UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
Air SURVEILLANCE SECTION
1445 Ross Ave.
Dallas, TEXAS 75202

RECEIVED
JUL 24 1998
Air/Toxics & ... Coordination Branch
6EN-A

DATE: 07/20/98

SUBJECT: **Transmittal Memo - Compliance Monitoring Reports**

FROM: for Mike Michaud, Chief
Surveillance Section (6EN-AS)

TO: Donna Ascenzi, Chief
Air Enforcement Section (6EN-AA)

THRU: Jeffrey Whitney (6EN-AS)

A compliance monitoring inspection was conducted on **05/27-28/98** at the following location:

FACILITY NAME: **Georgia Pacific Corporation**

ADDRESS: **Post Office Box 496 (Hwy 71 North)**

CITY: **Ashdown, Arkansas 71822-0496**

INSPECTOR: **Jeffrey Whitney**

TYPE FACILITY: FEDERAL ( ) INDUSTRIAL(X)

NSPS(X)- Subparts BB, D, Db, Kb

NESHAP( )-

SIP(X)- Permit No. 287-AR-7

HON ( ) -

OTHER ( )

REVIEWER: Gerald Mobley

EPA REGION 6
SURVEILLANCE SECTION
AIR INSPECTION REPORT

INSPECTION DATE: May 27, 1998

Company Name: Georgia Pacific Corporation

Mailing Address: Post Office Box 496
Ashdown, Arkansas 71822-0496

Physical Location: Highway 71 North
Little River County

Type of Industry: Kraft Pulp and Paper Mill

Company Personnel:

Name	Title	Phone
William "Bill" Fischer	Environmental Engineer	(501) 898 – 2711 Ext. 6136
William Bertrand	Manager, Environmental Engineering	(501) 898 – 2711 Ext. 6314
Roger Brear	Vice President, Ashdown Operations	(501) 898 – 2711 Ext. 6100

State/Federal Regulatory Personnel:

Name	Title	Agency	Phone
Jeffrey Whitney	Environmental Protection Specialist	EPA, Region 6	(214) 665 - 7368
Jackie Rymer	Environmental Inspector	Arkansas Department of Pollution Control and Ecology	(870) 777 – 7585

INTRODUCTION

On May 27-28, 1997, an unannounced air inspection was conducted at Georgia Pacific Corporation's Ashdown Operations. The facility is located in Ashdown, (Little River County) Arkansas. The purpose of the inspection was to determine the facility's

compliance status with the applicable provisions of the Federal New Source Performance Standards (NSPS),and applicable provisions of the Arkansas State Implementation Plan.

Mr. Jackie Rymer of the Arkansas Department of Pollution Control and Ecology observed the inspection.

FACILITY DESCRIPTION

The Georgia Pacific Ashdown facility is a kraft pulp and paper mill that produces mainly fine writing papers such as printer paper and copier paper. Maximum production rates are 3000 tons per day of pulp (typically 2500) and 2600 ton per day of paper (typically 2400). The facility operates 24 hours per day and, 7 days per week and employs approximately 1100 employees.

Basic operations include the receipt of logs that are stockpiled for use as needed. Logs are debarked, with the bark saved and used for fuel. The debarked log is then used to make chips for the pulping operations.

Typical bleached kraft mill activities involve two major processes, pulping and bleaching. Kraft pulping is the process by which the cellulose portion of wood is separated from the lignin that binds the fibers together. This process is accomplished by digesting (cooking) wood chips in an alkaline liquor at elevated temperatures and pressures. Non-condensable gases from the digestion process are routed to the power boiler or lime kiln for incineration.

Upon completion of the digestion stage, the mixture of pulp and liquor is withdrawn into a blow tank. In the blow tank, the pulp and liquor are separated. The pulp proceeds to a washing stage and the spent liquor goes to a recovery stage. Washing generally takes place in a multi-stage countercurrent system, and is then followed by bleaching in multiple stages to achieve the desired brightness.

The spent liquor, commonly referred to as black liquor, contains chemicals that warrant recovery in a closed loop process. The black liquor is concentrated to a degree that dissolved organics will permit it to be burned in a recovery furnace. The inorganics will collect on the bottom of the furnace as a smelt, and are collected and processed into a green liquor. The green liquor is then reacted with lime to form the white liquor, which is reused in the digestion process. Non-condensable gases from the

evaporators/concentrators are routed to the power boiler or lime kiln for incineration.

The lime kilns are equipped with slakers which have scrubbers installed to control particulate emissions. Both kilns have hot lime silos and fresh lime unloading areas. The No. 3 kiln uses a baghouse to control particulate matter emissions from these areas, while the No. 2 kiln has the emissions vented back into the kiln.

Bleached pulp is diluted at the headbox of the paper machine to facilitate the paper making operation. During the paper making process, it becomes necessary to de-water the sheet during its trip through the paper machine. Among the means used are exhaust fans and vacuum pumps, both of which will emit water vapor to the atmosphere. No wet strength resins, coating operations, nor volatile organics are used in the paper manufacturing area.

A simplified block flow diagram is included in attachment 1.

A plot plan of the facility is included in attachment 2.

A copy of the last state inspection report is included in attachment 3.

REGULATION APPLICABILITY AND PERMIT HISTORY

This facility is considered a major stationary source under PSD regulations. On May 24,1993, **consolidated permit number 287-AR-7** (attachment 4) was issued by the ADPC&E. This permit (a PSD permit) covers the entire facility and consolidates the following permits:

Permit #	Date Approved	Modification
287-AR-6 (PSD)	06/24/87	Replacement of No. 1 Recovery Boiler and No. 1 Smelt Tank
946-A (PSD)	07/14/89	No. 1 Recovery Boiler Converted to No. 3 Power Boiler, Constr. Of No. 3 Lime Kiln

Bill Fischer compiled the facility's Title 5 permit application.

Federal Regulation Applicability:

Regulation	Unit(s) Affected
NSPS Subpart BB	No. 2 Recovery Boiler No. 3 Recovery Boiler No. 3 Lime Kiln No. 2 Lime Kiln No. 3 Smelt Dissolving Tank No. 2 Smelt Dissolving Tank NCG System
NSPS Subpart Db	No. 3 Package Boiler No. 3 Power Boiler No. 2 Package Boiler
NSPS Subpart D	No. 2 Power Boiler
NSPS Subpart Kb	Methanol Storage Tank

OBSERVATIONS

The inspector arrived at the facility at 10:10 a.m. on May 27 and met with Bill Fischer and William Bertrand of Georgia Pacific. The inspector reviewed records and questioned facility personnel about processes and regulation applicability throughout the first day of the inspection. A cursory facility tour was also conducted. A further investigation of records and a more extensive tour of the facility were conducted on the second day of the inspection. Mr. Jackie Rymer of the Arkansas Department of Pollution Control and Ecology was present during the first day of the inspection.

NSPS Subpart Db

Due to heat input rate and construction date, Power Boiler No. 1, Package Boiler No. 2, and Package Boiler No. 3 are all subject to the requirements of **NSPS subpart Db**.

Package Boiler No. 2 and Package Boiler No. 3 (SN-11 and SN-12) burn only natural gas and are therefore subject to a nitrogen oxide emission limit of .10 lb/million Btu as specified in **40 CFR 60.44b(a)(1).**

Because these boilers burns only natural gas, the PM and SO_2 limits under this subpart do not apply.

Both package boilers have a heat input capacity of 250 mmBTU or less and are therefore not required to be equipped with continuous emissions monitors for nitrogen oxides emissions as specified in **40 CFR 60.48b(g)**.

The No. 3 Power Boiler (SN-01) has a heat input capacity of 790 mmBTU per hour. The boiler burns a combination of bark and natural gas and is therefore subject to a nitrogen oxides emission limit of .30 lb/million BTU as specified in **40 CFR 60.44b(d)**. Per records review and field inspection, the boiler was found to be equipped with a continuous monitor for measuring and recording nitrogen oxides emissions as required by **40 CFR 60.48b(b).** The boiler is also subject to a particulate matter emissions limit of .10 lb/million BTU as specified in **40 CFR 60.43b(c)(1)**. Per records review and field inspection, the boiler was found to be equipped with a monitor for continuously measuring and recording the opacity of emissions as required **by 40 CFR 60.48b(a)**.

Per field inspection and review of computer monitoring logs, Power Boiler No. 3 was found to be operating below allowable limits.

Per records review, the facility is recording and maintaining records of the amounts of each fuel combusted for each day as required by **40 CFR 60.49b(d)** (attachment 6).

NSPS Subpart D

Due to heat input rate and construction date, **Power Boiler No. 2** is subject to the requirements of NSPS subpart D.

This boiler is an 820 mmBTU/hour boiler which burns a combination of coal and bark and is also capable of burning #6 fuel oil and used specification grade motor oil. The boiler is subject to a nitrogen oxides emission limit of .70 lb per million BTU as specified in **40 CFR 60.44(a)(3).** Per records review and field inspection, the boiler was found to be equipped with a continuous monitor for continuously measuring and recording nitrogen oxides emissions as required **by 40 CFR 60.45(a)**. The boiler is subject to a particulate emissions limit of .10 lb/million BTU as specified in **40 CFR 60.42(a)(1)**. Per records review and field inspection, the boiler was found to be

equipped with a continuous monitor for continuously measuring and recording the opacity of emissions as specified in **40 CFR 60.45(a)**. The boiler is also subject to a sulfur dioxide limit of 1.2 lb/million BTU as specified in **40 CFR 60.43(a)(2)**. Per records review and field inspection of the facility, the boiler was found to be equipped with a monitor for continuously measuring and recording sulfur dioxide emissions as required by **40 CFR 60.45(a).**

Per field inspection and review of computer monitoring logs, Power Boiler No. 3 was found to be operating below allowable limits.

The facility is submitting quarterly excess emissions reports for all continuous monitoring systems as required by **40 CFR 60.7(c)** which contain all of the information specified by **40 CFR 60.7(c)1-4**. The inspector requested and received a copy of the last quarterly excess emissions report for the facility.

NSPS Subpart BB

The No. 2 Recovery Boiler, No. 3 Recovery Boiler, No. 3 Lime Kiln, No. 2 Lime Kiln, No. 3 Smelt Dissolving Tank, No. 2 Smelt Dissolving Tank and NCG System are Kraft pulp mill units subject to the requirements of NSPS Subpart BB.

Non-condensable gases (NCGs) from the pulping process are vented to the facility's NCG system and incinerated in power boiler No. 2. This boiler maintains a minimum combustion temperature of 1200 degrees F for at least 0.5 seconds as required by **40 CFR 60.283(a)(1)(iii)** and is equipped with a monitoring device which continuously measures the combustion temperature as required by **40 CFR 60.284(b)(1)**. The No. 2 lime kiln is used as a backup NCG incinerator.

The No. 2 and No. 3 Recovery Boilers as well as the No. 2 and No. 3 lime kilns are equipped with continuous emissions monitors for measuring the concentration of Total Reduced Sulfur (TRS) emissions as required by **40 CFR 60.284(a)(2)**.

The No. 2 and No. 3 Recovery Boilers are equipped with continuous opacity monitors as required by **40 CFR 60.284(a)(1)**.

The No. 3 lime kiln scrubber is equipped with a monitoring device for continuously measuring the pressure loss of the gas stream through the control device as required by **40 CFR 60.284(b)(2)(1)**.

Twelve hour average TRS concentrations are calculated and recorded on a daily basis as required by **40 CFR 60.284(c)(1)**.

The facility is submitting quarterly excess emissions reports for all continuous monitoring systems as required by **40 CFR 60.7(c)** which contain all of the information specified by **40 CFR 60.7(c)1-4**. The inspector requested and received a copy of the last quarterly excess emissions report for the facility. A list of all required COMS and CEMS located at the facility is included in attachment 5.

NSPS Subpart Kb

Due to capacity and date of construction, the methanol storage tank (SN-23) located at this facility is subject to the provisions of **NSPS subpart Kb**. This tank has a vapor pressure of 13.332 Kpa (<15 Kpa) and is therefore only required to comply with **40 CFR 60.116b(a) and (b)**.

Per records review, the dimensions of the storage tank and an analysis showing capacity are being kept at the facility and will be kept for the life of the vessel as required by **40 CFR 60.116b(a) and (b)**.

Provisions of Permit No. 287-AR-7

The following provisions of permit No. 287-AR-7 were reviewed: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, *14, *15, **16, 17, 18, 19, 20, 21, 22, 23, 24, 25, and 26.

* The No. 2 lime kiln was down at the time of the inspection.

** Specific condition 16 was changed on June 13, 1997. Compliance with emissions limitations is now determined through the use of continuous emissions monitors and stack sampling instead of the measurement of black liquor burned.

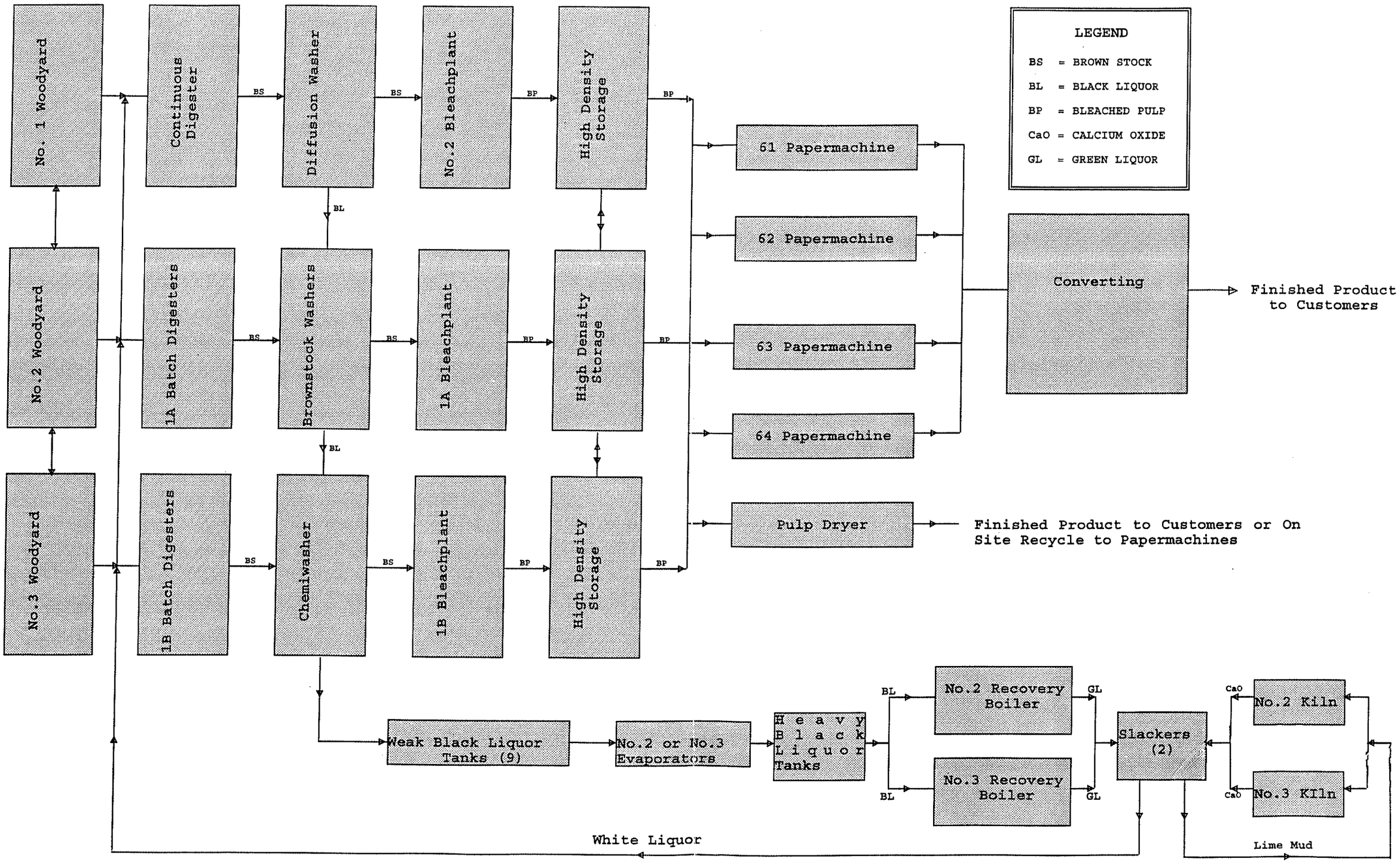
Review of Areas of Concern

Per records review, conversations with plant personnel, and field inspection of the facility, no areas of concern were found.

LIST OF ATTACHMENTS

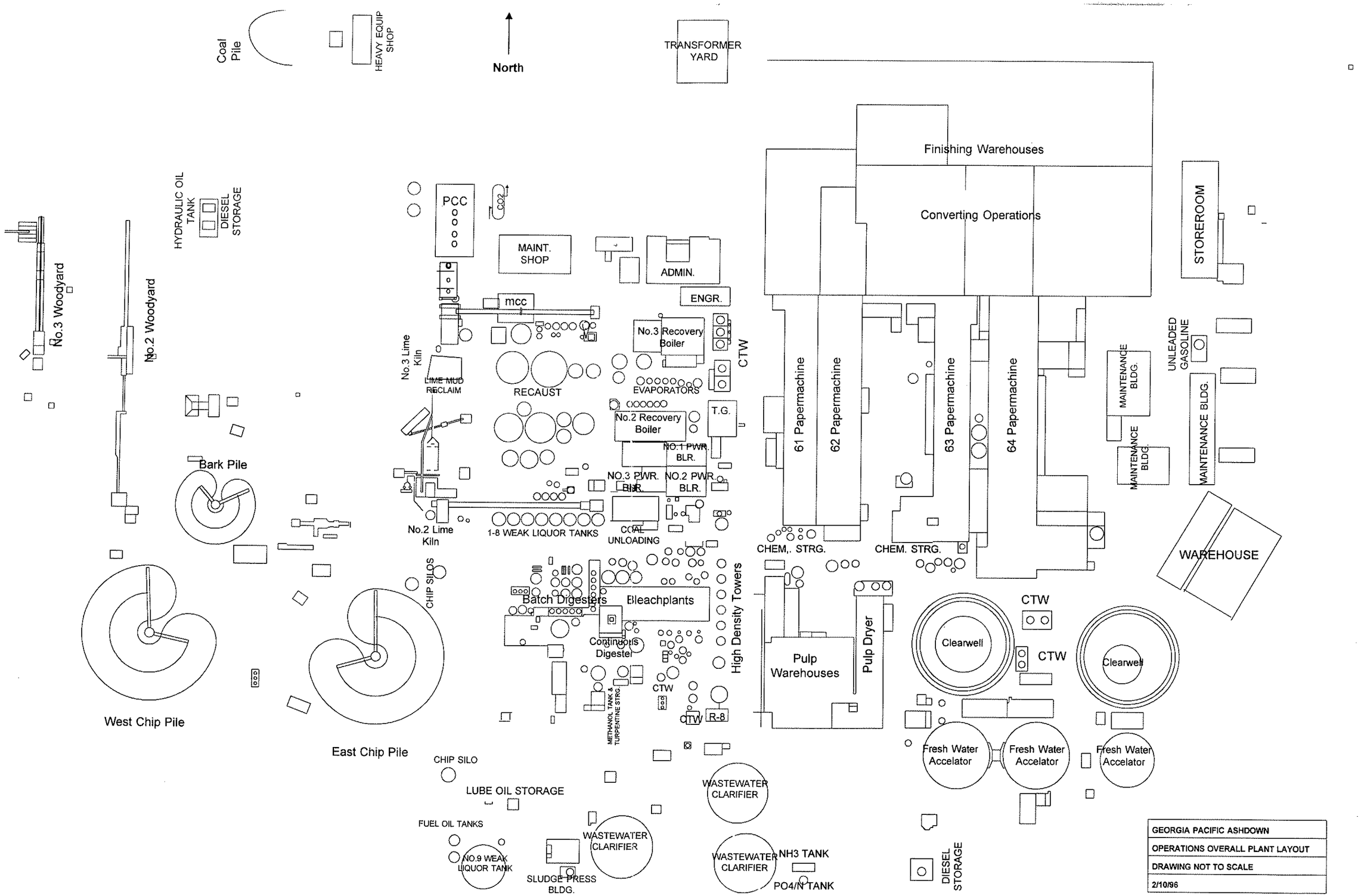
1. Process Block Flow Diagram
2. Plot Plan of the Facility
3. Copy of Last State Inspection Report
4. Copy of Permit 287-AR-7
5. Copy of CEMS and COMS Located at the Facility
6. Records of Daily Fuel Usage for #3 Power Boiler

ATTACHMENT 1



GENERAL PROCESS FLOW DIAGRAM GEORGIA PACIFIC ASHDOWN OPERATIONS

ATTACHMENT 2



GEORGIA PACIFIC ASHDOWN
OPERATIONS OVERALL PLANT LAYOUT
DRAWING NOT TO SCALE
2/10/96

ATTACHMENT 3

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
AIR INSPECTION FORM

CSN: 41-0002 PERMIT NUMBER: 287-AR-7
sort: AIR COMPLIANCE

Date of Inspection: 4/2/97 Time In 9:15 A.M. Time Out 1:15 P.M.

Type of Inspection (circle): SIP NSPS PSD NESHAP
AIR CODE COMPLAINT OTHER_____

NSPS Applicable subpart BB, Db, D, A

NESHAP Applicable subpart N/A

Company Name: Georgia-Pacific, Inc.

Location: Hwy. 71 North

Mailing Address: P.O. 496

Ashdown, Arkansas 71822-0496

COMPANY PERSONNEL	NAME	TITLE	PHONE
Bill Fischer	Sr. Process Engineer		501/898-2711

PLANT LOCATION: Commercial Rural Residential Industrial

OPERATIONAL SCHEDULE:	24	7	52
	hrs/day	days/wk	wks/yr

Permitted hours of operation: 8760 hr./yr.

Production rate or percentage of Maximum operating Capacity:
This date: 400 ton/day pulp
2400 ton/day paper
Max. Design 600 ton/day pulp
2400 ton/day paper
or permit limit (note which figure used)

List product manufactured or activity regulated and attach appropriate forms (i.e. asphalt plant inspection form, CEM forms)

Paper

MAINTENANCE OF CONTROL EQUIPMENT:

Does facility maintain a program for control equipment? Yes/No

How often is control equipment checked and by whom? Equipment is checked daily by plant personnel.

Are records kept on maintenance of control equipment? Yes/No
If yes, ask to see records.

UPSETS:
Have there been any upsets within the last twelve months which caused emissions above the allowable limits or odors to escape into the ambient air? Yes/No
Was upset reported to ADPC&E? Yes/No/Not Applicable

Have there been any changes or modifications in plant processes or operation since the last air inspection? Yes/No
If yes, list and describe in comments section.

Are there any sources with no control equipment located at the facility? Yes/No

If yes, list sources: See attached source listing (Attachment #1)

CONTROL EQUIPMENT:

SOURCE No.	TYPE OF CONTROL (if any)	PRESSURE DROP	GPM	ACFM	APPL. Reg.
	See attachment #1				

If additional space is needed, attached another page.

BOILER INFORMATION:

Manufacturer Babcock & Wilcox, Combustion Engineering, Gotberken Source

Fuel ID	% Used	% Sulfur	Design Ash	Capacity BTU or	lbs/hr
SN-6 & 14 Black Liquid				4.5 Million lbs/day	
SN-11 & 12 Natural Gas				160 & 110 Million Btu/hr.	
SN-01 Natural Gas & Bark				790 Million Btu/hr.	

ESP PARAMETERS:

Manufacturer Wheelbrator & Flakt

Type Dry % Design Sulfur Range ____ %

Design Ash Content ____ % Design Heating Value ____ %

Number of fields ____ Number of T-R Sets ____

Fly Ash: Total Collected 86,000 Combined tons/yr

Disposal Method Recycled

Bottom Ash: Total Collected 3,000 tons/yr

Disposal Method Ash Pond

T-R Set No.	Primary AMPS	Primary Volts	Secondary AMPS	Secondary Volts	Spark Rate
See attachment # 2					

If additional space is needed, attached another page.

WET SCRUBBER:

Does the source measure the water flow going to the scrubber (injection) or after it has left the scrubber (discharge) or is it not measured? Circle one.

Is Venturi Scrubber Used? Yes/No

Venturi Throat Setting_____

Scrubber Discharge Color #2 Power Boiler-Black
#2 Lime Kiln, Smelt Tank-White

Is Oil Present? Yes/No Is Water Turbid? Yes/No

Is Water Recycled? Yes/No

Scrubber water discharge: Pond, Stream, River, Ditch, Storm Drain, Sanitary Sewer.

VOC USAGE:

Permit Limits (monthly, yearly) 4697.6 tons/yr.

Year to date usage (from required records or, if records are not required, from company purchasing records) Predetermined amount

Projected year end total VOC emissions (Inspector's calculations).

N/A

Also, request a copy of facility's last VOC usage report, if one is required.

UNPERMITTED SOURCES

List any sources noted during the inspection that are not on the current permit None

REQUIRED RECORDS

List all records required either by the permit or by regulations that apply to the facility (i.e. NSPS regs.) Fuel usage, concentration of solids used in liquid, test dates for CEM System, and annual report of BLS used.
attach copies of all required records

INSPECTOR SUMMARY, VISIBLE EMISSION READINGS, ATTACHMENTS

FACILITY: Georgia-Pacific, Inc.
CSN: 41-0002 PERMIT NUMBER: 287-AR-7

Permit 287-AR-7 was issued to Georgia-Pacific on 5/24/93 for the operation of a paper mill. Basic operations include the receipt of logs which are stock piled for use as needed. Logs are debarked, with the bark saved and used as fuel, and the debarked log is then used to make chips for the pulping operations. Typical bleached kraft mill activities include two (2) major processes; pulping and bleaching. Kraft pulping is the process by which the cellulose portion of wood is separated from the lignin which binds the fibers together. This process is accomplished by digesting wood chips in an alkaline liquor at a evaluated temperature and pressures. Upon completion of the digestion stage, the mixture of pulp and liquor is withdrawn into a blow tank. In the blow tank, the pulp and liquor is separated, with the pulp preceding to a washing stage and spent liquor going to a recovery stage. The spent liquor, black liquor, contains chemicals which warrant recovery in a closed loop process. The black liquor is concentrated to a degree that dissolved organics will permit it to be burned.

On 4/2/97, Writer, arrived at Georgia-Pacific Inc. to conduct annual State Air Code, State Implementation Plan, and PSD inspection. In speaking with Mr. Bill Fischer, Process Engineer, it was found no change has occurred since last inspection. Georgia-Pacific will notify the Department before making any changes at the facility. A six-minute visible emission reading was taken on SN-01 (Power

INSPECTOR SUMMARY, VISIBLE EMISSION READINGS, ATTACHMENTS

FACILITY: Georgia-Pacific Inc.
CSN: 41-0002 PERMIT NUMBER: 287-AR-7

Boiler), SN-05 (# 2 Power Boiler), SN-06 (#2 Recovery Boiler), and SN-02 (# 3 Lime Kiln) using EPA Method # 9. No visible emissions were detected on SN-06, 02, and SN-01. SN-05 had an average opacity of 7.3 %. (See attached visible emission forms). On date of inspection No. 3 Recovery Boiler was firing on bark and natural gas. The steam generation was 279,000 lbs/hr. and heat input was 500,000 MMBTU/HR. thus, compiling with Specific Condition No. 6. The Electrostatic Precipitator can't be by passed for maintenance on No. 3 Power Boiler thus, compiling with Specific Condition No.7. The No. 3 lime kiln uses only natural gas for fuel as required by Specific Condition No. 8. No by pass of the ESP can be performed during maintenance of the No. 3 Lime kiln thus, compiling with Specific Condition No. 9. On date of inspection # 3 Recovery Boiler was firing at a rate of 106.22 tons BLS/hr. thus, compiling with Specific Condition No. 10. The flow of strong black liquor is measured, recorded and an annual report is submitted to the Department thus, compiling with Specific Condition No. 10 & 16. (See attachment #4). No. 3 Package Boiler uses only natural gas for fuel thus, compiling with Specific Condition No.11. No.2 & 3 Smelt Tank does comply with 40 CFR Part 60, Subpart BB. The Smelt Tank was tested on 5/2-3/97 by Environmental Services. On date of inspection steam generation was 380,000 lbs/hr. and heat input was 427 MMBTU/hr. thus, meeting requirements of permit. Used motor oil had been used for firing in

INSPECTOR SUMMARY, VISIBLE EMISSION READINGS, ATTACHMENTS

FACILITY: Georgia-Pacific, Inc.
CSN: 41-0002 PERMIT NUMBER: 287-AR-7

No. 2 Power Boiler and records were available thus, compiling with Specific Condition No.13. No No. 6 fuel oil has been used in No. 2 Lime kiln thus, no report had to be filed with the Department. On date of inspection BLS firing rate was 61 BLS tons/hr. thus, well within permit limits of 91.65 BLS tons/hr. The No. 2 Package Boiler uses natural gas only for fuel thus, meeting requirements of Specific Condition No. 17. On date of inspection steam generation on No. 1 was 147,000 lbs/hr. And heat input was 150 MMBTU/hr. thus, compiling with Specific Condition No. 19. The pressure drop on No. 2 Power Boiler was 16 inches and 1600 gallons per minute on the scrubber thus, meeting requirements of Specific Condition No.21. The No. 3 Smelt Tank was tested 10/5-6/93 by Ramcom thus, compiling with Specific Condition No. 23. Georgia-Pacific reports CEM's in ppm as required in Specific Condition No.25. (See attachment #4). SN-06 (No. 2 Recovery Boiler), SN-14 (No. 3 Recovery Boiler), SN-20 (ClO2 Generator), and SN-22 (No. 1 Brownstock Washer Vents) were tested 7/14/94 by Environmental Services as required by Specific Condition No.26. The carbonators at the PCC plant are limited to 5.4 tons/hour, The carbonators are currently producing an average of 4.15 tons/hour. (See attachment # 5). The inlet stream to the carbonators were tested 8/16/94 as required by Specific Condition No. 28 by Environmental Services. The required Kraft Pulp Mill form and CEM information is attached to inspection form.

SUMMARY PAGE CONTINUED

The facility is in compliance, at this time, from a standpoint of visible emissions per permit requirements. A letter will be forwarded to Mr. Bill Fischer regarding the compliance status of the facility.

COMPLIANCE STATUS: (CHECK ONE)

__X__: FULL COMPLIANCE - meets all emission limits and permit conditions.

_____: SUBSTANTIAL COMPLIANCE: meets all emission limits - minor violations of record keeping not effecting emissions, minor fugitives, better than permitted control equipment.

_____: NON-COMPLIANCE: list reasons:

_____: OTHER: explain:

Inspector's Signature: Date: 4/3/97

ATTACHMENT 4

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 8913
LITTLE ROCK, ARKANSAS 72219-8913
PHONE: (501) 562-7444
FAX: (501) 562-4632

May 24, 1993

Ilew
6/7/93

Bill Fischer
Sr. Process Environmental Engineer
Georgia-Pacific, Ashdown Operations
P.O. Box 496
Ashdown, Arkansas 71822-0496

Dear Mr. Fischer

The enclosed Permit No. 287-AR-7 is your authority to construct, operate, and maintain the equipment and/or control apparatus as set forth in your application dated or last amended February 8, 1993.

After considering the facts and requirements of Act 472 of 1949, as amended (Ark. Code. Ann. Sec. 8-4-101 et seq.) and implementing regulations, I have determined that Permit No. 287-AR-7 for the construction, operation and maintenance of an air pollution control system for Georgia-Pacific, Ashdown Operations be issued and effective on the date specified in the permit, unless a Commission review has been properly requested under Section 4, Part III, of Regulation No. 8, Arkansas Department of Pollution Control and Ecology Administrative Procedures, within 30 days after service of this decision.

All persons submitting written comments during this 30 day period, and all other persons entitled to do so, may request an adjudicatory hearing and Commission review on whether the decision of the Director should be reversed or modified. Such a request shall be in the form and manner required by Section 4, Part III, of Regulation No. 8.

The permit is subject to the conditions specified therein and the conditions, if any, which are specified in the enclosed summary report.

Sincerely,

James B. Jones, Jr.
James B. Jones, Jr.
Chief, Air Division

Enclosure

Exciting

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE, P.O. BOX 8913
LITTLE ROCK, ARKANSAS 72219-8913
PHONE: (501) 562-7444
FAX: (501) 562-4632

PERMIT

FOR THE INSTALLATION, ALTERATION, OR REPLACEMENT OF EQUIPMENT AND/OR AIR POLLUTION CONTROL APPARATUS UNDER REGULATIONS OF THE ARKANSAS PLAN OF IMPLEMENTATION FOR AIR POLLUTION CONTROL AND THE ARKANSAS AIR POLLUTION CONTROL CODE

Permit Number: 287-AR-7 CSN: 41-0002

TO: Georgia-Pacific, Ashdown Operations
Highway 59 South
Ashdown, Arkansas 71822

This permit is your authority to construct, operate and/or maintain the equipment and/or facility in the manner as set forth in the Department's summary report and your application dated February 8, 1993. This permit is issued pursuant to the provisions of the Arkansas Water and Air Pollution Control Act (Ark. Code Ann. Sec. 8-4-101 et seq.) hereinafter referred to as the "Act," the Arkansas Air Pollution Control Code hereinafter referred to as the "Code," and the Regulations of the Arkansas Plan of Implementation for Air Pollution Control hereinafter referred to as the "Plan."

1. This permit shall not relieve the owner or operator of the equipment and/or the facility from compliance with all applicable provisions of the Act, Code, and Plan.

2. The equipment and/or facility shall be constructed, installed, and operated in accordance with the plans, specifications, written descriptions, and other representations contained in the permit application and the Department's summary report. There shall be no deviation therefrom without the written approval of the Director of the Department of Pollution Control and Ecology.

3. The Director shall be notified in writing within thirty (30) days after construction has commenced, construction is complete, the equipment and/or facility is first placed in operation, and the equipment and/or facility first reaches the target production rate.

4. Construction must commence within eighteen (18) months after the approval of the permit application. Records must be kept for two years which will enable the Department to determine compliance with the terms of this permit--such as hours of operation, throughput, upset condition, and continuous monitoring data. The records may be used, at the discretion of the Department, to determine compliance with the conditions of the permit.

5. Each emission point for which an emission test method is specified in this permit shall be tested in order to determine compliance with the emission limitations contained herein within sixty (60) days of achieving the maximum production rate, but in no event later than 180 days after initial start-up of the permitted source. The permittee shall notify the Department of the scheduled date of compliance testing at least fifteen (15) days in advance of such test. Compliance test results shall be submitted to the Department within thirty (30) days after the completed testing. The permittee shall provide:

   (a) Sampling ports adequate for applicable test methods
   (b) Safe sampling platforms
   (c) Safe access to sampling platforms
   (d) Utilities for sampling and testing equipment

6. The equipment, control apparatus and emission monitoring equipment shall be operated within their design limitations and maintained in good condition at all times.

7. If, for any reason, the permittee does not comply with or will not be able to comply with the emission limitations specified in this permit, the permittee shall report such occurrences to the Department within twenty-four (24) hours and provide the following information in writing within five (5) days of such conditions:

   (a) Description of noncomplying emission(s)
   (b) Cause of noncompliance
   (c) Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance
   (d) Steps taken by the permittee to reduce and eliminate the noncomplying emission
   (e) Steps taken by the permittee to prevent recurrence of the noncomplying emission

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

This permit shall be available for inspection on the premises where the control apparatus is located.

8. The permittee shall allow representatives of the Department upon the presentation of credentials:

   (a) To enter upon the permittee's premises, or other premises under the control of the permittee, where an air pollutant source is located or in which any records are required to be kept under the terms and conditions of this permit
   (b) To have access to and copy any records required to be kept under the terms and conditions of this permit, or the Act
   (c) To inspect any monitoring equipment or monitoring method required in this permit
   (d) To sample any emission of pollutants
   (e) To perform an operation and maintenance inspection of the permitted source

9. This permit is issued in reliance upon the statements and presentations made in the application. The Department has no responsibility for the adequacy or proper functioning of the equipment or control apparatus.

10. This permit shall be subject to revocation or modification when, in the judgment of the Director, such revocation or modification shall become necessary to comply with the provisions of the Act, Code, or Plan, or if the permittee fails to pay the permit fee in accordance with Regulation No. 9.

11. This permit is issued to the applicant alone. It may not be transferred to another party. In the event of the sale of the permitted facility, this permit shall expire and the purchaser must apply for a new permit.

Approved:

Department of Pollution Control
and Ecology

James B. Jones Jr.
Chief, Air Division

Date 24 MAY 93

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
DIVISION OF AIR POLLUTION CONTROL

Summary Report Relative to Permit Application

Submitted By: Georgia - Pacific Corporation
Ashdown Operations
P.O. Box 496
Ashdown, AR 71822-0496

CSN: 410002 **Permit No. 287-AR-7** **Date Issued** 5/24/93

Submittals: August 14, 1990 September 14, 1990
January 28, 1992 February 27, 1992
January 26, 1993 February 8, 1993

Summary

Georgia - Pacific Corporation operates a bleached kraft pulp and paper mill in Ashdown, Little River County, Arkansas. The facility is considered a major stationary source under PSD regulations; and is currently operating under air permits 287-AR-6 and 946-A. This permitting action seeks to consolidate all the above permits into one permit, and to permit existing emission sources which have previously been inadvertently omitted from permitting activities. One proposed source is discussed later in the text.

Permit 287-AR-5 was issued on June 24, 1987 as a PSD action. This permit was for the replacement of the No. 1 Recovery Boiler and the No. 1 Smelt Tank. The replacements were designated as No. 3 Recovery Boiler and the No. 3 Smelt Tank.

Permit 946-A, another PSD permitting action, was issued on July 14, 1989. Under this action, the old No. 1 Recovery Boiler was converted to what is now the No. 3 Power Boiler. Additionally, the construction of a new lime kiln (No. 3 Lime Kiln) was permitted.

Installation: N/A Operation: Current
Control Equipment: N/A Total Project: N/A
Reviewed By: M.L.Core Approved By: J.B. Jones
Applicable Regulation: Air Code, SIP, NSPS, PSD

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

Permit 287-AR-6 was issued on December 31, 1991. This permit allowed for an increase in the black liquor solids (BLS) firing rate in the No. 3 Recovery Boiler. The increase however, did not trigger a PSD review.

In addition to consolidating the permits mentioned, GP proposes to permit a PCC (precipitated calcium carbonate) facility to be located adjacent to the No. 3 Lime Kiln on GP property. The process will introduce the stack gases from the No. 3 Lime Kiln to the carbonators which will produce a slurry of calcium carbonate for use in the papermaking process. The No. 2 Lime Kiln may be used as a backup to the No. 3 Lime Kiln. When neither kiln is operating, liquid carbon dioxide from an onsite tank will be used.

Three carbonators are intended to be constructed in 1993, with a fourth to be constructed in 1994. Construction of the fourth unit will begin no later than eighteen (18) months of final permit issuance. The carbonators will operate as a batch process. The stack gases once used by the carbonators will then be released to the atmosphere. Demisters will be used on the carbonators to control particulate emissions. Emissions from ancillary operations, lime unloading and handling, will be controlled by using a fabric filter and are expected to be neglible.

The PCC facility will be operated by Minerals Technologies, Inc.; a wholly owned subsidiary of Specialty Minerals, Inc.; however, for permitting and compliance purposes, GP will assume full responsibility. GP proposes to demonstrate, through the use of emissions netting procedures, that the facility will not result in emissions increases which would be subject to PSD review. A summary of the net increases in emissions is shown below.

PHASE I (3 CARBONATORS)

POLLUTANT	ACTUAL EMISSIONS[1]	PROPOSED EMISSIONS[2] (TOTAL)	NET CHANGE (+/-)[3]
CO	-94.0	+119.6	+25.6
NOx	-113.6	+143.2	+29.6
SO2	-22.7	+5.3	-17.4
TRS	-2.0	+0.8	-1.2
PM10	-14.7	+10.1	-4.6
VOC	-22.1	+28.1	+6.0

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

PHASE II (4 CARBONATORS)

POLLUTANT	ACTUAL EMISSIONS[1]	PROPOSED EMISSIONS[2] (TOTAL)	NET CHANGE (+/-)[3]
CO	-125.3	+159.4	+34.1
NOx	-151.5	+191.0	+39.5
SO2	-30.3	+7.0	-23.3
TRS	-2.7	+1.0	-1.7
PM10	-19.6	+13.5	-6.1
VOC	-29.5	+36.8	+7.3

1.Actual emissions from lime kiln to be diverted to carbonators, expressed in tons per year.

2.Proposed emissions from the PCC plant, expressed in tons per year.

3.+ = Increase, - = Decrease; both expressed in tons per year.

As can be seen from the above, the net changes in emissions as a result of the proposed PCC plant are less than the significant level defined in 40 CFR Part 52.21. Thus, the proposed activity will not be subject to PSD regulatory review. The Air Division has however, made the decision to require a testing regimen to demonstrate compliance with the PSD regulations.

Basic operations include the receipt of logs which are stockpiled for use as needed. Logs are debarked, with the bark saved and used for fuel, and the debarked log is then used to make chips for the pulping operations. Minor source emissions from the woodyard operations would be fugitive emissions from seven cyclones which separate oversized chips from acceptable sized chips. Due to the cyclone locations with respect to the property lines, fugitive emissions are not likely to extend beyond the property line.

Typical bleached kraft mill activities involve two major processes; pulping and bleaching. Kraft pulping is the process by which the cellulose portion of wood is separated from the lignin which binds the fibers together. This process is accomplished by digesting (cooking) wood chips in an alkaline liquor at elevated temperatures and pressures. Non-condensible gases from the digestion process are routed to the power boiler or lime kiln for incineration.

Upon completion of the digestion stage, the mixture of pulp and liquor is withdrawn into a blow tank. In the blow tank, the pulp

White Liquor used in pulping digestion process "Alkaline" → digestion → Spent "Black Liquor" → Burn in Rec. Boiler "Closed Loop" → smelt → Processed → "green" liquor → Reacted with Lime → White Liquor

and liquor are separated; with the pulp proceeding to a washing stage and the spent liquor going to a recovery stage. Washing generally takes place in a multi-stage countercurrent system, and is then followed by bleaching in multiple stages to achieve the desired brightness.

The spent liquor, commonly referred to as "black liquor" contains chemicals which warrant recovery in a closed loop process. The black liquor is concentrated to a degree that dissolved organics will permit it to be burned in a recovery furnace. The inorganics will collect on the bottom of the furnace as a smelt, and are collected and processed into a green liquor. The green liquor is then reacted with lime to form the white liquor, which is reused in the digestion process. Non-condensible gases from the evaporators/concentrators are routed to the power boiler or lime kiln for incineration.

The lime kilns are equipped with slakers which have scrubbers installed to control particulate emissions. Both kilns have hot lime silos and fresh lime unloading areas. The No. 3 kiln utilizes a baghouse to control particulate matter emissions from these areas, while the No. 2 kiln has the emissions vented back into the kiln. These are considered minor sources, and emissions, if any, are expected to be minimal.

Bleached pulp is diluted at the headbox of the paper machine to facilitate the paper making operation. During the paper making process, it becomes necessary to dewater the sheet during its trip through the paper machine. Among the means used are exhaust fans and vacuum pumps, both of which will emit water vapor to the atmosphere. No wet strength resins, coating operations, nor volatile organics are used in the paper manufacturing area. The paper machines/pulp dryers and the number of exhaust fans/pump exhausts are listed in Appendix I.

Emissions will consist of combustion products of natural gas, bark, and oil (boilers and lime kilns), bleach plant emissions, emissions associated with liquor recovery operations, and emissions from storage vessels and the waste treatment system.

SPECIFIC CONDITIONS

1. This permit shall void and supercede all previously issued air permits to Georgia- Pacific Corp. for its Ashdown Operations.

2. Except where otherwise specified, the permittee shall comply with the emissions limitations listed in Table I.

3. The permittee shall operate all equipment and associated control devices within design specifications as described in the permit application, except where a specific condition(s) allows an alternative means of operation.

4. Any modifications, construction, or reconstruction shall be reported to the Department in advance.

5. Visible emissions as measured by EPA Method 9, shall not exceed the value specified in Table I.

6. **No. 3 Power Boiler** The following are limits for steam generation capacity and heat input:

Fuel	Steam Generation LBS/HR	Heat Input MMBTU/HR
Bark	380,000	620
Natural Gas	521,000	670
Natural Gas & Bark	550,000	790

Additionally, the No. 3 Power Boiler shall comply with the applicable provisions of 40 CFR Part 60, Subparts A and Db. Georgia - Pacific, Ashdown Operations shall use only natural gas and/or bark to fire the No. 3 Power Boiler. No other fuels shall be used.

7. No bypass of the Electrostatic precipitator (ESP) is permitted during required maintenance. For situations where the No. 3 Power Boiler is not shut down during ESP maintenance; one chamber of the ESP shall be isolated, and the boiler operation shall be limited to 70% of full service load rating. GP shall notify ADPCE within 24 hours of any ESP maintenance which requires one chamber being removed from service. GP shall comply with the particulate limit in Table I during this operation.

8. **No. 3 Lime Kiln** The No. 3 Lime Kiln shall use only natural gas as fuel. The No. 3 Lime Kiln shall comply with 40 CFR Part 60, Subparts A and BB. Noncondensable TRS gases may be incinerated in the No. 3 Lime Kiln in compliance with the Plan for Control of Designated Pollutants (111(d) Plan).

9. No bypass of the ESP is allowed during required maintenance. During situations when the kiln is not shut down for ESP maintenance, one chamber shall be isolated. Kiln operation shall be limited to 90% of full load rating. GP shall notify ADPCE within 24 hours of any ESP maintenance which requires one chamber being removed from service. GP shall not exceed the particulate limit in Table I during maintenance operations.

10. No. 3 Recovery Boiler - The following firing limits shall be in effect: 110.42 tons BLS/hour firing limit, and 842,035 tons BLS/12 month firing limit.

Operating and Reporting Conditions: The BLS firing rate for the No. 3 Recovery Boiler shall be calculated by measuring the flow of strong black liquor and multiplying this flow by the measured weight concentration of solids in the liquor. The flow of the strong black liquor shall be measured with a flow meter and shall be recorded at least once per month. The weight concentration of solids in the liquor shall be measured and recorded at least once per month.

GP shall keep monthly records, in a log book, on the flow meter readings and the BLS weight concentrations. Using these records, GP shall be responsible for preventing the above stated maximum firing rate (842,035 tons, 12 month rolling total) from being exceeded. An exceedence of this rate shall be considered a violation of PSD regulations. GP shall notify this office immediately if the maximum rate is violated.

An annual report listing the amount (monthly and annual) of BLS burned during the previous calendar year (Jan. 1 - Dec. 31) shall be due to the Department by February 1 of the following year. The report for calendar year 1993 will be due on February 1, 1994. The report shall be signed as being accurate by a corporate officer, and shall be considered legally binding.

Additionally, the No. 3 Recovery Boiler shall comply with all applicable provisions of 40 CFR Part 60, Subpart BB, Standards of Performance for Kraft Pulp Mills.

11. No. 3 Package Boiler - The No. 3 Package Boiler shall burn only natural gas with a heat input of no greater than 160 million BTU per hour. Additionally, the No. 3 Package Boiler shall comply with all applicable requirements of 40 CFR Part 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

12. No. 3 Smelt Dissolving Tank - The No. 3 Smelt Dissolving Tank vent shall comply with all applicable provisions of 40 CFR Part 60, Subpart BB, Standards of Performance for Kraft Pulp Mills.

13. No. 2 Power Boiler - The following are limits for steam generation capacity and heat input:

Fuel	Steam Generation LBS/HR	Heat Input MMBTU/HR
Bark & Coal	625,000	820

Additionally, the No. 2 Power Boiler shall comply with the applicable provisions of 40 CFR Part 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971. In addition, the No. 2 Power Boiler may utilize used specification grade motor oil and used non-chlorinated solvents from the mill's lubricating systems and parts cleaners during oil inventory control firing. Records of the quantities of used motor oil and used non-chlorinated solvents utilized during oil inventory control firing shall be kept.

14. No. 2 Lime Kiln - The No. 2 Lime Kiln shall use only natural gas or No. 6 fuel oil as fuel. If No. 6 fuel oil is used, the sulfur content shall not exceed two percent (2%). The fuel oil system may be fired for a maximum of one (1) hour per week to insure proper operation of the fuel oil system. If the No. 2 Lime Kiln is fired on fuel oil for reasons other than fuel oil system checkout, GP shall notify ADPC&E by the next business day, and follow up the notification in writing within five (5) business days of the occurrence. The No. 2 Lime Kiln shall comply with 40 CFR Part 60, Subpart BB, Standards of Performance for Kraft Pulp Mills.

15. The No. 2 Lime Kiln may also be used to incinerate noncondenscible gases in compliance with the Plan for Control of Designated Pollutants (TRS) (111 (d) Plan).

16. No. 2 Recovery Boiler - The following firing limits shall be in effect: 91.65 tons BLS/hour firing limit, and 803,000 tons BLS/12 month firing limit.

Operating and Reporting Conditions: The BLS firing rate for the No. 2 Recovery Boiler shall be calculated by measuring the flow of strong black liquor and multiplying this flow by the measured weight concentration of solids in the liquor. The flow of the strong black liquor shall be measured with a flow meter and shall be recorded at least once per month. The weight concentration of solids in the liquor shall be measured and recorded at least once per month.

GP shall keep monthly records, in a log book, on the flow meter readings and the BLS weight concentrations. Using these records, GP shall be responsible for preventing the above stated maximum firing rate (803,000 tons, 12 month rolling total) from being exceeded. An exceedence of this rate shall be considered a violation of PSD regulations. GP shall notify this office immediately if the maximum rate is violated.

An annual report listing the amount (monthly and annual) of BLS burned during the previous calendar year (Jan. 1 - Dec. 31) shall be due to the Department by February 1 of the following year. The report for the 1993 calendar year will be due on February 1, 1994. The report shall be signed as being accurate by a corporate officer, and shall be considered legally binding.

Additionally, the No. 2 Recovery Boiler shall comply with all applicable provisions of 40 CFR Part 60, Subpart BB, Standards of Performance for Kraft Pulp Mills.

17. No. 2 Package Boiler - The No. 2 Package Boiler shall burn only natural gas with a heat input of no greater than 210 million BTU per hour. Additionally, the No. 2 Package Boiler shall comply with all applicable requirements of 40 CFR Part 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

18. No. 2 Smelt Dissolving Tank - The No. 2 Smelt Dissolving Tank vent shall comply with all applicable provisions of 40 CFR Part 60, Subpart BB, Standards of Performance for Kraft Pulp Mills.

19. No. 1 Power Boiler - The following are limits for steam generation capacity and heat input:

Fuel	Steam Generation LBS/HR	Heat Input MMBTU/HR
Bark	N/A	315
Natural Gas	N/A	459
No. 6 Fuel Oil	N/A	405
***TOTAL	305,000	580

The No. 1 Power Boiler began operation in 1968 and is not subject to NSPS regulations. No. 6 fuel oil may be used as backup fuel , and the No. 1 Power Boiler may be fired on No. 6 fuel oil for a maximum of one (1) hour per week to insure proper operation of the fuel oil system. If the No. 1 Power Boiler is fired for reasons other than fuel oil system checkout, GP shall notify ADPC&E by the next business day and follow up the notification in writing within five (5) business days of the occurrence.

20. In accordance with Section 5(c) of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control, the opacity limit for the No. 2 and 3 Recovery Boilers is 20% for visible emissions and upset conditions as specified in the Plan. The Standards of Performance for New Stationary Sources requires G.P.- Ashdown Operations to submit, on a quarterly basis, a list of all six minute average opacities that exceed 35%. This, however; does not change either requirement.

21. During the operation of the No. 2 Power Boiler, the pressure drop across the scrubber shall be maintained at or above 14 inches of water; the liquid flow to the scrubber shall be maintained at or above 1500 gallons per minute.

22. For the purposes of this permit, any three hour period during which the average emissions of nitrogen oxides or sulfur dioxide exceed the allowable emissions listed in Table I, any twelve hour period during which the average emissions of total reduced sulfur exceed the allowable emissions listed in Table I, and any thirty-six (36) minute period during which the average opacity exceeds the allowable limit listed in Table I, shall be considered a violation.

23. Within 180 days of permit issuance, GP shall test the No. 3 Smelt Tank for particulate emissions at varying scrubber medium flowrates and scrubber pressure drops to establish the minimum flowrate and pressure drop necessary to maintain compliance with the listed particulate limit. The testing shall be performed at 90% of boiler capacity or greater. Upon approval of the test results by the Air Division, GP may operate the No. 3 Smelt Tank Scrubber at or above the minimum flowrates and pressure drop determined to maintain compliance with the listed particulate limit. Within thirty (30) days of receipt of the testing results, GP shall forward a complete copy of the testing results to the Air Division.

24. REQUIREMENTS FOR CONTINUOUS EMISSION MONITORS (CEM)

A. In the event a CEM is required, the installation date for the CEM must be no later than thirty (30) days from the date of start-up of the plant.

B. Within sixty (60) days of installation of a CEM, a performance specification test (PST) must be completed. PST's are defined in 40 CFR Part 60, Appendix B, PST 1-7. The Department will accept alternate PST's for pollutants not covered by Appendix B on a case-by-case basis.

C. Each CEM shall have, as a minimum, a daily zero-span,

check. The span check shall be 1.5 times the permit limits.

D.For each CEM, a quality assurance/quality control (QA/QC) plan shall be submitted to the Department (Attention: Air Division, Compliance Section Manager). Quality Assurance procedures are defined in 40 CFR Part 60, Appendix F. This plan must be submitted within 180 days of CEM installation. A QA/QC plan shall consist of procedures and practices to assure an acceptable level of monitor data accuracy, precision, representativeness, and availability.

E.The submitted QA/QC plan shall not be considered as accepted until the facility receives a written notification of acceptance from the Department.

F.As part of the QA/QC plan for each CEM, a relative accuracy test audit (RATA) shall be conducted at least once every four calendar quarters. A relative accuracy audit (RAA) or a cyclinder gas audit (CGA) may be conducted in the other three calendar quarters, but in no more than three quarters in succession. The RATA test procedure shall be included in the QA/QC plan submitted for approval. Additionally, the justification and methodology for any alternate RATA tests shall be submitted with the QA/QC plan.

G.A written report showing excess emissions for each CEM shall be submitted to ADPC&E for every calendar quarter (Attention: Air Division, Compliance Section Manager). Excess emissions and violations of the CEM standards are defined in J-K below. All quarterly reports shall be postmarked no later than the 30th day of the month following the end of each calendar quarter.

H.Each report shall be submitted on ADPC&E Quarterly Excess Emission Report Forms. These forms may be obtained from the Air Division of the Little Rock office of ADPC&E. Alternate forms may be used with approval from the Department.

I.The CEM reports shall be used by ADPC&E to determine compliance with the permit.

J.All CEM's must be operated 95% per quarter. Failure to maintain operation time shall constitute a violation of the CEM standard.

K.All CEM's shall meet 95% compliance per quarter for each pollutant. Failure to maintain compliance shall constitute a violation of the CEM standard.

L.Violations of the CEM standard shall result in penalties and/or other enforcement action being taken.

25. GP shall, within one (1) year of permit issuance, provide reporting only from the required CEM's in units of the applicable standard (i.e. ppm, lbs/mmbtu) and in lbs/hour. GP may develop source specific methods to determine the lbs/hr figure. Any such method must be certified using actual stack data and must be approved by the Air Division - Compliance Section Manager. After approval of the method of reporting for a source, that source may operate at throughput levels greater than those specified in the permit application, provided that the lbs/hour limits or applicable standards are not exceeded. When the lbs/hour figures are not available due to monitor downtime, the source for which the figures are not available shall be limited to the throughput rates as specified in the permit application and Appendix II. Both the applicable standard and the lbs/hr figures shall be used for compliance purposes.

In addition, GP shall submit a plan delineating steps to achieve compliance with this condition. Monthly progress reports shall be forwarded to the Compliance Section Manager.

26. TESTING REQUIREMENTS - GP shall, within one year of the date of issuance of this permit, perform emissions testing on the sources listed below. Testing dates shall be coordinated with the Compliance Section Manager in advance. A report containing the results of testing and the actual operating conditions during testing shall be forwarded to the Air Division - Compliance Section Manager. The results of testing may be used by the Department in setting a baseline level of those emission sources, or for enforcement purposes.

SOURCE	POLLUTANT	TEST METHOD
06 -NO. 2 REC. BLR.	HCl	NO. 26
	H2SO4	N0. 8
14 -NO. 3 REC. BLR.	HCl	NO. 26
	H2SO4	NO. 8
20 -ClO2 GENERATOR	Cl2	NCASI
	ClO2	NCASI
22 -NO. 1 BROWNSTOCK WASHER VENTS	CH3COCH3	NO. 18
	CH3OH	NO. 18

TEST METHODS 8, 18, AND 26 ARE USEPA APPROVED METHODS; AND MAY BE

FOUND IN 40 CFR PART 60, APPENDIX A. NCASI METHODS HAVE BEEN DEVELOPED BY THE NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT. THE USE OF ALTERNATE METHODS MUST BE APPROVED IN ADVANCE.

27. The No.2 Lime Kiln may be used as a backup for the PCC plant when the No. 3 Lime Kiln is unable to fully supply the CO_2 requirements of the PCC plant. The carbonators are limited to the production of 5.4 tons per hour (each) of calcium carbonate precipitate. Operating logs for each carbonator shall be stored electronically onsite, and hardcopy printouts for inspection by Air Division personnel shall be produced upon request. These logs should also depict which lime kiln is used in conjunction with the PCC operations.

28. GP shall test the inlet stream to the carbonators and the outlet from one (1) carbonator simultaneously for NOx using EPA Reference Method 7E within 180 days of startup of the PCC plant. The average of three (3) Method 7E test runs from three (3) carbonator cycles shall be used to determine compliance with the permit limits as listed on Table I. This testing shall be performed when using the No. 3 Lime Kiln as the supply source and shall be repeated when using the No. 2 Lime Kiln as the supply source. At the time of testing, the carbonator shall be functioning at no less than ninety (90%) percent of its design capacity. The testing shall also be repeated using the No. 3 Lime Kiln as the supply source within 180 days of bringing the fourth carbonator on line. The Air Division will designate which carbonator is to be tested on the day of the testing period. In the event that a net increase in lbs/hour of NOx is measured across the tested carbonator, all of the carbonators shall be tested. Advance coordination shall be made with Compliance Monitoring Manager - Air Division. Testing results shall be forwarded in duplicate to the Compliance Monitoring Manager within thirty (30) days of testing.

29. Other permit limits which have been set based on emission factors, as listed in Table I, may be modified based upon actual source sampling.

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

TABLE I

SN	Description	Control Equipment	Pollutant	Emission Rate lbs/hr	Emission Rate (tons/yr)	Applicable Regulations Emissions Derivation	Opacity (percent)
01	No. 3 Power Boiler (790MMBTU/HR)	Electrostatic Precipitator	PM10	19.75	(86.5)	0.025 LB/MMBTU, PSD, 946-A	20
			NOx	237.00	(1038.1)	0.30 LB/MMBTU, NSPS-Db, PSD, 946-A	
			CO	276.50	(1211.1)	0.35 LB/MMBTU, PSD , 946-A	
			NMVOC	21.30	(93.3)	0.027 LB/MMBTU, PSD , 946-A	
			SO2	62.00	(271.6)	0.1 LB/MMBTU @ 620 MMBTU, PSD, 946-A	
02	No. 3 Lime Kiln[1] (153 MMBTU/HR)	Electrostatic Precipitator	PM10	8.60	(37.7)	0.034 gr/dscf, PSD, 946-A	20
			NOx	66.50	(291.3)	3.63 LB/TON LIME, PSD, 946-A	
			CO	55.00	(240.9)	3.00 LB/TON LIME, PSD, 946-A	
			NMVOC	14.60	(63.9)	0.795 LB/TON LIME, AP-42*, PSD	
			SO2	13.30	(58.3)	0.727 LB/TON LIME, PSD, 946-A	
			TRS	1.34	(5.9)	8 ppmv(dry basis) @ 10% O2, NSPS BB	
02A	No. 3 Lime Kiln[2]	Electrostatic Precipitator	PM10		(15.0)		20
			NOx		(116.0)		
			CO		(95.9)		
			NMVOC		(22.6)		
			SO2		(23.2)		
			TRS		(2.1)		
02B	No. 3 Lime Kiln[3]	Electrostatic Precipitator	PM10		(10.1)		20
			NOx		(78.1)		
			CO		(64.6)		
			NMVOC		(15.2)		
			SO2		(15.6)		
			TRS		(1.4)		
03	No. 1 Power Boiler (580 MMBTU/HR)	Centrifugual Collector	PM10	300.00	(1314.0)	Permit 287-AR-5	40
			SO2	1285.00	(214.0)	AP-42*	
			NMVOC	43.00	(214.6)	AP-42*	
			CO	150.40	(658.8)	AP-42*	
			NOx	247.5	(1084.1)	AP-42*	

FOOTNOTES:

1. Emission limitations for the operation of the No. 3 lime kiln without PCC Units.
2. Emission limitations for the operation of the No. 3 lime kiln and three PCC Units.
3. Emission limitations for the operation of the No. 3 lime kiln and four PCC Units.

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

SN	Description	Control Equipment	Pollutant	Emission Rate lbs/hr	(tons/yr)	Applicable Regulations Emissions Derivation	Opacity (percent)
05	No. 2 Power Boiler (Coal) (820 MMBTU/HR)	Scrubber	PM10	82.00	(359.2)	0.10 LB/MMBTU, NSPS-D, 287-AR-5	20
			SO2	983.00	(4305.5)	1.20 LB/MMBTU, NSPS-D, 287-AR-5	
			NOX	574.00	(2514.1)	0.70 LB/MMBTU, NSPS-D, 287-AR-5	
			CO	266.00	(630.0)	0.324 LB/MMBTU, AP-42*	
			NMVOC	92.00	(206.5)	0.112 LB/MMBTU, AP-42*	
			LEAD	0.03	(0.1)	EPA 450/2-88-006A****	
			HCL	5.75	(16.5)	NCASI**	
06	No. 2 Recovery Boiler (1063 MMBTU/HR)	Electrostatic Precipitator	PM10	84.40	(369.7)	0.044 gr/dscf@8% O2, NSPS-BB,287-AR-5	20
			SO2	286.00	(1252.7)	250 PPM, 287-AR-5	
			NMVOC	46.70	(204.6)	0.8 LB/ADTP, AP-42 *	
			CO	980.00	(4292.4)	16.8 LB/ADTP	
			NOx	309.20	(1354.3)	5.3 LB/ADTP	
			TRS	7.40	(32.4)	5 ppmv (dry basis) @ 8% O2, NSPS-BB, 287-AR-5	
			HCl	51.20	(224.3)	0.8783 LB/ADTP, NCASI**	
			H2SO4	3.22	(14.1)	0.81 ppm, NCASI**	
08	No. 2 Smelt Dissolving Tank	Venturi Scrubber	PM10	18.00	(78.8)	0.2 LB/TON BLS, NSPS-BB, 287-AR-5	20
			SO2	10.60	(46.4)	Permit 287-AR-5	
			NMVOC	9.30	(40.7)	0.16 LB/ADTP, AP-42*	
			TRS	2.10	(9.2)	0.0168 G/KG BLS, NSPS-BB, 287-AR-5	
09	No. 2 Lime Kiln (193.8 MMBTU/HR)	Scrubber	PM10	51.00	(223.4)	0.067 GR/DSCF, NSPS-BB, 287-AR-5	20
			SO2	16.70	(73.2)	Permit 287-AR-5	
			NOx	68.60	(300.5)	3.7411 LB/TON CaO, AP-42*	
			CO	55.00	(240.9)	3.0 LB/TON CaO, 946-A	
			NMVOC	17.10	(74.9)	0.9353 LB/TON CaO, AP-42*	
			TRS	8.00	(35.0)	8 ppmv (dry basis) @ 10% O2, NSPS-BB 287-AR-5	
11	No. 2 Package Boiler (210 MMBTU/HR)	None	PM10	0.60	(2.6)	Permit 287-AR-5	5
			SO2	0.20	(0.9)	Permit 287-AR-5	
			NOx	27.40	(120.0)	Permit 287-AR-5	
			CO	8.20	(36.1)	AP-42*	
			NMVOC	0.29	(1.3)	AP-42*	

Limits For Both N & S Scrubbers & Exhausts

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

SN	Description	Control Equipment	Pollutant	Emission Rate lbs/hr	(tons/yr)	Applicable Regulations Emissions Derivation	Opacity (percent)
12	No. 3 Package Boiler (160 MMBTU/HR)	None	PM10	0.50	(2.2)	287-AR-5	5
			SO2	0.10	(0.4)	287-AR-5	
			NOx	16.00	(70.1)	0.1 LB/MMBTU, NSPS-Db, 287-AR-5	
			CO	6.40	(28.0)	AP-42*	
			NMVOC	0.22	(1.0)	AP-42*	
14	No. 3 Recovery Boiler (1281 MMBTU/HR)	Electrostatic Precipitator	SO2	425.00	(1861.5)	Permit 287-AR-6	20
			NOx	270.00	(1182.6)	5.3 LB/ADTP, PSD, 287-AR-6	
			TRS	6.60	(28.9)	5 ppmv (dry basis) @ 8% O2, NSPS-BB, 287-AR-6	
			CO	856.00	(3749.3)	16.8 LB/ADTP, PSD, 287-AR-6	
			PM10	93.50	(409.5)	0.044 GR/DSCF @ 8% O2, NSPS-BB, 287-AR-6	
			NMVOC	137.00	(600.1)	Permit 287-AR-6	
			HCl	54.50	(238.7)	0.8783 LB/ADTP, NCASI**	
			H2SO4	4.20	(18.4)	Permit 287-AR-6, NCASI**	
15	No. 3 Smelt Dissolving Tank	Scrubber	PM10	18.70	(81.9)	0.2 LB/TON BLS, NSPS-BB, 287-AR-5	20
			SO2	5.10	(22.3)	0.1 LB ADTP, PSD, 287-AR-5	
			TRS	1.60	(7.0)	0.0168 G/KG BLS, NSPS-BB, 287-AR-5	
			NMVOC	9.90	(43.5)	0.16 LB/ADTP, AP-42*	
16	No. 1A Bleach Plant Vents	Scrubber	Cl2	2.00	(8.8)	STACK TESTS SIP	5
			ClO2	1.00	(4.4)	STACK TESTS	
			CHCl3	5.50	(24.1)	STACK TESTS & NCASI	
17	No. 1B Bleach Plant Vents	Scrubber	Cl2	2.00	(8.8)	STACK TESTS SIP	5
			ClO2	1.00	(4.4)	STACK TESTS	
			CHCl3	5.50	(24.1)	STACK TESTS & NCASI	
18	No. 2 Bleach Plant Vents	Scrubber	Cl2	2.00	(8.8)	STACK TESTS SIP	5
			ClO2	2.00	(8.8)	STACK TESTS	
			CHCl3	5.50	(24.1)	STACK TESTS & NCASI	
[19]	Chlorine Dioxide Generator (SVP R-8)	Scrubber	Cl2	TIED TO NO. 2 BLEACH PLANT SCRUBBER			
			ClO2				
20	Chlorine Dioxide Generator (ERCO)	Scrubber	Cl2	0.30	(1.3)	NCASI** SIP	5
			ClO2	3.00	(13.1)	NCASI**	
[21]	Effluent Treatment Lagoons (FUGITIVE)	None	CHCl3	6.80	(29.6)	NCASI**	N/A
			CH3OH	5.50	(24.0)	NCASI**	
22	No. 1 Brownstock Washer Vents	None	CH3COCH3	8.80	(38.5)	0.1 LB/TON USED, NCASI**; SIP	5
			CH3OH	58.96	(258.2)	0.67 LB/TON USED, NCASI**	

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

SN	Description	Control Equipment	Pollutant	Emission Rate lbs/hr	(tons/yr)	Applicable Regulations Emissions Derivation		Opacity (percent)
23	Methanol Storage Tank	None	CH3OH	0.91	(4.0)	SOCMI***	SIP	0
24	Ammonia Storage	None	NH3	N/A	(0.1)	SOCMI***	SIP	0
25	Phosphoric Acid Tank	None	H3PO4	0.01	(0.1)	SOCMI***	SIP	0
26	Sulfuric Acid Tanks	None	H2SO4	0.01	(0.1)	SOCMI***	SIP	0
27	Sulfur Dioxide Storage Bldg.	None	SO2	0.20	(0.9)	SOCMI***	SIP	0
28	Formic Acid Storage Tanks(2)	None	HCOOH	0.20	(0.9)	SOCMI***	SIP	0
29	Recausticizer Vents	None	NH3	N/A	N/A	TESTING REQUIRED	SIP	5
30	PCC Carbonator No. 1	Demister	PM10	0.77	(3.4)	VENDOR DATA	SIP	20%
			SO2	0.40	(1.8)	" "		
			NMVOC	2.10	(9.2)	" "		
			CO	9.10	(39.9)	" "		
			NOx	10.90	(47.7)	" "		
			TRS	0.06	(0.3)	" "		
31	PCC Carbonator No. 2	Demister	PM10	0.77	3.4	VENDOR DATA	SIP	20%
			SO2	0.40	(1.8)	" "		
			NMVOC	2.10	(9.2)	" "		
			CO	9.10	(39.9)	" "		
			NOx	10.90	(47.7)	" "		
			TRS	0.06	(0.3)	" "		
32	PCC Carbonator No. 3	Demister	PM10	0.77	(3.4)	VENDOR DATA	SIP	20%
			SO2	0.40	(1.8)	" "		
			NMVOC	2.10	(9.2)	" "		
			CO	9.10	(39.9)	" "		
			NOx	10.90	(47.7)	" "		
			TRS	0.06	(0.3)	" "		

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

SN	Description	Control Equipment	Pollutant	Emission Rate lbs/hr	(tons/yr)	Applicable Regulations Emissions Derivation		Opacity (percent)
33	PCC Carbonator No. 4	Demister	PM10	0.77	(3.4)	VENDOR DATA	SIP	20%
			SO2	0.40	(1.8)	" "		
			NMVOC	2.10	(9.2)	" "		
			CO	9.10	(39.9)	" "		
			NOx	10.90	(47.7)	" "		
			TRS	0.06	(0.3)	" "		
34	Lime Unloading System	Fabric Filter	PM10	0.12	(0.1)	AP-42	SIP	20%

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

EMISSION TOTALS

POLLUTANT	LBS/HR	TONS/YEAR	
PM10[1]	677.17	2965.6	PARTICULATE MATTER, LESS THAN 10 MICRONS
PM10[2]		2975.8	
PM10[3]		2979.2	
NOx[1]	1816.20	7955.1	OXIDES OF NITROGEN
NOx[2]		8098.2	
NOx[3]		8145.9	
CO[1]	2653.50	11087.5	CARBON MONOXIDE
CO[2]		11207.2	
CO[3]		11247.1	
TRS[1]	27.04	118.4	TOTAL REDUCED SULFUR
TRS[2]		119.3	
TRS[3]		119.6	
SO2[1]	3087.00	8106.8	SULFUR DIOXIDE
SO2[2]		8113.1	
SO2[3]		8114.9	
NMVOC[1]	391.41	1544.4	NONMETHANE VOLATILE ORGANIC COMPOUNDS
NMVOC[2]		1572.0	
NMVOC[3]		1581.2	
LEAD	0.03	0.1	LEAD
HCl	106.28	464.7	HYDROCHLORIC ACID
H2SO4	7.43	32.6	SULFURIC ACID
Cl2	6.30	27.7	CHLORINE
ClO2	7.00	30.7	CHLORINE DIOXIDE
CHCl3	23.30	101.9	CHLOROFORM
CH3OH	65.37	286.2	METHANOL
CH3COCH3	8.80	38.5	ACETONE
NH3	N/A	0.1	AMMONIA
H3PO4	0.01	0.1	PHOSPHORIC ACID
HCOOH	0.20	0.9	FORMIC ACID

FOOTNOTES

[1]. Emission limitations for the No. 3 lime kiln without the PCC plant.

[2]. Emission limitations for the No. 3 lime kiln and three carbonators at the PCC plant.

[3]. Emission limitations for the No. 3 lime kiln and all four carbonators at the PCC plant.

AP-42* represents an emission limit derived from AP-42, Fourth Edition, September 1985, Compilation of Air Pollutant Emission Factors, U.S.E.P.A.

NCASI** represents an emission limit derived from estimations made by the National Council of the Paper Industry for Air and Stream Improvement, Inc.

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

SOCMI*** where referenced refers to an emission limit based upon information obtained from the Society of Organic Chemical Manufacturers Industry.

EPA-450/2-88-006A**** TOXIC AIR POLLUTANT EMISSION FACTORS, OCTOBER 1988.

APPENDIX I

EQUIPMENT DESCRIPTION	NO. of PUMP EXHAUSTS	NO. of FAN EXHAUSTS
Paper Machine No. 61	2	5
Paper Machine No. 62	3	7
Paper Machine No. 63	2	9
Paper Machine No. 64	2	17
Pulp Dryer	2	2

SN	DESCRIPTION	POLLUTANT	C.E.M. REQ'D.
01	No.3 Pwr. Blr.	NOx	Yes
		OPACITY	Yes
02	No. 3 Lime Kiln	TRS	Yes
		OPACITY	Yes
05	No. 2 Pwr. Blr.	SO2	Yes
		NOx	Yes
06	No. 2 Rec. Blr.	TRS	Yes
		OPACITY	Yes
09	No. 2 Lime Kiln	TRS	Yes
14	No. 3 Rec. Blr.	SO2	Yes
		TRS	Yes
		OPACITY	Yes

NOTE: PERMITTEE IS RESPONSIBLE FOR CONDUCTING ALL TESTS ASSOCIATED WITH THE USE AND MAINTENANCE OF CONTINUOUS MONITORING DEVICES.

Facility Name GEORGIA-PACIFIC CORP. - ASHDOWN OPERATIONS
CSN: 410002 Permit No: 287-AR-7

APPENDIX II

During monitor downtime as described in Specific Condition No. 25, the following sources will be limited to the throughput as described below:

SOURCE NO.	DESCRIPTION	THROUGHPUT
01	NO.3 POWER BOILER	79.5 Tons of bark per hour 615.0 MSCF of natural gas per hour
02	NO.3 LIME KILN	18.33 Tons of CaO per hour 150.0 MSCF of natural gas per hour
05	NO.2 POWER BOILER	35.0 Tons of coal per hour 65.0 Tons of bark per hour 5,100.0 Gallons of No. 6 fuel oil per hour
06	NO.2 RECOVERY BOILER	0.1833 million pounds of BLS per hour
09	NO.2 LIME KILN	18.33 Tons of CaO per hour 190.0 MSCF of natural gas per hour 1,320.0 Gallons of No. 6 fuel oil per hour
14	NO.3 RECOVERY BOILER	0.2208 million pounds of BLS per hour

ATTACHMENT 5

REQUIRED CONTINUOUS EMISSION AND OPACITY MONITORS				
SOURCE	POLLUTANT	DILUENT	MODEL	SERIAL NUMBER
NO.2 POWER BOILER	NO_x	O_2	Monitor Labs 8840	1225
NO.2 POWER BOILER	SO_2	O_2	Monitor Labs SO_2	2381
NO.2 POWER BOILER	CO	NA	Thermo Electron 48C	48C-56010-309
NO.3 POWER BOILER	NO_x	CO_2	Monitor Labs 8840	2123
NO.3 POWER BOILER	OPACITY	NA	Lear Siegler 1100M	1357
NO.3 POWER BOILER	CO	NA	Monitor Labs 8830	553
NO.3 LIME KILN	TRS	O_2	STI DP0303	3204
NO.3 LIME KILN	CO	NA	Monitor Labs 8830	281
NO.3 LIME KILN	OPACITY	NA	Lear Siegler 1100M	0985
NO.2 RECOVERY BLR.	TRS	O_2	STI DP0802	3015
NO.2 RECOVERY BLR.	SO_2	NA	STI DPO802	3016

REQUIRED CONTINUOUS EMISSION AND OPACITY MONITORS				
SOURCE	POLLUTANT	DILUENT	MODEL	SERIAL NUMBER
NO.2 RECOVERY BLR.	CO	NA	Thermo Electron 48C	48-52252-291
NO.2 RECOVERY BLR.	NO_x	NA	STI DPO802	2326
NO.2 RECOVERY BLR.	OPACITY	NA	Monitor Labs LS541	0265
NO.2 LIME KILN	TRS	O_2	STI DP0802	3119
NO.2 LIME KILN	CO	NA	Thermo Electron 48C	48C-54909-302
NO.3 RECOVERY BLR.	TRS	O_2	STI DP0802	2486
NO.3 RECOVERY BLR.	NO_x	NA	Monitor Labs 8840	2316
NO.3 RECOVERY BLR.	CO	NA	Thermo Electron 48	49694-284
NO.3 RECOVERY BLR.	SO_2	NA	STI FO10	2516
NO.3 RECOVERY BLR.	OPACITY	NA	Monitor Labs LS541	88181076

ATTACHMENT 6

#3 POWER BOILER REPORT

Georgia-Pacific — Ashdown Mill

DATE MAY 27 1994

	STEAM			AIR							FUEL			STACK GASES							DRAFTS										
	STEAM FLOW	FINAL STEAM TEMP.	STEAM PRESSURE	FEED WATER FLOW	SOUTH BURNER	NORTH BURNER	NORTH OVERFIRE	SOUTH OVERFIRE	NORTH UNDERGRATE	SOUTH UNDERGRATE	TOTAL AIR FLOW	TOTAL GAS FLOW	TOTAL BARK FLOW	NORTH O2	SOUTH O2	OPACITY	CO. PPM	CO. #/MM BTU	NOX PPM	NOX #/MM BTU	F.D. DISCHARGE PRESSURE	FURNACE DRAFT	AIR HEATER INLET	AIR HEATER OUTLET		N. PPT INLET	N. PPT OUTLET	S. PPT INLET	S. PPT OUTLET	N. I.D. % LOAD	S. I.D. % LOAD
7 am	360	828	856	271	65	69	0	77	100	99	410	182	60	5.0	4.2	.27	221	.36	76	.19	7.8	-.26	-1.7	-5.7	/	-5.9	-7.0	-6.2	-6.9	62	55
8 am																															
9 am																															
10 am																															
11 am	336	835	861	308	16	78	0	75	105	101	376	54	65	4.1	3.1	.37	100	.15	102	.20	8.1	-.26	-1.7	-5.2	/	-5.3	-6.3	-5.4	-6.2	57	50
12N																															
1 pm																															
2 pm																															
3 pm	369	853	860	397	21	94	0	80	109	103	404	102	65	2.7	1.8	.34	47	.07	118	.22	8.2	-.34	-1.8	-5.7	/	-6.0	-7.1	-6.4	-7.1	65	55
4 pm																															
5 pm																															
6 pm																															
7 pm	437	844	868	440	59	117	0	93	127	113	510	255	70	3.8	3.8	.34	79	.11	108	.24	8.0	-.32	-2.7	-8.6	—	-8.7	-10.8	-9.2	-10.4	87	76
8 pm																															
9 pm																															
10 pm																															
11 pm	335	853	858	310	133	133	0	57	36	39	399	427	0	5.2	5.7	.27	0	0	65	.21	8.0	-.26	-1.5	-4.6	/	-5.0	-6.0	-5.1	-5.9	54	47
12MN																															
1 am																															
2 am																															
3 am	220	828	875	273	22	79	0	77	118	111	408	47	54	6.5	6.0	.27	417	.87	70	.18	8.1	-.30	-1.3	-6.2	/	-5.2	-6.0	-5.3	-5.7	57	51
4 am																															
5 am																															
6 am																															

3 OPERATOR

3-11 OPERATOR

11-7 OPERATOR