant to FAC Rule 17-2.700(2), Frequency of Compliance Tests. Compliance test reports shall be filed with the BESD office no later than 45 days after the last test run is completed pursuant to FAC Rule 17-2.700(7), Test Reports.

The No. 9 RB and No. 9 SDT are subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operation-Problems.

Objectionable odors shall not be allowed off the plant property pursuant to FAC Rule 17-2.620(2).

III. Summary of Emissions

A. Emission Limitations

The regulated pollutants from the proposed project are TRS and PM. A VE standard also exists for the Nos. 9 RB and SDT. The following table exhibits the maximum allowable emission standards/limits for the Nos. 9 and SDT:

Table 2

Source	Pollutant	Maximum Allowable Pollutant Emission Standard/Limit
No. 9 RB	PM	3 lbs/3000 lbs black liquor solids fed (120.1 lbs/hr; 525.9 TPY)
	TRS	17.5 ppmvd @ standard conditions corrected to 8% O_2 as a 12-hr avg. (20.4 lbs/hr; 89.4 TPY)
	VE	less than 20% opacity
No. 9 SDT	PM	36.4 lbs/hr; 159.6 TPY
	TRS	0.0480 lb/3000 lbs black liquor solids as hydrogen sulfide (1.92 lbs/hr; 8.4 TPY)
	VE	10% opacity or less

Note: See Table 1 for rationale

The emission limiting standards/limits are consistent with the applicable requirements pursuant to FAC Rules 17-2 and 17-4.

B. Air Quality Analysis

From a technical review of the application packages and supplementary material, an air quality analysis was not required.

IV. Conclusion

The applicant submitted application packages for construction permits in order to comply with the TRS regulations contained in FAC Rule 17-2 and to install control systems that will provide compliance with the TRS, PM and visible emission limiting standards applicable to the sources.

The General and Specific Conditions listed in the proposed permits (attached) will ensure compliance with all applicable requirements of FAC Rules 17-2 and 17-4.

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

6-2-88
- Dec. 31, 1989

PERMITTEE:
Jefferson Smurfit Corp.
P. O. Box 150
Jacksonville, FL 32201

Permit Number: AC 16-141868
Expiration Date: September 24, 1989
County: Duval
Latitude/Longitude: 30° 25' 15"N
81° 36' 00"W
Project: No. 9 Recovery Boiler

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. The above named permittee is hereby authorized to 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 construction of secondary air supply ports, the replacement of oscillating liquor guns with new stationary guns, and improved electronic firing controls on the No. 9 Recovery Boiler. The location of the project will be at the Jefferson Smurfit Corporation's existing facility in Jacksonville, Duval County, Florida. The UTM Coordinates are Zone 17, 439.8 km East and 3359.4 km North.

The Standard Industrial Codes are:
Industry No. 2631: Paperboard Mills
The Standard Classification Codes are: Pulp & Paper Industry
Major Group 26: Sulfate (Kraft) Pulping
o Recovery Boiler/Direct Contact Evaporator 3-07-001-04

The source shall be in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments to be Incorporated:
1. Mr. J. Franklin Mixson's cover letter and application package dated November 9, 1987, and received November 12, 1987.
2. Mr. J. Woosley's letter dated/received December 10, 1987.
3. Mr. C. H. Fancy's letter dated December 11, 1987.
4. Mr. J. Franklin Mixson's letter of additional information dated April 14, 1988, and received April 19, 1988.
5. The Technical Evaluation and Preliminary Determination dated May 18, 1988.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

1. The No. 9 Recovery Boiler may operate continuously i.e., 8760 hours/year.

2. The maximum black liquor solids feed rate to the No. 9 Recovery Boiler shall not exceed 120,070 lbs/hr (dry basis).

6-2-95 delete #3

3. The maximum heat input to the boiler shall not exceed 860 MMBtu/hr.

PERMITTEE:
Jefferson Smurfit Corp.

Permit Number: AC 16-141868
Expiration Date: Sept. 24, 1989

SPECIFIC CONDITIONS:

4. The No. 6 fuel oil utilization rate shall not exceed ~~1046 gals/hr~~ (157 MMBtu/hr). The sulfur content of the fuel oil shall not exceed 2.5% by weight.

5. The No. 9 Recovery Boiler emissions shall not exceed:

a) TRS: 17.5 ppmvd @ standard conditions, 8% O_2, 12-hour average (20.4 lbs/hr, 89.4 TPY)

b) PM: 3 lbs/3000 lbs black liquor solids fed (120.1 lbs/hr, 525.9 TPY)

c) VE: less than 20% opacity

Note: PM emissions are controlled by an electrostatic precipitator, Koppers # KPN 2744.

6. The No. 9 Recovery Boiler shall be tested one-time only for SO_2 emissions, to establish the level of SO_2 for PSD tracking purposes, using EPA Method 6 pursuant to FAC Rule 17-2.700.

7. Initial and annual compliance tests shall be conducted in accordance with FAC Rule 17-2.700 using:

a) EPA Method 5, Determination of Particulate Emissions from Stationary Sources
b) EPA Method 9, Determination of Visible Emissions from from Stationary Sources
c) EPA Method 16 or 16A, Determination of TRS Emissions from Stationary Sources

Other EPA approved test methods may be used only ~~after prior~~ Departmental approval.

8. The permittee shall install, calibrate, certify, maintain and operate a TRS continuous emissions monitoring system pursuant to FAC Rule 17-2.710(3).

9. The No. 9 Recovery Boiler is subject to the provisions of FAC Rules 17-4.130: Plant Operation-Problems; 17-4.140: Reports; 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-2.710(4): Quarterly Reporting Requirements.

10. Pursuant to FAC Rule 17-2.960(1)(d)2., the permittee shall be in final compliance by May 12, 1989, and proof of final compliance shall be submitted to the Duval County's Bio-Environmental Services Division (BESD) office by June 26, 1989.

PERMITTEE:
Jefferson Smurfit Corp.

Permit Number: AC 16-141868
Expiration Date: Sept. 24, 1989

SPECIFIC CONDITIONS:

11. The project shall comply with all applicable provisions of FAC Rules 17-2 and 17-4.

12. All process equipment shall be inspected regularly and maintained in good operating condition to minimize fugitive gaseous emissions.

13. Objectionable odors shall not be allowed off the plant property pursuant to FAC Rule 17-2.620(2).

14. The BESD office shall be notified in writing at least 15 days prior to source testing pursuant to FAC Rule 17-2.700(2)(a)5. Written reports of the tests shall be submitted to the BESD office within 45 days of the test completion pursuant to FAC Rule 17-2.700(7).

15. The construction shall reasonably conform to the plans and schedule submitted in the application. If the permittee is unable to complete construction and achieve final compliance on schedule, the DER's Bureau of Air Quality Management (BAQM) office and the BESD office must be notified in writing 60 days prior to the final compliance date of the construction permit and the permittee shall submit appropriate information pursuant to FAC Rule 17-2.960(1)(e).

16. To obtain a permit to operate, the permittee must demonstrate compliance with the conditions of the construction permit and submit an application for an operating permit, including the application fee, along with the compliance test results and the Certificate of Completion, to the BESD office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date in accordance with FAC Rules 17-2 and 17-4.

If the construction permit expires prior to the permittee filing an application for a permit to operate, then all activities at the project must cease. (FAC Rule 17-4)

6-2-86 √ verbal

pursuant to

17. Any change in the method of operation, raw materials and chemicals processed, equipment, or operating hours shall be submitted for approval to the BAQM office and the BESD office.

6-2-86

pursuant to 40 CFR 60, Appendix A.

18. This permit shall replace previous permits issued to Jefferson Smurfit Corporation for the No. 9 Recovery Boiler.

6-2-86 superseded by May 12, 1989

PERMITTEE:
Jefferson Smurfit Corp.

Permit Number: AC 16-141868
Expiration Date: Sept. 24, 1989

Issued this_____day of_____,
19__.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Dale Twachtmann, Secretary

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

PERMITTEE:
Jefferson Smurfit Corp.
P. O. Box 150
Jacksonville, FL 32201

Permit Number: AC 16-141870
Expiration Date: September 24, 1989
County: Duval
Latitude/Longitude: 30° 25' 15"N
81° 36' 00"W
Project: No. 9 Smelt Dissolving Tank

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (FAC) Rules 17-2 and 17-4. The above named permittee is hereby authorized to 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 installation of a new Ducon UW-4 low energy entrainment type scrubber which utilizes fresh weak wash as the scrubbing medium on the No. 9 Smelt Dissolving Tank (SDT). The location of the project will be at the Jefferson Smurfit Corporation's existing facility in Jacksonville, Duval County, Florida. The UTM Coordinates are Zone 17, 439.8 km East and 3359.4 km North.

The Standard Industrial Codes are:
Industry No. 2631: Paperboard Mills
The Standard Classification Codes are: Pulp & Paper Industry
Major Group 26: Sulfate (Kraft) Pulping
o Smelt Dissolving Tank 3-07-001-05

The source shall be in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments to be Incorporated:
1. Mr. J. Franklin Mixson's cover letter and application package dated November 9, 1987, and received November 12, 1987.
2. Mr. J. Woosley's letter dated/received December 10, 1987.
3. Mr. C. H. Fancy's letter dated December 11, 1987.
4. Mr. J. Franklin Mixson's letter of additional information dated April 14, 1988, and received April 19, 1988.
5. The Technical Evaluation and Preliminary Determination dated May 18, 1988.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

GENERAL CONDITIONS:

6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

a. Having access to and copying any records that must be kept under the conditions of the permit;

b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately notify and provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

GENERAL CONDITIONS:

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department.

12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) Determination of Best Available Control Technology (BACT)
( ) Determination of Prevention of Significant Deterioration (PSD)
( ) Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

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

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

SPECIFIC CONDITIONS:

1. The smelt dissolving tank (SDT) may operate continuously (i.e., 8760 hrs/yr).

2. Total reduced sulfur (TRS) emissions as hydrogen sulfide (H_2S) shall not exceed 0.0480 pound per 3000 pounds black liquor solids (1.92 lbs/hr, 8.4 tons/yr; based on a projected maximum processing capacity of 120,070 lbs/hr black liquor solids (BLS) in the No. 9 recovery boiler (RB) - equivalent to 84,050 lbs/hr smelt (green liquor solids)).

SPECIFIC CONDITIONS:

3. Based on the final compliance test results and their evaluations, this permit may be amended to reflect the actual maximum processing capacity of raw materials and chemicals of the SDT and its associated RB. Also, since the SDT's TRS emission limiting standard is based on the RB's processing capacity of BLS, a change in the PSD associated TRS allowable emission limits may be required (lbs/hr, TPY). The particulate matter (PM) mass allowable emission limits will change if the SDT's actual processing capacity is less than the capacity that its emission limits are based, which is 84,050 lbs/hr smelt.

4. The maximum PM mass allowable emissions shall not exceed 16.2 lbs/hr or 159.6 TPY, pursuant to FAC Rule 17-2.650(2)(c)10.a.

5. Visible emissions shall not exceed 10% opacity in accordance with FAC Rule 17-2.650(2)(c)10.b.

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

7. Initial and annual compliance tests shall be conducted using the following test methods in accordance with FAC Rule 17-2.700.

a) EPA Method 5, Determination of Particulate Emissions from Stationary Sources

b) EPA Method 9, Visual Determination of the Opacity of Emissions from Stationary Sources

8. An initial compliance test for TRS emissions shall be performed using EPA Method 16 or 16A pursuant to FAC Rule 17-2.700.

9. Other EPA approved test methods may be used only after prior Departmental approval.

10. Pursuant to FAC Rule 17-2.960(1)(d)1., the permittee shall be in final compliance by May 12, 1989, and proof of final compliance shall be submitted to the Duval County's Bio-Environmental Services Division (BESD) by June 26, 1989.

11. The project shall comply with all applicable provisions of FAC Rules 17-2 and 17-4.

PERMITTEE:
Jefferson Smurfit Corp.

Permit Number: AC 16-141870
Expiration Date: Sept. 24, 1989

SPECIFIC CONDITIONS:

12. Pursuant to FAC Rule 17-2.710, Continuous Monitoring Requirements, the SDT is subject to the provisions of FAC Rules 17-2.710(3)(d), Establishing Specific Surrogate Parameters, and 17-2.710(4), Quarterly Reporting Requirements. The SDT is subject to the provisions of FAC Rule 17-4.140, Reports.

13. The SDT is subject to the provisions of FAC Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operation-Problems.

14. The BESD office shall be notified in writing at least 15 days prior to source testing pursuant to FAC Rule 17-2.700(2)(a)5. Written reports of the tests shall be submitted to the BESD office within 45 days of test completion pursuant to FAC Rule 17-2.700(7).

15. To obtain a permit to operate, the permittee must demonstrate compliance with the conditions of the construction permit and submit an application for an operating permit, including the application fee, along with the compliance test results, the specific surrogate parameters to be monitored, and the Certificate of Completion, to the BESD office 90 days prior to the expiration date of the construction permit. The permittee may continue to operate in compliance with all terms of the construction permit until its expiration date in accordance with FAC Rules 17-2 and 17-4.

If the construction permit expires prior to the permittee filing an application for a permit to operate, then all activities at the project must cease. (FAC Rule 17-4)

16. Any change in the method of operation, raw materials and chemicals processed, equipment, or operating hours shall be submitted for approval to the BAQM office and the BESD office.

Issued this_____day of_____, 19__.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Dale Twachtmann, Secretary

ATTACHMENT 1

Available Upon Request.

ATTACHMENT 2

DEPARTMENT OF HEALTH, WELFARE
& BIO-ENVIRONMENTAL SERVICES
Bio-Environmental Services Division
Air and Water Pollution Control

December 10, 1987

Mr. Claire Fancy, P.E.,
Department of Environmental Regulation
2600 Blair Stone Road
Twin Towers Office Bldg.
Tallahassee, Florida 32077

DER
DEC 10 1987
BAQM

Re: Jefferson Smurfit Corporation
TRS Construction Permit Applications

Dear Mr. Fancy:

Bio-Environmental Services Division (BESD) provides the following comments on the captioned permit applications:

Smelt Dissolving Tank

Section III A

Does the given smelt process weight (96,240 lbs/hr) correspond to the recovery boiler process weight (137,500 lbs/hr black liquor solids) or the previous recovery boiler process weight (120,000 lbs/hr black liquor solids)? revised DEP

The applicable rule for the SDT particulate matter emissions is 17-2.650(2)(c)10., Florida Administrative Code (FAC). The same rule is applicable for visible emissions.

will add language

It is noted that the requested particulate matter emission rate is significantly lower than the rate which is derived using the equation found in the referenced rule. If Jefferson Smurfit Corporation (JSC) desires a lower particulate matter limit it must be understood that the limit cannot be increased at a later date without a modification permit. The potential emissions should be reported as uncontrolled emissions in accordance with the permit application procedures.

36.4 lbs/hr based on I.D.P. level

Recovery Boiler

Section III A

At what percent moisture are the black liquor solids fired? What is dry?

Section III C

It is noted that the allowable particulate matter emission rate calculated using the correct standard (3 lbs/3000 lbs black liquor solids fired) is 137.5 lbs/hr. based upon the requested operating rate. If JSC desires a lower particulate matter limit it must be understood that the limit cannot be increased at a later date without a modification permit. The potential emissions should be reported as uncontrolled emissions in accordance with the permit application procedures.

refer to IDP levels

AREA CODE 904 / 630-3210 — NIGHTS/WEEKENDS - 630-3215
515 WEST 6TH STREET / JACKSONVILLE, FLORIDA 32206-4397

Section III E

Are black liquor and fuel oil fired simultaneously at the given rates?

Digester System

Attachment B, Section I A and B

Do the figures in A represent the maximum hourly capacity and the figures in B the maximum hourly average based on maximum daily input? This item should be clearly explained.

General Comments

The construction permit applications definitely request higher operating capacities than are currently permitted. In accordance with the agreement reached in the November 4, 1987 meeting in Tallahassee (concerning the permit applications), testing for demonstrating highest existing capacity of a unit should be performed at a minimum of 96% of the maximum capacity. This testing is essential in establishing the actual capacities of the units. It is strongly urged that testing at these rates be done prior to issuance of any construction permit.

It is noted from the literature provided that the modifications proposed for the Recovery Boiler will allow increases in production capacity through increased efficiency and higher furnace operating rates. This literature further supports the need for establishing the maximum capacities of the units at this time.

In addition to the capacity increase the literature indicates a prime environmental benefit of a significant reduction in furnace generated TRS (below 3 ppm). This modification coupled with the recently installed molecular oxygen system on the black liquor oxidation system should allow JSC to consistently maintain TRS emissions at or below the 5 ppm level. In furtherance of a good faith effort by JSC and an opportunity to reduce allowable TRS emissions by an additional 70 tons per year it is requested that the JSC agree to the 5 ppm emission limit in the construction permit. The technology review presented in the permit application appears to make this option feasible.

If BESD may be of further assistance in this matter, please advise.

Very truly yours,

Jerry E. Woosley
Associate Pollution Control Engineer

JEW/ecr

cc: Mr. Bill Stewart, P.E., DER
Mr. Gene Tonn, P.E., JSC
BESD 1010 A
Disc 1, 46

ATTACHMENT 3

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

BOB MARTINEZ
GOVERNOR

DALE TWACHTMANN
SECRETARY

December 11, 1987

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. J. Franklin Mixson
V.P. and General Manager
Jefferson-Smurfit Corporation
1915 Wigmore Street
P. O. Box 150
Jacksonville, Florida 32201

Dear Mr. Mixson:

Re: Completeness Review for Application to Construct
Permit Nos. AC 16-141868, -141869, and -141870

The Department received your cover letter dated November 9, 1987, and the above referenced application packages on November 12, 1987. Based on a review of these application packages, they are deemed incomplete. Therefore, submit the following information, including all reference material, calculations and assumptions, to the Department's Bureau of Air Quality Management (BAQM) office so their status can, again, be ascertained:

AC 16-141869: Batch Digester System

1. Is it the intent of Jefferson Smurfit Corporation (JSC) to request an increase in the total process input rate for the new batch digester system above the demonstrated (contemporaneous) rate for the existing batch digester system?

2. If the answer to No. 1 above is yes, please calculate and submit the net emission changes in the pollutants between the existing and proposed new batch digester systems. If the net emission change of any pollutant is greater than the net significant emission rate contained in Florida Administrative Code (FAC) Rule 17-2 Table 500-2, submit an amended application pursuant to FAC Rule 17-2.500(5), New Source Review for Prevention of Significant Deterioration (PSD).

3. Referencing No. 2 above, calculate and submit the total process input rate and associated pollutant emissions for all affected sources at the mill due to the proposed increase in total process input rate in the proposed new batch digester

system. If any of these sources are capable of accommodating a higher level of process input rate through federally enforceable permitted conditions, please document. If not, please submit an application with the appropriate fee for each affected source to the DER's BAQM office for a modification pursuant to FAC Rule 17-2.500, PSD, or FAC Rule 17-2.510, Nonattainment Area Review, depending on the affected pollutant.

4. Since September 24, 1976, has there been any physical change or change in the method of operation of the existing batch digester system? If so, please document and describe the nature of the change(s) and their associated cost(s).

5. Please submit an ambient air quality standards (AAQS) analysis and a PSD maximum concentration increase (increment) analysis for all pollutants which have a facility-wide PSD significant net emissions increase. These analyses should be sufficient to give the Department reasonable assurance that the net emissons increase will not cause or contribute to any AAQS or increments violation.

6. If the answer to No. 1 is no, please submit an amended permit application to reflect the maximum desired level of operational rates that you want reviewed. Also, calculate the potential pollutant emissions that will be emitted at this level.

7. Because the potential pollutant emissions for SO_2 is greater than 100 TPY, the appropriate fee is $1000.00. Therefore, submit the deficient amount of $900.00 to the Department.

AC 16-141868 and -141870: No. 9 Recovery Boiler (RB) and Smelt Dissolving Tank (SDT)

1. Are the increased raw material and chemical through-put rates requested due to the rates requested for the proposed new batch digester system?

2. If JSC intends to permit the proposed new batch digester system at the mill's present level of operation and this would alter the raw-material and chemical through-put rates for the No. 9 RB and SDT, then please amend each source's application and calculate the potential pollutant emissions at this level.

3. Will the requested levels of increased raw material and chemical through-put rates for the proposed new batch digester system require an increase in raw material and chemical through-put rates in the existing multiple effect

evaporator (MEE) system and its pollutant emissions (TRS/SO_2)? If so, please explain and submit the changes requested. If the MEE system requires a permit modification, please submit an application along with the appropriate fee to the DER's BAQM office.

4. Since September 24, 1976, has there been any physical change or change in the method of operation for these sources? If so, please document and describe the nature of the change(s) and their associated cost(s).

5. Has the No. 9 RB and/or SDT ever been tested at the proposed maximum raw material and chemical through-put rates? If so, please submit the test results.

6. In its existing state and without the proposed alterations, are the No. 9 RB and/or SDT capable of accommodating the proposed increased raw material and chemical through-put rates? If not, please explain.

7. Please address all of the concerns listed in the attached letter from the Duval County Bio-Environmental Services Division office. If there are any repetitive questions, please just provide the one answer and acknowledge the citing in your response.

If there are any questions, please call Bruce Mitchell, Pradeep Raval or Max Linn, at (904)488-1344, or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/BM/s

Attachment

cc: K. Mehta, BESD
B. Pittman, Esq.
J. Cox, JSC
B. Williams, JSC
D. Buff, P.E., KBN

ATTACHMENT 4

Airbill 3107158051

JEFFERSON SMURFIT CORPORATION
401 ALTON STREET, P.O. BOX 276
ALTON, ILLINOIS 62002-2276
618/463-6000

April 14, 1988

Reply to: **Containerboard Mill Division**
1915 WIGMORE STREET
P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3611

FEDERAL EXPRESS

Mr. C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

SUBJECT: Completeness Review for Application to Construct
Jefferson Smurfit Corporation
Jacksonville Mill
No. 9 Recovery Boiler and Smelt Dissolving Tank
Permit Nos. AC16-141868 and AC16-141870

Dear Mr. Fancy:

The purpose of this letter is to respond to the request for additional information regarding the subject permits for Jefferson Smurfit Corporation (JSC), as detailed in your letter of December 11, 1987. Provided below is the response to each question in your letter.

The responses to the questions were reviewed in a meeting with Mr. Thomas, Mr. Mitchell, and Mr. Raval for DER, and Mr. Cox, Mr. Millican, and Mr. Tonn for Jefferson Smurfit Corporation on April 13, 1988. We trust that these responses will complete the applications and allow issuance of the subject construction permits.

1. No. JSC requests that the No. 9 Recovery Boiler and the Smelt Dissolving Tank rates remain as currently permitted. These rates are 120,070 lb./hr. black liquor solids for No. 9 Recovery Boiler and 84,050 lb./hr. smelt for the Smelt Dissolving Tank. Revised pages of the application forms for these two sources reflecting the currently permitted rates are attached.

In addition, design data for the smelt dissolving tank scrubber, for which a specific manufacturer has now been selected, is presented in the attached revisions to the application.

2. The level of operation for the new batch digester system does not alter the raw material and chemical through-put rates currently permitted and requested for No. 9 Recovery Boiler and the Smelt Dissolving Tank.

3. No.

4. No physical changes or changes in the method of operation of the No. 9 Recovery Boiler and the Smelt Dissolving Tank have occurred since September 24, 1976, pursuant to 40 CFR Part 60.

5. Yes, the No. 9 Recovery Boiler and Smelt Dissolving Tank were last compliance tested on February 4, 1988, by Air Consulting and Engineering, Inc. During the compliance test, the sources were operating within 90 to 100% of the permitted operating rate of 120,070 lb./hr. BLS. The test results were submitted to the BESD on February 29, 1988.

6. Yes.

7. Comments submitted by the Jacksonville Bio-Environmental Services Division (BESD) are addressed below:

   Smelt Dissolving Tank

   Section III A

   The process rates of the No. 9 Recovery Boiler and the Smelt Dissolving Tank, as shown on the revised pages of the application form attached, are consistent with each other.

   BESD correctly points out that the applicable particulate emission limiting standard for the Smelt Dissolving Tank is rule 17-2.650(2)(c) 10., which is the RACT limit. This rule limits particulate emissions according to the following formula: $E = 3.59\ P^{0.62}$, where E is the allowable emission rate in lb./hr. and P is the process rate weight in tons/hr. This source-specific limit applies to the Smelt Dissolving Tank. The revised pages of the permit application form for the Smelt Dissolving Tank, attached, requests the appropriate emission limit of 36.4 lb./hr.

   "Potential" emissions are defined in FAC Rule 17-2.100(148) as: "The maximum capacity of a source or facility to emit a pollutant, including air pollution control equipment and any federally enforceable restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design." The emissions reported on the application form are in conformance with this definition. However, it is noted that uncontrolled emissions are presented in Attachment B of the permit application.

Recovery Boiler

Section III A

The black liquor solids are fired at approximately 60 to 70% solids. "Dry" means zero percent (0%) moisture.

Section III C

The requested particulate emission rate of 120.1 lb./hr. is consistent with the permitted process rate of 120,070 lb./hr. BLS and the emission limit of 3 lbs./3000 lbs. BLS.

The response to the comment on uncontrolled emissions is the same as discussed above for the Smelt Dissolving Tank.

Section III E

Black liquor solids and fuel oil can be fired simultaneously as currently permitted and requested.

General Comments

JSC has conducted testing to demonstrate compliance with the permitted capacity of the unit.

JSC has correctly requested a 17.5 PPM TRS limit pursuant to Chapter 17-2 FAC.

If there should be any questions, please call Jerry Cox or Gene Tonn at 904/353-3611 or write to me at the above address.

Very truly yours,

J. F. Mixson

J. Franklin Mixson
Vice President - Gen. Mgr.

JFM/bem

Attachments

cc: Khurshid Mehta, P.E., BESD

Copied: Bruce Mitchell
Pradeep Raval
CHF/BT
4.19.88

REVISIONS TO

NO. 9 RECOVERY BOILER

PERMIT APPLICATION

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Black Liquor Solids	NA		120,070 (dry)	(1)

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 120,070 Black Liquor Solids (dry)

2. Product Weight (lbs/hr): 84,050 Smelt

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
TRS	20.4	89.4	17.5ppm,dry*	20.4	20.4	89.4	(2)
PM	120.1	525.9	31b/3000 lb BLS	120.1	120.1	525.9	(2)

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

* Corrected 8% O_2. Based upon FAC Rule 17-2.600(4) (c) 3.a.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis f Efficien (Section Item 5
Electrostatic Precipitator - Koppers #KPN 2744	Particulates	99%	Submicron and above	Design

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Inpu (MMBTU/hr)
	avg/hr	max./hr	
Kraft Black Liquor		120,070 lb/hr(dry)	702.7
No. 6 Fuel Oil		1046 gal/hr	156.9

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: No. 6 Fuel Oil

Percent Sulfur: 2.5 max Percent Ash: 0.1 typical

Density: 8.0 lbs/gal Typical Percent Nitrogen: 0.9 typical

Heat Capacity: 18,750 BTU/lb 150,000 BTU/

Other Fuel Contaminants (which may cause air pollution):

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average Not Applicable Maximum

G. Indicate liquid or solid wastes generated and method of disposal.

Smelt sent to smelt dissolving tank for use in process.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 175 ft. Stack Diameter: 10.5 f

Gas Flow Rate: 389,594 ACFM 195,114 DSCFM Gas Exit Temperature: 278

Water Vapor Content: 30 % Velocity: 75.0 F

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ F

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

ATTACHMENT B

EMISSION ESTIMATES

I. PARTICULATE MATTER

The maximum PM emission rate for RB9 is based upon the allowable limit of 3 lbs/3000 lb BLS fired in the boiler. This limit is 120.1 lb/hr and 525.9 TPY, and is based upon a maximum black liquor solids (BLS) input rate of 120,070 lb/hr (2.882×10^6 lb/day).

120,070 lb/hr BLS x 3 lb/3000 lb BLS = 120.1 lb/hr

120.1 lb/hr x 8,760 hr/yr = 525.9 TPY

II. TOTAL REDUCED SULFUR

TRS emissions from the boiler are based upon the allowable limit of 17.5 ppm, dry basis, corrected to 8% O_2. Maximum airflow from the recovery boiler when operating at the rate of 120,070 lb/hr BLS is calculated as follows:

Design flow = 68 dscfh air flow per lb BLS @ 0.0% O_2

120,070 lb/hr BLS x 68 dscfh/lb BLS / 60 min/hr

= 136,079 dscfm @ 0.0% O_2

Correct TRS standard to 0% O_2:

$C_{8\%} = C_{0\%} \times [(21 - 8)/(21 - 0)]$

$C_{8\%} = C_{0\%} \times 0.619$

$C_{0\%} = C_{8\%}/0.619$

$C_{8\%} = 17.5$ ppm

$C_{0\%} = 17.5/0.619 = 28.27$ ppm @ 0% O_2

$PVC = mRT$

$m = PVC/RT$

$$\frac{28.27}{10^6} \times 136{,}079 \frac{ft^3}{min} \times \frac{2116.8\ lb_f}{ft^2} \times \frac{34}{1545} \frac{lb_m \cdot {}^\circ R}{ft \cdot lb_f} \times \frac{1}{528\,{}^\circ R} \times \frac{60\ min}{hr}$$

= 20.4 lb/hr TRS as H_2S

20.4 lb/hr x 8,760 hr/yr / 2,000 lb/ton = 89.4 TPY

REVISIONS TO
SMELT DISSOLVING TANK
PERMIT APPLICATION

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Smelt			84,050	1

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 84,050 smelt

2. Product Weight (lbs/hr): ~~Green liquor~~

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
TRS	1.92	8.41	17-2.600 (4) (c)4.*	1.92*	1.92	8.41	2
PM	36.4	159.6	17-2.650 (2) (c) 10.**	36.4 **	36.4	159.6	2

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

*Emission standard is 0.0480 lb TRS/3000 lb BLS

**Based upon E = 3.59 $p^{0.62}$

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis f Efficien (Section Item 5
Ducon scrubber Model UW-4, Size 114	TRS	86.9%	Not Applicable	See Att. B
	Particulates	93.0%	1 um and above	See Att. B

E. Fuels Not Applicable

Type (Be Specific)	Consumption*		Maximum Heat Inpu (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average Not Applicable Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Scrubber water is recycled back into process.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 175 ft. Stack Diameter: 5.4

Gas Flow Rate: 30,300 ACFM 22,735 DSCFM Gas Exit Temperature: 179

Water Vapor Content: Saturated (38%) % Velocity: 22.1

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____

*If 50 or more tons per day design capacity, submit the emissions rate in grains per st
dard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

ATTACHMENT B

SCRUBBER DESIGN INFORMATION

I. SCRUBBER INLET CONDITIONS

Maximum flue gas flow rate = 30,500 acfm @ 180°F, saturated

Particular loading (max) = 2.0 gr/ACF

TRS loading (max) = 110 ppm

Particulate at inlet to scrubber:

30,500 acfm x 2.0 gr/ACF / 7000 gr/lb x 60 min/hr = 523 lb/hr

Maximum TRS at inlet to scrubber:

30,500 acfm x 2116.8 lb_f/ft^2 / (1545/34) ft-lb_f/lb_m-°R / (180 + 460)°R

X $\frac{110}{10^6}$ = 0.244 lb/min = 14.65 lb/hr

II. SCRUBBER DESIGN DATA

A Ducon scrubber, model UW-4, Size 114, has been selected as the scrubber for the SDT. The scrubber is a low-energy entrainment type wherein scrubber water is injected at the I.D. fan. Fresh weak wash is used as the scrubbing medium. The scrubber also contains a spray shower section which utilizes recycled weak wash. Spent scrubbing liquid is sent to the smelt tank. The design pressure drop across the scrubber is two (2) inches of water. The attached scrubber diagram shows the design gas flow rates.

The scrubber must achieve, as a minimum, the maximum emission rates as shown in Attachment C. These are 36.4 lb/hr for particulate matter and 1.92 lb/hr for TRS. The scrubber removal efficiency required to achieve these emission levels at maximum capacity are based upon the uncontrolled emissions calculated in Item I above:

Particulate matter removal efficiency;

[(523 lb/hr - 36.4 lb/hr) / 523 lb/hr] x 100 = 93.0%

TRS removal efficiency:

[(14.65 lb/hr - 1.92 lb/hr) / 14.65 lb/hr] x 100 = 86.9%

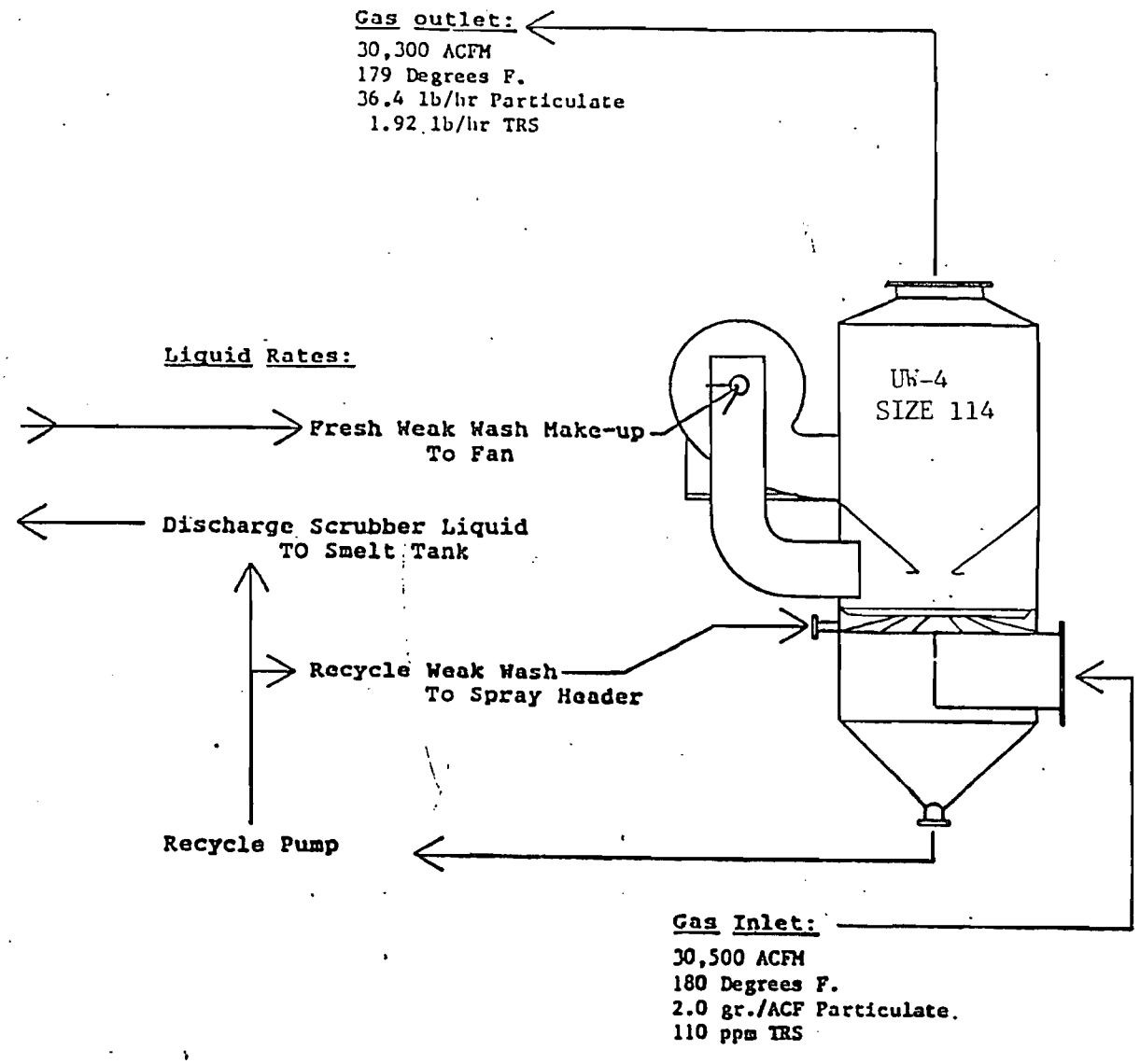


Diagram of SDT Scrubber

KBN

ATTACHMENT C

EMISSION ESTIMATES

I. PARTICULATE MATTER

Maximum particulate emissions from the Smelt Dissolving Tank are based upon FAC rule 17-2.650(2)(c) 10., which limits emissions based upon the formula $E = 3.59\ P^{0.62}$, where E is the allowable rate in lb/hr and P is the process rate in tons/hr. The maximum process input rate is 84,050 lb/hr (42.025 TPH) smelt.

$E = 3.59\ (42.025)^{0.62} = 36.4$ lb/hr OK

36.4 lb/hr x 8,760 hr/yr / 2,000 lb/ton = 159.6 TPY

II. TOTAL REDUCED SULFUR

TRS emissions from the Smelt Dissolving Tank are limited by FAC Rule 17-2.600(4)(c)4 to 0.0480 lb/3000 lb BLS fed to the associated recovery boiler. The maximum BLS flow to RB9 is 120,070 lb/hr.

120,070 lb/hr x 0.0480 lb/3000 lb BLS

= 1.92 lb/hr OK

1.92 lb/hr x 8,760 hr/yr / 2000 lb/ton = 8.41 TPY

AC 16- 141868

JEFFERSON SMURFIT CORPORATION
401 ALTON STREET, P.O. BOX 276
ALTON, ILLINOIS 62002-2276
618/463-6000

Reply to: **Containerboard Mill Division**
1915 WIGMORE STREET
P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3611

November 9, 1987

Federal Express

Mr. Stephen Smallwood, P.E.
Chief, Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301-86317

Subject: Air Construction Permit Application
Total Reduced Sulfur Emission
No. 9 Recovery Boiler
Jefferson Smurfit Corporation
Jacksonville Mill

Dear Mr. Smallwood:

Enclosed are four copies of an Air Construction Permit Application for the No. 9 Recovery Boiler at the Jefferson Smurfit Corporation mill in Jacksonville. Also enclosed is the $1,000 permit application fee.

The project described in this construction permit is proposed in order to achieve compliance with the Department's TRS emission regulations as found in Chapter 17-2.600(4)(C) FAC. Enclosed with this application is an overview of the Company's overall TRS compliance program for the Jacksonville mill.

In order to meet the compliance date provided by the Department's rule, a timely consideration of this application will be extremely critical.

If you have any questions, please call Jerry Cox or Gene Tonn at 904/353-3611 or write to me at the above address.

Very truly yours,

J. Franklin Mixson

J. Franklin Mixson
Vice President and
General Manager
Jacksonville Mill

JFM/mt

Enclosure

cc: Khurshid Mehta, P.E.
Jacksonville BESD

TRS COMPLIANCE PLAN

JEFFERSON SMURFIT CORPORATION

JACKSONVILLE, FLORIDA

NOVEMBER 1987

OVERVIEW
OVERALL TRS COMPLIANCE PROGRAM
JEFFERSON SMURFIT CORPORATION
JACKSONVILLE MILL

Jefferson Smurfit Corporation (JSC) of Jacksonville, Florida is proposing several changes at its existing pulp mill in order to achieve compliance with the Department of Environmental Regulation's total reduced sulfur (TRS) regulations as found in Chapter 17-2.600(4)(c)(FAC). The changes include replacement of existing equipment, addition of new equipment, and destruction of non-condensible TRS gases in an existing lime kiln. Specifically, the following changes are proposed:

- Replacement of the existing digesting system, which consists of six (6) batch digesters and associated blow tank, accumulator and turpentine condenser, with five (5) new batch digesters, new blow tank, new accumulator tank and new turpentine condenser. Non-condensible TRS gases from these sources will be collected and incinerated in the existing No. 3 Lime Kiln.

- Improvements to the combustion air distribution system and liquor firing and computer aided process control in the No. 9 Recovery Boiler to achieve continuous compliance with the 17.5 ppm TRS standard.

- Replacement of the existing water spray/demister pad on the Smelt Dissolving Tank vent with a new wet scrubber. The new wet scrubber will be designed to achieve compliance with the TRS standard for smelt dissolving tanks.

Air Construction Permit applications have been prepared for each of these sources.

Other TRS sources at the JSC mill are already in compliance with Federal and/or State TRS rules. These include the Multiple Effect Evaporator system (TRS emissions incinerated in No. 3 Lime Kiln), Black Liquor Oxidation system (TRS emissions incinerated in No. 10 Power Boiler), Brown Stock Washer system (TRS emissions incinerated in No. 10 Power Boiler), and the No. 3 Lime Kiln. An air

construction permit application for the No. 3 Lime Kiln will be submitted at a later date to reflect the incineration of non-condensible TRS gases from the new digester system. The overall TRS control program proposed by JSC is shown in the attached flow diagram (Figure 1).

JSC has previously submitted a Conceptual TRS Compliance Plan to FDER. The conceptual plan set forth a schedule of events which must be met in order to ensure compliance by the final compliance dates specified in Chapter 17-2.600(4)(c) (FAC). This schedule includes dates by which JSC must provide FDER with certification of purchase orders for major pieces of equipment. However, before purchase orders can be executed, air construction permits must be obtained from FDER. This requires FDER to complete review of the permit applications and issue construction permits by certain dates. The latest dates by which construction permits can be received and still meet the schedule set forth in the conceptual compliance plan are presented in Table 1. This date is January 12, 1988, for all sources.

Other pertinent dates set forth in the Conceptual TRS Compliance Plan are also shown in Table 1. Proof of final compliance for all sources is required by May 12, 1989. In order to allow sufficient time after May 12, 1989, to prepare and have approved air operating permits for the sources, it is requested that construction permit expiration dates be set no earlier than May 12, 1990.

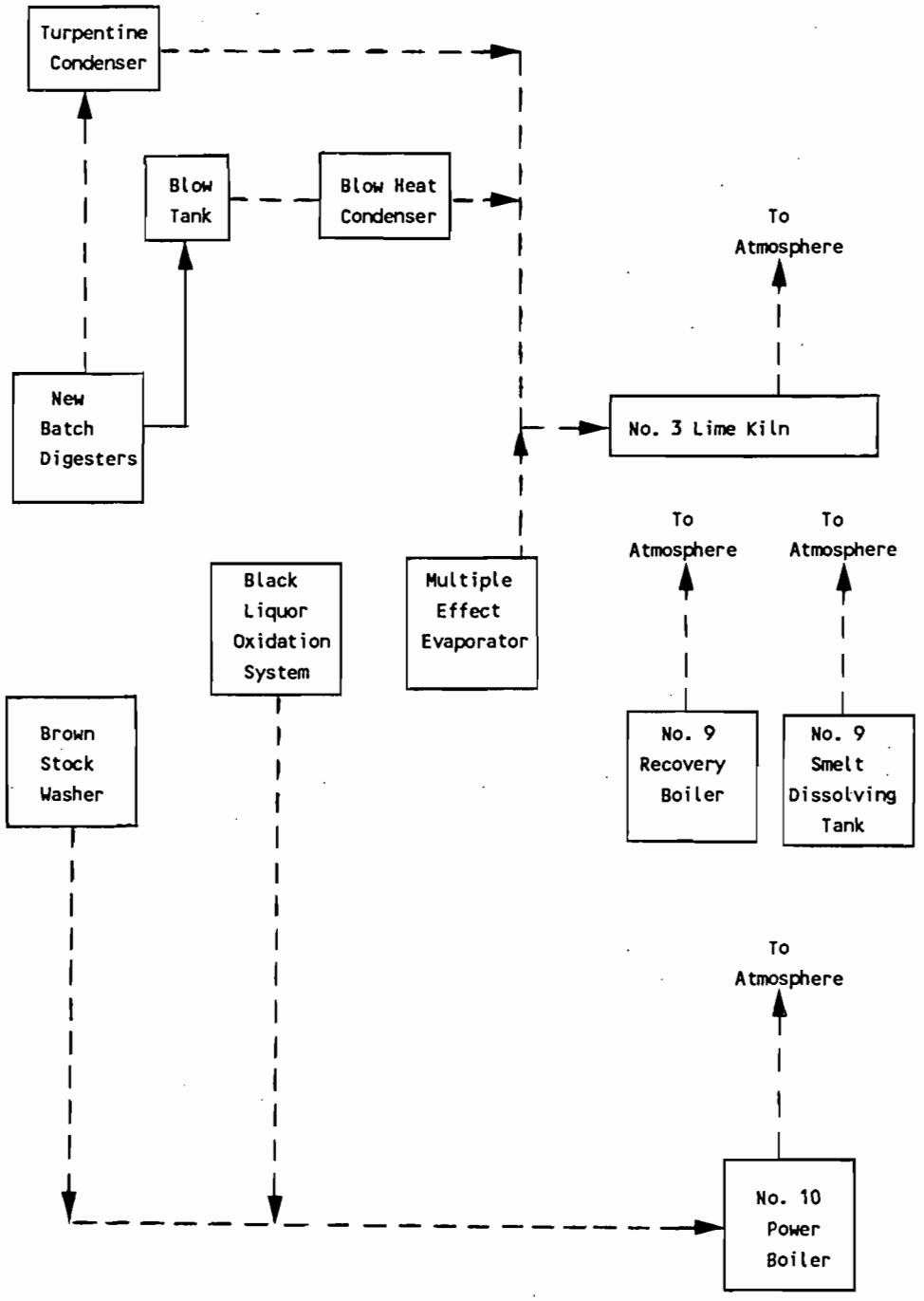


Figure 1. Overall TRS Compliance Program, Jefferson Smurfit Corporation

Table 1. Schedule for Achieving Compliance with TRS Regulations, JSC Jacksonville Mill

Source	Construction Permit Issued By	Certification of Equipment Order	Certification of Initial Construction	Completion of Construction	Proof of Final Compliance	Submit Operating Permit Application	Construction Permit Expiration Date
Digesting System	1/12/88	2/12/88	5/12/88	2/12/89	5/12/89	11/12/89	5/12/90
No. 9 Recovery Boiler	1/12/88	2/12/88	5/12/88	2/12/89	5/12/89	11/12/89	5/12/90
Smelt Dissolving Tank	1/12/88	2/12/88	5/12/88	2/12/89	5/12/89	11/12/89	5/12/90

Receipt #76196
V#142145
$1000.00
AC16-141868

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Recovery Boiler [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Jefferson Smurfit Corporation COUNTY: Duval

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Recovery Boiler No. 9

SOURCE LOCATION: Street 1915 Wigmore Street City Jacksonville

UTM: East Zone 7: 439.8 North 3359.4

Latitude 30 ° 22 ' 00 "N Longitude 81 ° 37 ' 30 "W

APPLICANT NAME AND TITLE: J. Franklin Mixson, Vice President & General Manager

APPLICANT ADDRESS: P.O. Box 150, Jacksonville, Florida 32201

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Jefferson Smurfit Corp.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: J. F. Mixson

J. Franklin Mixson, Vice President & General Manager
Name and Title (Please Type)

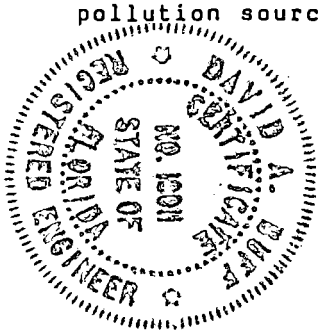
Date: 11/10/92 Telephone No. (904) 353-3611

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed David A. Buff

David A. Buff
Name (Please Type)

KBN Engineering and Applied Sciences, Inc.
Company Name (Please Type)

P.O. Box 14288, Gainesville, Florida 32604
Mailing Address (Please Type)

Florida Registration No. 19011 Date: 11/9/87 Telephone No. (904) 375-8000

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attachment A

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction February 1988 Completion of Construction May 12, 1990

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

$1,500,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Permit	A016-100365	A016-25795	A016-2492
Issued	5/29/85	5/1/80	10/17/75
Expires	4/30/90	4/30/85	12/16/79

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52

if power plant, hrs/yr_____; if seasonal, describe:_____

F. If this is a new source or major modification, answer the following questions. (Yes or No) Not Applicable

1. Is this source in a non-attainment area for a particular pollutant? _____

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. _____

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. _____

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? _____

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this scurce? _____

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? _____

   a. If yes, for what pollutants?_____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Black Liquor Solids	NA		137,500 (dry)	(1)

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 137,500 Black Liquor Solids

2. Product Weight (lbs/hr): 96,240 Smelt

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
TRS	23.3	102.1	17.5ppm,dry*	23.3	23.3	102.1	(2)
PM	120.1	525.9	**	120.1**	120.1	525.9	(2)

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

* Corrected to 8% O_2. Based upon FAC Rule 17-2.600(4)(c)3.a.

** Based upon allowable emission rate contained in the current air operating permit for this source.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Electrostatic Precipitator - Koppers #KPN 2744	Particulates	99%	Submicron and above	Design

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Kraft Black Liquor	188,945 lb/hr	211,538 lb/hr	804.67
No. 6 Fuel Oil	126 gal/hr	1046 gal/hr	156.9

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: No. 6 Fuel Oil

Percent Sulfur: 2.5 max Percent Ash: 0.1 typical

Density: 8.0 lbs/gal Typical Percent Nitrogen: 0.9 typical

Heat Capacity: 18,750 BTU/lb 150,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution):

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average Not Applicable Maximum

G. Indicate liquid or solid wastes generated and method of disposal.

Smelt sent to smelt dissolving tank for use in process.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 175 ft. Stack Diameter: 10.5 ft.

Gas Flow Rate: 446,151 ACFM 223,438 DSCFM Gas Exit Temperature: 278 °F.

Water Vapor Content: 30 % Velocity: 85.9 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   SEE ATTACHMENT A
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.
   SEE ATTACHMENT B
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   SEE ATTACHMENT B
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
   SEE SECTION III.D.
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
   SEE SECTION III.D.
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
   SEE ATTACHMENT A
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
   ATTACHED
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   ATTACHED

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Not Applicable

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not Applicable

1. _____no. sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate
TSP	_____ grams/sec
SO^2	_____ grams/sec

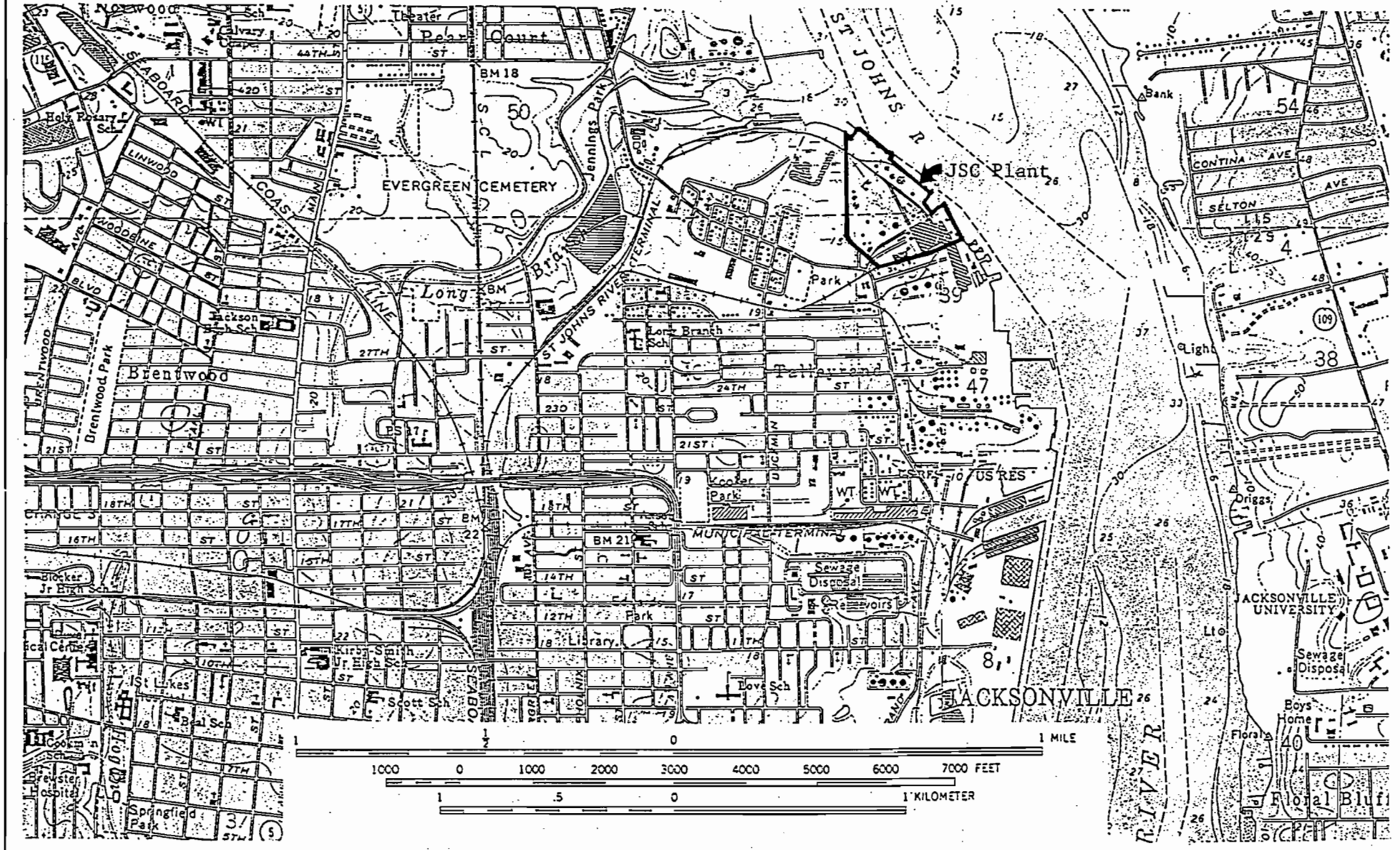
E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

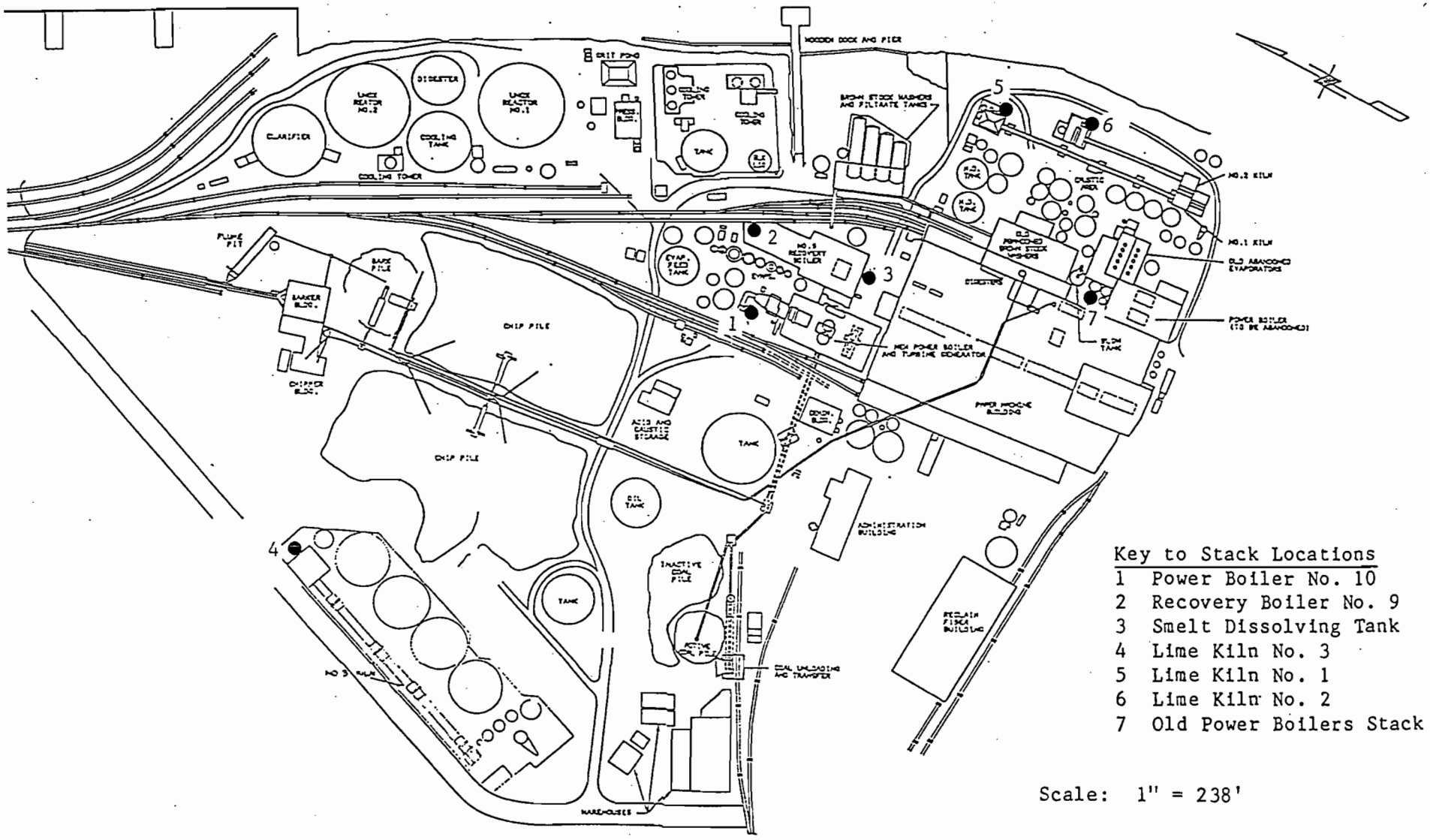
G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.



Site Location Map of Jefferson Smurfit Corporation

KBN



Plot Plan of Jefferson Smurfit Facility and Stack Locations

KBN

ATTACHMENT A

PROCESS DESCRIPTION

JSC currently operates a kraft pulp recovery boiler (No. 9 Recovery Boiler) at its Jacksonville mill. A flow diagram of the boiler is presented in Figure A-1. The maximum design rate of the boiler is 3.3×10^6 lb/day of black liquor solids fired to the boiler. The boiler now meets a TRS emission limit of 17.5 ppm, dry basis, corrected to 8% O_2, as required by the former FAC Rule 17-2.600(4)(b)2. Compliance is demonstrated by periodic (i.e., annual) compliance tests on the boiler. The periodic compliance tests have demonstrated compliance with the TRS emission limit.

The TRS emission limit for the No. 9 Recovery Boiler imposed by the recently adopted FAC Rule 17-2.600(4)(c)3.a.(i) is 17.5 ppm by volume, dry basis, corrected to 8% O_2, 12-hour average, as determined by a certified CEMS. Because the new limit, which is to become effective May 12, 1989, requires compliance on a "continuous" basis, it is more stringent than the former standard.

Current boiler operation is substantially in compliance with the new 17.5 ppm TRS limit except for occasional excursions. The cause of these excursions has been identified as unreliable air supply due to poor air distribution. This air flow distribution must be corrected in order for the TRS emissions to be controlled to the level of the standard imposed by continuous emissions monitoring.

Jefferson Smurfit plans to make the following changes in order to achieve compliance with the new TRS standard:

1. Provide additional air supply ports, on the same level as the liquor guns and located near the guns. This will provide secondary air supply at two levels.
2. The existing oscillating liquor guns will be replaced with new stationary guns.
3. Improved electronic firing control will be implemented.

A schematic of the present boiler firing configuration and modified firing configuration is shown in Figure A-2. Total cost of these improvements will be about $1,500,000.

FAC Rule 17-2.600(4)(c)3.c. requires that kraft recovery furnaces subject to the TRS regulations also comply with FAC Rule 17-2.710, Continuous Emission Monitoring. This rule requires that the recovery boiler be equipped with a CEMS for TRS, and that the CEMS comply with certain operational and quality assurance specifications. JSC has already installed a CEMS on the No. 9 Recovery Boiler stack which meets the requirements of this rule.

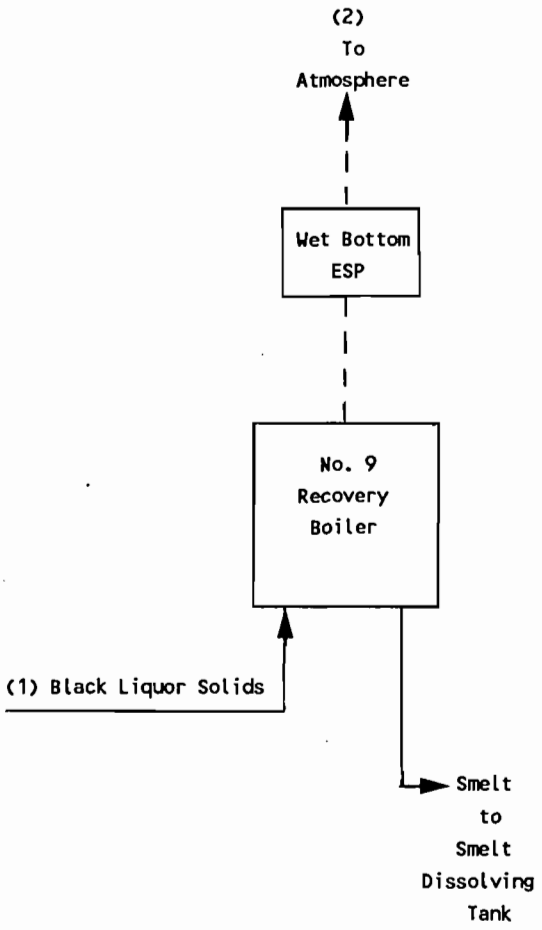
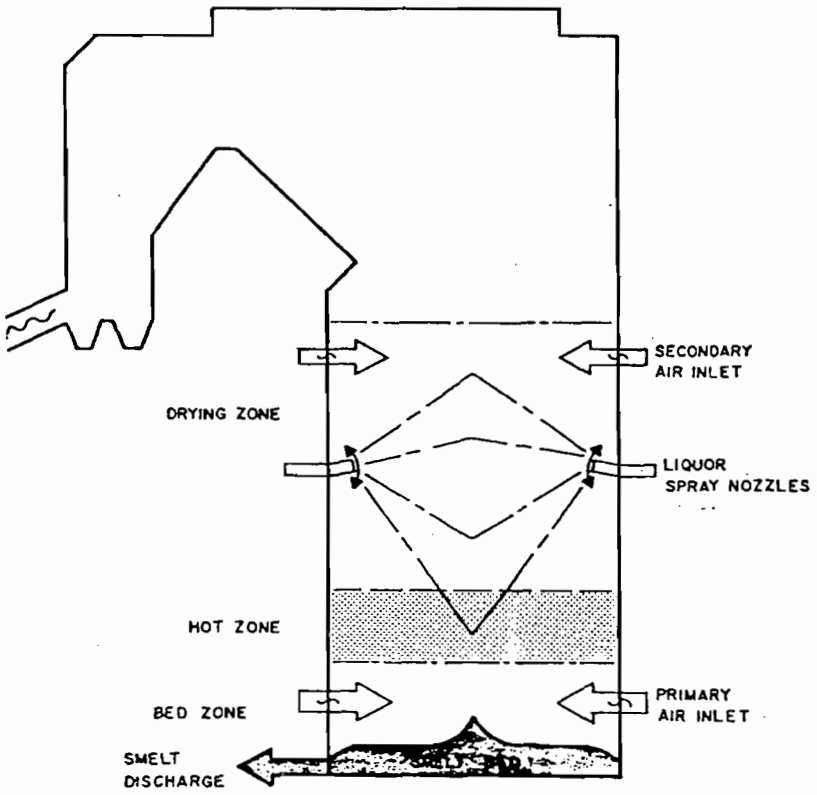
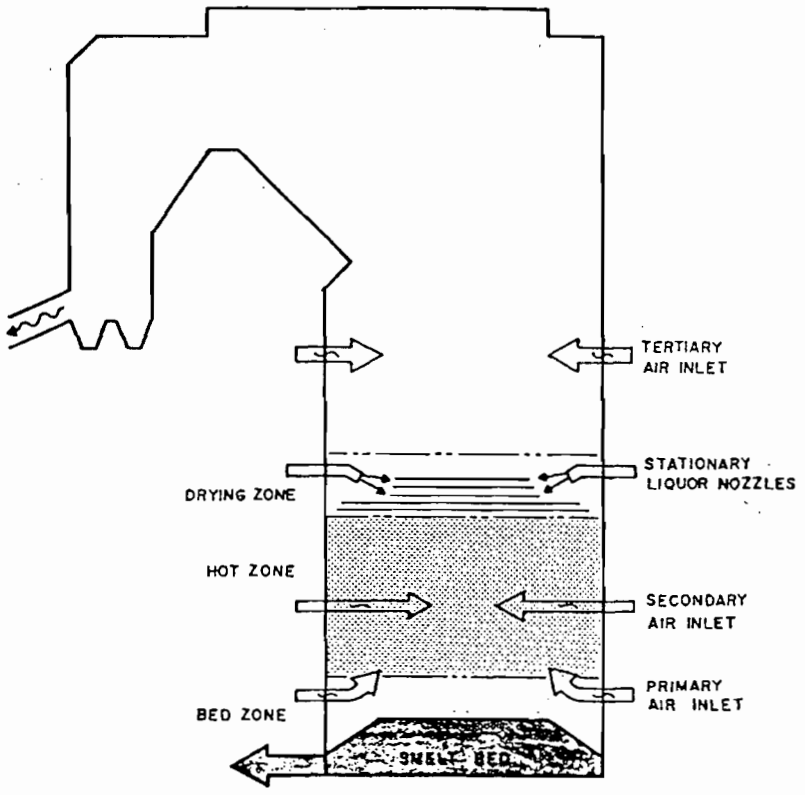


Figure A-1. Flow Diagram of No. 9 Recovery Boiler at JSC



PRESENT BOILER
FIRING
CONVENTIONAL



MODIFIED BOILER
FIRING
WITH AUTO RECOVERY CONTROL

Figure A-2. Present and Modified Recovery Boiler Firing Configuration

ATTACHMENT B

EMISSION ESTIMATES

I. PARTICULATE MATTER

The maximum PM emissions for the No. 9 Recovery Boiler are based upon the allowable limit contained in the current operating permit for the boiler (A016-100365). This limit is 120.1 lb/hr and 525.9 TPY, and is based upon a maximum black liquor solids (BLS) input rate of 120,070 lb/hr (2.882×10^6 lb/day). The boiler will meet this allowable emission limit even when operating at the higher rate of 137,500 lb/hr BLS (3.3×10^6 lb/day).

II. TOTAL REDUCED SULFUR

TRS emissions from the boiler are based upon the allowable limit of 17.5 ppm, dry basis, corrected to 8% O_2. Maximum airflow from the recovery boiler when operating at the higher rate of 137,500 lb/hr BLS is calculated as follows:

Design flow = 68 dscfh air flow per lb BLS @ 0.0% O_2

137,500 lb/hr BLS x 68 dscfh/lb BLS / 60 min/hr

= 155,833 dscfm @ 0.0% O_2

Correct TRS standard to 0% O_2:

$C_{8\%} = C_{0\%} \times [(21 - 8)/(21 - 0)]$

$C_{8\%} = C_{0\%} \times 0.62$

$C_{0\%} = C_{8\%}/0.62$

$C_{8\%} = 17.5$ ppm

$C_{0\%} = 17.5/0.62 = 28.2$ ppm @ 0% O_2

PVC = mRT

m = PVC/RT

$$\frac{28.2}{10^6} \times 155{,}833 \frac{ft^3}{min} \times \frac{2116.8\ lb_f}{ft^2} \times \frac{34}{1545} \frac{lb_m \cdot {}^oR}{ft \cdot lb_f} \times \frac{1}{528^oR} \times \frac{60\ min}{hr}$$

= 23.3 lb/hr TRS as H_2S

23.3 lb/hr x 8,760 hr/yr / 2,000 lb/ton = 102.1 TPY

PROCESS AUTOMATION

BENEFITS OF RECOVERY BOILER COMPUTER CONTROL SEEN AT 13 MILLS IN FINLAND

Computer control systems optimize sootblowing, saltcake reduction, fluegas O_2, and allow operation at or above rated capacities

By PERTTI VALKAMO and OSSI PANTSAR

■ A study was conducted in Finland from 1970 to 1973 by the Finnish Recovery Boiler Committee (composed of pulping industry representatives, boiler manufacturers, and Ekono) to find basic material for a recovery boiler computer control system.[1] The first control project as a result of this study was started in 1974 by Enso-Gutzeit Oy, Nokia Electronics, and the University of Oulu. The system that grew out of this project was put into operation in the beginning of 1976.[2-4] Today a total of 13 such systems are in operation in Finland.

Table 1 shows the boiler makes and types of control systems at these 13 mills. The increased capacities at Äänekoski, Kemi, and Pori were attained after modifications to the boilers themselves and/or to auxiliary equipment such as fans. Because several systems were installed on existing and often very old boilers, certain limitations were encountered, for example, in selecting air systems, airflow measurements, and controls.

Mr. Valkamo is energy manager and Mr. Pantsar is process engineer, Enso-Gutzeit Oy's Paper Div., Imatra, Finland. *This is an updated article based on a presentation at the International Recovery of Chemicals in the Wood & Pulp Industry Conference, 1981. Printed with permission of TAPPI.*

Kaukopää No. 1 has a condensed system consisting principally of the airflow controls. The system on the Pietarsaari Babcock & Wilcox unit was completed during 1983, and the mill has only limited experience with its operation. Therefore, this system is not discussed in detail along with the 12 other projects.

Because specific benefits depend on a wide range of variables—which include required process changes, experience and expertise of mill staff and vendor personnel, in addition to the control system used—exact monetary savings due to boiler automation are difficult to define. This article, therefore, does not analyze the systems implemented at these mills from this perspective.

Reliable feasibility studies on the advantages of boiler automation are possible but generally require a series of mill trials and careful analysis and planning of any needed process changes. To maximize a mill's investment in boiler automation, it is strongly recommended that process changes, instrumentation, and the computer system be handled as a total package.

PROCESS CHANGES. The first Kaukopää control system was a pioneer project in Finland, and experience gained here was extended to subsequent systems installed at other mills, regardless of the boiler and computer system manufacture. Initially, it was suspected

TABLE 1: **Recovery boiler control systems in Finland in 1983.**

Mill	Company	Boiler	Capacity (tpd dry solids)	Control system	Delivery
Kaukopää	Enso-Gutzeit Oy	C-E/Ahlström (No. 3)	680	Alora	1976
Veitsiluoto	Veitsiluoto Oy	Tampella	1,250	Measurex	1978
Kaukopää	Enso-Gutzeit Oy	C-E/Ahlström (No. 2)	680	Alora	1979
Äänekoski	Metsäliiton Teollisuus Oy	Ahlström	540[2]	Alora	1979
Kemi	Kemi Oy	Götaverken	1,170[3]	Alora	1980
Kaukas	Oy Kaukas AB	SMV (C-E)	720	Measurex	1980
Kaukas	Oy Kaukas AB	Ahlström	460	Measurex	1980
Kaukopää	Enso-Gutzeit Oy	C-E/Ahlström (No. 1)	436	Alora	1980
Pori	Oy W. Rosenlew AB	B&W	350[4]	Alora	1981
Rauma[5]	Rauma-Repola Oy	Tampella	1,050	Alora	1982
Pietarsaari	Oy Wilh. Schauman AB	Ahlström	1,300	Alora	1982
Tainionkoski	Enso-Gutzeit Oy	C-E/Ahlström	680	Alora	1982
Pietarsaari	Oy Wilh. Schauman AB	B&W/Ahlström	800	Alora	1983

1. Formerly Nokia Electronics. 2. Original capacity 420 metric tpd dry solids. 3. Original capacity 960 metric tpd dry solids. 4. Original capacity 280 metric tpd dry solids. 5. Na-bisulfite process.

TABLE 2: **Sootblowing steam consumption before and after computer control and summary of required shutdowns for boiler cleaning.**

	Sootblowing steam (%)		Cleaning method and shutdown cycle
	Previous	Existing	
Kaukopää, C-E 3[1]	6	4.5	Occasional removal of salt block on the furnace arch
Veitsiluoto[1]	6	5	Water wash during programmed shutdowns
Kaukopää C-E 2[1]	6	5	Horizontal economizer washed after three weeks
Äänekoski	6	5	One extra water wash in addition to holidays
Kemi	8	4.7	Manual cleaning (periodically)
Kaukas, SMV[1]	6.5	5	One water wash saved annually
Kaukas, Ahlström	7.5	5	One water wash saved annually
Pori	7	6	Manual cleaning, interval 3 weeks
Rauma	4.8	3.4	Some manual cleaning, interval 2 months
Pietarsaari, Ahlström	4	3	Water wash, interval 1 to 1.5 years
Tainionkoski	6.5	3.5	Water wash, interval more than a year

1: 10% overload.

that experiences gained with a Combustion Engineering boiler could not be applied to other boiler types. However, the essential characteristics seemed to be common for all types. Typical boiler features needed for implementation of the control method included:

- Stationary firing
- Plate-type nozzles
- Low primary airflow
- High secondary airflow
- Dimensions between primary and secondary air level of 40 in. to 60 in.
- Small number of liquor guns
- Large-size liquor guns.

At mills when these conditions do not exist—e.g., if the level of secondary air is too high—problems and future boiler modifications can be expected.

Stationary firing without oscillating liquor guns guarantees a stable furnace operation and decreases the carry-over of carbon. Also, liquor gun maintenance is relatively low with stationary firing. In some boilers, relocating the liquor guns was necessary.

Some of these process changes have been made without computerization on several recovery boilers. However, the effort to stabilize the furnace conditio ns has often led, or will eventually lead, to a control system investment in these cases.

Recovery boiler operating conditions at individual mills had significant differences. Some plants were not recovery boiler limited, and the benefit of increased production could not be accurately determined in the feasibility study. However, several recovery boilers are currently operating almost continuously above rated capacity, which was not the case before installation of the control system.

B&W boilers generally have a relatively high percentage of reduction. Therefore, the reduction improvements with these boilers amounted to only zero to one percent in B&W units, as was the case with both boilers at Kaukas. Excess air and fluegas loss could not be decreased in some recovery units.

SOOTBLOWING OPTIMIZATION. One of the most positive benefits has been a reduction in sootblowing steam. The sootblowers worked according to a fixed schedule or even continuously during the noncomputerized operation. Although savings vary considerably, generally the total benefit has been sufficient for a payback time of one to two years on the computer control investment.

The savings in sootblowing steam have been generally supported by a reduced number of shutdowns required for total water washing or manual cleaning of a clogged boiler. Additionally, some mills report the existing deposits to be easier to remove than before.

The basic strategy in sootblowing optimization is to control conditions in the furnace so that salt deposits are minimized and are not sticky. Installation of only the sootblowing control system—leaving the furnace control noncomputerized—has not been considered feasible in Finland.

Sootblowing steam is normally reported as a percentage of the generated steam, without taking into account the different enthalpies of sootblowing and main steam. A comparison of sootblowing steam consumptions before and after computer control can be easily made if all boilers are operated at their rated capacities. However, this comparison is difficult when boilers are operated in an "overload" condition. Table 2 summarizes sootblowing steam consumption and required shutdowns for boiler cleaning at the various mills.

A 2% to 2.5% savings in sootblowing steam was typical during the first years after the system startup on the Kaukopää Nos. 2 and 3 units. However, an effort to operate these boilers at 10% overload increased sootblowing steam consumption.

Clogging has not been a problem with the computerized recovery boilers. However, cleaning of the boilers is performed, at least occasionally, during repairs. The cleaning method depends on the structure of the specific boiler. The newer boilers with membrane walls are mostly water washed through the sootblowers. The older boilers with brickwork cannot be washed often and cleaning is therefore performed manually, either during shutdown or while oil firing.

Kaukopää No. 3 collects a salt block on the furnace arch near the one side wall. This is not harmful if the block is removed during shutdowns. Clogging initially occurred at Veitsiluoto, but replacing the secondary air system made extra shutdowns unnecessary.

Kaukopää No. 2 unit is furnished with a horizontal economizer that is impossible to keep open regardless of the sootblowing method. It must, therefore, be washed frequently.

Operation of the Ahlström boiler at Kaukas was improved when capacity of the secondary air system was increased. However, two more sootblowers for the lower boiler bank are needed.

Oy W. Rosenlew AB's mill unit at Pori has problems typical of an older boiler, and therefore the operating periods are very short. The low original rated capacity of

this boiler must be considered when discussing its cleaning problems.

The C-E boiler at Tainionkoski was not furnished with new sootblowers in the rear generating tube section during the boiler modification as were the other Enso units. After boiler operation at higher loads using the new air system, it became immediately evident that the replacement of these blowers was absolutely necessary.

The parameters for a sootblowing control system have been discussed by Hoynalanmaa.[4]

Generally, lapsed time controls sootblowing in the superheater (and screen) section. Fluegas pressure drops very seldom reach their critical points in this area. In the boiler bank, fluegas pressure drops usually start sootblowing, but time lapses can do it also, at a low load. The economizer is blown according to the fluegas pressure drop or heat transfer coefficient.

Parameters that start the sootblowing can change, for example, according to the clogging situation in the boiler. Any changes in the setpoints or sootblower pressures have a certain influence upon the parameters. Exact information on the basis of the sootblowing parameters has, therefore, not much significance.

SALTCAKE REDUCTION. The percentage of sodium sulfate reduction has generally been increased in the computerized boilers. These gains, as shown in Table 3, were due to a combination of modifications to the process, basic boiler operations, and computer control.

The degree of modifications varied at the individual mills. If only the computer system was purchased, operating changes were relatively small. If, on the other hand, changes were made in the air and liquor systems, large alterations in air distribution were possible.

Computer control keeps conditions in the char bed stable, preventing the typical variation between shifts with manual operation. In two boilers, the air and black liquor systems were changed before computer control was implemented. These changes made the boiler operation worse and caused lower reduction percentages. In these cases, the existing computerized operation has been compared (in Table 2) with the original situation before the above alterations.

The comparisons for Veitsiluoto were difficult because the system was installed in a new boiler. The period without the computer control was short and consisted of the mill startup phase with numerous fluctuations.

If overflow from the fluegas or main dissolving tank scrubbers is led into the dissolving tank, apparent reduction of green liquor is decreased, and possible reduction improvements are difficult to justify.

DECREASE IN EXCESS AIR. Boiler trials are used to determine the optimum oxygen level in fluegas so that gas losses are minimized. The control system maintains this level and does not allow variations between the shifts. Decreases in fluegas O_2 are shown in Table 4.

FIGURE 1: **Fluegas Co + H_2 and CO vs O_2.**

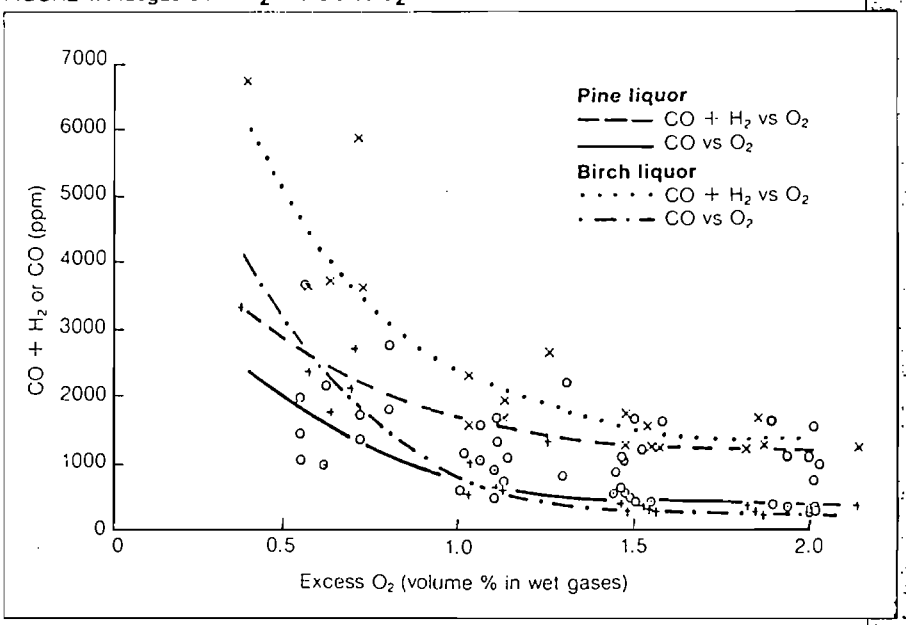


TABLE 3: **Percentage increase of sodium sulfate reduction.**

Kaukopää, C-E 3	4
Veitsiluoto	1
Kaukopää, C-E 2	4
Äänekoski	5
Kemi	1
Kaukas, SMV	—
Kaukas, Ahlström	—
Pori	1
Rauma	2
Pietarsaari, Ahlström	1.5
Tainionkoski	3.5

TABLE 4: **Percentage decrease in fluegas O_2.**

Kaukopää, C-E 3	0.5
Veitsiluoto	1
Kaukopää, C-E 2	0.5
Äänekoski	0.5
Kemi	0.5 to 1
Kaukas, SMV	1
Kaukas, Ahlström	1
Pori	1
Rauma	0.6
Pietarsaari, Ahlström	0.5
Tainionkoski	1

The boiler operation at Äänekoski was not normal before the basic changes in boiler operation. An addition of excess air was necessary to get the boiler to work in the best possible way.

The lowest O_2 reading reached, 1.5%, was reported from Rauma.

It is absolutely necessary to find the optimum situation in the trials before adjusting the computer to keep the variables at this point. If the optimum cannot be found, even manual control is better than computerized control because it does not keep the variables so rigidly at the poor setpoints.

Using the measurement of fluegas O_2 or CO for controlling excess air was analyzed in a recent article by D.F. Dyer and G. Mapels.[5] One of the Finnish boilers was thoroughly studied as a basis for a master of science thesis.[6] The author, as well as his instructors[7], came to the conclusion that CO cannot be used as a single loop variable in a recovery boiler if optimum efficiency is desired. However, it can be used to give useful information, especially during the disturbances.

Measurements have been completed with both birch and pine liquor at different black liquor flows and temperatures. In the optimum area for the Äänekoski boiler, the curve CO vs O_2 in Figure 1 is nearly horizontal and therefore inappropriate for airflow control. The hydrogen in the fluegas seems to have a substantial role in fuel losses and cannot be ignored.

TABLE 5: **Basic instrumentation on the computerized recovery boilers.**

	Black liquor				Fluegas				
	Dry solids	Flow	Visc.	Furnace temp.	O_2	Dust	SO_2	CO	H_2O
Kaukopää, C-E 3	1	1		4	1	1	1		
Veitsiluoto	1	5	1	8	1	1	2		2
Kaukopää, C-E 2	1	1			1				
Äänekoski	1	1		4	2	1			
Kemi	1	1		4	2	1			
Kaukas, SMV	1	1		4	1	1	1	1	
Kaukas, Ahlström	1	1		4	1	1	1	1	
Pori	1	1		4	1	1			
Rauma	1	1		4	3	1	1		
Pietarsaari, Ahlström	2	5		4	2		1		
Tainionkoski	1	1		4	1	1			
Pietarsaari, B & W	1	3		4	2				

TABLE 6: **Typical instruments for recovery boiler control.**

Black liquor dry solids	EMC refractometer
Black liquor flow	Fischer & Porter magnetic meter
Furnace temperature	Gulton pyrometer
Fluegas dust	Sick opacity instrument

OTHER BENEFITS. Other benefits of recovery boiler automation have been widely discussed in several references.[2,6,8] However, many advantages cannot be meaningfully measured in monetary terms.

One benefit of significant value, but one which cannot be readily measured, is the potential increase in boiler capacity. Possibly some of the boilers at the 13 Finnish mills can be overloaded as much as 10% on an annual basis with the help of the computer system, process changes, and better know-how. However, because the need for extra boiler capacity varies from mill to mill, no data can be shown for this. However, it can be verified that production at the mills discussed is not limited at all by the recovery boilers.

The emission of H_2S at the mills with computer controlled recovery boilers is zero for all practical purposes. Also, SO_2 emissions are extremely low. This means some savings in makeup chemicals, depending on the initial situation and makeup added by the mill.

INSTRUMENTATION DETAILS. The extent of specialized instrumentation on boilers at the 13 Finnish mills varies widely. Instrumentation for measuring combustibles is provided for all of the boilers, and the Kaukas unit is equipped for CO_2 measurement. Table 5 shows the basic instrumentation in use on the various boilers.

Some interesting special problems have occurred with these instruments. Some refractometers have been disturbed by the carbohydrates present in birch liquor, causing an error in the reading. Soap in black liquor also causes an error in one refractometer's operation. Sometimes it has been possible to correct this error in the program.

Magnetic flowmeters are in generalvery reliable. However, they can be disturbed by gas bubbles generated in the indirect black liquor heaters, cascade evaporator, or liquor tanks.

Calibration problems were experienced with the pyrometers. The failure of these instruments was very common initially, before it was learned to install them behind a glass plate.

The gas sampling system of the analyzers may cause some trouble. The Zr_2 type of oxygen analyzers have no sampling system and are very suitable for the recovery boilers, although their ceramic filters seem to be slightly troublesome. At Rauma, a gamma ray instrument for dry solids content was found to be most suitable for that mill's liquor.

Earlier some mills had reported needing approximately one person for instrumentation maintenance for each recovery boiler. However, this estimate now seems to be slightly conservative for some of the mills.

Table 6 shows typical instruments and their suppliers for recovery boilers in Finland.

FUTURE BOILER CHANGES. One advantage of the computer control system has been the precise information it provides when changes to a boiler are necessary. Computer reports and other data can be used to determine the absolutely necessary modifications for increasing the capacity of a recovery unit. This helped Veitsiluoto modify its boiler, and was very useful at Kaukas for making several changes in the extension of its secondary air system.

At this time, no solution has been found to the Kaukopää No. 3 furnace arch salt collection problem, although the symmetry of secondary air is being studied very carefully. ■

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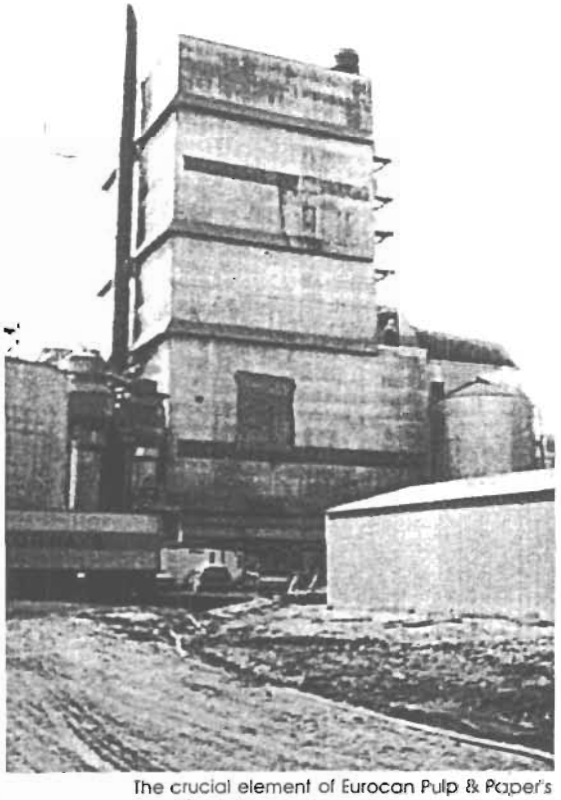
Eurocan Adds AFORA System; Clears Recovery Bottlenecks

by
R. A. McCormick
Eurocan Pulp and Paper



The crucial element of Eurocan Pulp & Paper's Maxi-Stretch project was the conversion of its existing C-E recovery boiler to stationary firing. This involved modifying the air ducting to provide three firing zones.

As part of Eurocan Pulp and Paper Co.'s $42 million (Canadian) "Maxi-Stretch" project at its Kitimat, B.C. mill, Advanced Forest Automation, Inc. (AFORA) was contracted to install its Autorecovery System in the mill's 1400 tpd recovery boiler. Autorecovery is a computerized process control system designed to optimize recovery boiler efficiency.

The Maxi-Stretch project was formulated to upgrade Eurocan's pulp and paper capacity by 14 percent. As with many mills, the recovery boiler had been one of the bottlenecks in attempts to increase production capacity.

This was due to a number of typical factors, including wide variations in the properties of the black liquor being fed to the boiler; changes in boiler loads; and variations in the operation of the boiler.

Autorecovery is designed to overcome many of the limitations inherent in optimizing recovery boiler operation by providing computer-based control of liquor spraying, air flow and distribution, sootblowing, furnace temperature and other process variables. By precisely controlling these variables, Autorecovery maximizes boiler operating efficiency and provides improved overall control and operational stability.

System Installation

Kitimat's C-E boiler was built in 1970, and had a dry solids capacity of 129,173 lb/hr and steam output of 470,167 lbs/hr at 750 psig. AFORA agreed under terms of its contract with Eurocan that the new system would produce at least a 10 per-

Eurocan chose Advanced Forest Automation's Autorecovery process control system for its project. The recovery boiler control panel is on the right side and the Autorecovery operator's station on the left.

How The System Works

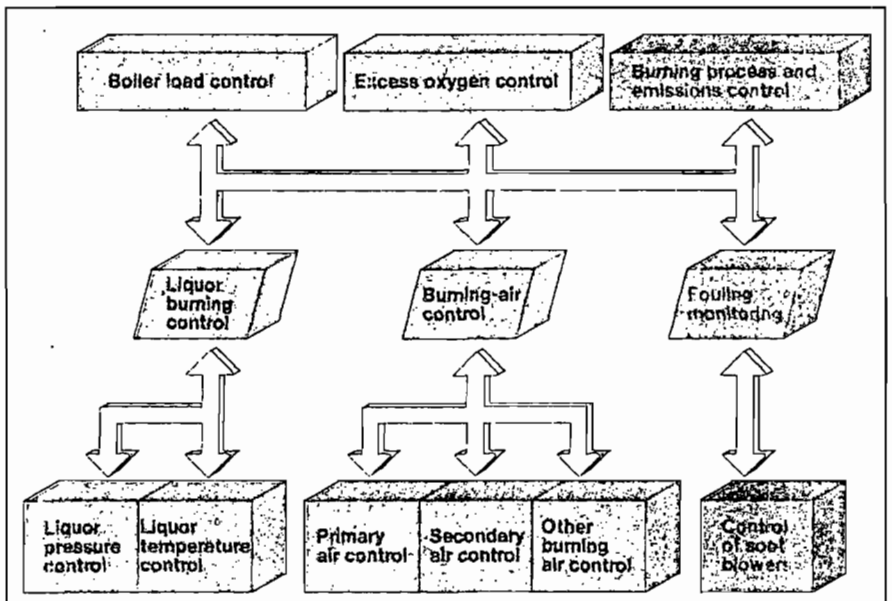
The Autorecovery System operates using both feedforward and feedback control. The system constantly measures air, black liquor and flue gas properties and calculates control variables for optimizing liquor burning, air flow, temperature profile and sootblowing.

Liquor burning is based on the feedforward control and on feedback compensation for variations in the composition and solids content of the black liquor. The burning process itself is regulated through air-flow and pressure controls and through control of the temperature and pressure of the liquor to be burned.

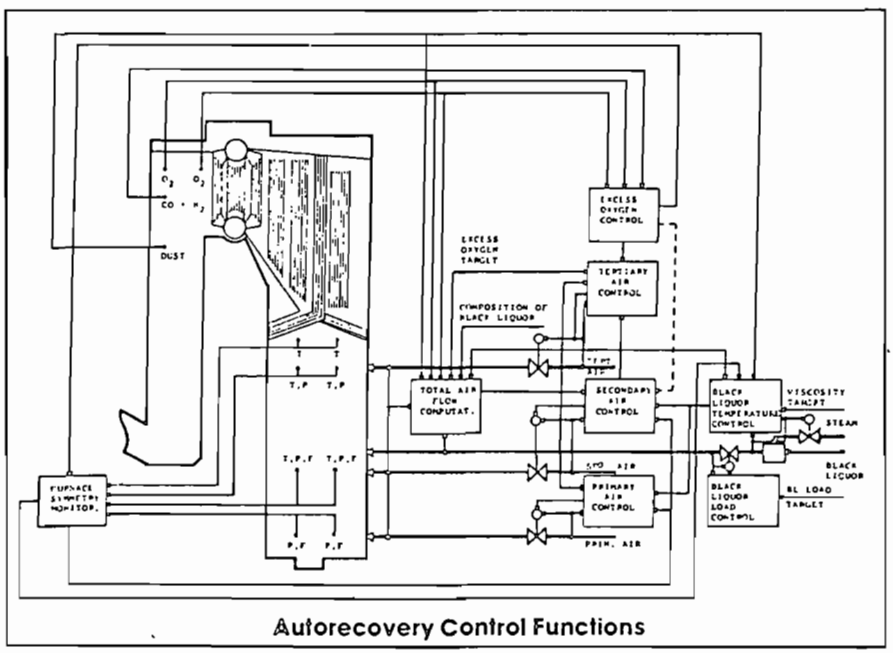
Air flow control is maintained by combining the principles of feedforward and feedback control. The total air flow required for burning the liquor is computed from the liquor solids content and the feedback control is based on the emissions from the burning. The air flow control is adapted to the desired load. The system calculated the theoretical total air flow required for burning the liquor and oil at the target level of excess oxygen. Material balances and circulation in the boiler are taken into account in these calculations.

Temperature profiles within the furnace are extensively monitored to detect major temperature differentials between the oxidation and reduction zones. A symmetrical char-bed and burning are achieved by monitoring the combustion air pressures and controlling the combustion air flows through all four walls of the boiler.

With the addition of AFORA's Autosoot System, sootblowing is optimized to reduce process steam use. Fouling of the fire surface is monitored based on flue gas measurements and computations of heat transfer coefficients. The Autosoot System monitors fouling criteria measured and calculated for each section of the boiler and starts a soot blower whenever limit value is exceeded.



Hierarchy of Control Programs



Autorecovery Control Functions

Boiler Modifications

The basic goal of modifications to the mill's boiler was to ensure symmetrical liquor feed and air flow on all sides of the boiler furnace. The major boiler modifications required by the project included the re-routing of the primary air duct system; the addition of a secondary air duct system; and the re-design of the original boiler liquor feed system. Perhaps the most significant modifications incorporated in the boiler's overall re-design pertained to the liquor feed system.

The original feed system was altered so that liquor pressure is equal around the liquor header. Further, the liquor nozzles were changed to the blade type and oscillation of the guns was stopped. This modification to "stationary" firing ensured that liquor droplets sprayed into the furnace had proper time to expand before falling to the char-bed, thus giving each droplet the opportunity to burn properly. This move also helped optimize the efficiency of the furnace.

Because of the existing construction of the boiler, AFORA had to complete extensive re-routing of the primary and secondary air from the FD fan. The first step of the re-routing involved cutting the primary air duct in half. Secondary ducts were added on two sides of the boiler, on top of the primary ducts. Further, the FD fan impeller had to be upgraded. This required an upgrade of the FD fan turbine. Secondary air nozzle dampers were positioned on shafts in order that they could be operated either manually or through computer control.

Modifications of the liquor feed system included the construction of a new liquor header, which was designed to provide a complete circuit of liquor flow around the furnace for symmetrical feeding. The modification of the original spray-type, oscillating liquor guns to the blade-type, stationary firing guns optimized burning efficiency and allowed the boiler to be operated at a range of 65-110 percent of nominal fuel input, for increased flexibility.

Eurocan's recovery boiler had been very reliable before this installation. Operators naturally had many reservations about the proposed changes. These fears fortunately have been unfounded. Δ

Bob McCormick is Production Manager at Eurocan Pulp and Paper, Kitimat, B.C., Canada.

Reprinted from March, 1984 Southern Pulp & Paper

cent increase in the boiler's design capacity.

The major installations of the boiler modifications took place during a ten day shutdown between April 12 and 21, 1981. Although modifications in the recovery boiler design itself are not needed in this kind of installation, fairly extensive modifications were required in the Kitimat project. These modifications were necessary because Eurocan wanted to ensure that solids combustion increased beyond the 10 percent goal of the Maxi-stretch project.

The Maxi-Stretch project was formulated to upgrade Eurocan's pulp and paper capacity by 14 percent. As with many mills, the recovery boiler had been one of the bottlenecks in attempts to increase production capacity.

The feasibility study of the project was developed by Enso Gutzeit Oy of Finland, and construction was carried out by C-E Superheater, Ltd. Kitimat's assistant recovery boiler superintendent Erle Black served as project manager for Eurocan, while Mauri Loukiala served as project manager on the installation and computer system start-up for AFORA. Ossi Pantsar of Enso Gutzeit served as consulting engineer.

Cost of the entire boiler upgrade project was $3.4 million (Canadian) $1.1 million of which covered the cost of the Autorecovery System itself. The project, including all boiler modifications, was carried out by AFORA on a turnkey basis.

Operational Results

The system has been operating for almost three years. The increased instrumentation with the new system has given us a lot of data that we did not have previously. This makes detailed comparison of before and after system installation difficult.

However, levels guaranteed by AFORA have been met. The mill has run the boiler several consecutive days with 15 percent overload without blocking it. The limiting factor has been the availability of black liquor. Daily peaks of 30 percent over nameplate capacity have been achieved.

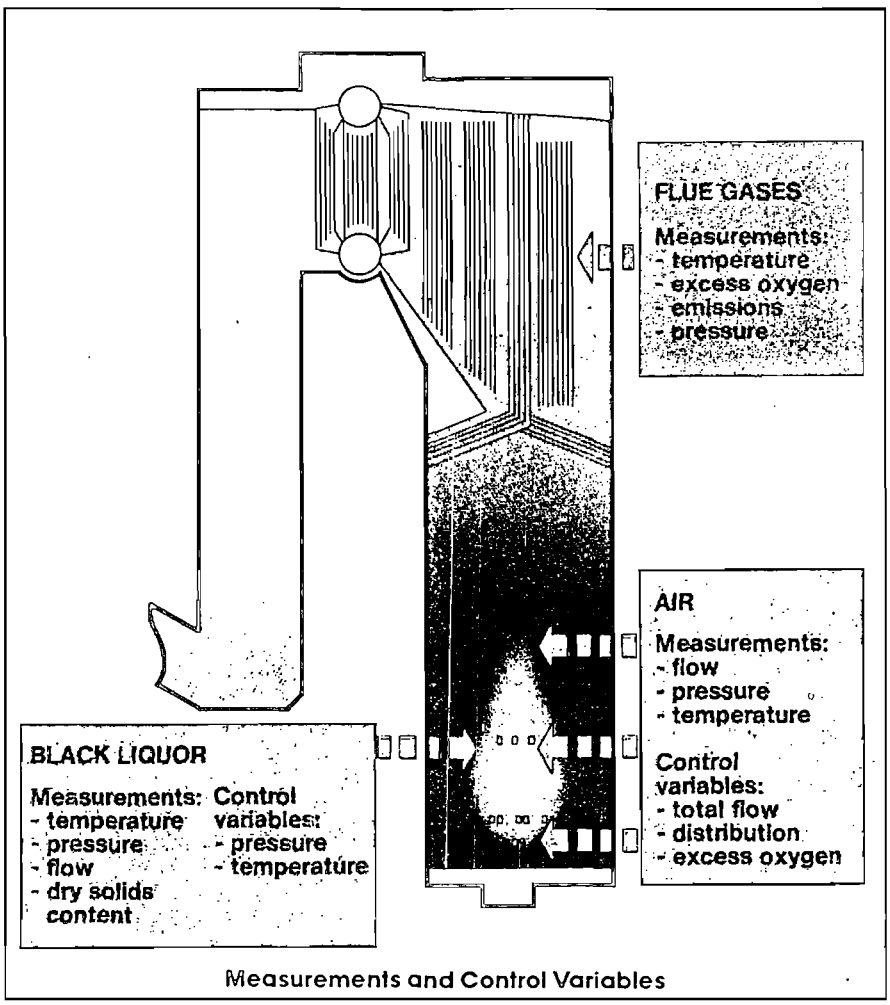
The other clearly identifiable improvement is in oxygen control in flue gas. This is now at a consistent 2 percent versus 3 percent before the system installation, with savings in steam consumption in the fan turbines and decreased heat loss in the stack.

Initial reduction before the project commenced was 88 percent. On installation of stationary firing, reduction improved to 91-92 percent. After installation of the computer system, and air splits, this reduction level was maintained.

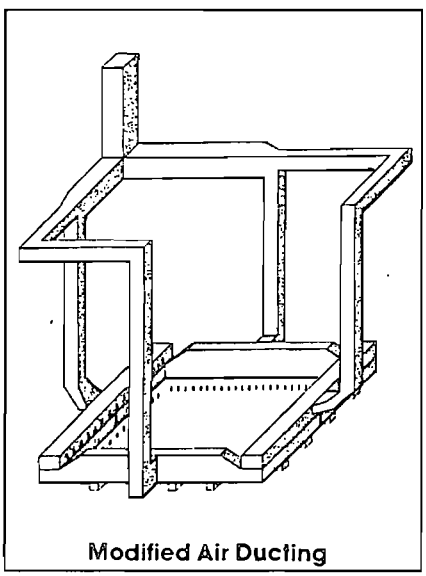
Other benefits of the system have been: an increase in dry solids burning rate from 1405 tpd to 1550 tpd, without increasing TRS and other pollutant levels, decreasing sootblowing steam consumption by 18 percent from 132 tpd to 108 tpd, increasing the reduction degree in smelt by 3.2 percent up to 91.9 percent and decreasing the excess oxygen level from 2.5 percent to 2.0 percent minimizing at the same time the variance of excess oxygen from 0.48 to 0.28 due to better control of the boiler.

Another benefit is steady state operation. The boiler operation is no longer subject to the preferences of individual operators. Operator acceptance of the new system has been good.

Emission standards for TRS and particulates have been maintained. British Columbia standards are the highest in Canada.



Measurements and Control Variables



Modified Air Ducting

Afora Autorecovery System - the unique way to save energy and optimize your process control in your recovery boiler

Proven superior benefits

Experiences with AUTORECOVERY all over the world have met success. Improved thermal efficiency together with the lower energy consumption in sootblowing and chemical savings along with increased reduction and decreased emissions are the main advantages available with the advanced AUTORECOVERY system. The operation of the recovery boiler is also easier and safer due to overall process optimization, comprehensive reporting and minimization of human errors.

The highlights of the benefits are

- Sootblowing steam consumption decrease with AUTOSOOT functions
- Thermal efficiency improvement based on
  - Temperature profile optimization
  - Stationary firing
  - Excess air optimization
  - Sootblowing optimization
- Increased reduction degree due to active bed and maximized temperature in the reduction zone
- Reduces O_2-level and O_2-deviation due to excess oxygen optimization
- Capacity increase based on
  - Decreased fouling
  - Throughput optimization
- Emission decrease based on temperature profile optimization.

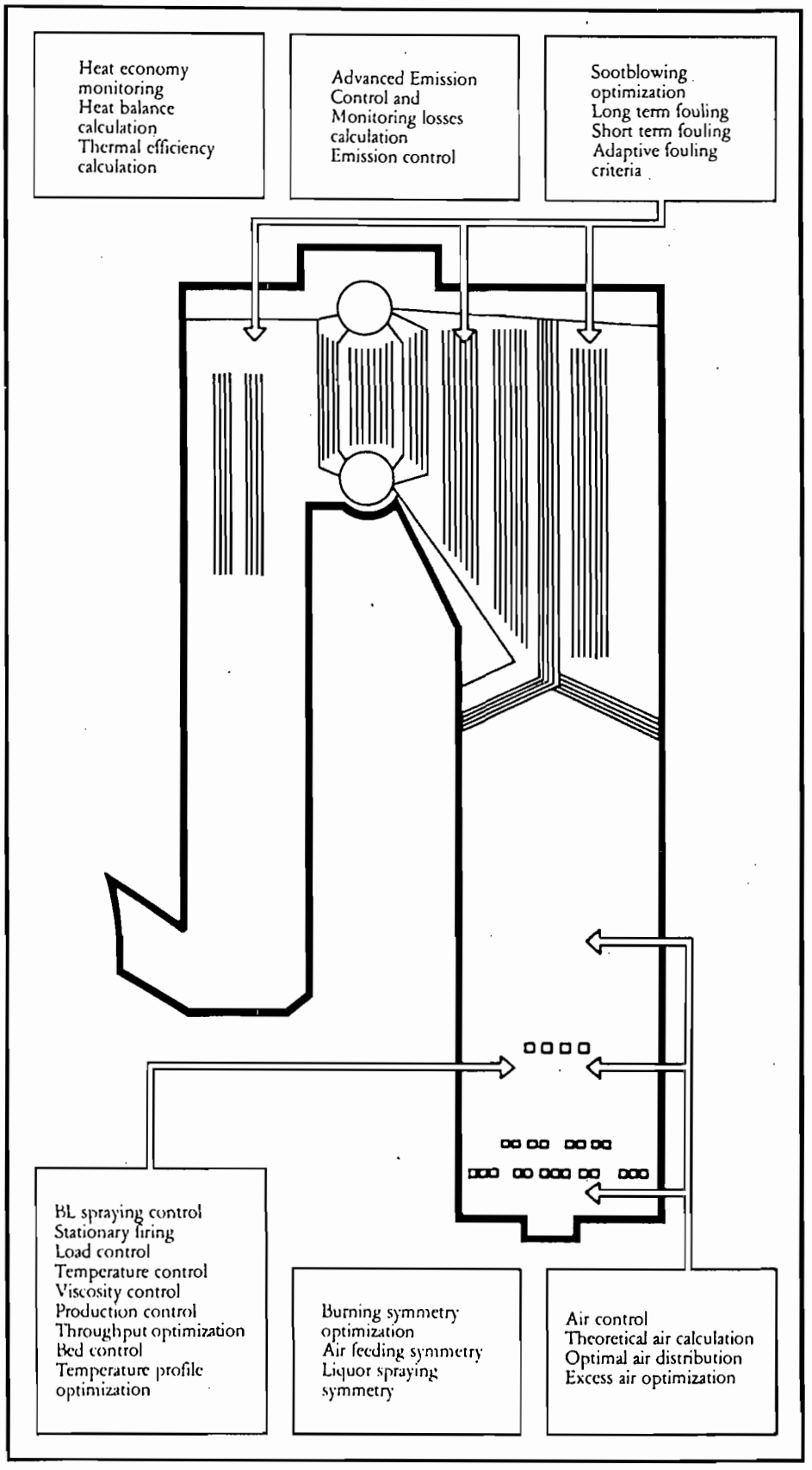
At today's energy and chemical prices, the system payback time is less than 1 year. Advanced AUTORECOVERY system makes it all possible.

Autorecovery is the answer

The AUTORECOVERY system includes functions which directly or indirectly affect combustion in the furnace, heat transfer, and emissions such as

- BL load control
- BL spraying control
- BL temperature control
- Throughput optimization
- Control of temperature profile and liquor spraying symmetry in the furnace
- Total air flow and air distribution control
- Excess air optimization
- Fouling monitoring and sootblowing optimization
- Emissions control and monitoring
- Control of additional fuels
  Reporting and alarming

Control functions are based on understanding the interactive character of combustion variables. In a burning process, there are not many main variables to be adjusted, in addition to the black liquor and



air-flow rates, pressures and temperatures. This is why a superficial analysis of different systems can result in an almost equal evaluation. Even though the same control variables are used, the principles and scope of the systems can be completely different. Because of the more complex control functions and the multivariable nature of the control involved, it is not possible to implement a control system of this type without fully understanding the multivariable character of the complicated recovery boiler process.

Stationary firing – practical approach to stable burning conditions

The stationary firing is based on a stable and thightly maintained process zoning in a furnace. The burning takes place at the lower part of the furnace, where the temperature level is at a maximum. Optimum furnace temperature profile is necessary for good reduction, boiler heat efficiency and minimized emissions and fouling.

Temperature profile in the furnace

The average strong black liquor drop size, sprayed into the furnace, must be as large as possible without cooling the bed. The black liquor temperature is used as a control variable. Experiences with the AUTORECOVERY system show that the control of black liquor temperature and air distribution can be effectively used to control the location of the combustion in the furnace.

Air distribution optimization

In principle, the correct amount of air should be fed to suitable locations in the furnace. Therefore, air should be supplied with regard to distribution of burning liquor in the furnace. If this balance is changed, combustion will move upwards or downwards depending on the adjustments performed. At the same time, the vertical temperature profile in the furnace is affected by the internal heat balance. Therefore, air distribution can be used for as a part of temperatureprofile-optimization.

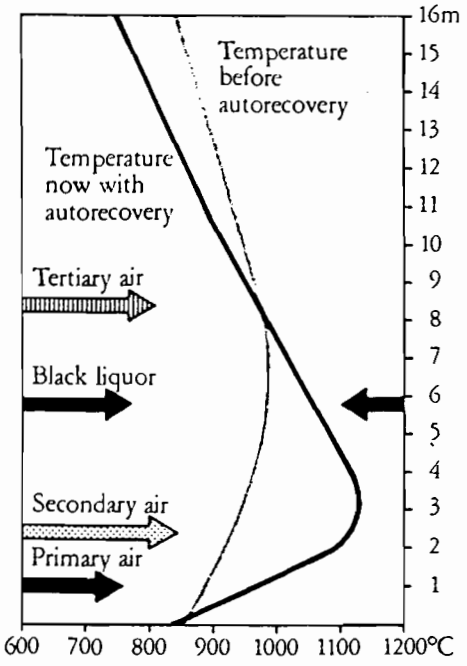
Power plant control room of Enso Gutzeit Oy, Tainionkoski, Finland.

Sootblowing optimization (AUTOSOOT)

Control of sootblowing is very important in order to have maximum efficiency of steam generation without blocking the boiler or wasting sootblowing steam.

This control strategy utilizes field proven fouling criteria developed using pressure drops, heat transfer coefficients, flue gas and feed water temperature and elapsed time.

Stationary firing and optimal air distribution are the key functions to achieve optimal temperature profile.



C-mainos/UKP 1985

Enhance the investment in your recovery boiler with AUTORECOVERY...

Increase maximum production capacity over 15%.

- Decreased fouling of upper furnace
- Throughput optimization

Decrease sootblowing steam consumption over 30%.

- Sootblowing on demand basis only
- Less carbon carryover
- Reduced upper furnace temperature
- High pH of furnace gas dust

Reduce furnace-generated TRS emissions to less than 3 ppm.

- Maximized lower furnace temperature
- Optimum air distribution

Increase thermal efficiency up to 3%.

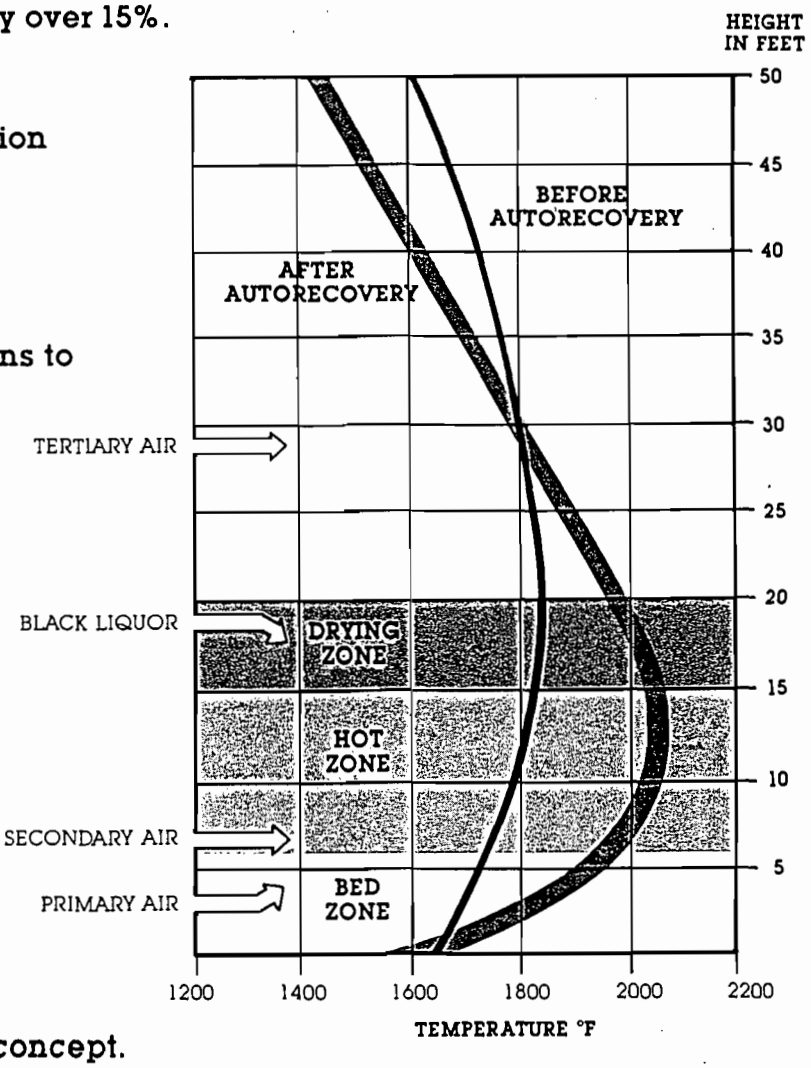
- Cleaner upper furnace
- Temperature profile optimization
- Excess oxygen optimization

Maintain an average reduction degree over 95%.

- Maximized lower furnace temperature
- Active, porous smelt bed

...and we will guarantee results.

To accomplish this, we perform a thorough analysis of your equipment, and apply the best combination of hardware and software to provide optimum control of your recovery boiler and associated processes.



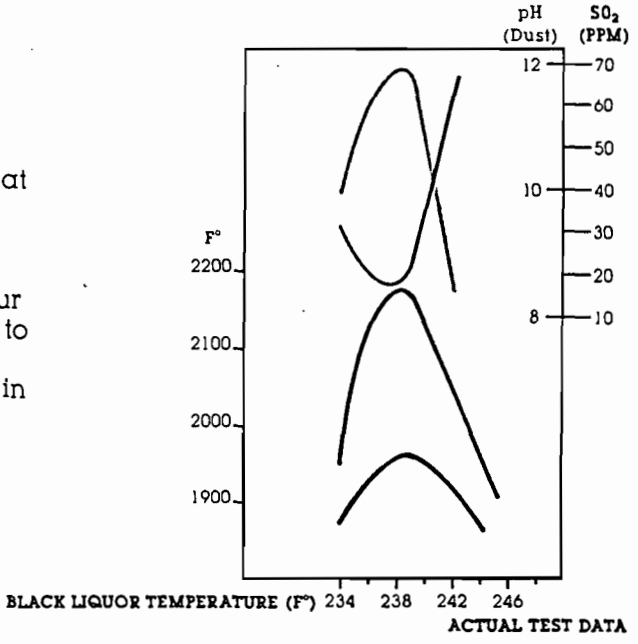
It starts with the STATIONARY FIRING™ concept.

STATIONARY FIRING is our unique concept for achieving optimum performance from your recovery boiler. It consists of **both** physical modifications to your boiler and sophisticated process control. Taken separately, neither will achieve true optimization of the recovery process.

It has been proven through years of operating experience that STATIONARY FIRING improves the operation of any boiler. The time and money required to modify a boiler with STATIONARY FIRING is minimal compared to the results achieved.

We can also offer a turnkey service to analyze and adapt your existing recovery furnace with the boiler modifications needed to achieve STATIONARY FIRING. These modifications ensure: 1) adequate air supply and distribution at the correct positions in the boiler, and 2) optimum black liquor suspension spraying using stationary splash-plate nozzles.

Once these modifications have been made, your furnace is now ready to achieve the benefits of AUTORECOVERY process control.



Total control and optimization of your recovery boiler.

AUTORECOVERY maintains the recovery process at its optimum state — preventing disturbances, saving energy, and maximizing throughput.

It does this by utilizing a sophisticated multi-variable control strategy designed to support the STATIONARY FIRING concept. This ensures correct temperature profiles in the furnace and distinct process zones.

AUTORECOVERY continuously optimizes the control variables affecting air distribution and liquor droplet size based upon on-line measurements. The operator needs only to enter the desired production rate and AUTORECOVERY automatically adapts the control variables to optimize performance.

Built-in safeguards ensure that changes are not made too quickly or too often. Process limits are checked continuously to ensure that control actions will result in symmetrical, steady-state combustion.

Process zoning.

AUTORECOVERY controls black liquor droplet size and air distribution to create distinct process zones in the recovery boiler. This distinct process zoning results in:

- Maximum temperature in the lower furnace
- Minimum carbon carryover
- Maximum reduction degree
- Increased thermal efficiency
- Minimum TRS and SO_2 emissions

Drying Zone.

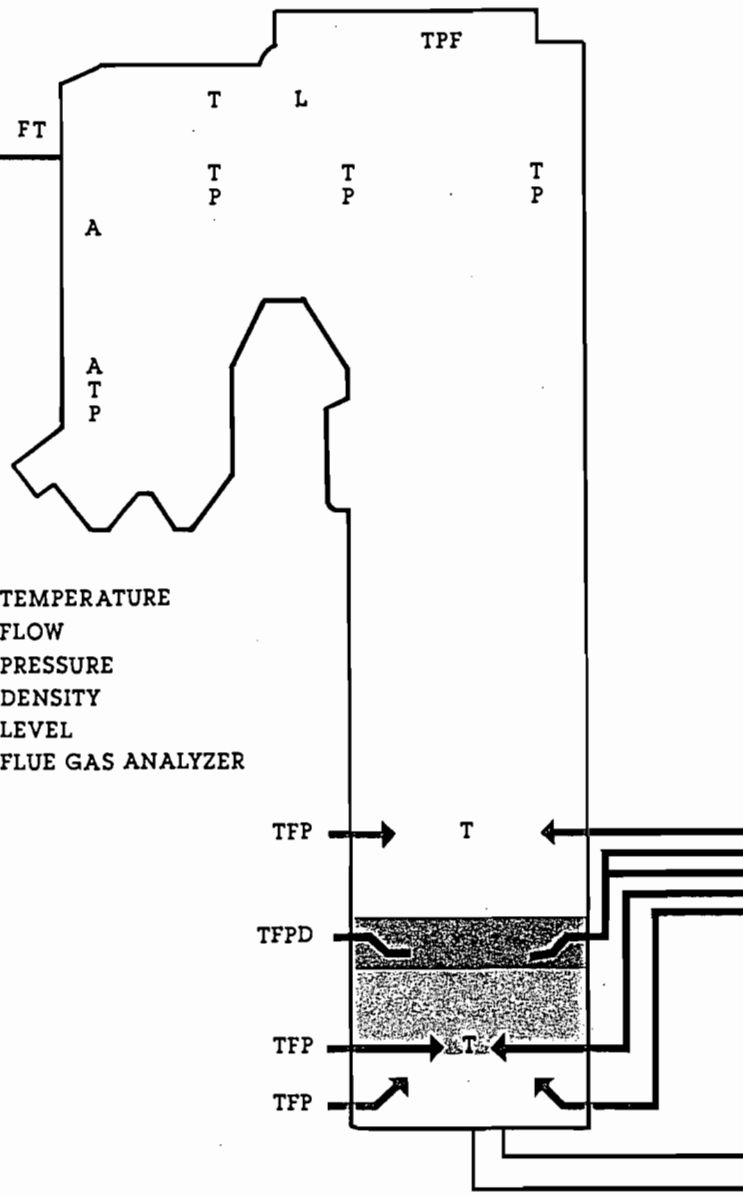
AUTORECOVERY introduces black liquor in a horizontal spray that covers the furnace cross-section uniformly at the elevation of the liquor guns. Drying is completed while the droplets are in suspension. The velocity of the liquor from the guns is such that no liquor deposits on the walls. Our specially designed non-oscillating guns provide a uniform, optimum droplet size. Drying is completed in the shortest vertical distance possible so that the liquor particle enters the Hot Zone at 100% solids content.

Hot Zone.

Pyrolysis and the burning of combustible gases takes place in the Hot Zone. AUTORECOVERY maintains this zone directly over the smelt bed to maximize the temperature in the lower furnace.

Bed Zone.

AUTORECOVERY forms a Bed Zone that contains a high carbon content while maintaining an active, porous bed.



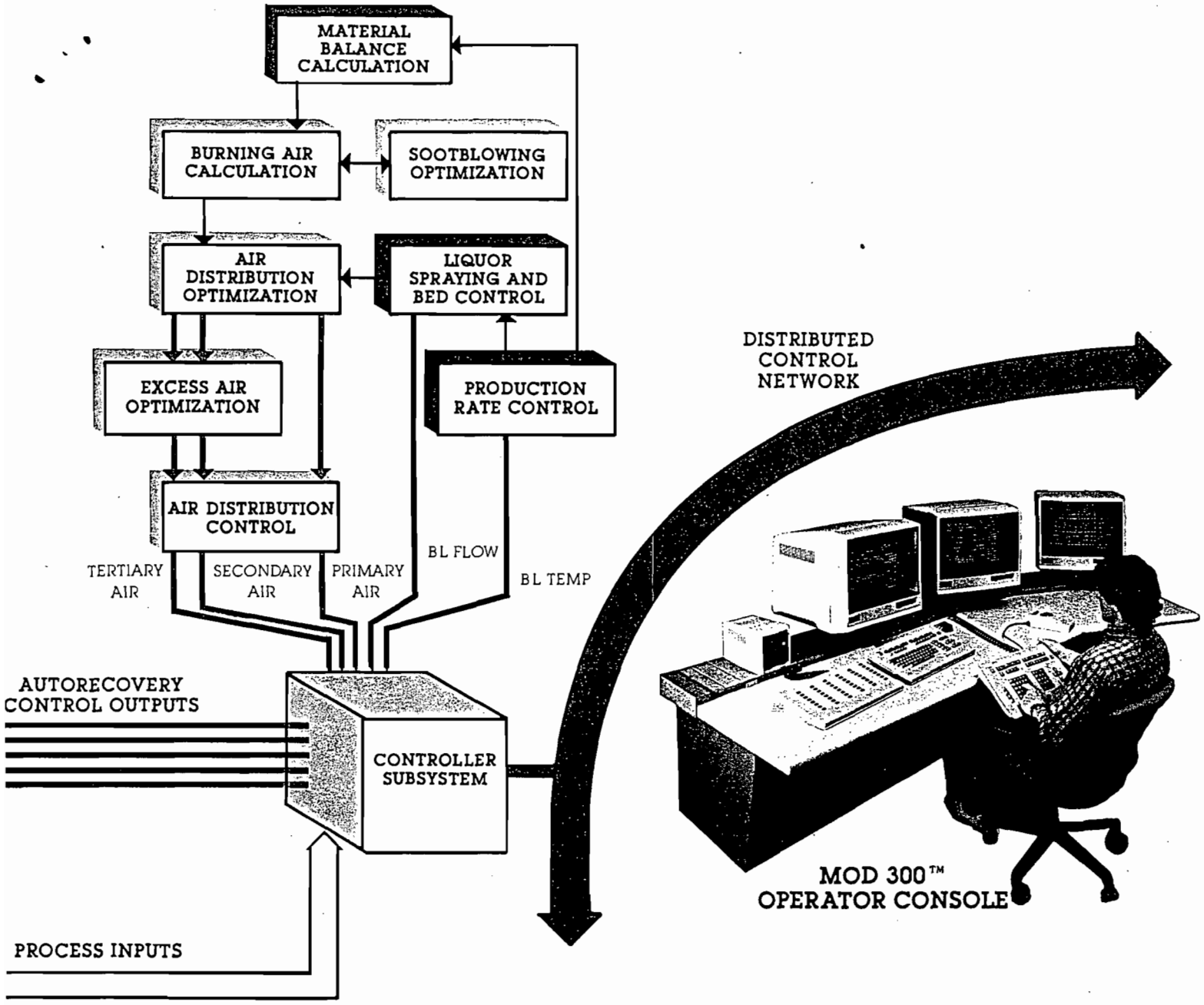
Material Balance Calculation.

Material balance calculations are performed on-line by AUTORECOVERY. This calculation is the model against which many process measurements are compared to determine the appropriate control action.

At start-up, we will enter the values determined by an elemental analysis of the components of black liquor, smelt, and flue gases. This provides the starting point for building a material balance model.

Process measurements such as flows, dry solids, temperatures, combustibles, excess oxygen, and dust are performed on-line to continuously update the model.

Changes in black liquor properties (i.e. Btu value, viscosity, and organic-to-inorganic ratio) are determined via feedback of temperature profile and flue gas measurements. Liquor droplet size and air distribution are then controlled to correctly position combustion in the furnace.



Air controls.

AUTORECOVERY's control of burning air is based upon calculations, limit-checks, and corrections at several "layers" of software before a control action is taken. This eliminates a "false" response to non-recurring process disturbances and keeps combustion steady-state. A combustion model is derived from actual process measurements and is continuously compared to the theoretical model.

Upon receipt of an operator-entered target for production rate, AUTORECOVERY computes and controls air flow—which is the basis for long-term optimization of the boiler.

From the material balance calculation, a theoretical total air demand is calculated. This is the amount of air required to burn black liquor, with a desired amount of excess oxygen present, for a given production rate.

This theoretical demand is compared to an actual burning air ratio (as determined from on-line measurements of excess oxygen). Short term variations are compensated for by adjustments to air distribution at the secondary and tertiary air levels. Longer term variations are compensated for by a re-alignment of air distribution at all three air levels in the furnace.

Liquor controls.

Efficient combustion depends upon a thorough understanding of, and compensation for, the properties of black liquor. By controlling the viscosity of the liquor, the correct droplet size and position within the furnace is achieved.

AUTORECOVERY monitors and controls black liquor temperature to maintain the proper viscosity —thereby ensuring the optimum droplet size.

Any changes in viscosity also affect air distribution within the furnace. AUTORECOVERY's multi-variable control strategy ensures that variations are compensated for using both air and liquor controls.

Every recovery boiler will benefit from STATIONARY FIRING and AUTORECOVERY. Here's proof:

Case Study #1

Boiler: Ahlstrom

Capacity (Dry BL solids/day)

Design	930,000
Maximum before AUTORECOVERY	1,100,000

Modifications Required:

- Liquor header
- STATIONARY FIRING with special nozzle
- Fan upgrade

Results after AUTORECOVERY:

Capacity Increase	**25%**
Sulfate Reduction Increase	**3%**
Sootblowing Steam	**10%**

Case Study #12

Boiler: Combustion Engineering

Capacity (Dry BL solids/day)

Design	1,500,000
Maximum before AUTORECOVERY	1,750,000

Modifications Required:

- Additional air level
- STATIONARY FIRING with special nozzle
- Liquor header
- New fan

Results after AUTORECOVERY:

Capacity Increase	**9%**
Sulfate Reduction Increase	**4%**
Sootblowing Steam	**−46%**

Case Study #6

Boiler: Gotaverken

Capacity (Dry BL solids/day)

Design	2,400,000
Maximum before AUTORECOVERY	2,600,000

Modifications Required:

- Number and location of liquor guns changed
- STATIONARY FIRING with special nozzle

Results after AUTORECOVERY:

Capacity Increase	**6%**
Sulfate Reduction Increase	**1%**
Sootblowing Steam	**−41%**

Case Study #16

Boiler: Babcock & Wilcox

Capacity (Dry BL solids/day)

Design	1,800,000
Maximum before AUTORECOVERY	2,000,000

Modifications Required:

- Added liquor guns
- STATIONARY FIRING with special nozzle
- New fan

Results after AUTORECOVERY:

Capacity Increase	**10%**
Sulfate Reduction Increase	**3%**
Sootblowing Steam	**−20%**

Case Study #19

Boiler: Tampella

Capacity (Dry BL solids/day)

Design	2,300,000
Maximum before AUTORECOVERY	1,850,000

Modifications Required:

- STATIONARY FIRING with special nozzle

Results after AUTORECOVERY:

Capacity Increase	**No Bottleneck**
Sulfate Reduction Increase	**2%**
Sootblowing Steam	**−35%**

Dramatically reduce sootblowing steam consumption and boiler fouling with Sootblowing Optimization.

In order to decrease sootblowing steam consumption, two criteria must be met: 1) proper operation of the boiler to minimize carbon carryover, lower temperatures in the upper furnace, and a high dust pH; and 2) sootblowing on an as-needed basis.

Conventional sootblowing systems function on a pre-determined schedule—irrespective of the amount of fouling that has taken place in the boiler. This results in excessive steam consumption at one extreme and boiler fouling/blockage at the other.

Performance monitoring.

AUTORECOVERY measures actual short and long term fouling by monitoring fouling criteria:

- Pressure drops
- Heat transfer coefficient
- Temperature differences
- Steam temperature
- Load of I.D. fans
- Elapsed time

AUTORECOVERY takes into consideration the production rate and dust load. Calculations are performed to determine the relative percentages of short and long term fouling in each section. In this way, the precise time and section requiring sootblowing is determined.

Controlled sootblowing.

Each group of sootblowers is operated independently on the most efficient schedule for that particular section of the boiler.

If more than one section should require attention simultaneously, AUTORECOVERY operates on a set of priorities to determine the most cost-effective and safest sequence. Operators can adjust priorities for each section, and reconfigure sections, based upon actual operating experience.

Sootblowing Optimization is adaptive in that the sootblowing criteria change relative to changes in the fire-side operation.

NOKIA/ COMBUSTION ENGINEERING

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Reply to: **Containerboard Mill Division**
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P.O. BOX 150
JACKSONVILLE, FL 32201
TELEPHONE: 904/353-3611

November 9, 1987

Federal Express

Mr. Stephen Smallwood, P.E.
Chief, Bureau of Air Quality Management
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301-86317

Subject: Air Construction Permit Application
Total Reduced Sulfur Emission
Smelt Dissolving Tank
Jefferson Smurfit Corporation
Jacksonville Mill

Dear Mr. Smallwood:

Enclosed are four copies of an Air Construction Permit Application for the smelt dissolving tank at the Jefferson Smurfit Corporation mill in Jacksonville. Also enclosed is the $1,000 permit application fee.

The project described in this construction permit is proposed in order to achieve compliance with the Department's TRS emission regulations as found in Chapter 17-2.600(4)(C) FAC. Enclosed with this application is an overview of the Company's overall TRS compliance program for the Jacksonville mill.

In order to meet the compliance date provided by the Department's rule, a timely consideration of this application will be extremely critical.

If you have any questions, please call Jerry Cox or Gene Tonn at 904/353-3611 or write to me at the above address.

Very truly yours,

J. Franklin Mixson
Vice President and
General Manager
Jacksonville Mill

JFM/mt

Enclosure

cc: Khurshid Mehta, P.E.
Jacksonville BESD

TRS COMPLIANCE PLAN

JEFFERSON SMURFIT CORPORATION

JACKSONVILLE, FLORIDA

NOVEMBER 1987

OVERVIEW
OVERALL TRS COMPLIANCE PROGRAM
JEFFERSON SMURFIT CORPORATION
JACKSONVILLE MILL

Jefferson Smurfit Corporation (JSC) of Jacksonville, Florida is proposing several changes at its existing pulp mill in order to achieve compliance with the Department of Environmental Regulation's total reduced sulfur (TRS) regulations as found in Chapter 17-2.600(4)(c)(FAC). The changes include replacement of existing equipment, addition of new equipment, and destruction of non-condensible TRS gases in an existing lime kiln. Specifically, the following changes are proposed:

- Replacement of the existing digesting system, which consists of six (6) batch digesters and associated blow tank, accumulator and turpentine condenser, with five (5) new batch digesters, new blow tank, new accumulator tank and new turpentine condenser. Non-condensible TRS gases from these sources will be collected and incinerated in the existing No. 3 Lime Kiln.

- Improvements to the combustion air distribution system and liquor firing and computer aided process control in the No. 9 Recovery Boiler to achieve continuous compliance with the 17.5 ppm TRS standard.

- Replacement of the existing water spray/demister pad on the Smelt Dissolving Tank vent with a new wet scrubber. The new wet scrubber will be designed to achieve compliance with the TRS standard for smelt dissolving tanks.

Air Construction Permit applications have been prepared for each of these sources.

Other TRS sources at the JSC mill are already in compliance with Federal and/or State TRS rules. These include the Multiple Effect Evaporator system (TRS emissions incinerated in No. 3 Lime Kiln), Black Liquor Oxidation system (TRS emissions incinerated in No. 10 Power Boiler), Brown Stock Washer system (TRS emissions incinerated in No. 10 Power Boiler), and the No. 3 Lime Kiln. An air

construction permit application for the No. 3 Lime Kiln will be submitted at a later date to reflect the incineration of non-condensible TRS gases from the new digester system. The overall TRS control program proposed by JSC is shown in the attached flow diagram (Figure 1).

JSC has previously submitted a Conceptual TRS Compliance Plan to FDER. The conceptual plan set forth a schedule of events which must be met in order to ensure compliance by the final compliance dates specified in Chapter 17-2.600(4)(c) (FAC). This schedule includes dates by which JSC must provide FDER with certification of purchase orders for major pieces of equipment. However, before purchase orders can be executed, air construction permits must be obtained from FDER. This requires FDER to complete review of the permit applications and issue construction permits by certain dates. The latest dates by which construction permits can be received and still meet the schedule set forth in the conceptual compliance plan are presented in Table 1. This date is January 12, 1988, for all sources.

Other pertinent dates set forth in the Conceptual TRS Compliance Plan are also shown in Table 1. Proof of final compliance for all sources is required by May 12, 1989. In order to allow sufficient time after May 12, 1989, to prepare and have approved air operating permits for the sources, it is requested that construction permit expiration dates be set no earlier than May 12, 1990.

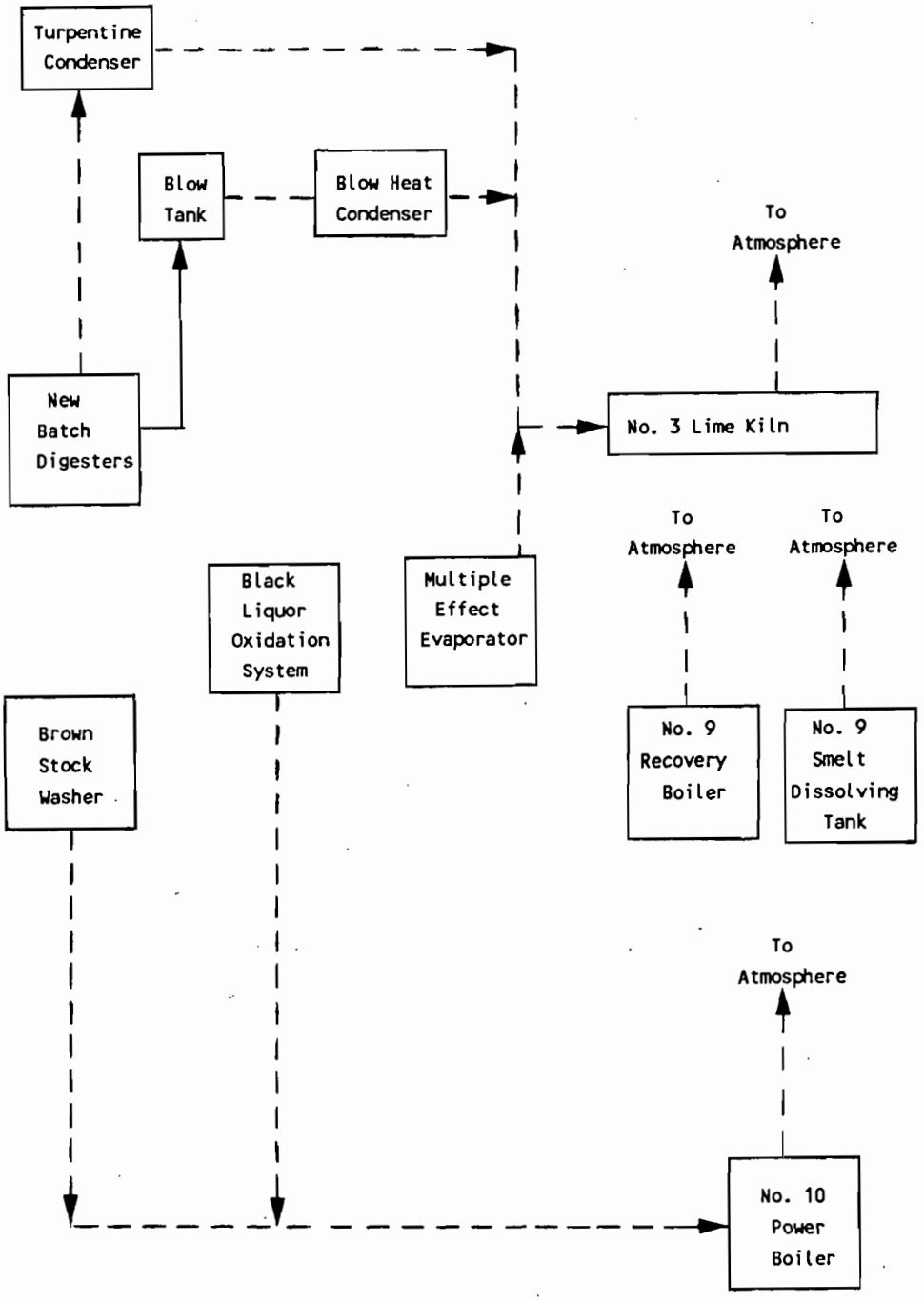


Figure 1. Overall TRS Compliance Program, Jefferson Smurfit Corporation

Table 1. Schedule for Achieving Compliance with TRS Regulations, JSC Jacksonville Mill

Source	Construction Permit Issued By	Certification of Equipment Order	Certification of Initial Construction	Completion of Construction	Proof of Final Compliance	Submit Operating Permit Application	Construction Permit Expiration Date
Digesting System	1/12/88	2/12/88	5/12/88	2/12/89	5/12/89	11/12/89	5/12/90
No. 9 Recovery Boiler	1/12/88	2/12/88	5/12/88	2/12/89	5/12/89	11/12/89	5/12/90
Smelt Dissolving Tank	1/12/88	2/12/88	5/12/88	2/12/89	5/12/89	11/12/89	5/12/90

Receipt # 76196
V# 142147
$1000.00
AC16-141870

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Smelt Dissolving Tank [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Jefferson Smurfit Corporation COUNTY: Duval

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Smelt Dissolving Tank

SOURCE LOCATION: Street 1915 Wigmore Street City Jacksonville

UTM: East Zone 7: 439.8 North 3359.4

Latitude 30 ° 22 ' 00 "N Longitude 81 ° 37 ' 30 "W

APPLICANT NAME AND TITLE: J. Franklin Mixson, Vice President & General Manager

APPLICANT ADDRESS: P.O. Box 150, Jacksonville, Florida 32201

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Jefferson Smurfit Corp.

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: J. F. Mixson

J. Franklin Mixson, Vice President & General Mgr
Name and Title (Please Type)

Date: 11/10/87 Telephone No. (904) 353-3611

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharg an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the prope maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed David a. Buff

David A. Buff
Name (Please Type)

KBN Engineering and Applied Sciences, Inc.
Company Name (Please Type)

P.O. Box 14288, Gainesville, Florida 32604
Mailing Address (Please Type)

Florida Registration No. 19011 Date: 11/9/87 Telephone No. (904) 375-8000

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attachment A

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction upon permit issuance Completion of Construction May 12, 1990

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

$150,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Permit:	AO16-100367	AO16-29896	AO16-2492
Issued:	5/29/85	5/1/80	10/17/75
Expires:	4/30/90	4/30/85	12/16/79

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52

if power plant, hrs/yr_____; if seasonal, describe:_____

F. If this is a new source or major modification, answer the following questions. (Yes or No) Not Applicable

1. Is this source in a non-attainment area for a particular pollutant? _____

   a. If yes, has "offset" been applied? _____

   b. If yes, has "Lowest Achievable Emission Rate" been applied? _____

   c. If yes, list non-attainment pollutants. _____

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. _____

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. _____

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? _____

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? _____

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? _____

   a. If yes, for what pollutants?_____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Smelt			96,240	1

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 96,240

2. Product Weight (lbs/hr): Green liquor

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
TRS	2.20	9.64	17-2.600 (4)(c)4.*	2.20*	2.20	9.64	2
PM	31.5	137.9	17-2.610(1)	31.5**	31.5	137.9	2

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from operating rate and applicable standard.

[4]Emission, if source operated without control (See Section V, Item 3).

* Emission standard is 0.0480 lb TRS/3000 lb BLS

** Based upon current operating permit for Smelt Dissolving Tank.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Venturi scrubber	TRS	93%	Not Applicable	See Att. B
(manufacturer not yet selected)	Particulates	95%	1 um and above	See Att. B

E. Fuels Not Applicable

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/ga

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average Not Applicable Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Scrubber water is recycled back into process.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 175 ft. Stack Diameter: 5.4 ft.

Gas Flow Rate: 33,900 ACFM 20,200 DSCFM Gas Exit Temperature: 160 °F.

Water Vapor Content: saturated % Velocity: 24.7 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

   SEE ATTACHMENT A

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

   SEE ATTACHMENT C

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

   SEE ATTACHMENT C

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

   SEE ATTACHMENT B

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

   SEE ATTACHMENT B

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

   SEE ATTACHMENT A

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

   ATTACHED

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

   ATTACHED

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Not Applicable

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft

c. Flow Rate: ACFM

d. Temperature: °F

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicabl use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and opera within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not b available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

Not Applicable

A. Company Monitored Data

1. _____no. sites _____ TSP _____( ) SO^2* _____ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from _____/_____/_____ to _____/_____/_____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

C. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

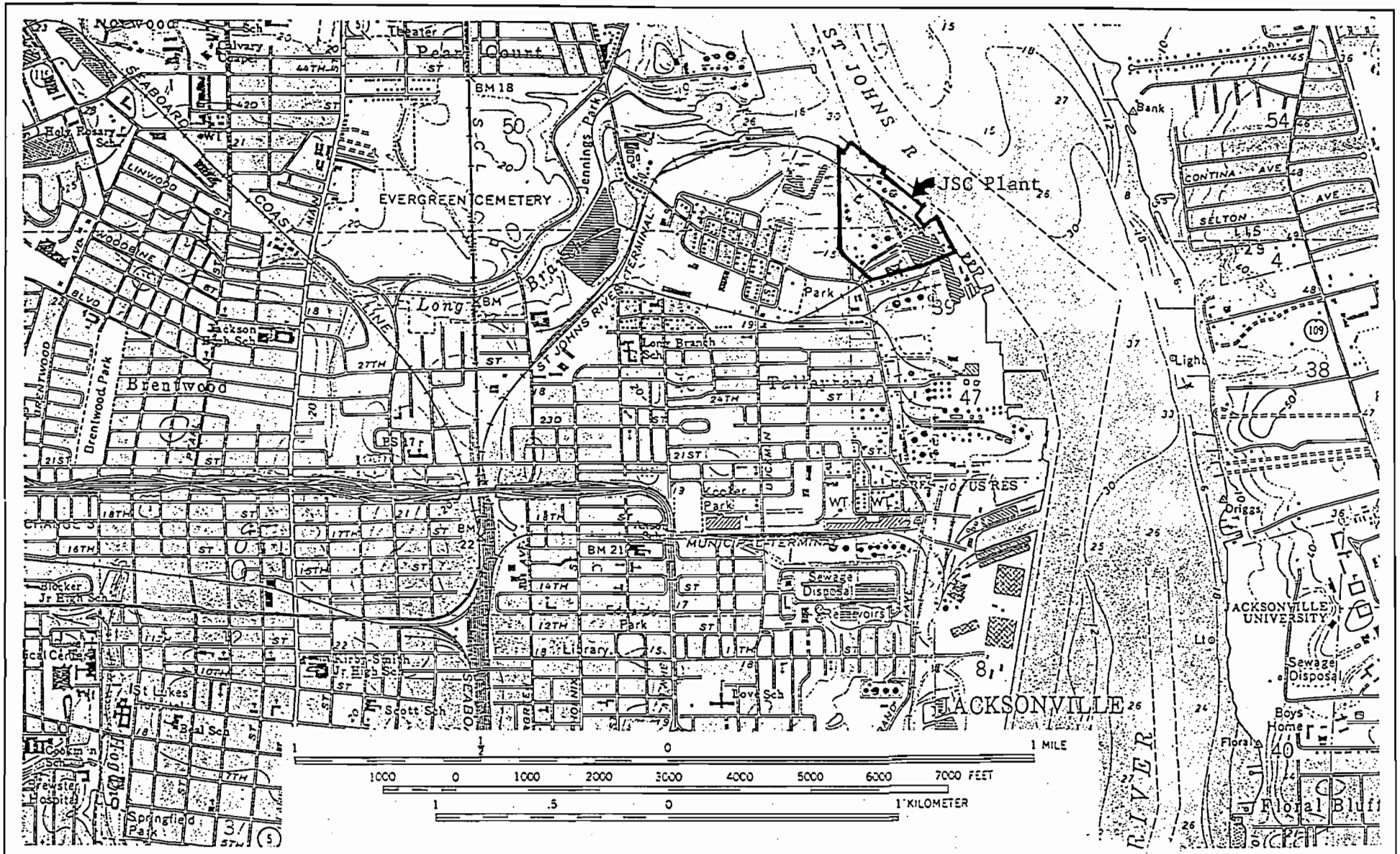
E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

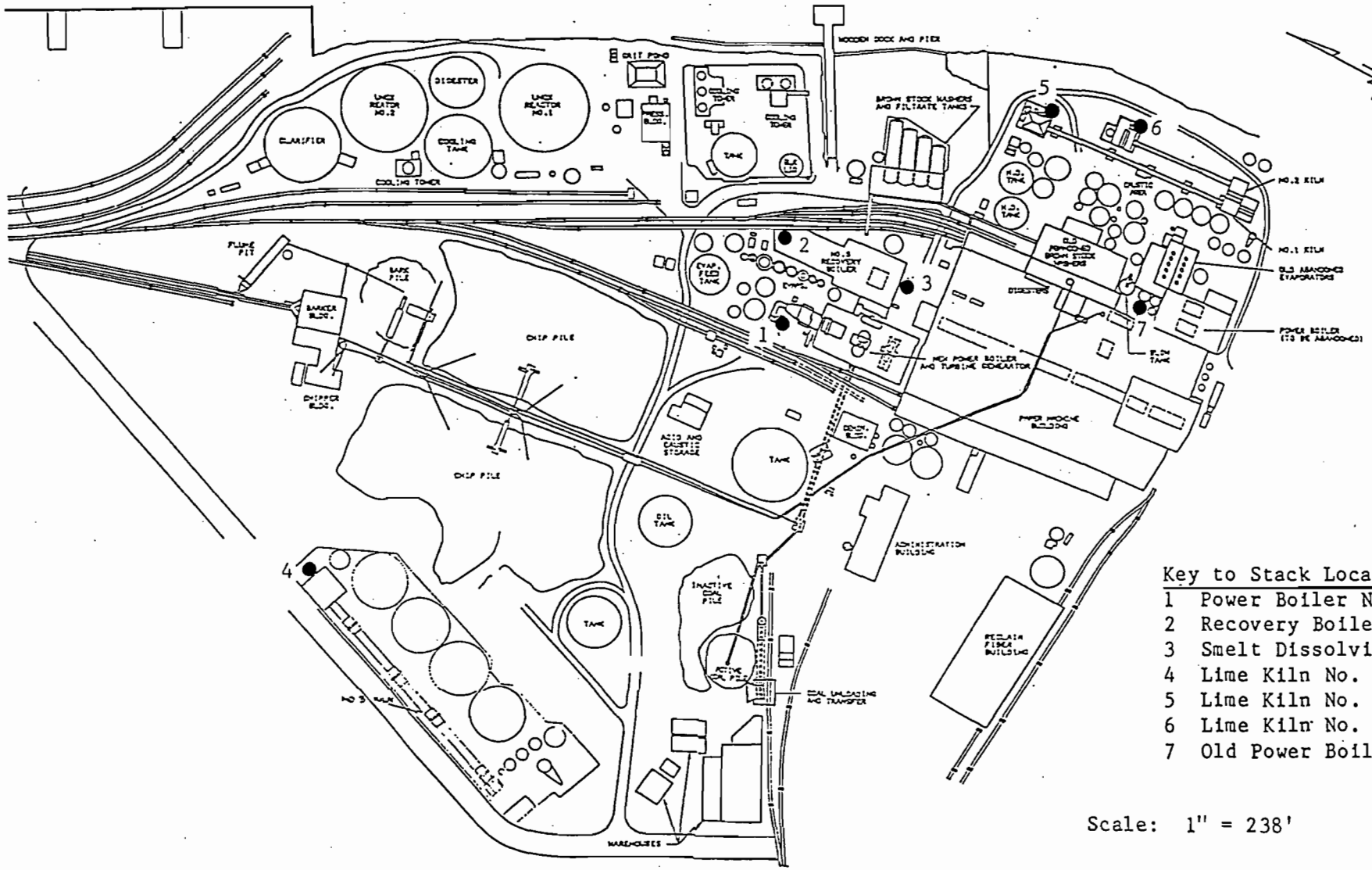
G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.



Site Location Map of Jefferson Smurfit Corporation

KBN



Plot Plan of Jefferson Smurfit Facility and Stack Locations

KBN

ATTACHMENT A
PROCESS DESCRIPTION

The existing Smelt Dissolving Tank (SDT) at Jefferson Smurfit Corporation (JSC) in Jacksonville has a demister pad to control particulate matter emissions. This demister pad will be replaced with a venturi scrubber/packed absorber for increased control of particulate emissions, and will also result in control of TRS emissions. No changes are being made to the SDT itself. The existing stack on the SDT will continue to be utilized after the scrubber installation. This scrubber installation is for the purpose of complying with the state of Florida TRS regulations [FAC Rule 17-2.600(4)(c)4], and is for pollution control purposes only. A flow diagram of the Smelt Dissolving Tank and proposed scrubber is presented in Figure A-1.

The current operating permit for the Smelt Dissolving Tank (AO-100367) limits PM emission to 31.5 lb/hr. This figure is based upon a black liquor solids firing rate in the recovery boiler of 2.882×10^6 lb/day. At a firing rate of 3.3×10^6 lb/day of black liquor solids, the smelt input to the Smelt Dissolving Tank is 96,240 lb/hr.

The scrubber manufacturer has not yet been selected. Generic scrubber design information and requirements are presented in Attachment B. When a scrubber manufacturer is selected, the following additional information will be provided to FDER.

- Pressure drop across scrubber
- Scrubbing liquid flow rate
- Sketch showing major dimensions of scrubber

In addition, if any information provided in this permit application changes as the result of selecting a specific scrubber, the permit application will be updated.

Rule 17-2.600(4)(c)4 requires that smelt dissolving tank vents comply with Rule 17-2.710, Continuous Monitoring Requirements. Rule 17-2.710(3), General Requirements-Kraft (Sulfate) Pulp Mills, does not require a continuous TRS emission monitoring system be installed on smelt dissolving tanks. Therefore, Rule 17-2.710(3)(c) requires that the source owner or operator develop a surrogate test parameter to be used to demonstrate that the source is complying with the TRS emission standard. JSC will develop the surrogate test parameter and rationale for selection of the parameter and will submit a surrogate test protocol as part of the air operating permit application for the smelt dissolving tank.

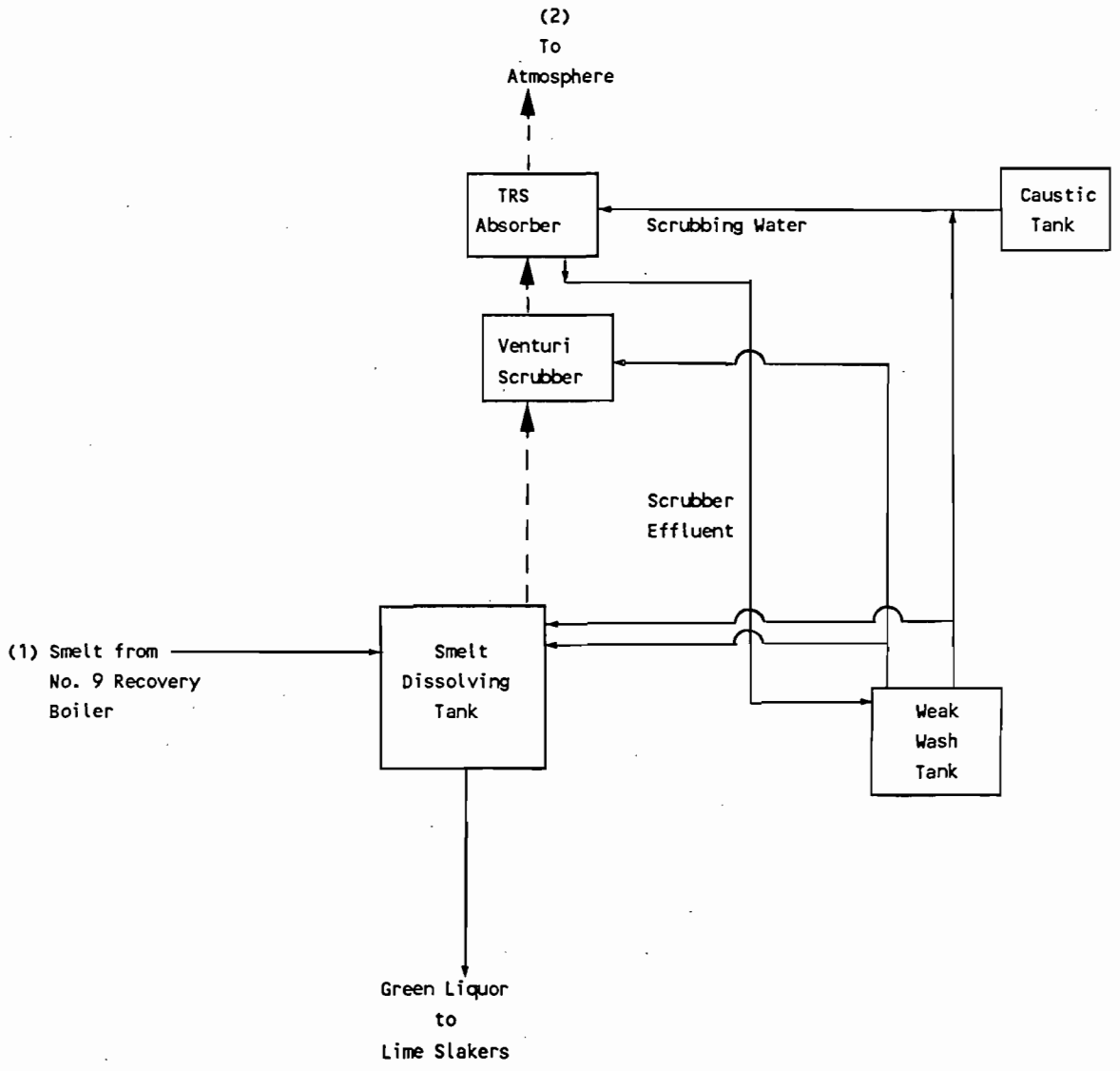


Figure A-1. Flow Diagram of JSC Smelt Dissolving Tank and Proposed Scrubbing System

ATTACHMENT B

SCRUBBER DESIGN INFORMATION

I. SMELT DISSOLVING TANK OUTLET/SCRUBBER INLET

Maximum flue gas flow rate = 35,000 acfm @ 180°F, saturated

Particulate loading (max) = 2.0 gr/ACF

TRS loading (max) = 200 ppm

Particulate at inlet to scrubber:

35,000 acfm x 2.0 gr/ACF / 7000 gr/lb x 60 min/hr = 600 lb/hr

Maximum TRS at inlet to scrubber:

35,000 acfm x 2116.8 lb_f/ft^2 / (1545/34) ft-lb_f/lb_m-°R / (180 + 460)°R

X $\frac{200}{10^6}$ = 0.51 lb/min = 30.6 lb/hr

II. SCRUBBER DESIGN DATA

A scrubber manufacturer has not yet been selected and therefore specific design information is not available. Therefore generic design data are presented. The scrubber will utilize weak wash as the scrubbing medium. Fresh water will be utilized when weak wash is not available. The scrubbing liquid will be recycled back to the weak wash tank. A caustic tank will provide makeup. The scrubber will contain a venturi section of the flooded elbow type, followed by a packed tower absorber section, and finally a mist eliminator.

Typical scrubber design parameters are as follows:

Pressure drop across scrubber	10-11" w.c.
Water rate to venturi section	260 gpm
Water rate to absorber section	350 gpm
Scrubbing liquid	weak wash

The scrubber/absorber must achieve, as a minimum, the maximum emission rates as shown in Attachment C. These are 31.5 lb/hr for particulate matter and 2.20 lb/hr for TRS. The scrubber removal efficiency required to achieve these emission levels at maximum capacity are based upon the uncontrolled emissions calculated in Item I above.

Particulate matter removal efficiency:

[(600 lb/hr - 31.5 lb/hr) / 600 lb/hr] x 100 = 95%

TRS removal efficiency:

[(30.6 lb/hr - 2.20 lb/hr) / 30.6 lb/hr] x 100 = 93%

ATTACHMENT C

EMISSION ESTIMATES

I. PARTICULATE MATTER

Maximum particulate emissions from the Smelt Dissolving Tank are based upon the permitted level of 31.5 lb/hr and 137.9 TPY contained in the current operating permit for the source (AO16-100367). This limit is based upon the Process Weight Table regulation [FAC Rule 17-2.610(1)] and a process input rate of 84,050 lb/hr (42.1 TPH) smelt. This allowable emission rate will not be exceeded even when operating at the higher process input rate shown in this application.

II. TOTAL REDUCED SULFUR

TRS emissions from the Smelt Dissolving Tank are limited by FAC Rule 17-2.600(4)(c)4 to 0.0480 lb/3000 lb BLS fed to the associated recovery boiler. The maximum BLS flow to the No. 9 Recovery Boiler is 3.3×10^6 lb/day.

3.3×10^6 lb/day / 24 hr/day x 0.0480 lb/3000 lb BLS
= 2.20 lb/hr

2.20 lb/hr x 8,760 hr/yr / 2000 lb/ton = 9.64 TPY