Check Sheet

Company Name: Georgia Pacific Corp Cross References:
Permit Number: No 5 Power Boiler Mod ☐
PSD Number: ☐
Permit Engineer: ☐

Application:

☐ Initial Application — Withdrawn

- ☐ Incompleteness Letters
- ☐ Responses
- ☐ Waiver of Department Action
- ☐ Department Response
- ☐ Other

Intent:

☐ Intent to Issue
☐ Notice of Intent to Issue
☐ Technical Evaluation
☐ BACT Determination
☐ Unsigned Permit
Correspondence with:
- ☐ EPA
- ☐ Park Services
- ☐ Other

☐ Proof of Publication

- ☐ Petitions - (Related to extensions, hearings, etc.)
- ☐ Waiver of Department Action
- ☐ Other

Final Determination:

☐ Final Determination
☐ Signed Permit
☐ BACT Determination
- ☐ Other

Post Permit Correspondence:

- ☐ Extensions/Amendments/Modifications
- ☐ Other

Georgia-Pacific Corporation

Palatka Operations
Southern Pulp & Paper
P.O. Box 919
Palatka, Florida 32178-0919
Telephone (904) 325-2001

April 8, 1992

Certified Mail

Mr. Clair H. Fancy, P.E.
Florida Department of
Environmental Regulation
2600 Blair Stone Rd.
Tallahassee, Fl. 32399-2400

Dear Mr. Fancy:

Re: Completeness Review of an Application Package to Modify No. 5 Power Boiler

The company has decided not to pursue the application to modify our No. 5 Power Boiler at this time so please withdraw our application for a modification of this source.

In regards to your queries concerning the increase in BTU/hr input, it is true that there have been improvements made to the boiler over the last 27 years since the unit was installed. These improvements, which were typically very minor, have to the best of our knowledge been made in accordance with the laws and permits as they existed at the time. In fact some of the changes which have occurred were made specifically to comply with environmental regulations.

If you have any further questions or if I can be of further service, please call me.

Sincerely,

Vernon L. Adams

Vernon L. Adams
Superintendent of
Environmental Affairs

cc: A. Hodges
D. Buff
C. S. Cooley
L. A. Diehl
H. Hirschman
W. R. Wilson
B. Mitchell
A. Rahmad
LHF/BA/PL

60
FY1 ~~210~~ ~~212~~ ~~211~~
bth

Georgia-Pacific

P. O. Box 919
Palatka, Florida 32078-0919

PALATKA APR-9'92 FLA.
U.S.POSTAGE 2.29

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

210

Mr. Clair H. Fancy, P. E.
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

P 617 884 142

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	Henry Hirschman
Street & No.	GA-Pacific
P.O., State & ZIP Code	Palatka, Fl
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	1-29-92 No. 5 Power Boiler Mod. Appl.

PS Form **3800**, June 1990

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

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

Consult postmaster for fee.

3. Article Addressed to:
Henry Hirschman, Gen. Mgr.
GA-PACIFIC CORP.
P.O. BOX 919
Palatka, Fl 32077

4a. Article Number
P 617 884 142

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

7. Date of Delivery 1/31/92

5. Signature (Addressee)
Ga-Pac Corp

6. Signature (Agent)
Johnny Bibbs

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

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

January 29, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Henry Hirschman, General Manager
Georgia-Pacific Corporation
P. O. Box 919
Palatka, Florida 32077

Dear Mr. Hirschman:

Re: Request Response to Incompleteness Letter of July 11, 1991
No. 5 Power Boiler Modification Application

The Department has not yet received a response to an incompleteness letter sent to you on July 11, 1991, regarding a request for a modification of the No. 5 Power Boiler received by the Northeast District office on June 13, 1991. As was stated before, and based on a technical evaluation of the application package and discussions with the Department's Northeast District and the U.S. EPA, Region IV, the application package is deemed incomplete. Please submit the following information, including all assumptions, reference material and calculations, and the status will, again, be ascertained:

1. Based on the "Summary Sheet" of the original design parameters from Babcock & Wilcox Company that accompanied your application package, the No. 5 Power Boiler's fuel related data was established for fuel oil and natural gas. It is apparent that there has been an increase in the Btu/hr heat input over that which it was originally designed to achieve, which indicates that there has been a physical modification made to the source (i.e., change to larger burners, pumps, etc.). Since there would be an actual emission change in pollutants, please calculate the previous actual emissions of all pollutants at the original physical boiler configuration. Where pollutant stack tests have been performed, please submit the synopsis page(s) of the compliance test(s) for validating the data used; and, the actual hours of operation shall be of the two previous years prior to the modification of the boiler.

2. The appropriate processing fee shall be submitted to the Department and is to be based on the net change of the previous actual pollutant emissions and the proposed allowable/potential pollutant emissions; and, it should be based on the worst-case scenario.

3. If the net emissions change of any pollutant is equal to or greater than the levels contained in Table 500-2 (Regulated Air Pollutants-Significant Emission Rates), Florida Administrative Code (F.A.C.) Chapter 17-2, then submit the appropriate information in accordance with F.A.C. Rule 17-2.500(5), Preconstruction Review Requirements for the Prevention of Significant Deterioration.

If there are any questions, please call Mr. Bruce Mitchell at 904-488-1344 or write to me at the above address.

Sincerely,

Barry D. Andrews

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

CHF/BM/rbm

c: A. Kutyna, NED
D. Buff, P.E., KBN
V. Adams, G-PC
G. Smallridge, Esq., DER

P 832 539 863

Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to	Mr. Henry Hirschman, G-P
Street & No.	P. O. Box 919
P.O., State & ZIP Code	Palatka, FL 32077
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date	Mailed: 7-11-91

PS Form **3800**, June 1990

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

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

Consult postmaster for fee.

3. Article Addressed to:

Mr. Henry Hirschman
General Manager
Georgia-Pacific Corporation
P. O. Box 919
Palatka, FL 32077

4a. Article Number
P 832 539 863

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

7. Date of Delivery

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form **3811**, October 1990 ☆U.S. GPO: 1990—273-861 **DOMESTIC RETURN RECEIPT**

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

July 11, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Henry Hirschman, General Manager
Georgia-Pacific Corporation
P. O. Box 919
Palatka, Florida 32077

Dear Mr. Hirschman:

Re: Completeness Review of an Application Package to Modify No. 5 Power Boiler

The Department has reviewed the application to modify the No. 5 Power Boiler received by the Northeast District office on June 13, 1991. Based on a technical evaluation of the application package and discussions with the Department's Northeast District and the U.S. EPA, Region IV, the application package is deemed incomplete. Please submit the following information, including all assumptions, reference material and calculations, and the status will, again, be ascertained:

1. Based on the "Summary Sheet" of the original design parameters from Babcock & Wilcox Company that accompanied your application package, the No. 5 Power Boiler's fuel related data was established for fuel oil and natural gas. It is apparent that there has been an increase in the Btu/hr heat input over that which it was originally designed to achieve, which indicates that there has been a physical modification made to the source (i.e., change to larger burners, pumps, etc.). Since there would be an actual emission change in pollutants, please calculate the previous actual emissions of all pollutants at the original physical boiler configuration. Where pollutant stack tests have been performed, please submit the synopsis page(s) of the compliance test(s) for validating the data used; and, the actual hours of operation shall be of the two previous years prior to the modification of the boiler.

2. The appropriate processing fee shall be submitted to the Department and is to be based on the net change of the previous actual pollutant emissions and the proposed allowable/potential pollutant emissions; and, it should be based on the worst-case scenario.

3. If the net emissions change of any pollutant is equal to or greater than the levels contained in Table 500-2 (Regulated Air Pollutants-Significant Emission Rates), Florida Administrative Code (F.A.C.) Chapter 17-2, then submit the appropriate information in accordance with F.A.C. Rule 17-2.500(5), Preconstruction Review Requirements for the Prevention of Significant Deterioration.

If there are any questions, please call Mr. Bruce Mitchell at 904-488-1344 or write to me at the above address.

Sincerely,

Barry D. Andrews

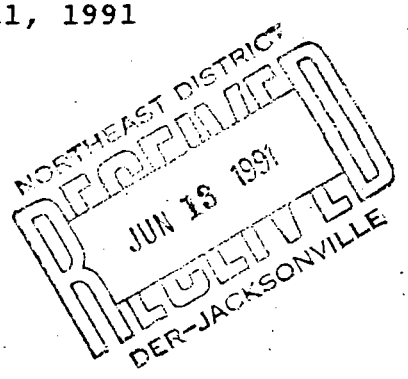
for C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/BM/plm

c: A. Kutyna, NED
D. Buff, P.E., KBN
V. Adams, G-PC
G. Smallridge, Esq., DER

Georgia-Pacific Corporation
Palatka Operations
Southern Pulp & Paper Division
P.O. Box 919
Palatka, Florida 32078-0919
Telephone (904) 325-2001

June 11, 1991



Certified Mail

Mr. Johnny Cole
Florida Department Of
Environmental Regulation
7825 Baymeadows Way
Suite B-200
Jacksonville, Florida 32256-7577

Dear Mr. Cole:

Please find enclosed an application to renew the operating permit for our Number 5 Power Boiler along with the required permit fee, also an application to amend the same permit is being submitted via this package. We request that the permit be amended to allow for the burning of natural gas as well as oil.

If you have any questions or if I can be of further service, please call me at 904-325-2001.

Sincerely,

Vernon L. Adams
Superintendent of
Environmental Affairs

cc: D. A. Buff
H. Hirschman
W. R. Wilson

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	Initial / Date
~~Barry Andrews, DARM~~ Bruce	
2. RECEIVED	Initial / Date
3. JUN 1 8 1991	Initial / Date
4. Division of Air Resources Management	Initial / Date

REMARKS:

Fa-Pacific #5 power boiler application to amend permit is enclosed.
It is forwarded for a processing decision.

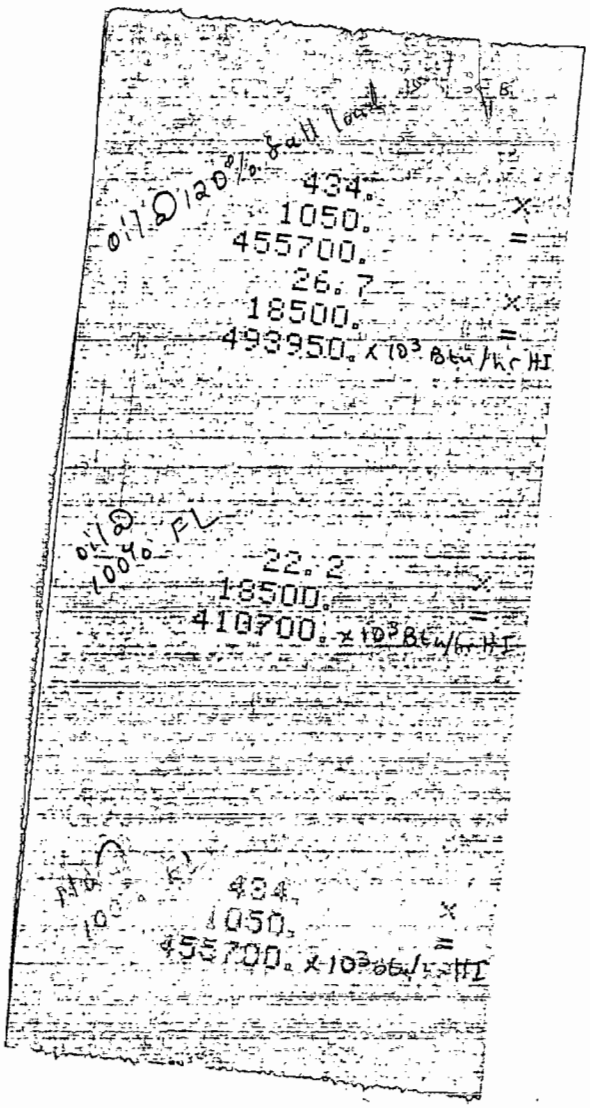
INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM: Johnny Cole

DATE 06-17-91

PHONE


8all
120%
434.
1050.
455700.
26.7
18500.
493950. x 10³ Btu/hr HI
100%
22.2
18500.
410700. x 10³ Btu/hr HI
434.
1050.
455700. x 10³ Btu/hr HI

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Fossil Fuel Boiler [ ] New[1] [x] Existing[1]

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

COMPANY NAME: Georgia-Pacific Corporation COUNTY: Putnam

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) No. 5 Power Boiler

SOURCE LOCATION: Street N. of SR 216; W. of U.S. 17 City Palatka

UTM: East 434.0 North 3283.4

Latitude 29 ° 41 ' 00 "N Longitude 81 ° 40 ' 45 "W

APPLICANT NAME AND TITLE: Mr. Henry Hirschman, General Manager

APPLICANT ADDRESS: P.O. Box 919, Palatka, Florida 32077

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Georgia-Pacific Corp.

I certify that the statements made in this application for a Modification 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: Henry Hirschman 6/6/91

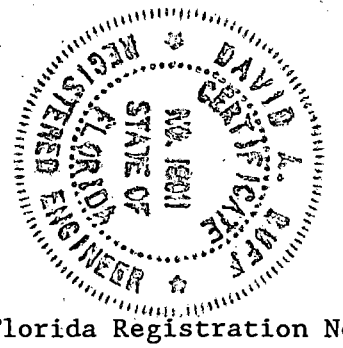
Mr. Henry Hirschman, General Manager
Name and Title (Please Type)

Date: _____ Telephone No. (904) 325-2001

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 judgement, that

[1]See Florida Administration 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)

1034 N.W. 57th St, Gainesville, FL 32605
Mailing Address (Please Type)

Florida Registration No. 19011 Date: May 30, 1991 Telephone No. (904) 331-9000

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.

Refer to Section 1.0 of the attached report.

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

Start of Construction July 1991 Completion of Construction July 1992

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.)

N/A

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

AO54-2071, issued 5/17/73, expired 11/30/75;

AO54-2631, issued 10/19/76,expired 9/31/81;

AO54-45320, issued 1/22/82, expired 9/30/86;

OGC 83-0803, dated 1/7/85;

AO54-124813, issued 1/7/87, expires 9/30/91

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;
If power plant, hrs/yr 8,760; 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 Deterioration" (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? No
   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		
Not applicable				

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

1. Total Process Input Rate (lbs/hr): Not applicable

2. Product Weight (lbs/hr): Not applicable

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	
See Section	4.0 of attachment						

[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 with~~out~~ control (See Section V, Item 3).

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 (existing)	PM	+99%	Submicron	Design

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
No. 6 Fuel Oil	3,902.5	3,902.5	568.9
Natural Gas	0.542	0.542	568.9

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

Fuel Analysis:

Percent Sulfur: Oil: 2.50/Gas: Neg. Percent Ash: Oil: ~0.1/Gas: Neg.

Density: Oil: 7.88 lbs/gal Typical Percent Nitrogen: Oil: 0.4/Gas: Neg.

Heat Capacity: Oil: 18,500 Btu/lb/Gas: 1,050 Btu/scf BTU/lb Oil: 145,780 BTU/gal

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

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

Annual Average NA Maximum _____

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

None generated.

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

Stack Height: 239 ft. Stack Diameter: 8.0 ft.

Gas Flow Rate: 237,677 ACFM 124,938 DSCFM Gas Exit Temperature: 444 °F.

Water Vapor Content: 10 % Velocity: 78.8 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type 0 (Plastics)	Type II (Rubbish)	Type III (Refuse)	Type IV (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 Diameter: _____ 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 devices: [ ] 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)]

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.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

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.)

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).

6. An 8 ½" 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.

7. An 8 ½" 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 (Examples: Copy of relevant portion of USGS topographic map).

8. An 8 ½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

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 Devices:

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 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:

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

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.

ATTACHMENT

1.0 INTRODUCTION

Georgia-Pacific Corporation (GP) operates a kraft pulp mill in Putnam County. The mill is located west of U.S. 17, north of S.R. 216, in Palatka, Florida. Currently, the GP facility consists of a recovery boiler, a smelt dissolving tank, a lime kiln, two power boilers, a combination boiler, and a TRS incinerator. Each of these units has valid operating permits from the Florida Department of Environmental Regulation (FDER). Currently, Nos. 4 and 5 power boilers are permitted to burn No. 6 fuel oil. Since initial construction, Power Boiler 5 (PB5) has had the capability to burn natural gas, lacking only the proper permit and fuel supply. GP proposes to amend its current permit to allow for the use of natural gas as fuel in PB5.

This report is provided as support to the attached permit application requesting that PB5 be permitted to burn natural gas as well as No. 6 fuel oil. Sections 2.0 and 3.0 of this report address the applicability of New Source Performance Standards (NSPS) and Prevention of Significant Deterioration (PSD). Emission calculations for fuel oil and natural gas are presented in Section 4.0.

2.0 APPLICABILITY OF NSPS

The general provisions of NSPS are addressed in 40 CFR 60, Subpart A--General Provisions, Section 60.1. Any owner or operator of any stationary source that contains an affected facility is affected by these provisions if the construction or modification is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility. "Affected facility" is defined, with reference to a stationary source, as any apparatus to which a standard is applicable. Standards have been clearly set in Subpart D--Standards of Performance Fossil-Fuel-Fired Steam Generators, and are applicable to steam generating units constructed or modified after August 17, 1971, with heat input greater than 250 MMBtu/hr. Additional standards have been set in Subpart Db--Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units and are applicable to new or modified steam generating units with heat input greater than 100 MMBtu/hr. The maximum heat input for PB5 is 568.9 MMBtu/hr.

In Subpart A, Section 60.2, "modification" is defined as a physical change in, or change in the method of operation of, an existing facility that increases the amount of any air pollutant (to which a standard applies) emitted to the atmosphere by that facility or which results in the emission of any pollutant (to which a standard applies) into the atmosphere not previously emitted. Subpart A, Section 60.14, further explains the term "modification" and specifically defines physical changes and operations not considered to be modifications under this definition in paragraph (e). Paragraph (e)(4) states: " Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by section 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change."

In Subpart Db, standards have been set for sulfur dioxide, particulate matter, and nitrogen oxides. As presented in Section 4.0 of this report, no increase in the emissions of these pollutants is anticipated for this project. Furthermore, PB5 was designed to, and has always been physically capable of, burning natural gas (refer to attached original boiler specification sheet). The use of an alternative fuel is not considered a "modification" as defined in Subpart A, Section 60.14, paragraph (e)(4), if the unit was already capable of accommodating the alternative fuel. Therefore, this project is not subject to NSPS.

3.0 APPLICABILITY OF PSD

Under federal PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and approved by the U.S. Environmental Protection Agency (EPA) (in this case, reviewed and approved by FDER since PSD review authority has been delegated to the state). A "major stationary source" is defined as any one of 28 named source categories that has the potential to emit 100 tons per year (TPY) or more, or any other stationary source that has the potential to emit 250 TPY or more, of any pollutant regulated under CAA. PB5 is such a source. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. A "major modification" is defined under PSD regulations as a change at an existing major stationary source that increases emissions by greater than "significant amounts."

The federal and state of Florida PSD review requirements specifically exempt from PSD review a modification that involves only the use of an alternative fuel as long as the facility was capable of accommodating that fuel before January 6, 1975 [Section 17-2.500(c)(4))]. As discussed, PB5 was constructed before May 17, 1973, and was designed to burn natural gas as well as oil. GP requests that it be permitted to burn oil with natural gas as an alternative fuel; therefore, this project is exempt from PSD review.

4.0 EMISSION CALCULATIONS

Annual and short-term emissions for No. 6 fuel oil and natural gas combustion are presented in Table 4-1. Particulate matter and sulfur dioxide emissions for oil combustion are based on specific permit conditions established in Operating Permit AO54-124813, dated January 7, 1987. GP requests no increase in emissions of pollutants over those established in its current permit. All other pollutant emissions are based on emission factors from the documents referenced in the table.

Table 4-1. Emission Calculations for Gas and Oil Combustion, No. 5 Power Boiler 4/2/91

Regulated Pollutant	No. 6 Fuel Oil					Natural Gas				
	Emission Factor	Ref.	Activity Factor	Hourly Emissions (lb/hr)	Annual Emissions (TPY)	Emission Factor	Ref.	Activity Factor	Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate (TSP)	0.1 lb/MM BTU	1	568.9 MM Btu/hr	56.9	249.2	5 lb/MM scf	3	0.542 MM scf/hr	2.7	11.9
Particulate (PM10)	0.1 lb/MM BTU	2	568.9 MM Btu/hr	56.9	249.2	5 lb/MM scf	3	0.542 MM scf/hr	2.7	11.9
Sulfur dioxide	2.75 lb/MM Btu	1	568.9 MM Btu/hr	1564.5	6852.4	0.6 lb/MM scf	3	0.542 MM scf/hr	0.3	1.4
Nitrogen oxides	67 lb/1000 gal	3	3,902.5 gal/hr	261.5	1145.2	482 lb/MM scf	7	0.542 MM scf/hr	261.5	1145.2
Carbon monoxide	5 lb/1000 gal	3	3,902.5 gal/hr	19.5	85.5	40 lb/MM scf	3	0.542 MM scf/hr	21.7	95.0
Volatile org. compds.	0.76 lb/1000 gal	3	3,902.5 gal/hr	3.0	13.0	1.4 lb/MM scf	3	0.542 MM scf/hr	0.8	3.3
Lead	28 lb/10^12 Btu	4	568.9 MM Btu/hr	0.0159	0.0698	--		--	--	--
Mercury	2.4 lb/10^12 Btu	4	568.9 MM Btu/hr	0.0014	0.0060	11.3 lb/10^12 Btu	6	568.9 MM Btu/hr	0.0064	0.0282
Beryllium	0.59 lb/10^12 Btu	5	568.9 MM Btu/hr	0.0003	0.0015	--		--	--	--
Arsenic	2.28 lb/10^12 Btu	4	568.9 MM Btu/hr	0.0013	0.0057	--		--	--	--
Fluorides	347 lb/10^12 Btu	6	568.9 MM Btu/hr	0.1974	0.8646	--		--	--	--
Sulfuric acid mist	1 lb/1000 gal	3	3,902.5 gal/hr	3.9	17.1	--		--	--	--
Total reduced sulfur	--		--	--	--	--		--	--	--
Asbestos	--		--	--	--	--		--	--	--
Vinyl Chloride	--		--	--	--	--		--	--	--

Notes: Maximum heat input is 568.9 MM Btu/hr, and 4.984x10^12 Btu/yr

Fuel properties: No. 6 Fuel Oil - 145,780 Btu/gal
Natural gas - 1,050 Btu/scf

Maximum No. 6 Fuel Oil consumption:
568.9 MM Btu/hr / 145,780 Btu/gal = 3,902.5 gal/hr
= 34.19 MM gal /yr

Natural gas consumption:
568.9 MM Btu/hr / 1,050 Btu/scf = 541,810 scf/hr
= 4,746.3 MM scf/yr

References/Notes:

1. Based on current operating permit for Power Boiler 5.
2. Assumes PM10 emissions are the same as TSP emissions calculated from permit conditions.
3. Compilation of Air Pollutant Emission Factors, AP-42, September 1988.
4. Toxic Air Pollutant Emission Factors- A Compilation For Selected Air Toxic Compounds and Sources, Second Edition. EPA-450/2-90-011 (1990).
5. Estimating Air Toxics Emissions From Coal and Oil Combustion Sources. EPA-450/2-89-001 (1989).
6. Emissions Assessment of Conventional Stationary Combustion Systems: Volume III External Combustion Sources For Electricity Generation. PB81-145195 (1981).
7. Emission factor assumes NOx emissions due to natural gas combustion to be no greater than those for oil combustion.

805-792-2

A FUEL AS FIRED

SOURCE: SAMPLES; ANALYSES SPECIFIED

SOLID
- KIND
- A.S.T.M. CLASS
- A.S.T.M. GROUP
- SOURCE: MINE, SEAM, DISTRICT, COUNTY, STATE
- SIZE
- GRINDABILITY
- SURFACE MOIST., %
- PROX. ANAL. %: MOISTURE, VOL. MATTER, FIXED CARBON, ASH, TOTAL

ASH TEMP F

	REDUCING	OXIDIZING
INIT DEF		
SOFTENING		
LIQUID		

LIQUID
- KIND BUNKER C OIL
- GRAVITY, DEG A.P.I.

GASEOUS
- KIND NATURAL GAS
- SP GR RFL TO AIR
- FUTURE

ULTIMATE ANALYSES

	FUEL OIL	N.G
% BY		
ASH		
S	2.7	
H_2	10.3	
C	85.3	
CH_4		95.40
C_2H_6		0.08
C_3H_8		3.46
CO		
CO_2		0.61
SO_2		
H_2O		
N_2	0.7	0.45
O_2		
TOTAL	100.0	100.00
BTU/LB	18400	21824
BTU/CU FT AT 60 F. 30 IN. HG		1000

B PREDICTED PERFORMANCE

STEAM, ACTUAL, M LB/HR	350	420	350	
			FUT.	
TYPE OF FUEL	OIL	OIL	N.G.	
RATE AND LOAD DURATION, HR	CONT.	MAX. CONT.	CONT.	
% FULL LOAD	100	120	100	
EXCESS AIR LEAVING BLR %	7	7	7	
BURNERS, NO. IN USE PER FURNACE	6	6	6	
QUANTITIES M LB/HR: CONTINUOUS BLOWDOWN	0	0	0	
QUANTITIES M LB/HR: FUEL (GAS MCFH)	22.2	26.7	434	
QUANTITIES M LB/HR: FLUE GAS LEAVING BLR.	358	432	357	
QUANTITIES M LB/HR: AIR LEAVING A H.	326	393	331	
PRESSURES LB/SQ IN.: STEAM AT S H OUTLET	1275	1275	1275	
PRESSURES LB/SQ IN.: MIN OPER IN BOILER DRUM	1341	1370	1341	
PRESSURES LB/SQ IN.: DROP, DRUM TO S H OUTLET	66	95	66	
PRESSURES LB/SQ IN.: DROP THRU ECON				
TEMPERATURES F: SUPERHEATED STEAM	900	900	900	
TEMPERATURES F: FLUE GAS LEAVING BLR	710	745	720	
TEMPERATURES F: FLUE GAS LEAVING ECON				
TEMPERATURES F: FLUE GAS LEAVING A H	400	425	410	
TEMPERATURES F: WATER ENTERING ECON				
TEMPERATURES F: WATER ENTERING BLR	445	445	445	
TEMPERATURES F: AIR ENTERING A H	80	80	80	
TEMPERATURES F: AIR LEAVING A H	453	470	452	
DRAFT LOSSES IN. OF WATER: FURNACE				
DRAFT LOSSES IN. OF WATER: BOILER AND SUPERHEATER	0.7	1.0	0.7	
DRAFT LOSSES IN. OF WATER: ECONOMIZER				
DRAFT LOSSES IN. OF WATER: AIR HEATER	3.7	5.3	3.7	
DRAFT LOSSES IN. OF WATER: DAMPERS				
DRAFT LOSSES IN. OF WATER: FLUES	0.6	0.8	0.6	
DRAFT LOSSES IN. OF WATER: NET DRAFT LOSS				
AIR RESISTANCE IN. OF WATER: BURNERS AND WINDBOX	3.2	4.6	3.3	
AIR RESISTANCE IN. OF WATER: DUCTS & S.C.A.H.	1.3	1.8	1.3	
AIR RESISTANCE IN. OF WATER: AIR HEATER	4.0	5.7	4.1	
AIR RESISTANCE IN. OF WATER: NET RESISTANCE	13.5	19.2	13.7	
HEAT LOSSES %: DRY GAS	6.24	6.74	5.71	
HEAT LOSSES %: H_2 AND H_2O IN FUEL	5.50	5.54	11.21	
HEAT LOSSES %: MOISTURE IN AIR	0.16	0.11	0.16	
HEAT LOSSES %: UNBURNED COMBUSTIBLE	0.0	0.0	0.0	
HEAT LOSSES %: RADIATION	0.36	0.30	0.26	
HEAT LOSSES %: UNACC FOR & MFRS. MARG	1.00	1.00	1.00	
HEAT LOSSES %: TOTAL HEAT LOSS	13.76	13.95	18.44	
EFFICIENCY OF UNIT, %	86.24	86.05	81.56	
MAX ALLOWABLE BOILER CONC, PPM	1000	1000	1000	
SOLIDS IN STEAM, PPM	1	1	1	

PULVERIZER AND FEEDER
- NO. IN USE PER FURNACE
- AIR TEMP TO PULV, F
- MOTOR OUTPUT, KW HR/TON
- % THRU NO. 200 U.S. SIEVE
- % THRU NO. 50 U.S. SIEVE

C PRESSURIZED

BOILER
- TYPE STIRLING
- NO. OF BOILERS 1 | HE
- DESIGN PRESSURE, LB/SQ IN
- # INCLUDES 363

SUPERHEATER
- TYPE CONTINUA
- GAS PASSES
- SPRAY ATT
- CONTROL

ECONOMIZER
- TYPE
- DESIGN PRESSURE, LB/SQ IN.

AIR HEATER
- TYPE TUBULA
- GAS PASSES

FUEL BURNER
- TYPE CIRCULAR
- STOKER, WIDTH, FT
- REQUIRED AT BURNER: OIL, VISCOSITY
- GAS, PRESSURE, IN

* ARRANGMENT OF BU
FOR OMISSION OF I.D.F

PULVERIZER
- TYPE
- NO./FURNACE | NO
- FEEDER TYPE

FURNACE VOLUME AND WALL AREAS
- WIDTH AT BURNERS, FT 15'
- TOTAL VOL, CU FT 12 6
- TYPE / WALL
- TOTAL AREA, SQ FT

F-D FAN
- NET REQUIREMENTS, 404
- TEST BLOCK SPECIFICATIONS, S

I-D FAN
- NET REQUIREMENTS,
- TEST BLOCK SPECIFICATIONS,

STACK
- HEIGHT ABOVE GAS OUTLET FROM
- CONSTRUCTION

DRIVES

EQUIPMENT	H P

PULVERIZER SIZE BASED ON % THRU NO. 200 U.S. SIEVE AND GRINDABILITY. FOR % SURFACE MOISTURE THE REQUIRED AIR TEMPERATURE IS

EXPECTED PERFORMANCE IS BASED ON COMBUSTION AIR ENTERING UNIT AT 80 F. 60% RELATIVE HUMIDITY. 0.013 LB MOISTURE/LB DRY AIR, 29.92 IN. HG BAROMETRIC PRESSUR

ON CONDITIONS AND EQUIPMENT GIVEN ON THIS SUMMARY SHEET, AND ON ARRANGEMENT SHOWN ON DRAWING P7-1094-42

BY N. C. KELLOGG | CHKD | APPD

3 | 3/18/64

SUMMARY SHEET
THE BABCOCK & WILCOX CO.

P7-1094-420-1S

SDM 3255 A

STEAM, ACTUAL, M LB/HR		350	420	350		
				FUTURE		
TYPE OF FUEL		OIL	OIL	NAT. GAS		
RATE AND LOAD DURATION, HR		CONT.	MAX CONT.	CONT.		
% FULL LOAD		100	120	100		
EXCESS AIR LEAVING BOILER %		7	7	7		
BURNERS, NO. IN USE PER FURN.		6	6	6		
QUANTITIES M LB/HR	CONTINUOUS BLOWDOWN	0	0	0		
	FUEL (GAS MCFH)	(22.2)	(26.7)	434		
	FLUE GAS LEAVING BOILER	358	432	357		
	AIR LEAVING A H	326	393	331		
PRESSURES LB/SQ IN	STEAM AT S H OUTLET	1275	1275	1275		
	MIN OPER IN BOILER DRUM	1341	1370	1341		
	DROP, DRUM TO S H OUTLET	66	95	66		
	DROP THRU ECON					
TEMPERATURES F	SUPERHEATED STEAM	900	900	900		
	FLUE GAS LEAVING BLR	710	745	720		
	FLUE GAS LEAVING ECON					
	FLUE GAS LEAVING A H	400	425	410		
	WATER ENTERING ECON					
	WATER ENTERING BLR	445	445	445		
	AIR ENTERING A H	80	80	80		
	AIR LEAVING A H	453	470	452		
DRAFT LOSSES IN. OF WATER	FURNACE					
	BOILER AND SUPERHEATER	0.7	1.0	0.7		
	ECONOMIZER					
	AIR HEATER	3.7	5.3	3.7		
	DAMPERS					
	FLUES	0.6	0.8	0.6		
	NET DRAFT LOSS					
AIR RESIS. IN. OF WATER	BURNERS AND WINDBOX	3.2	4.6	3.5		
	DUCTS & S.C.A.H.	1.3	1.8	1.3		
	AIR HEATER	4.0	5.7	4.1		
	NET RESISTANCE	13.5	19.2	13.7		
HEAT LOSES %	DRY GAS	6.24	6.74	5.71		
	H_2 AND H_2O IN FUEL	5.50	5.54	11.21		
	MOISTURE IN AIR	0.16	0.17	0.16		
	UNBURNED COMBUSTIBLE	0.0	0.0	0.0		
	RADIATION	0.36	0.36	0.36		
	UNACCOUNTED FOR&MFRS.MARG	1.00	1.00	1.00		
	TOTAL HEAT LOSS	13.26	13.75	18.44		
EFFICIENCY OF UNIT, %		86.74	86.25	81.56		
MAX ALLOWABLE BOILER CONC, PPM		1000	1000	1000		
SOLIDS IN STEAM, PPM		1	1	1		
PULVERIZER	NO. IN USE PER FURNACE					
	AIR TEMP TO PULV, F					
	TOTAL POWER, KW HR/TON					
	% THRU NO. 200 U.S. SIEVE					
	% THRU NO. 50 U.S. SIEVE					

EXPECTED PERFORMANCE

S-10157

BDM 3255 B

SOURCE	SAMPLES			
	ANALYSES	Specified		
SOLID	KIND			
	ASTM	CLASS		
		GROUP		
	SOURCE	MINE		
		SEAM		
		DISTRICT		
		COUNTY		
		STATE		
	SIZE			
	GRINDABILITY			
	SURFACE MOIST., %			
	PROX ANAL %	MOISTURE		
		VOL MATTER		
		FIXED CARBON		
		ASH		
		TOTAL		
	ASH TEMP F		REDUCING	OXIDIZING
		INITIAL DEFORMATION		
		SOFTENING		
		LIQUID		
LIQUID	KIND	Bunker C Oil		
	GRAVITY, DEG A.P.I.			
GASEOUS	KIND	Natural Gas		
	SP GR REL TO AIR			
	FUTURE			

ULTIMATE ANALYSES	FUEL	Oil	Natural Gas
	% BY		
	ASH		
	S	2.7	
	H_2	10.8	
	C	85.8	
	CH_4		95.40
	C_2H_4		0.08
	C_2H_6		3.46
	CO		
	CO_2		0.61
	SO_2		
	H_2O		
	N_2	0.7	0.45
	O_2		
	TOTAL	100.0	100.00
	BTU/LB	18400	21824
	BTU/CU FT AT 60 F, 30 IN. HG		1000

S-10157

FUEL ANALYSIS