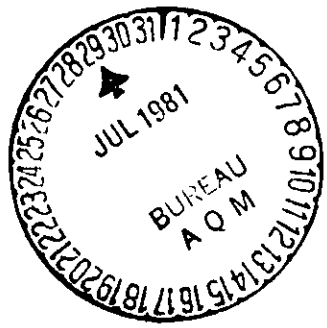
First in cellulose

The Buckeye Cellulose Corporation

Mailing Address: Route 3 Box 260 Perry, Florida 32347 Phone: (904) 584-0121

July 29, 1981



Mr. Clair Fancy
Deputy Director
Bureau of Air Quality
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Mr. Fancy:

Re: Fines Burning Construction Permit Application

The purpose of this letter is to submit an application for a permit to construct a facility to utilize fine wood particles to replace fossil fuel in a power boiler. Four (4) copies of the completed application are enclosed along with a check for twenty ($20) dollars to cover the filing fee.

In accordance with the agreement in the meeting of July 7, 1981, attended by Messrs. Kruger and Millican for Buckeye Cellulose, and Messrs. Fancy, George, Hanks, and Harley for the Department of Environmental Regulation, it is intended that the information included herein will satisfy the requirement for "completeness" of a permit application. In this context all of the preceding communications relating to the project (Attachments I, II, III, and IV) are included by reference and itemized in the list of attachments. Attachment II is the letter to Mr. Dutton, May 29, 1981, for which confidential treatment has been requested.

The testing program will utilize EPA test methods with one exception. Available methods for particle size determination will be reviewed and one selected which is mutually acceptable to us and the Department.

The plan and schedule for testing are included in Attachment VIII, Fines Burning Test Plan and Schedule. It is agreed that bi-monthly reports to the Department will be filed when this testing begins.

All information necessary for the Department to process the PSD Permit with Region IV EPA has been received by Mr. George and accepted as complete. We appreciate the expeditious way the PSD Permit is being processed with EPA by the Department.

The information in Section VI, Best Available Control Technology, is the best currently available because the data to be collected in the test program (i.e., particle size distribution) is essential for efficiency and energy determinations. BACT for a full-scale model would be determined more completely with data collected in the test program.

It is our understanding that this completes all of the information required to meet the test of completeness for the construction permit application. However, if upon review it appears that any additional information is necessary, please call me at (904) 584-0347.

Very truly yours,

THE BUCKEYE CELLULOSE CORPORATION

John Millican

J. H. Millican
Environmental Control Manager

JHM/eph

Attachments

cc: Mr. Doug Dutton
Florida Department of Environmental Regulation
3426 Bills Road
Jacksonville, FL 32207

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

No 33577

RECEIPT FOR APPLICATION FEES AND MISCELLANEOUS REVENUE

Received from _____ Date _____

Address _____ Dollars $ _____

Applicant Name & Address _____

Source of Revenue _____

Revenue Code _____ Application Number _____

By _____

AC 62-45987

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Power Boiler [ ] New[1] [x] Existing[1]

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

COMPANY NAME: The Buckeye Cellulose Corporation COUNTY: Taylor

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

SOURCE LOCATION: Street 5 to 6 miles southeast of Perry City Perry

UTM: East 256,740 North 3,328,700

Latitude 30 ° 03 ' 59 "N Longitude 83 ° 33 ' 12 "W

APPLICANT NAME AND TITLE: G. B. Ellis, Plant Manager

APPLICANT ADDRESS: Perry, Florida 32347

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of The Buckeye Cellulose Corporation

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: G. B. Ellis

G. B. Ellis, Plant Manager
Name and Title (Please Type)

Date: _____ Telephone No. (904) 584-0231

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 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: George F. Nevin

George F. Nevin
Name (Please Type)

(Affix Seal)

E. M. Watkins & Company
Company Name (Please Type)

P.O. Box 2194; Tallahassee, FL 32304
Mailing Address (Please Type)

Florida Registration No. 8341 Date: 7/28/81 Telephone No. (904) 576-7181

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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.

This is a project to evaluate the feasibility of recovering and recycling dried wood fines as a replacement for residual oil in existing power boilers and to develop the information necessary to design a full-scale installation complete with acceptable environmental controls. (See Attachments I, II, III, & IV).

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

Start of Construction October 1, 1981 Completion of Construction January 1, 1984
Start of Test Program 1/82 . Completion of Test Program 12/83 .(1)

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.)

Not available.

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

AO62-2121 9/19/73 - 9/20/78
AO62-10945 10/10/78 - 9/20/83

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes __x__ No

F. Normal equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 50 ; if power plant, hrs/yr ____ ;
if seasonal, describe: ____

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No
   a. If yes, has "offset" been applied? N/A
   b. If yes, has "Lowest Achievable Emission Rate" been applied? N/A
   c. If yes, list non-attainment pollutants.
      N/A
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. Yes
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII. Yes
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? No
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? No

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable. (1) See Attachment VIII

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		
Wood Fines	Ash	3.90	Max. 14,530 lbs/hr	Vent 10-6 & T-1
				Experimental Vent

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

1. Total Process Input Rate (lbs/hr): N/A

2. Product Weight (lbs/hr): 195,000 lbs/hr expressed as steam

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
Particulate	308 lbs/hr from		BACT	BACT	560		Vent 10-6
	wood (2)						& T-1
	12.5 lbs/hr		BACT	BACT	12.5		Vent 10-6
	from fossil						& T-1
	fuel						

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

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5]
Peabody Venturi Scrubber	Particulate	90%	N/A	Estimate (2)
Equipment No. 22-0450				

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5] If Applicable (2) See Attachment IV

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas		120 MCF	125 MMBTU
or #6 Fuel Oil		856 gals.	125 MMBTU
and Wood Fines		14,530 lbs.	130 MMBTU

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis: No. 6 Fuel Oil

Percent Sulfur: Maximum 2.5% Percent Ash: (3)

Density: 8.1 lbs/gal Typical Percent Nitrogen: (3)

Heat Capacity: 18,395 BTU/lb 149,000 BTU/gal

Other Fuel Contaminants (which may cause air pollution): Wood Fines (8,945 BTU/lb. B.D. basis) (4)

(3) No. 6 Fuel Oil meets ASTM specifications.

F. If applicable, indicate the percent of fuel used for space heating. Annual Average N/A Maximum

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

Liquid waste goes to primary and secondary treatment. Solid waste to landfill.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Vents 10-6/T-1

Stack Height: 225/170 ft. Stack Diameter: 13/3.5 ft.

Gas Flow Rate: 440,890/23,000 ACFM Gas Exit Temperature: 219/155 °F.

Water Vapor Content: 22.9/28.5 % Velocity: 55.4/39.7 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste

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

Approximate Number of Hours of Operation per day days/week

Manufacturer

Date Constructed Model No.

(4) See Attachment III

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (^oF)
			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 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight – show derivation. (5)

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. (5) FR Part 60 Methods 1,2,3,4,5,6,7,9, & 25 will be used to evaluate test program for opacity, particulate, SO_2, NO_x, CO, and C_xH_y.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). (5)

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, etc.). (5)

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). (5)

6. An 8½" 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. (6) Confidential

7. An 8½" 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). (7)

8. An 8½" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram. (8)

(5) See Attachments I-IV
(6) See Attachment II - Confidential
(7) See Attachment V
(8) See Attachments VI A & B

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. 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

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?
[ ] Yes [x] No

Contaminant	Rate or Concentration

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) [ ] Yes [x] No

Contaminant	Rate or Concentration

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

Contaminant	Rate or Concentration
To be determined as part of the test program.	

D. Describe the existing control and treatment technology (if any). (9)

1. Control Device/System:
2. Operating Principles:
3. Efficiency:* N/A
4. Capital Costs: N/A
5. Useful Life: N/A
6. Operating Costs: N/A
7. Energy: N/A
8. Maintenance Cost: N/A
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

(9) See Attachment III

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: Electrostatic Precipitator

b. Operating Principles: Collection of particulate matter using electrical potential.

c. Efficiency*: Unknown (95 - 99.1%) d. Capital Cost: $2.5 - 3.0 MM

e. Useful Life: 10 - 20 years f. Operating Cost: Relatively low

g. Energy*: Relatively low h. Maintenance Cost: Relatively high

i. Availability of construction materials and process chemicals: Good

j. Applicability to manufacturing processes: Potential for fires - Availability of test unit unknown.

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

2.

a. Control Device: Gravel bed filter (dry scrubber)

b. Operating Principles: Filtration

c. Efficiency*: Unknown d. Capital Cost: $2 MM

e. Useful Life: 5 - 10 years f. Operating Cost: Relatively high

g. Energy**: Relatively moderate h. Maintenance Costs: Relatively high

i. Availability of construction materials and process chemicals: Good

j. Applicability to manufacturing processes: Efficiency is questionable - No test unit available Availability unknown.

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

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device: Wet venturi scrubber

b. Operating Principles: Kinetic energy is used to collect particulate matter through the principle of impaction.

c. Efficiency*: 90 - 99% d. Capital Cost: $1 MM

e. Life: 10 - 20 years f. Operating Cost: Relatively high

g. Energy: Relatively high h. Maintenance Cost: Relatively low

*Explain method of determining efficiency above.

i. Availability of construction materials and process chemicals: Good

j. Applicability to manufacturing processes: Good - Existing scrubber available for test.

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

4.

a. Control Device Bag house

b. Operating Principles: Particulate matter is collected through the principle of filtration.

c. Efficiency*: 99^{+}%

d. Capital Cost: $1.75 MM

e. Life: Questionable - Potential for fires

f. Operating Cost: Relatively low

g. Energy: Relatively low

h. Maintenance Cost: Relatively high (fires)

i. Availability of construction materials and process chemicals: Good

j. Applicability to manufacturing processes: Imminent potential for fires

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

F. Describe the control technology selected: (10)

1. Control Device: Side stream venturi scrubber for test.

2. Efficiency*: 90%

3. Capital Cost: Existing unit

4. Life: 2 years

5. Operating Cost: Variable - Moderate

6. Energy: 9 - 15"ΔP

7. Maintenance Cost: Moderate - Low

8. Manufacturer: Peabody

9. Other locations where employed on similar processes: None - innovative technology

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(10) See Attachment III

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems: Existing side stream wet venturi scrubber available for test.

*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

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.

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) 1964 Tallahassee, Valdosta 1972-76

3. Upper air (mixing height) data obtained from (location) 1964 Montgomery, Waycross 72-76

4. Stability wind rose (STAR) data obtained from (location) Not used

C. Computer Models Used

1. CRSTER 1 year 1964 Modified? If yes, attach description.
2. ISCST 5 years 1972-76 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	59.45 grams/sec
SO^2	N/A grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description on point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time. (11)

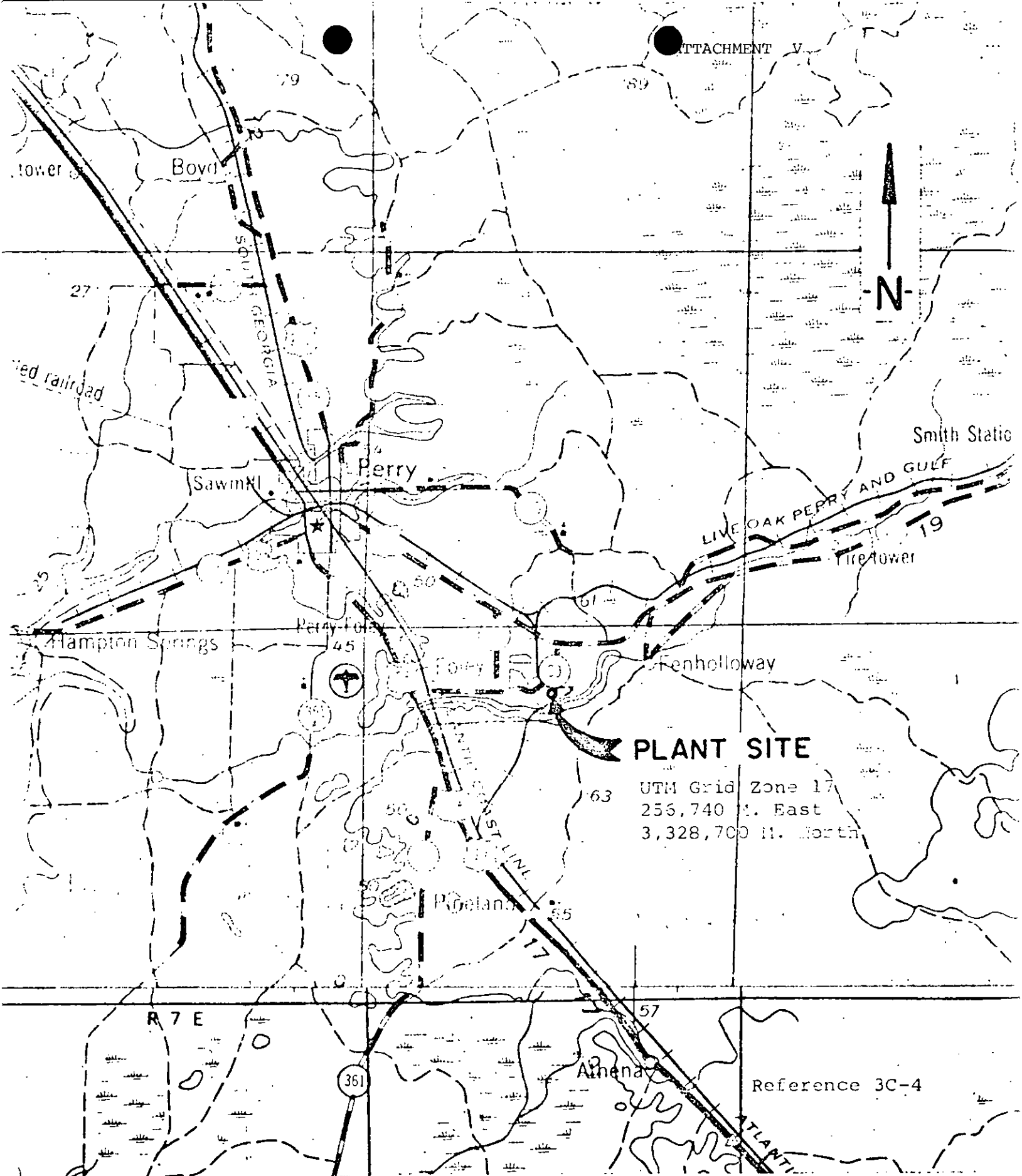
F. Attach all other information supportive to the PSD review.

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

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. (12)

(11) See Attachment IV
(12) See Attachment I

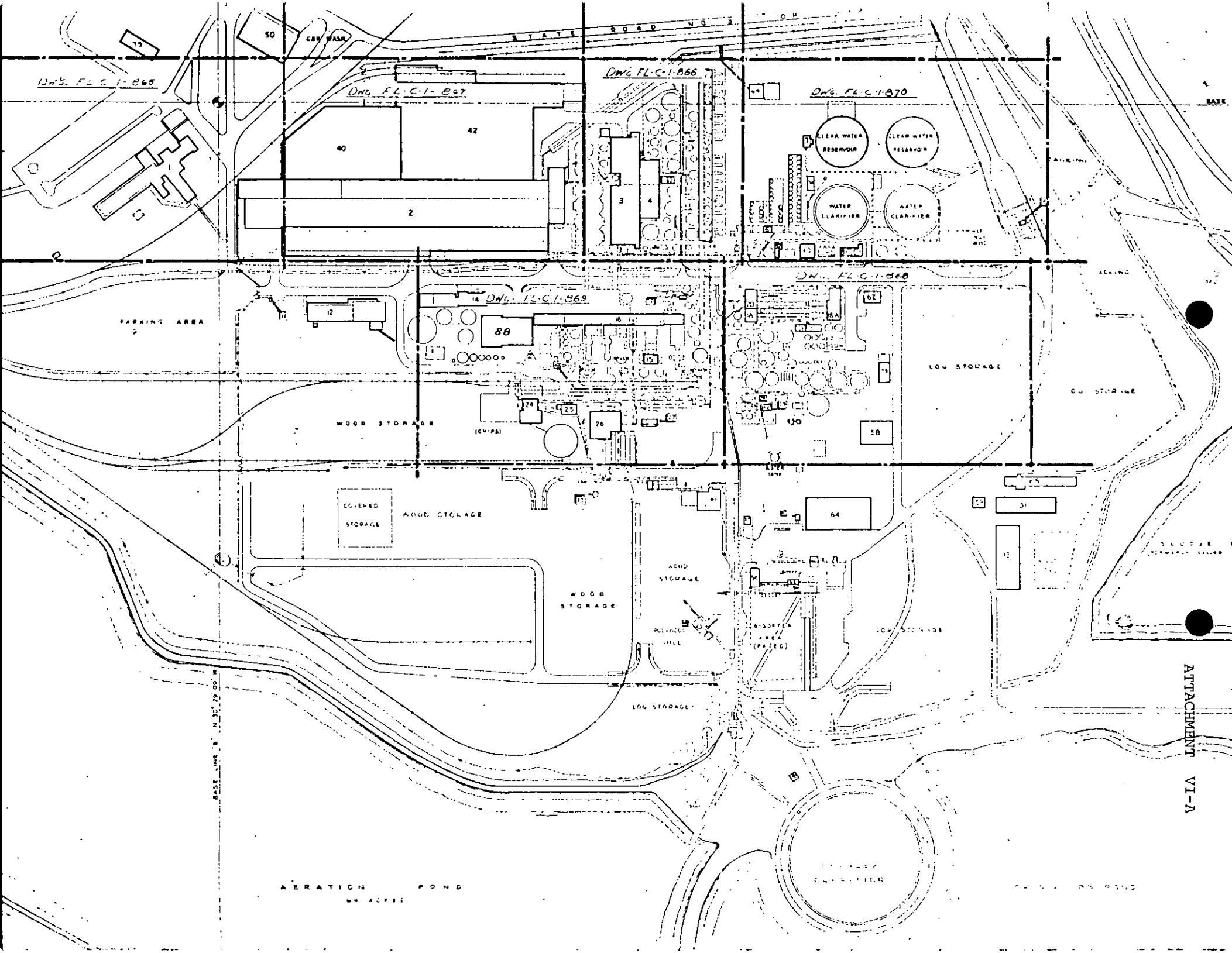
H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.



THE BUCKEYE CELLULOSE CORPORATION

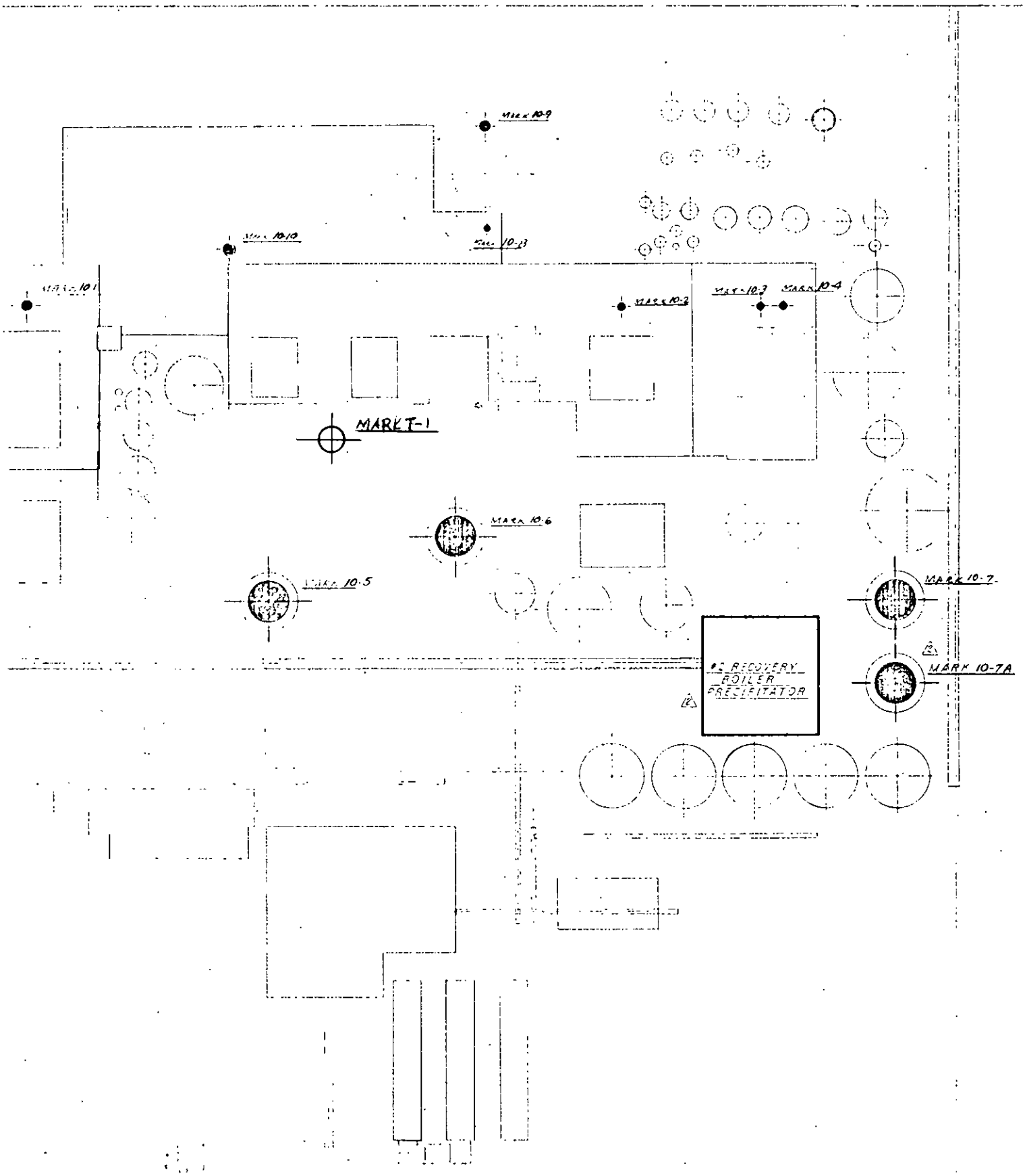
FOLEY, FLORIDA

VICINITY MAP



ATTACHMENT VI-A

ATTACHMENT VI-B



E. M. WATKINS & COMPANY
INCORPORATED
TALLAHASSEE FLORIDA

THE BUCKEYE CELLULOSE CORP.

EMISSION UNITS LOCATION DRAWING (SHEET 6 OF 7)

FL-C-1-869-4

ATTACHMENT VII

ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

P.O. BOX ESE
GAINESVILLE, FLORIDA 32602
904/372-3318

July 21, 1981
ESE NO. 80 001 100

Mr. Larry George
Chief Meteorologist
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

RE: Buckeye Cellulose Class I Impact

Dear Mr. George:

Concerning our telephone conversation of July 17, 1981, Buckeye Cellulose of Foley has been determined not to impact the St. Marks National Wilderness area, a Prevention of Significant Deterioration (PSD) Class I area, by more than the allotted one ug/m^3 of Total Suspended Particulate (TSP) per 24 hour period. This analysis involved excluding all days in which calm winds significantly affected the total impact.

Methodology included executing the ISCST model with 5-year meteorology from Valdosta/Waycross 1972-76. Two receptors in the Class I area were looked at: Direction 275 and 280 degrees at 44.0 kilometers. From the highest 50 tables, all days with calm wind impacts over 2 hours were excluded. All days with impacts of 1.0 ug/m^3 were examined for calm wind conditions.

It was determined that all of these days had several hours of calm winds. Day 154, 1973, was selected for refined analysis since the 5-year ISC yielded 0.99 ug/m^3 and there was only one calm on that day. After excluding the calm hour, that day's impact became 0.54 ug/m^3. No other days appeared close to 1.0 ug/m^3.

If you have any further questions, please call me.

Very truly yours,

Steven R. Marks

Steven R. Marks, C.C.M.
Acting Group Leader
Air Modeling and Permitting

SRM/ctw

FINES BURNING TEST PLAN AND SCHEDULE

		Start
I.	Baseline Testing of Existing Boiler	8/81

Burners on Gas and Oil
Time Required: 1 month

Purpose: Learn response and stability of existing B&W burners on gas and oil. Measure pressures, excess air, superheat and steam output.

II.	Testing of New Burners on Gas and Oil	10/81

Time Required: 1 month

III.	Test Fines Burners for Performance...	1/82

Including flame shaping with optimum fuel conditions; i.e., smallest particle size, low moisture range, wood from existing drier.
Time Required: 1-3 months

IV.	Vary Pulverizer Configuration...	4/82

With classification to determine optimum arrangement vs horsepower and capacity.
Time Required: 1-2 months

V.	Resume Burner Testing	6/82

Test burners with varying particle size and moisture content. Evaluate pulverizer/drying system as a coupled unit.
Time Required: 1-3 months

VI.	Commence Environmental Testing	9/82

Measure particulate, hydrocarbons, CO, and NO_x emissions as load, particle size and moisture content are varied.
Time Required: 1-3 months

VII.	Boiler Performance Tests	12/82

Determine ash fallout in various sections of boiler. Need for grate, ash dump, fly ash fallout, superheat temperature.
Time Requirement: 1-3 months

VIII.	Green Wood Testing	3/83

Test prototype for performance as a full-scale dryer/pulverizer system using factors of each of the previous tests.
Time Requirement: 1-3 months

IX.	Operational Testing for Long Term Stability	6/83

Test factors such as erosion, sooting, fouling, etc.
Time Required: 6 months

AC 54-43113
-43791
-43795
in Tallahassee Democrat
9/19/81

Public Notice

The Florida Department of Regulation (FDER) has received an application from and intends to issue a construction permit to Buckeye Cellulose Corporation for the modification of a boiler to burn wood fines at the company's kraft pulp mill in Taylor County. The application requires Best Available Control Technology (BACT) as well as both State and Federal review for Prevention of Significant Deterioration (Chapter 403, Florida Statutes,and Federal Regulation, 40 CFR 52.21).

The modification will increase emissions of air pollutants by the following amounts, for a period of time not to exceed two years:

TSP	108 tons/yr
CO	25 tons/yr

Having reviewed the proposed modification, the FDER has made a preliminary determination that the construction can be approved provided that certain conditions will be met. A summary of the basis for this determination and the application for State and Federal permits submitted by Buckeye Cellulose Corp. are available for inspection at the following DER offices:

Bureau of Air Quality Management
Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

St. Johns River Subdistrict
3426 Bills Road
Jacksonville, Florida 32207

Any person may submit written comments regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered in making a final determination regarding approval of construction of this source. These comments will be made available for public review on request. Furthermore, a public hearing can be requested by any person. Such a request should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. C. H. Fancy
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

ATTACHMENT IX

#1 STACK ALLOWABLE EMISSIONS

	lbs/hr	gms/sec	
#1 Bark Boiler	47.2	5.95	
#2 Bark Boiler	106.7	13.46	
#1 Power Boiler	25.0	3.15	No. 6 F.O. - 250 MMBTU/hr.
#2 Power Boiler	12.5	1.58	No. 6 F.O. - 125 MMBTU/hr.
#2 Power Boiler	280.0	35.31	Wood Fines - 130 MMBTU/hr.

LIST OF ATTACHMENTS FOR CONSTRUCTION PERMIT APPLICATION

I. Letter to Ms. Vicki Tschinkel, April 27, 1981.
Re: Petition for Experimental Testing & Research Program

II. Letter to Mr. Doug Dutton, May 29, 1981.
Re: Application for Experimental Burning of Wood Fines in an Oil Boiler

III. Letter to Mr. Michael D. Harley; June 26, 1981.
Re: "Fines Burning PSD Temporary Source Permit" with attachments

IV. Letter to Mr. Michael D. Harley, July 6, 1981.
Re: "Fines Burning PSD Temporary Source Permit" with attachments

V. 8½" x 11" plot plan of the Buckeye Cellulose Plant and the surrounding area.

VI. (A & B) 8½" x 11" plot plan of the facility.

VII. Letter to Mr. Larry George from Mr. Steven Marks
Re: Five Year ISCST Model 1972-1976 with attachments

VIII. Flow Chart for Test Schedule.

IX. #1 Stack Allowable Particulate Emissions

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

INTEROFFICE MEMORANDUM

Routing To District Offices And/Or To Other Than The Addressee		
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
To: _____	Loctn.: _____	
From: _____	Date: _____	
Reply Optional [ ]	Reply Required [ ]	Info. Only [ ]
Date Due: _____	Date Due: _____	

TO: Permit File PSD-FL-085

THRU: Clair Fancy
Bill Thomas
Larry George

FROM: Carl Bock CB

DATE: August 28, 1981

SUBJ: Preliminary Rule Applicability - Buckeye Cellulose Corp., Taylor County

An application for a federal prevention of significant deterioration (PSD) permit was submitted to the Bureau of Air Quality Management on July 29, 1981, by Buckeye Cellulose Corp. The application is undergoing completeness review; day 30 is August 28, 1981.

The proposed project is a test program to evaluate the feasibility of recovering and recycling dried wood fines as a replacement for residual oil in existing power boilers and to develop the information necessary to design a full-scale installation complete with acceptable environmental controls. The wood fines will be burned in the 250 million Btu/hr power boiler #2 at Buckeye's kraft pulp mill in Taylor County. The test program will not exceed two years in duration.

The Buckeye mill is in an area designated attainment under 40 CFR 81.310 for all criteria pollutants. It is more than 10 km from any Class I area but within 100 km of the St. Marks National Wilderness Class I area.

The projected net emissions increases and applicable significant emission rates for the proposed project are listed below. No contemporaneous decreases in actual emissions other than those decreases associated with the proposed project itself have been identified by the applicant.

Smallwood plant
handle

I

First in cellulose

The Buckeye Cellulose Corporation

Mailing Address: Route 3 Box 260 Perry, Florida 32347 Phone: (904) 584-0121

April 27, 1981

Ms. Vicki Tschinkel, Secretary
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Dear Ms. Tschinkel:

Re: Petition for Experimental Testing and Research Program

This petition by The Buckeye Cellulose Corporation is to request authorization to conduct an experimental testing and research program at our Plant in Perry, Florida, as provided for in Ch. 17-1.585 FAC.

PURPOSE OF THE PROGRAM: The purpose of the proposed experimental testing program is to evaluate the feasibility of recovering and recycling dried wood fines as a replacement for residual oil in existing power boilers.

DESCRIPTION OF THE PROCESS: Two wood suspension burners designed to yield approximately 90,000 #/hr. of steaming capacity will be placed in the No. 2 Power Boiler. These burners will operate separately but in parallel with the two remaining residual oil burners on this unit. The dried wood fines will be supplied from the bark dryer currently permitted by AC 62-30466. These fines will be pulverized and metered to the new burners. An existing venturi scrubber will be utilized to provide partial removal of particulate emissions during the experimental testing.

Environmental factors to be evaluated include particle size to the venturi scrubber, scrubber pressure drop requirements, and emissions to the atmosphere of particulates, nitrogen oxide, carbon monoxide, and volatile organic compounds. Burner performance, fuel preparation and handling are additional factors to be evaluated during this development work. If successful, the installation will serve as a prototype to develop the techniques useful for and leading to possible industry-wide use of wood suspension burners as replacement for residual oil burners. The obvious economic and environmental benefits from the replacement of residual oil with a renewable natural resource justify the program.

LEGAL REQUIREMENTS: It is anticipated that, during the experimental testing, particulate emissions may exceed the limitations imposed by Ch. 17-2.05 FAC. Additionally, there may be opacity excursions as various parameters are investigated. Sulfur Dioxide emissions will be reduced to the degree that residual oil is replaced by wood fines.

VJ 6/22

It is not expected that the experimental testing program will result in any violations of the Florida Ambient Air Quality Standard for total suspended particulate.

PROGRAM DURATION: This program is expected to commence operation on or about January 1, 1982, and to be completed within a two-year period.

If you have any questions or require additional information to process this petition please contact Mr. John Millican at (904) 584-0347. Your early approval is requested and will be appreciated.

Very truly yours,

THE BUCKEYE CELLULOSE CORPORATION

G. B. Ellis

G. B. Ellis
Plant Manager

eph

cc: Mr. Doug Dutton
Florida Department of Environmental Regulation
3426 Bills Road
Jacksonville, FL 32207

First in cellulose

The Buckeye Cellulose Corporation

Mailing Address: Route 3 Box 260 Perry, Florida 32347 Phone: (904) 584-0121

June 26, 1981

Mr. Michael D. Harley
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Fines Burning PSD Temporary Source Permit

Dear Mr. Harley:

As we agreed in the meeting in Mr. Smallwood's office on June 16, 1981, the information you requested has been compiled and is enclosed. In the interest of clarity, the questions have been stated followed by the most complete available response. Where the information is not available, it is to be developed as a part of the research project and will be reported as it becomes available.

It is our understanding that this completes the information required to proceed with a PSD permit as a temporary source for the project described in the petition initially filed with Secretary Tschinkel on April 27, 1981. However, if you have additional questions please call me at (904) 584-0347.

Your personal efforts and the enthusiastic support from Mr. Smallwood and all Staff members of the Bureau of Air Quality are greatly appreciated.

Very truly yours,

THE BUCKEYE CELLULOSE CORPORATION

John Millican

J. H. Millican
Environmental Manager

JHM/eph

Enclosure

cc: Mr. Doug Dutton
Florida Department of Environmental Regulation
3426 Bills Road
Jacksonville, FL 32207

BUCKEYE CELLULOSE CORPORATION

Fines Burning PSD Permit Information

Requested by Mr. Mike Harley

6/26/81

1. Name and address of person or entity requesting authorization contained on the letter?

The Buckeye Cellulose Corporation
Rt. 3, Box 260
Perry, FL 32347
ATTENTION: Mr. John Millican
Environmental Manager

2. A description of the substance of the proposed testing, demonstration, or research program. The description of the process and testing program are well written; but, require more detail and specificity. The provided information should be expanded to include the following:

A. A complete description of the boiler to be used.

1. Manufacturer: Babcock & Wilcox Co.

2. Date of construction: 1953

3. Maximum, minimum, and average capacity (MMBTU/hour): 244, 63, & 152 MMBTU/hour

4. Maximum, minimum, and average efficiency (MMBTU/hour to steam): 82, 79, 82% (Heat input vs. steam output when firing gas.)

5. Percent of time in operation (currently): Approximately 60%

6. Number of burners: 4

7. Firing arrangement: Front

8. Installed control equipment: Normal fallout hoppers for < 250 MMBTU oil/gas fired boilers plus BACT of 2.5% sulfur oil.

9. Maximum allowable emissions of particulate matter, SO_2, and opacity. Particulate matter and SO_2 emissions should be provided in lbs./hr. and tons/year: < 250 MMBTU/hr. boiler - BACT - Ch. 17-2.03(1) - Particulate & SO_2 Visible Emissions - 20%

10. Maximum, minimum, and average tested emissions of particulate matter, SO_2, and visible emissions. Particulate matter and SO_2 should be given in lbs./hr. and tons/year: Not available - < 250 MMBTU boiler

Boiler discharges into a common stack with two bark boilers and an oil boiler. Visible emissions of common stack tested by Method 9. Results range from 10-40% with average 20-30%. Particulate and SO_2 tests not required.

11. Emission monitoring equipment installed on the facility: None required, none installed.

12. Test Method used for particulate matter, SO_2, and visible emissions: Particulate & SO_2 - None Visible Emissions - Method 9

B. Existing stack parameters for the boiler: Common stack for 4 sources.

1. Stack height: 68.58 meters

2. Stack diameter: 3.96 meters

JHM/eph

3. Stack temperature: 377°K (calculated with all 4 units on-line)

4. Stack velocity: 16.9 meters/second

5. Stack volume: Actual - 12484.7 M^3/second
   Std. Dry - 7530.0 M^3/second

6. Stack coordinates: UTM: East 256,740 North 3,328,700

C. Proposed control equipment to be installed.

1. Make, model, and type: See drawing and specifications for Peabody scrubber.

2. Detailed design showing external and internal dimensions: See drawing and specifications for Peabody scrubber.

3. Percentage gas flow to the device: 50% with wood burners only operating. 25% with all burners operating.

4. Temperatures and velocities at both the inlet and exit to the device: Temperature to scrubber - 200-220°F; exit temperature - 145-155°F

5. Range of operating parameters for the device.

   a. Pressure drop: 9 to 15 inches water column
   b. Liquid-to-gas ratio: 7 gpm/1000 cfm
   c. Liquid density: 0.97
   d. Particulate density: Not known. To be determined during the test.
   e. Liquid density: See (c.)
   f. Gas velocity in throat: 100 ft./sec.
   g. Gas viscosity: .029 centipoise
   h. Mass mean particle diameter (microns):
      Not known but estimated as follows:

Microns	Percent by Wgt.
0 - 0.6	20
0.5 - 1.0	10
1.0 - 5.0	26
5.0 and above	44

   i. Geometric standard deviation of particle diameter: None

6. Range of flue gas exit parameters.

   a. Stack height: 52 meters
   b. Stack diameter: 1.07 meters
   c. Stack temperature: 341°K (155°F)
   d. Stack velocity: 12.1 meters/second
   e. Stack volume: 10.9 M^3/second

7. Estimated percentage of particulate load to each stack: No real way to estimate. We would hope, however, to catch 50% or more of the particulate for the scrubber system.

8. History of specific control device efficiency: See Attachment I. Efficiency will depend on actual conditions during the test and will be determined at that time.

D. Burner designs.

1. Detailed plans showing current and proposed burner design: See Attachments II thru X

JHM/eph

2. Heat input capacity for each existing burner:

   a. Oil: 62.5 MMBTU/hour each burner
   b. Gas: 62.5 MMBTU/hour each burner
   c. Combination: Not permitted

3. Heat input capacity for each proposed burner:

   a. Oil: 65 MMBTU/hour each burner maximum, or;
   b. Gas: 65 MMBTU/hour each burner maximum, or;
   c. Wood: 65 MMBTU/hour each burner maximum.
   d. Combination: Not yet determined. Safety studies are required to approve/disapprove this technique.

4. Heat input capability of proposed test configuration. Ratio of maximum, minimum, and average heat inputs for existing burners versus Coen burners.

   Burners are intended for parallel operation. Thus, we may use any combination of burners from a minimum input of 60 MMBTU/hour up to a maximum input of 250 MMBTU/hour.

E. Estimated maximum emissions of particulate, SO_2, C_xH_y, NO_x, and CO. Detailed calculations should be shown to substantiate these levels.

   To be determined by the study.

F. Air quality modeling using the EPA CRSTER model to show impacts of project on levels of particulate, SO_2, and CO: To be determined by the study. Not required for PSD permit because of temporary emissions exclusion.

G. A detailed plan of study including specific estimates of:

1. Scheduling of construction, operation, and testing: Present schedule calls for foundations to be poured in November. Steelwork and platforming to follow in December, and equipment start-up in January, 1982. All of this is predicated upon ordering longest delivery equipment on July 1, 1981. Delay in ordering moves the schedule day for day.

2. Combinations and types of fuels to be tested giving ultimate analyses and BTU values. Quantities of fuels should be included: Testing will begin immediately after start-up and is expected to take 6 months in the initial phases. Longer range testing could take up to 2 years.

   Fuel combinations will vary from 0 to 50% in wood with the remainder in fossil fuel. Testing will be run with these varied throughout the range. Fuels will not be combined in individual burners under present plan.

   Ultimate analysis is that typical of southern pine species as follows:

   C - 52.15
   H - 5.75
   O_2 - 38.00
   Ash - 3.90
   HHV = 8945 BTU/#
   N_2 - 0.16
   S^2 - 0.04

JHM/eph

3. Information and data to be collected: The data to be collected will be that necessary to deliver the following information:

   - Load variation vs. moisture content and particle size
   - Excess air requirements
   - Need for support fuels
   - Combustion control and light-off
   - Combustion safety
   - Flame Shaping
   - Explosion and fire risk vs. moisture content
     " " " " " particle size
     " " " " " conveying air quantities
   - Ash quantity generated vs. moisture content
     " " " " particle size
   - Fallout distribution: Furnace vs. Hopper vs. Uptake
   - Scrubber differential

4. Data to be provided to the Department and a schedule for providing this information: All environmental data collected will be provided to the Department as it is developed. These include particulate, SO_2, C_xH_y, NO_x, and CO.

3. A list of all rules, permits, or certification conditions, and other requirements of the law that might be temporarily violated as a result of the testing, demonstration, or research program.

   A. Rule: Ch. 17-2.05(6)(I)(2)(b) - particulate & opacity

   B. Permits: Permit No. AO62-10946, Condition No. 2 - Plume Density

   C. Certifications: None applicable.

4. The proposed duration of the program: This has been addressed in the 4/27/81 letter sent by Mr. Millican.

5. The purpose of the program: The purpose of the testing program is to:

   (1) Evaluate the feasibility of recovering and recycling dried wood fines as a replacement for residual oil in existing power boilers.

   (2) Develop the information necessary to design a full-scale installation complete with acceptable environmental controls.

   The economic and energy potentials can be estimated on the basis of existing permitted capacity assuming complete replacement of residual oil with wood fines. This would represent the maximum possible economic and energy impact.

   On this basis one barrel of oil is roughly equivalent to one ton of wood. At 6.3 MMBTU/barrel and a 250 MMBTU/hour operating rate, this equals 39.7 barrels/hour. At 24 hours/day and 350 days/year, this would be 332,640 barrels/year. With the current cost differential between wood and oil of $6 per equivalent barrel of oil, this equals approximately 2 million dollars per year for this boiler.

JHM/eph

ATTACHMENT I

EQUIPMENT NUMBER

22-0450

PLANT	PROJ. NO.	PROJECT	UNIT APPROVAL			DATE	NO. REQ'D	SUPPLIER
			SPECIALISTS	CONTR.	P.E.			
Foley		No. 1 Bark Boiler				3/15/76	One	Peabody
		Scrubber						Equipment

ITEM: VENTURI SCRUBBER **DATE:** March 15, 1976

DRAWINGS:

SPECIFICATION:

GENERAL

This specification is for the purchase of a venturi scrubber, flooded elbow, and separator. The scrubber will be installed on a bark-burning boiler in the Buckeye Cellulose Mill at Perry, Florida. The boiler burns bark from southern pine trees 95-100% of the time (24 hours/day, 350 days/year). No. 6 fuel oil is burned in combination with the bark 5-10% of the time. The scrubber will scrub particulate matter from the boiler flue gas stream. The scrubber will treat only a portion of the total flue gas volume.

The equipment shall conform to the description on Sketch EH-76-14-100, which is attached to Peabody Engineering proposal H-76-14. The configuration shall be left hand entry instead of right hand entry as shown in the sketch.

DESCRIPTION OF EQUIPMENT

Venturi and Flooded Elbow - The venturi shall be constructed per Sketch EH-76-14-100. The venturi throat shall be designed to pass design flow at 7" wc with the adjustable cone in the fully open position. The venturi wall shall be completely wetted. The adjustable cone in the venturi throat shall be adjustable from outside the equipment. The venduri/flooded elbow unit shall be flanged on the inlet and outlet. The elbow shall be flooded with liquid to prevent abrasion of the metal wall as the gas makes the 90° turn.

Separator - The separator shall be constructed per Sketch EH-76-14-100. The separator shall be flanged on the inlet, outlet, and liquid discharge. The manway shall be 18"x18". The configuration shall be left hand entry instead of right hand entry as shown in Sketch EH-76-14-100. The separator shall be supplied with supporting legs.

EFFICIENCY GUARANTEE

The scrubber shall be guaranteed to meet efficiencies as follows:

Particle Size		Efficiency		
		Pressure Drop		
Range Microns	Average Size Microns	5" wc	10" wc	15" wc
0-1/2	0.25	45%	70%	80%
1/2-1	0.75	70	80	85
1-5	3	97	98.5	99.65
5-10	7.5	99.5	99.7	99.80
>10	12	99.6	99.8	99.85

MATERIALS OF CONSTRUCTION

The venturi, flooded elbow, and separator shall be constructed of 3/16" thick 316L stainless steel. The mist eliminator in the separator shall be 316L of Peabody's standard thickness.

STRUCTURAL DESIGN

The equipment shall be designed to withstand a vacuum of -22" wc and a positive pressure equal to the pressure exerted when the system is filled with water.

INLET CONDITIONS

Volume	30,000 acfm
Temperature	450°F
Moisture content	15% by volume
Dust load	50 lb/hr (0.39 gr/sdcf) to 90 lb/hr (0.70 gr/sdcf)
Specific gravity of dust	1.54

Particle size distribution:

Diameter Microns	Percent by Weight
0-1/2	6.5
1/2-1	5.4
1-5	35.3
5-10	21.0
>10	31.8

Fresh water at 80°F is available for scrubbing.

OUTLET CONDITIONS

Volume	23,000 acfm
Temperature	148°F
Moisture content	0.2 lb H_2O/lb dry gas

OPERATING CONDITIONS

Scrubbing liquid	220 gpm @ 20 psig
Evaporative loss	14 gpm
Blowdown	6 gpm
Makeup water	20 gpm
Solids concentration	3%

INSPECTION

The purchaser reserves the right to inspect the scrubber in the vendor's shop at any time during its construction.

WELDING

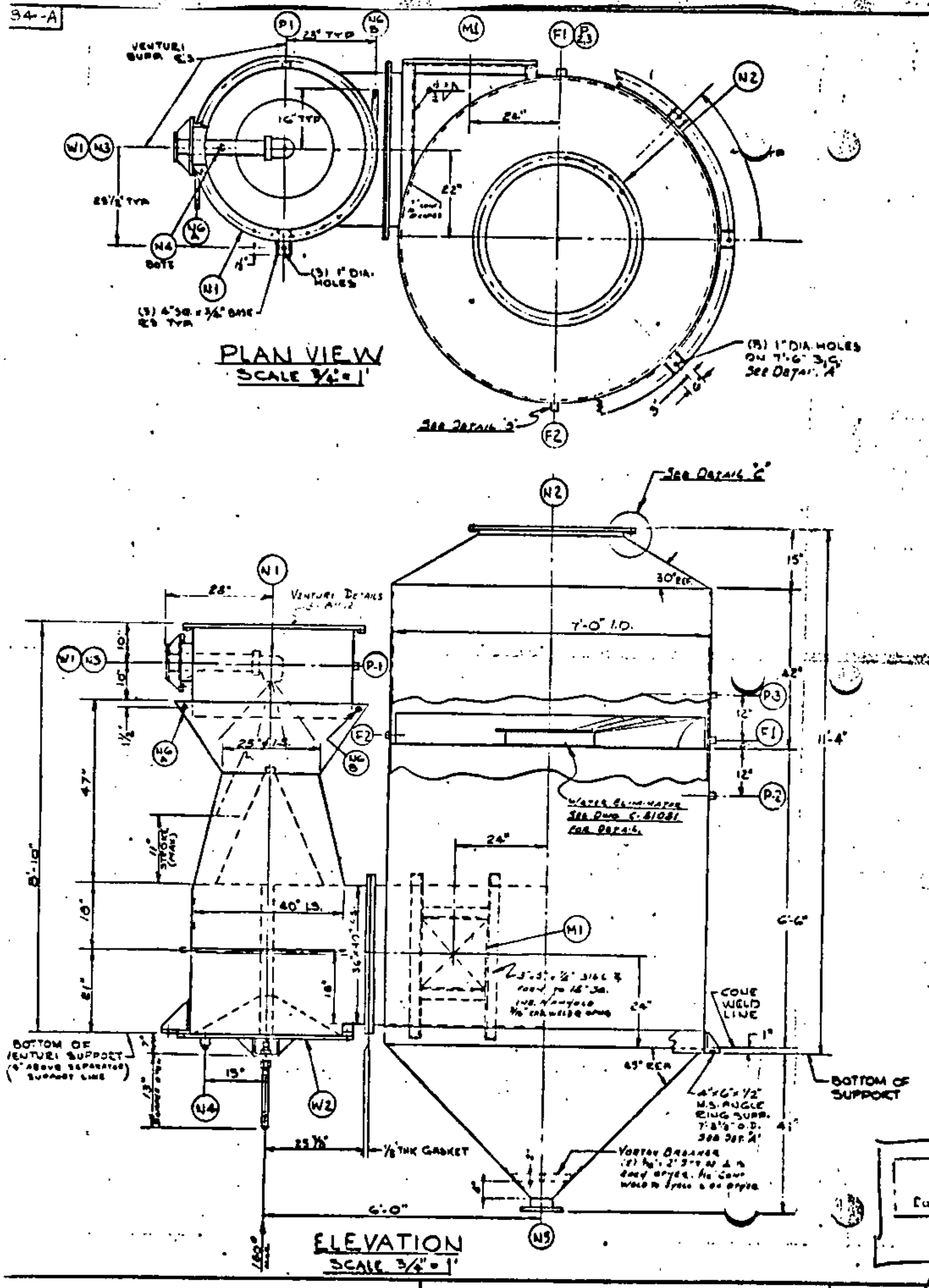
Welders and weld procedures must be qualified per Section 9 of the ASME Code.

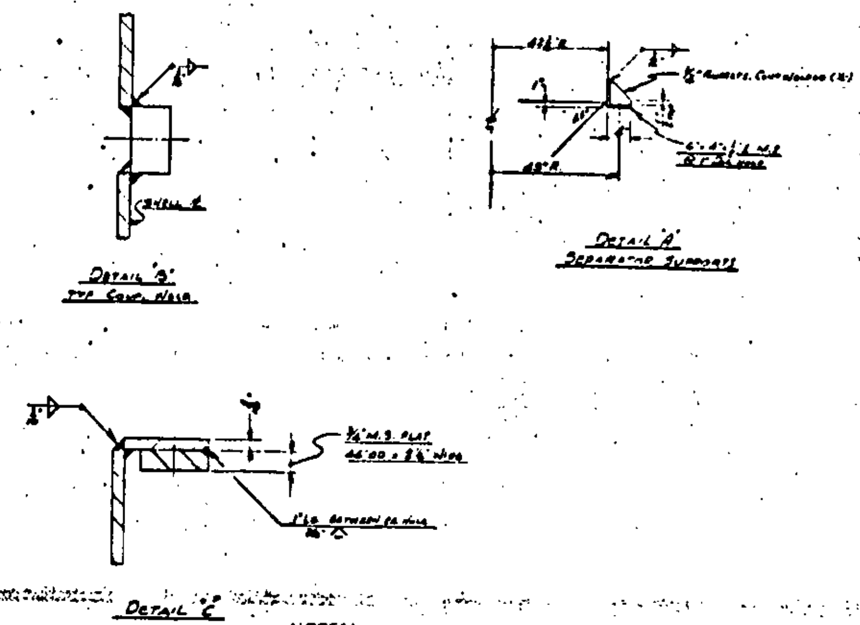
Welding procedures shall be sent to the purchaser for review.

Lamar Soper

Lamar Soper

LS/bb





NOTES:

1. MATERIALS
   A - SHELL: 3/16" 316L SS UNLESS NOTED OTHERWISE
   B - SUPPORTS & FLG. BACK-UPS MILD STEEL
   C - GASKETS - 1/8" THK ASBESTOS
2. LIQUID REQUIREMENTS
   NOZZ. N3 - 220 GPM @ 20 PSIG
   NOZZ. G A & B 10 GPM EA. @ 20 PSIG - TOTAL 20 GPM.
   NOZZ. F1 & 2 2-3 GPM EA. @ 0.5 PSIG - TOTAL 4-6 GPM
3. NOZZ DRILLING TO STRADDLE NATURAL ℄'S.
4. WEIGHTS

WEIGHTS	VENTURI	SEPARATOR
FLOODED WT. -	6,900#	32,200#
SHIPPING WT.	1,700#	3,700#

5. WELDING PROCEDURE AND WELDERS TO BE QUALIFIED UNDER SECTION IX, ASME BOILER CODE.
6. N3 AND N5 FLGS ARE MADE 316 SPEC. SPAS LIGHTWEIGHT 150# DRILLING.

MARK	REQ	SIZE	DESCRIPTION	[illegible]	[illegible]	[illegible]
NG-A&B	2	3/4" IPS	MAKE UP - WET WALL INLET	40	3/4" NPT MALE	[illegible]
PT 1,2,3	3	1/2" IPS	PRESSURE TAPS	3000#	1/2" HALF CPLG	[illegible]
W 1	1	10" OD	WITHDRAWAL NOZZ. FOR N3	3/16"	[illegible]	24"
M 1	1	15x20	MANHOLE	3/16"	SEE DWG NO. [illegible]	[illegible]
W 2	1	40" OD	DAMPER WITHDRAWAL FLG	3/16"	SEE DWG. NO. B-[illegible]	—
N 5	1	6" IPS	DRAIN	3/16"	150# DRILLING, SO/R.F.	—
F1, 2	2	3/4" IPS	FLUSHING CONN.	3000#	3/4" HALF CPLG.	[illegible]
N 4	1	1 1/2" IPS	VENTURI DRAIN	3000#	1 1/2 HALF CPLG W/ PLUG	—
N 3	1	3" IPS	VENTURI SPRAY	40	150# DRILLING, SO/RF [illegible]	[illegible]
N 2	1	38" OD	GAS OUTLET	3/16"	44" [illegible] 32 [illegible]	—
N 1	1	42" OD	GAS INLET	3/16"	48" [illegible] 36 [illegible] 45 [illegible]	—

Certified For Construction
Date 5/6/76 By [signature]

A ADDED DETAILS A,B,C

EQUIPT. No. 22-0455

Peabody Engineering

GENERAL ARRANGEMENT OF BACK BOILER SCRUBBER
BUCKEYE CELLULOSE CORP.

DRAWING NUMBER B-80984-A

ATTACHMENT II

COEN COMPANY Inc.

BILL OF MATERIALS

BURLINGAME, CALIFORNI

CUSTOMER: BUCKEYE CELLULOSE CORPORATION
USER: BUCKEYE CELLULOSE CORPORATION
NO. OF INST. BOOKS FOR CUSTOMER:

P.O. NO: 60730
LOCATION: FOLEY, FLORIDA

JOB DRAWINGS:

ARRANGEMENT:	D-0900-227	BURNER VISE:	A-0700-049
FURNACE THROAT:	D-0326-097	REGISTER HANGER:	B-2012-031
APPLICATION WIRING:	C-0679-365		
OIL BURNER ASSEMBLY:	D-1000-164		
BASE BURNER ARRANGEMENT:	C-0900-221		

JOB SPECIFICATIONS:

TWO LOOSE CCD-26 REGISTER BURNER ASSEMBLIES FIRING GAS, OIL, & WOODFINES. TEST INSTALLATION REPLACING TWO OF FOUR EXISTING B & W REGISTER-BURNERS. EACH REGISTER BURNER DESIGNED TO INPUT 62 MILLION BTU/HR.

BOILER DATA: MANUFACTURER: BABCOCK & WILCOX; TYPE: FIELD-ERECTED; CAPACITY: 200,000 F JOBSITE: SEA LEVEL, INDOOR INSTALLATION; OPERATING PRESSURE & FEEDWATER CONDITIONS NOT KNOWN.

ELECTRIC POWER: 115 V.A.C.

CONTROLS: BY OTHERS.

COMBUSTION AIR: PRESSURE AT WINDBOX 5.2" W.C. AT CAPACITY; TEMPERATURE 350° F.

OIL FUEL: #6 OIL SUPPLIED AT 90 PSIG TO BURNERS AT CAPACITY; ATOMIZING STEAM SUPPLIED AT 120 PSIG TO BURNERS AT CAPACITY.

GAS FUEL: NATURAL GAS SUPPLIED AT 15.5 PSIG TO BURNERS AT CAPACITY; PILOT GAS SUPPLIED AT 1 PSIG & 300 SCFM FROM AN UNINTERRUPTIBLE SOURCE.

WOOD FUEL: SUPPLIED AT 8000 LB/HR. THE WOOD FINES SHOULD BE DRY TO LESS THAN 10% MOISTURE BY WEIGHT (WET BASIS). MAXIMUM PARTICLE SIZE SHOULD BE 1/32" OR LESS IN ANY DIRECTION. TO ASSURE OPTIMUM COMBUSTION, 40% OR MORE OF THE WOOD FUEL MUST BE "FLOUR-LIKE" OR LESS THAN 35 U.S. STANDARD MESH. THE WOOD ASH FUSION TEMPERATURE SHALL NOT BE BELOW 1,800° F. CONVEYING AIR FLOW IS 2000 SCFM SUPPLIED AT 6" W.C.(AT EACH SCROLL INLET).

BASE BURNER SUSTAINING FUEL: NATURAL GAS SUPPLIED AT 1 PSIG & 500 SCFH.

PURGE AIR: TO GUIDE PIPES, 1-1/2" SIZE CONNECTION FROM F.D. DUCT UPSTREAM OF AIR HEATER; TO SCANNERS, 1 PSIG & 10 SCFM CLEAN, DRY AIR TO EACH SCANNER. TO BASE BURNER GUIDE PIPE, 1 PSIG TO 1/2" NPT CONNECTION.

BASE BURNER WOOD FUEL: SUPPLIED AT 775 LB/HR. CONVEYING AIR FLOW IS 233 SCFM SUPPLIED AT 9" W.C. (AT EACH BURNER).

ENGINEER: CHARLES A. WHITE

BILL OF MATERIALS: TWO CCD-26 REGISTER-BURNERS (SEE ABOVE

ITEM	QTY		COEN NO.	DESCRIPTION
"F" CONTROLS (NOTE: QUANTITIES INDICATED ARE TOTALS FOR JOB) - LOW RIGHT REGISTER				
F30R	1	::	2315-062-01	POWER UNIT, REGISTER LOUVER DRIVE, AC04041200N, 3-15 PSI BAILEY
F31R	1	::	D-2500-100-01(T)	POWER UNIT MOUNTING ASSY., RIGHT HAND SIDE
F32R	1		B-2501-324-01(T)	DRIVE ROD ASSY., 24" C.C.
F35R	1		D-2400-009-03	SWITCH ASSEMBLY, NEMA 4, THREE SWITCHES: "PROOF OF PURGE", "PROOF OF LOW-FIRE", & SPARE
F38R	1	::	D-2500-400-02	REGISTER LOUVER DRIVE ASSEMBLY, ABOVE CENTERLINE R.H.

:: SHIP LOOSE

	DATE	BY	CK	APP		REV
COEN COMPANY, INC. COMBUSTION ENGINEERS BURLINGAME, CALIF.	4-7-81	SR		fc	BMJ-10D-8381-1 PG 2 OF 10	

ITEM	QTY		COEN NO.	DESCRIPTION
"F" CONTROLS (NOTE: QUANTITIES INDICATED ARE TOTALS FOR JOB) - LOWER LEFT REGISTER				
F30L	1	*	2315-062-01	POWER UNIT, REGISTER LOUVER DRIVE, AC04041200N, 3-15 PSI BAILEY
F31L	1	*	D-2500-101-01(T)	POWER UNIT MOUNTING ASSEMBLY., LEFT HAND SIDE
F32L	1		B-2501-324-01(T)	DRIVE ROD ASSY., 24" C.C.
F35L	1		D-2400-009-03	SWITCH ASSEMBLY, NEMA 4, THREE SWITCHES: "PROOF OF PURGE", "PROOF OF LOW-FIRE" & SPARE
F38L	1	*	D-2500-400-01	REGISTER LOUVER DRIVE ASSEMBLY, ABOVE CENTERLINE L.H.

* SHIP LOOSE

DATE	BY	CK	APP	REV
4-7-81	SR		fc	

COEN COMPANY, INC.
COMBUSTION ENGINEERS
BURLINGAME, CALIF.

ITEM	QTY	COEN NO.	DESCRIPTION	
"L" ELECTRICAL EQUIPMENT (NOTE: QUANTITIES INDICATED ARE TOTALS FOR JOB)				
L1	2	P010140-01	ENCLOSURE, NEMA 4, TO HOUSE L3, L4, L5, L6 & L7, MODEL A24H20BLP, ENCLOSURE TO MOUNT ON ITEM F38	HOFFMAN
L2	2	P010140-02	ELECTRICAL ENCLOSURE MOUNTING INSERT, MODEL A-24P20	HOFFMAN
L3	2	3530-000-01(T)	TRANSFORMER, IGNITION, 120/6000V, P/N 612-6A7 (NOTE: MOUNT IN L1)	WEBSTER
L4	4	3550-304-01(T)	TERMINAL BLOCK, 671-20 (20 POLE) (NOTE: TWO TO MOUNT IN EACH L1 ENCLOSURE)	KUKLA
L5	2	2401-400-04(T)	CONTROLLER CHASSIS, WITH COVER, P/N 70D40	ECA
L6	2	2401-400-06(T)	AMPLIFIER, PB4, P/N 72DIR1	ECA
L7	2	2401-400-02(T)	FRAME, OPEN MOUNTING FOR ITEM L5 & L6 P/N 60-1466-2	ECA
			(NOTE: ONE EACH OF ITEMS L5, L6 & L7 MOUNT IN EACH L1 ENCLOSURE)	
			(NOTE: REGISTER DEPTH = 69")	
L8	2	2401-034-02(T)	SCANNER, FLAME, 48PT2, MODEL 9003, INCLUDES: 1/8" DIA. ORIFICE	ECA
			(NOTE: ONE MOUNTS ON EACH REGISTER DOOR)	

ITEM	QTY		COEN NO.	DESCRIPTION
"M" REGISTER ASSEMBLY (NOTE: QUANTITIES INDICATED ARE TOTALS FOR JOB)				
M1R	1	*	D-2000-419-02(T)	REGISTER ASSEMBLY, CCD-26 WITH SOLID FUEL "SCROLL"
				INJECTION ELEMENT, GAS RING BURNER ELEMENT AND
				"B" BLADES, OVERALL DEPTH = 69"
				REGISTER EXTENSION = 45-3/8" (STD. LENGTH = 23-5/8")
				LOUVER DRIVE LOCATION: CORE - #25; ANNULUS - #15
				INSULATION: 4"
				GAS RING INLET CONNECTION AT 3:00 O'CLOCK
				SOLID FUEL SCROLL INLET CONNECTION AT 3:00 O'CLOCK
M1L	1	*	D-2000-419-02(T)	REGISTER ASSEMBLY, CCD-26 WITH SOLID FUEL "SCROLL"
				INJECTION ELEMENT, GAS RING BURNER ELEMENT AND
				"B" BLADES, OVERA-L DEPTH = 69"
				REGISTER EXTENSION = 45-3/8" (STD. LENGTH = 23-5/8")
				LOUVER DRIVE LOCATION: CORE - #25; ANNULUS - #15
				INSULATION: 4"
				GAS RING INLET CONNECTION AT 9:00 O'CLOCK
				SOLID FUEL SCROLL INLET CONNECTION AT 9:00 O'CLOCK
M1A	2		B-2011-015-01(T)	LEVER ASSY., ADDED AT ANNULUS CONTROL
				(NOTE: ONE PER REGISTER ASSEMBLY - M1)
M2	2		C-2011-229-01	REGISTER MODIFICATION TO CORE BLADE ASSEMBLY,
				ADAPT TO EXISTING WINDBOX CUTOUT AND MOUNTING
				BOLT PATTERN.
				DESIGN CRITERIA:
				EXISTING WINDBOX CUTOUT I.D.= 41-1/4"
				EXISTNG REGISER FRONT PLATE BOLTING PATTERN = (36) 1/2" BOLTS
				EQUALLY SPACED ON CENTERLINES - 43" B.C.
				(NOTE: ONE PER REGISTER ASSEMBLY - M1)
M3	2		D-2023-025-40	REGISTER DOOR, SIZE 3, SINGLE HUB, NON-SWING, 4" BORE TO
				ACCEPT SOLID FUEL BASE BURNER AND 2 MV ATOMIZER
				PILOT AT 9:00 O'OCLOCK
				SCANNER AT 11:00 O'CLOCK
				4" INSULATION
M3A	2		C-1517-034-01	HUB ADAPTER FOR 2 MV
				(NOTE: ONE PER REGISTER ASSEMBLY - M1)
M4	2		2400-078-07	SCANNER MOUNT ASSY. AT 11:00 O'CLOCK, 1/2" NPT, SIZE
				WITH PURGE - COOL COMBUSTION AIR FROM UPSTREAM OF AIR
				PREHEATER TO BE SUPPLIED
				(NOTE: ONE PER REGISTER DOOR ASSEMBLY)

ITEM	QTY		COEN NO.	DESCRIPTION
"M" REGISTER ASSEMBLY (QUANTITIES INDICATED ARE TOTALS FOR JOB) ....CONTINUED				
M5	2		C-2011-178-03	REGISTER THROAT ASSY., 26" I.D., 304 STAINLESS STEEL, GAS/OIL/WOOD FIRING (NOTE: ONE PER REGISTER)
M6	2		C-2401-156-02	SCANNER PURGE ASSEMBLY (NOTE: ONE PER REGISTER)
M10R	1		D-1610-206-01	SOLID FUEL SCROLL BURNER, HOGGED WOOD FINES, ABRASION-RESISTANT STEEL AND STAINLESS STEEL CONSTRUCTION, TOP RIGHT (3:00 O'CLOCK) INLET CONNECTION
M10L	1		D-1610-206-01	SOLID FUEL SCROLL BURNER, HOGGED WOOD FINES, ABRASTION-RESISTANT STEEL AND STAINLESS STEEL CONSTRUCTION, BOTTOM LEFT (9:00 O'CLOCK) INLET CONNECTION
M11	2		C-2011-240-01	SCROLL SUPPORT (NOTE: ONE PER REGISTER)
M12	2		B-3810-070-01	NAMEPLATE, STAMP COEN FILE NO. "10D-8381-1"
M13	2	*	B-2012-031-01	SUPPORT HANGER, REGISTER (NOTE: ONE PER REGISTER ASSEMBLY - M1)

* SHIP LOOSE

DATE	BY	CK	APP	REV
4-7-81	SR		fc	

COEN COMPANY, INC.
COMBUSTION ENGINEERS
BURLINGAME, CALIF.

ITEM	QTY		COEN NO.	DESCRIPTION
"N" THROAT TILE (NOTE: QUANTITIES INDICATED ARE TOTALS FOR JOB)				
N1	1	::	D-0326-097	DRAWING, THROAT ASSEMBLY, 4-1/2" OFFSET, 26" INSIDE DIAMETER, WIDE FLARE, INSTALLATION & MATERIAL NOT BY COEN
N2	2	::	A-4220-200-01	GASKET, GAS RING/TILE SEAL, 100" LONG (NOTE: ONE PER BURNER)
N3	1	::	D-4060-273-01	TEMPLATE, THROAT FORMING, 26" I.D. (NOTE: ONE SET TOTAL FOR JOB)

:: SHIP LOOSE

COEN COMPANY, INC.
COMBUSTION ENGINEERS
BURLINGAME, CALIF.

DATE	BY	CK	APP	REV
4-7-81	SR		fc	

ITEM	QTY		COEN NO.	DESCRIPTION
- "P" OIL BURNER				(QUANTITIES SHOWN ARE TOTAL FOR JOB)
P1	3		D-1022-048-20	BURNER GUN ASSY., #2MV, SINGLE GUN ARRANGEMENT
				81" NOMINAL LENGTH (ONE SPARE*)
P2	3		C-1001-740-02	MIXER & WHIRLPLATE ASSY, 30 HOLE #6 MIXER
P3	3		C-1022-059-01	NOZZLE BODY, TYPE INTERMEDIATE
P4	3		B-1022-005-01	NOZZLE CAP
P5	3		C-1022-016-07	NOZZLE CAP DRILLING - 10 HOLE -3/16" DIA. - 80°
P6	3		A-1001-216-01	RESTRICTOR, OIL DRILLED 0.26" DIA., STEEL
	3		A-5040-009-01	SPRING, RESTRICTOR
P8	2		D-1001-508-01	SOCKET ASSEMBLY, R.H.
P10	2		C-1001-186-81	GUIDE PIPE, 81" NOMINAL LENGTH, W/6" S.S. END
	2		C-1001-550-05	ADDITION, R.H. PURGING CONNECTION
P11	2		F-2212-312-01	BURNER SHIELD, CW, 12" DIA. STAINLESS STEEL
P12	2		D-1000-082-06	SOCKET PIPING ASSY, OIL
P13	2		D-1000-083-07	SOCKET PIPING ASSY, STEAM
P17	2		4110-006-06	HOSE, OIL, BRZ., 1-1/4" DIA., 42" LONG
P18	2		4110-006-06	HOSE, STEAM, BRZ., 1-1/4" DIA., 42" LONG
P19	1	*	A-5480-527-02	VISE & WRENCH KIT
P23	2	*	C-1001-631-81	PLUG, GUIDE PIPE
P24	2		C-4130-009-01	HOSE ASSY., GUIDE PIPE PURGE
P28	2		D-1001-487-02	BURNER POSITION SWITCH ASSY., RIGHT HAND

* SHIP LOOSE	DATE	BY	CK	APP		REV
COEN COMPANY, INC. COMBUSTION ENGINEERS BURLINGAME, CALIF.	4-7-81	SR			BMJ-10D-8381-1 PG 8 OF 10	

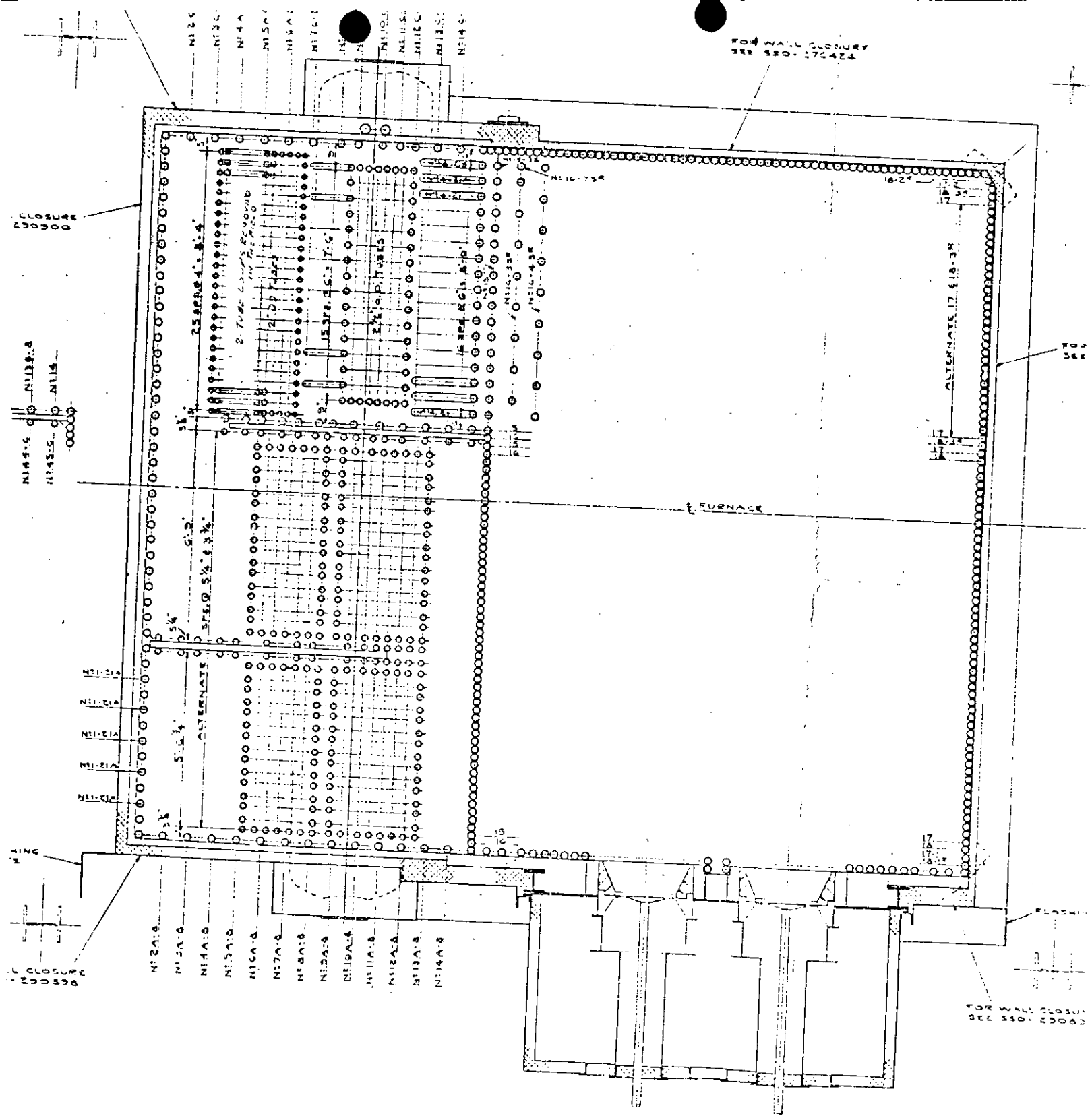
ITEM	QTY		COEN NO.	DESCRIPTION
"Q" PILOT BURNER (NOTE: QUANTITIES LISTED ARE TOTALS FOR JOB)				
Q1	2		D1500-080-66	PILOT ASSY, "FYR'LYTER", STAINLESS STEEL HEAD, 66" LONG
				(NOTE: ONE PER BURNER)
Q2	2		4110-053-01	HOSE, BRONZE FLEX, 3/8" NPT, MALE B.E., 16" LONG
				(NOTE: ONE PER PILOT ASSY.)
"R" GAS BURNER (NOTE: QUANTITIES LISTED ARE TOTALS FOR JOB)				
R1	2		D-2024-114-15	GAS RING ASSY., 26" I.D., 2-1/2" DIA., STAINLESS STEEL PIPE, 4" NPT CONNECTION
				(NOTE: ONE PER BURNER)
R2	2		A-2024-083	GAS RING DRILLING, 104 HOLES, #20 (.161 ")HOLE DIA.
				(NOTE: ONE PER BURNER)
R5	2	*	C-2161-426-01	WINDBOX GAS PIPING & SEAL PLATES
				(NOTE: ONE ASSY. PER BURNER)
R7	2		C-2024-202-10	RETENTION BAND - GAS RING, ADDITION FOR SOLID FUEL FIRING APPLICATIONS
				(NOTE: ONE PER BURNER)
"W" WOOD FIRING EQUIPMENT (NOTE: QUANTITIES LISTED ARE TOTALS FOR JOB)				
W2	2	*	D-1620-175-01	SCROLL BURNER INLET SECTION, ABRASION-RESISTANT STEEL CONSTRUCTION W/WINDBOX SEAL PLATE
W3	2	*	D-1620-174-01	SCROLL BURNER INLET TRANSITION, ABRASION-RESISTANT STEEL CONSTRUCTION

ITEM	QTY		COEN NO.	DESCRIPTION
"X" SOLID FUEL BASE-BURNER EQUIPMENT, GAS-SUSTAINED (NOTE: QUANTITIES LISTED ARE TOTALS FOR JOB)				
X1	2	::	D-1517-031-01	BASE-BURNER ASSEMBLY, 12" NOMINAL DIA., NOMINAL LENGTH = A = 70-1/8" (INCL: X2A & B, X3, X4, X9)
X2A	2		C-1517-032-XX	CONVEYING TUBE, OAL = A = 70-1/8"
				(NOTE: ONE PER BASE-BURNER)
X2B	2		C-1517-033-01	INLET CONVEYING TUBE
				(NOTE: ONE PER BASE-BURNER)
X3	2		B-1518-007-XX	GUIDE PIPE FOR SUSTAINING BURNER OAL = L = 92-3/8"
				(NOTE: ONE PER BASE-BURNER)
X4	2			SLEEVE, GUIDE PIPE, SEAMLESS NEOPRENE, 1/8" THICK 2-1/4" I.D. X 1-15/16" I.D. X 3" LONG WITH TWO WORM-DRIVE HOSE CLAMPS
				(NOTE: ONE SLEEVE PER BASE-BURNER)
X5	2		D-1518-011-01	SUSTAINING BURNER ASSEMBLY, GAS, NOMINAL LENGTH = L = 92-3/8" (INCL: X6A & B, X7, X8)
				(NOTE: ONE PER BASE- BURNER)
X6A	2		B-1021-006-02	CAP, SUSTAINING GAS NOZZLE, S.S.
				(NOTE: ONE PER BASE-BURNER)
X6B	2		SKD7910-07B-00	CAP DRILLING, 6 HOLES 3/32" DIA. ON 1.06" P.C., 120° TIA
X7	2		B-1518-008-XX	GAS TUBE ASSEMBLY, OAL = L = 92-3/8"
				(NOTE: ONE PER BASE-BURNER)
X8	2		4110-053-01	HOSE, GAS, BRZ., FLEX, 3/8" NPT, M.B.E., 16" LONG
				(NOTE: ONE PER BASE-BURNER)
X9	2			HOSE, WOOD CONVEYING, 3" I.D. X 6 FT. LONG #809 GEN-LINE WITH ONE END 3-1/2" I.D. & ONE END WITH 3" O.D. STEM & 3" - 125# FLANGE, WITH HOSE CLAMPS EACH END
				(NOTE: ONE PER BASE-BURNER)

:: SHIP LOOSE

DATE	BY	CK	APP	REV
11-7-81	SR		fc	

COEN COMPANY, INC.
COMBUSTION ENGINEERS
BURLINGAME, CALIF.



SECTIONAL PLAN AT 'A-A'

SEE 175076

ATTACHMENT III

IV

First in cellulose

The Buckeye Cellulose Corporation

Mailing Address: Route 3 Box 260 Perry, Florida 32347 Phone: (904) 584-0121

July 6, 1981

Mr. Mike Harley
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Fines Burning PSD Temporary Source Permit

Dear Mr. Harley:

The additional information you requested for Item 3-E in my letter dated June 26, 1981, is enclosed. Please note that the estimated levels for particulate represent worst case conditions and that we anticipate maximum actual emissions which will be appreciably lower.

Qualifying conditions are as follows:

A. All calculations assume maximum wood burning in 2 burners 100% of the time or 130 MMBTU/hour.

B. Particulate calculations assume no particulate fallout in the furnace or in the dust hoppers. Also, the particulate to the scrubber will be proportional to the air flow.

C. Shave-off scrubber efficiency is assumed to be 90%.

Calculations for particulate emissions are as follows:

Particulate - Source Buckeye Test:

$$3.90\% \text{ Ash} \times \frac{130 \text{ MMBTU/hour}}{8{,}945 \text{ BTU/\#}} = 560 \text{ \#/hour ash}$$

50% to No. 1 Stack = 280 #/hour

50% to Scrubber x (1 - .90 eff.) = 28 #/hour

TOTAL = 308 #/hour

Gaseous emissions are estimated based on average emission data from NCASI testing of wood-fired boilers. The calculations assume that emissions from wood fired in suspension will be the same as wood fired on a grate. One objective of the study is to determine the actual levels of these gaseous emissions. The specific calculations are as follows:

A. SO_2 - Source NCASI Technical Bulletin 96:

.214 #/MMBTU x 130 MMBTU = 3 #/hour SO_2

B. NO_x - Source NCASI Technical Bulletin 102:

.2 #/MMBTU x 130 MMBTU = 26 #/hour NO_x

C. C_xH_y - Source NCASI Technical Bulletin 109:

.07 #/MMBTU x 130 MMBTU = 9 #/hour C_xH_y

D. CO - Source NCASI Test:

.22 #/MMBTU x 130 MMBTU/hour = 29 #/hour CO

The EPA CRSTER model to show the impact of the project on levels of particulate is enclosed. This is in accordance with the agreement between Mr. Larry George and Mr. Stan Kruger and is in response to Item 3-F which requested air quality modeling using the EPA CRSTER model.

This should complete all of the final information requested to process this permit application. Your patience and understanding in helping to develop the information are greatly appreciated.

Very truly yours,

THE BUCKEYE CELLULOSE CORPORATION

Jack Millican

J. H. Millican
Environmental Manager

JHM/eph

Enclosure

cc: Mr. Doug Dutton
Florida Department of Environmental Regulation
3426 Bills Road
Jacksonville, FL 32207