

APPLICANT:	SITE LOCATION:	COUNTY:	
Louisiana-Pacific Corporation	Roaring River	Wilkes	
TECHNICAL CONTACT:	PHONE:	RESPONSIBLE OFFICIAL:	TITLE:
William Baird	(336)696-2751	Michael Blosser	General Manager
REVIEW ENGINEER:	SIGNATURE:	DATE:	
Lesley Biller/Jenny Sheppard		xx	
REGIONAL CONTACT:	REGIONAL OFFICE:	SIC CODE:	
Jalal Adouli	Winston-Salem	2493	
APPLICATION NUMBER:	EXISTING PERMIT NUMBER:	NEW PERMIT NUMBER:	
970001A5.A	03909R32	03909T33	

I. Introduction

The U.S. Environmental Protection Agency (EPA) has given final approval to North Carolina’s Title V operating permits program effective on October 1, 2001. This EPA approval triggered the requirements for Title V facilities to submit permit applications to the Division of Air Quality. Title V facilities are required to obtain an operating permit which addresses all applicable regulations under the State Implementation Plan, Federal Implementation Plan, and other provisions of the Clean Air Act (CAA). The Title V Operating Permit will define all of the facility’s obligations under the CAA.

This Initial Title V Air Permit application Review intends to convey all pertinent emissions data, rules, policies, and engineering assumptions used to construct the DRAFT Title V operating permit. The primary source of information used to construct the DRAFT permit is the above referenced air permit application.

II. Background Information

The DRAFT Title V operating permit replaces an existing Air Quality Construction and Operation Permit No. 03909R32 which was issued on June 6, 2002 and is currently scheduled to expire on May 31, 2004.

Pursuant to 15A NCAC 2Q .0506, Louisiana-Pacific Corporation submitted its initial Title V application to the Division of Air Quality on February 13, 1996. The initial application was considered complete for processing on February 13, 1996. Based on all of the submitted information in the Title V application, a DRAFT permit was completed. The DRAFT permit is required to go to public notice pursuant to 15A NCAC 2Q .0521. The Louisiana-Pacific Corporation is subject to the Title V program due to emissions of particulate matter, carbon monoxide, sulfur dioxide, nitrogen oxides, volatile organic compounds, and hazardous air pollutants exceeding the major source thresholds.

III. Facility Description

Louisiana-Pacific Corporation owns and operates a hardboard siding production facility in Roaring River. The hardboard is manufactured by thermo-mechanically digesting wood chips, adding resin to form a pulp, pouring the pulp into molds, heating the molds under high pressure, baking the boards, and finally finishing.

IV. Statement of Compliance

The DAQ has reviewed the compliance status of this facility. During the last inspection performed on June 26, 2002, the facility appeared to be operating in compliance with all permit conditions. The applicant has certified compliance with all applicable requirements. The applicant has also certified that the facility will be in compliance with any applicable requirements taking effect during the term of the permit and will meet such requirements on a timely basis.

V. Summary of Emission Sources and Control Devices

The following table identifies all emission sources and associated control devices for which the Initial Title V Operating Permit is being issued.

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Group ESG-WY: Woodyard Area			
ES-FS1	Fuel wood system	CD-FS-1	One bagfilter (2,370 square feet of filter area)
ES-RC2	No. 2 reclaim rechipper	CD-RC2-A	One cyclone (72 inches in diameter)
ES-PRS	Pneumatic rock separator	CD-WC4	One cyclone (108 inches in diameter, each)
Group ESG-TMP: Thermomechanical Pulping System (30 tons per hour process rate)			
ES-L1D1	Line 1, digester 1	N/A	N/A
ES-L1D2	Line 1, digester 2	N/A	N/A
ES-L1R	Line 1, refiner	N/A	N/A
ES-L2D1	Line 2, digester 1	N/A	N/A
ES-L2D2	Line 2, digester 2	N/A	N/A
ES-L2R	Line 2, refiner	N/A	N/A
Group ESG-HM1: Hardboard Manufacturing Line No. 1			
ES-L1P	Line 1 press with unloader (40,000 square feet board per hour throughput combined capacity for ES-L1P and ES-L2P)	N/A	N/A
ES-L1BO	Line 1 steam-heated bake oven	N/A	N/A
ES-L1BC	Line 1 board cooler	N/A	N/A
Group ESG-HM2: Hardboard Manufacturing Line No. 2			

ES-L2P	Line 2 press with unloader (40,000 square feet board per hour throughput combined capacity for ES-L1P and ES-L2P)	N/A	N/A
ES-L2BO	Line 2 steam-heated bake oven	N/A	N/A
ES-L2BC	Line 2 board cooler	N/A	N/A
Group ESG-TB: Trimboard Manufacturing			
ES-TB-1	Trimboard line with cold press (16,000 square feet per hour throughput capacity)	N/A	N/A
Group ESG-FL: Finishing Lines			
ES-LL	Lap coating line (56,000 square feet board per hour throughput capacity)	N/A	N/A
ES-PL	Panel coating line (50,600 square feet board per hour throughput capacity)	N/A	N/A
ES-PF	Prefinish coating line (8,640 square feet board per hour throughput capacity)	N/A	N/A
ES-SB	Accessory painting system consisting of one dry filter-type spray booth, one propane-fired bake oven (0.5 million Btu per hour heat input capacity), and two paint mix tanks	N/A	N/A
ES-SM	Groove sealer spray booth	N/A	N/A
Group ESG-SP: Steam Production			
ES-B1	One No. 6 fuel oil-fired boiler (44.4 million Btu per hour rated capacity)	N/A	N/A
ES-B2 NESHAP	One wood waste/sludge/No. 6 fuel oil/tire derived fuel (TDF)-fired boiler (79 million Btu per hour rated capacity)	CD-1 CD-2	One fan impingement type scrubber (106.4 gallons per minute water injection rate) One multi-cyclone (49, nine-inch diameter tubes)

ES-B3 NESHAP BACT	One wood waste/sludge/No. 6 fuel oil/tire derived fuel (TDF)-fired boiler (183 million Btu per hour rated capacity)	CD-3	One wet venturi scrubber (700 gallons per minute caustic/water injection rate)
		CD-4	One multi-cyclone (176, nine-inch diameter tubes)

VI. Emission Source-by-Source Evaluation

- A. One fuel wood system (ID No. ES-FS1) with associated bagfilter (ID No. CD-FS1)
 One No. 2 reclaim rechipper (ID No. ES-RC2) with associated cyclone (ID No. CD-RC2-A)
 One pneumatic rock separator (ID No. ES-PRS) with associated cyclone (ID No. CD-WC4)**

1. Description

Raw stock wood is purchased from numerous sources and most of it is prechipped. The reclaim system rechipper was first operated in 1970 and is used to reduce the size of wood chips. Emissions are reduced by a cyclone. The pneumatic rock separator was first operated in 1993 and uses an air knife to remove rocks and other non-wood debris from the wood chips. Emissions from this process are reduced by a cyclone. The wood fuel system was first operated in 1970 and is used to feed the wood-fired boilers. Emissions are reduced by a bagfilter.

2. Regulatory Analysis

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	For P# 30 tons per hour: $E=4.10P^{0.67}$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour For P> 30 tons per hour: $E=55.0 P^{0.11} - 40$ where E = allowable emission rate in pounds per hour P = process weight in tons per hour	15A NCAC 2D .0515
visible emissions	40 percent opacity: ES-RC1 and ES-FS1	15A NCAC 2D .0521(c)
	20 percent opacity: ES-PRS	15A NCAC 2D .0521(d)

- a. 2D .0515 "Particulates from Miscellaneous Industrial Processes"

i. Regulatory Analysis

These emission sources are subject to 2D .0515 since no other federal or state regulation applies to the particulate emissions from this source. They are not subject to 2D .0512 because they are not woodworking, sanding, or wood finishing processes. The allowable particulate emission limit is calculated by the following equations:

For process weights less than or equal to 30 tons per hour:

$$E = 4.10(P^{0.67})$$

For process weights greater than 30 tons per hour:

$$E = 55.0(P^{0.11}) + 40$$

where: E = allowable emission rate for particulate matter in pounds per hour,
and
P = process weight in tons per hour

The process rates are 60,000 pounds per hour for FS1, 6000 pounds per hour for RC2 and 116,000 pounds per hour for PRS. The allowable emission rates based on the above equation are 40.0, 8.6, and 46.0 pounds per hour for FS1, RC2, and PRS, respectively.

Emissions from the fuel wood system are controlled by one bagfilter. The bagfilter is air pulse cleaned and made of Dacron filter material. The filter area is 2,370 square feet and the air flow rate is 18,900 ACFM. The air-to-cloth ratio is 8.0:1. The bagfilter is estimated to remove 99.9 percent of the particulate matter. As the air-to-cloth ratio is in the appropriate range, this is a reasonable efficiency. After control emissions are expected to be much less than 40 pounds per hour.

Emissions from the reclaim rechipper and the rock separator are controlled by one cyclone on each system. The cyclones have inside diameters of 72 and 108 inches. Since the wood chips are large, emissions of TSP are expected to be minimal.

Compliance with this regulation is indicated as the potential emissions rates are below the emissions limits.

ii. Monitoring Requirements

To ensure that optimum control efficiency of particulate matter is obtained by these control devices, monthly inspections will be performed and maintenance will be performed as recommended by the manufacturer. As a minimum, the inspections will include a monthly external inspection of the bagfilter, cyclones, and ductwork, and an annual internal inspection of the bagfilter to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control devices shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The reclaim rechipper and the wood fuel system were established before July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. The rock separator was established after July 1, 1971 and therefore is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. The latest inspection report did not cite any opacity exceedances. Continued compliance is expected.

ii. Monitoring Requirements

To assure compliance, once each month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The Permittee shall establish “normal” for the source using the weekly observations taken in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission source(s) are below the limit. If the demonstration in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.

iii. Record keeping

The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:

- (a) the date and time of each recorded action;
- (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- (c) the results of any corrective actions performed.

iv. Reporting

The Permittee shall submit, in writing a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

B. The Thermomechanical Pulping System (Group ID No. ESG-TMP) includes the following sources:

- Line 1 Digester 1 (ID No. ES-L1D1)
- Line 1 Digester 2 (ID No. ES-L1D2)
- Line 1 Refiner (ID No. ES-L1R)
- Line 2 Digester 1 (ID No. ES-L2D1)
- Line 2 Digester 2 (ID No. ES-L2D2)
- Line 2 Refiner (ID No. ES-L2R)

Manufacturing Lines No. 1 and No. 2 (Group ID Nos. ES-HM1 and ES-HM2) including the following

equipment:

- Line 1 hardboard press with unloader (ID No. ES-L1P)
- Line 1 steam heated bake oven (ID No. ES-L1BO)
- Line 1 board cooler (ID No. ES-L1BC)
- Line 2 hardboard press with unloader (ID No. ES-L2P)
- Line 2 steam heated bake oven (ID No. ES-L2BO)
- Line 2 board cooler (ID No. ES-L2BC)

1. Description

The wood chips are reduced to fibers in a process called thermo-mechanical pulping. Wood chips are washed with water and then put into digesters, which are similar to giant pressure cookers. The next step is the refiner where the wet wood fibers are sheared apart. There are two hardboard manufacturing lines (Line No. 1 and Line No. 2) with each consisting of a compregnite hood, a large vacuum pump, a board press, a press unloader, a steam heated bake oven, a board cooler, a high density pump, a humidifier, an inspection hood and a small vacuum pump. Bonding resin is added to the wood fiber/water mixture and then the water is extracted prior to the molding process. The molds are stacked in a 24-deck loader and hydraulically pressed under steam pressure for approximately seven minutes. After unloading, the boards are baked in a steam-heated oven, then placed in a humidifier to bring the moisture content up to about 7-8%. Pollutants emitted from the manufacturing lines are toxic and hazardous air pollutants, some of which are volatile organic compounds. Line 1 was first operated in 1970 and line 2 was first operated in 1980.

2. Applicable Regulatory Requirements

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
visible emissions	40 percent opacity: ES-HM1	15A NCAC 2D .0521(c)
	20 percent opacity: ES-HM2	15A NCAC 2D .0521(d)
toxic air pollutants	State enforceable-only: See Section VIII.	15A NCAC 2D .1100 and 15A NCAC 2Q .0701

a. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The manufacturing line 1 was established before July 1, 1971 and therefore is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. The manufacturing line 2 was established after July 1, 1971 and therefore is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. The latest inspection report did not cite any opacity exceedances. Continued compliance is expected.

ii. Monitoring Requirements

To assure compliance, once a month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The Permittee shall establish “normal” for the sources in the first 30 days following the effective date of the permit by observing each week for thirty (30) days the emissions from each enclosed affected facility. If visible emissions from any source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the limit given above. If compliance for the source(s) cannot be demonstrated, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.

iii. Record keeping

The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:

- (a) the date and time of each recorded action;
- (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
- (c) the results of any corrective actions performed.

iv. Reporting

The Permittee shall submit, in writing a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

C. Trimboard manufacturing (ID No. ESG-TB)

1. Description

The trimboard manufacturing process was first operated in 1994. Glue is applied to pieces of hardboard using a roll coater. The pieces are then glued together using a cold press.

2. Regulatory Analysis

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	adequate duct work and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521(d)
toxic air pollutants	State enforceable-only: See Section VIII.	15A NCAC 2D .1100 and 15A NCAC 2Q .0701

a. 2D .0512 “Particulates from Miscellaneous Wood Products Finishing Plants”

i. Regulation Analysis

This regulation requires adequate ductwork and properly designed collectors on woodworking processes. Particulate emissions are controlled by adequate ductwork. Compliance with this regulation is indicated because the use of adequate ductwork alone will ensure that ambient standards are not exceeded beyond the property line. Also, this is existing equipment and historically there have been no compliance problems.

ii. Monitoring Requirements

The Permittee shall perform annual inspections of the ductwork to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year.

b. 2D .0521 “Control of Visible Emissions”

i. Regulatory Analysis

The trimboard line was established after July 1, 1971 and therefore is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. The latest inspection report did not cite any opacity exceedances. Continued compliance is expected.

ii. Monitoring Requirements

To assure compliance, once each month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The Permittee shall establish “normal” for the source using the weekly observations taken in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission source(s) are below the limit. If the demonstration in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.

iii. Record keeping

The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:

- (a) the date and time of each recorded action;
- (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and

(c) the results of any corrective actions performed.

iv. Reporting

The Permittee shall submit, in writing a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

D. Finishing Lines (ID No. ESG-FL) including the following sources:

- Lap coating line (ID No. ES-LL)
- Panel coating line (ID No. ES-PL)
- Prefinish coating line (ID No. ES-PF)
- Accessory paint system (ID No. ES-SB)
- Groove sealer spray booth (ID No. ES-SM)

1. Description

The panel line, which was first operated in 1970, coats full sized panels using roll coaters, curtain coaters and edge coaters. The lap line, which was first operated in 1982, coats smaller pieces using roll coaters, curtain coaters and edge coaters. The prefinish line is currently being constructed and will apply a primer and topcoat to individual lap boards. The coatings used are water based. The accessory paint system was first operated in 1994 and paints small joint items. It consists of a dry filter spray booth , a propane-fired bake oven, and two mix tanks. The groove sealer spray booth was first operated in 1980 and applies a sealer to grooves which are cut into the hardboard.

2. Regulatory Analysis

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
particulate matter	adequate duct work and properly designed collectors	15A NCAC 2D .0512
visible emissions	20 percent opacity	15A NCAC 2D .0521(d)
volatile organic compounds	ID Nos. ES-SB and ES-SM: less than 40 tons per year each	15A NCAC 2D .0530
volatile organic compounds	See Section 2.2	15A NCAC 2D .0958
toxic air pollutants	State enforceable-only: See Section VIII.	15A NCAC 2D .1100 and 15A NCAC 2Q .0701

a. 2D .0512 “Particulates from Miscellaneous Wood Products Finishing Plants”

i. Regulation Analysis

This regulation requires adequate ductwork and properly designed collectors on woodworking processes. Particulate emissions are expected to be insignificant from the coating lines where finishes are applied by coaters. There will be emissions of particulate matter from the spray booths where coatings are applied using spray guns. The accessory paint spray booth is equipped with dry filters. Compliance with this regulation is indicated because typically adequate ductwork alone will ensure that ambient standards are not exceeded beyond the property boundary. Also, this is existing equipment and historically, there have been no compliance problems.

ii. Monitoring Requirements

The Permittee shall perform inspections of the ductwork and filters as recommended by the manufacturer. As a minimum, the inspections will include an annual inspection of ductwork and filters to ensure structural integrity.

iii. Recordkeeping Requirements

The results of the inspection and maintenance will be kept in a log book.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the filters or baffles shall be reported within 30 days of a written request by DAQ.

b. 2D .0521 "Control of Visible Emissions"

i. Regulatory Analysis

These emission sources were established after July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. The latest inspection report did not cite any opacity exceedances. Continued compliance is expected.

ii. Monitoring Requirements

To assure compliance, once each month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The Permittee shall establish "normal" for the source using the weekly observations taken in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission source(s) are below the limit. If the demonstration in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.

iii. Record keeping

The results of the monitoring shall be maintained in a log (written or electronic format) on-site and made available to an authorized representative upon request. The log shall record the following:

- (a) the date and time of each recorded action;
- (b) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible

- emissions; and
- (c) the results of any corrective actions performed.

iv. Reporting

The Permittee shall submit, in writing a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

c. 2D .0530 “Prevention of Significant Deterioration”

i. Regulation Analysis

In order to avoid applicability of this regulation, the applicant has requested in the past that emissions of volatile organic compounds from the accessory paint system (ID No. ES-SB) and the groove sealer spray booth (ID No. ES-SM) be less than 40 tons per year each.

ii. Monitoring/Recordkeeping Requirements

Calculations of VOC emissions will be made at the end of each month. Emissions shall be determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. A log will be kept of the VOC calculations and the total VOC emissions. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the amounts of VOC containing materials are not monitored and recorded.

iii. Reporting Requirements

The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter.

E. One No. 6 fuel oil-fired boiler (ID No. ES-B1)

One wood waste/sludge/No. 6 fuel oil/tire derived fuel (TDF)-fired boiler (ID No. ES-B2) with associated scrubber (ID No. CD-1) and multicyclone (ID No. CD-2)

One wood waste/sludge/No. 6 fuel oil/tire derived fuel (TDF)-fired boiler (ID No. ES-B3) with associated scrubber (ID No. CD-3) and multicyclone (ID No. CD-4)

1. Description

Boiler B1 is an indirect fired heat exchanger fueled by No. 6 fuel oil with a capacity of 44.4 million Btu per hour. It was first operated in 1970.

Boiler B2 is an indirect fired heat exchanger fueled primarily by wood waste and secondarily by No. 6 fuel oil. The boiler is also permitted to burn sludge and TDF however these fuels are not currently burned and the facility has no plans to resume combustion of either. The boiler has a heat capacity of 79 million Btu per hour. It was first operated in 1970. Emissions are controlled by a multicyclone and wet fan impingement type scrubber.

Boiler B3 is also an indirect fired heat exchanger fueled primarily by wood waste and secondarily by No. 6 fuel oil. The boiler is also permitted to burn sludge and TDF however these fuels are not currently burned and the facility has no plans to resume combustion of either. The boiler has a heat

capacity of 183 million Btu per hour. It was first operated in 1980. Emissions are controlled by a multicyclone and wet venturi scrubber.

2. Applicable Regulatory Requirements

These boilers are not subject to NSPS regulations because it was constructed prior to the applicability dates. Boilers B2 and B3 are subject to NESHAP Subpart E for the combustion of sludge.

The following provides a summary of limits and/or standards for the emission source(s) described above. A review of the information in the application was performed to ensure the appropriate limits and associated calculations used to show compliance were correct.

Regulated Pollutant	Limits/Standards	Applicable Regulation
sulfur dioxide	<i>ID Nos. ES-B1, ES-B2, and ES-B3:</i> 1.5 percent by weight sulfur content of the No. 6 fuel oil	15A NCAC 2D .0501(e)
	<i>ID No. ES-B1:</i> 44.4 million Btu per hour maximum heat input 103 feet minimum boiler stack height	
	<i>ID No. ES-B2:</i> 92.0 pounds per hour sulfur dioxide emissions when firing any fuel combination 10 percent by weight minimum sulfur dioxide removal efficiency of the scrubber 79 million Btu per hour maximum heat input for wood and sludge combined 65 million Btu per hour maximum heat input for No. 6 fuel oil and sludge combined 66 million Btu per hour maximum heat input for wood or wood and tire derived fuel 37 million Btu per hour maximum heat input for No. 6 fuel oil when fired simultaneously with either boiler ES-B1 or ES-B3 33 million Btu per hour maximum heat input for No. 6 fuel oil when fired simultaneously with both boilers ES-B1 and ES-B3	
	<i>ID No. ES-B3:</i> 43.3 pounds per hour sulfur dioxide emissions when firing any fuel combination 80 percent by weight minimum sulfur dioxide removal efficiency of the scrubber 138 million Btu per hour maximum heat input for No. 6 fuel oil 1.5 million gallons No. 6 fuel oil per 12-month period	

particulate matter	<i>ID No. ES-B1 - AOS: firing No. 6 fuel oil only</i> <i>ID No. ES-B2 - AOS: firing No. 6 fuel oil, sludge, and/or tire derived fuel only</i> <i>ID No. ES-B3- AOS: firing No. 6 fuel oil, sludge, and/or tire derived fuel only</i> 0.25 pounds per million Btu heat input	15A NCAC 2D .0503
particulate matter	<i>ID Nos. ES-B2, and ES-B3- POS: firing wood only</i> 0.34 pounds per million Btu heat input	15A NCAC 2D .0504
particulate matter	<i>ID No. ES-B2 - AOS: firing wood fuel in combination with No. 6 fuel oil, sludge, and/or tire derived fuel</i> <i>ID No. ES-B3- AOS: firing wood fuel in combination with No. 6 fuel oil, sludge, and/or tire derived fuel</i> $E_c = [(0.34)(Q_w) + (0.25)(Q_o)]/Q_t$ where, E_c = emission limit for combination (lb/million Btu) Q_w = actual wood heat input rate (Btu/hr) Q_o = actual other fuel heat input rate (Btu/hr) Q_t = total heat input rate ($Q_w + Q_o$)	15A NCAC 2D .0504
sulfur dioxide	<i>ID Nos. ES-B1, ES-B2, and ES-B3:</i> 2.3 pounds per million Btu heat input	15A NCAC 2D .0516
visible emissions	<i>ID Nos. ES-B1 and ES-B2:</i> 40 percent opacity	15A NCAC 2D .0521(c)
	<i>ID No. ES-B3:</i> 20 percent opacity	15A NCAC 2D .0521(d)
nitrogen oxide	<i>ID No. ES-B3:</i> less than 355.3 tons per year	15A NCAC 2D .0530
particulate matter	<i>ID No. ES-B3:</i> 0.10 pounds per million Btu heat input	15A NCAC 2D .0530
mercury	<i>ID Nos. ES-B1 and ES-B2:</i> 3200 grams per 24-hour period	15A NCAC 2D .1110 40 CFR Part 61 Subpart E
toxic air pollutants	State enforceable-only: See Section VIII.	15A NCAC 2D .1100 and 15A NCAC 2Q .0701

POS= Primary Operating Scenario AOS=Alternative Operating Scenario

ID Nos. ES-B1, ES-B2, and ES-B3:

- a. 2D .0501 "Compliance with Emission Control Standards"

- i. Regulation Analysis

The sulfur dioxide emissions from these boilers were modeled in the past as part of a national ambient air quality standards demonstration. In order to demonstrate compliance, the above limits were agreed

upon.

ii. Monitoring Requirements

To ensure that optimum control efficiency of sulfur dioxide is obtained by the scrubbers, inspections and maintenance will be performed as recommended by the manufacturer. If no manufacturer's recommendations are available, as a minimum, the inspections will include an annual internal inspection of the scrubbers' structural integrity and a monthly external visual inspection of the ductwork and collection units for leaks. Monthly inspections should provide assurance of compliance since the expected life times of scrubbers are several years.

iii. Recordkeeping Requirements

A log book will be kept as required in the permit.

iv. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control device shall be reported within 30 days of a written request by DAQ.

ID No. ES-B1 - AOS: firing No. 6 fuel oil only

ID No. ES-B2 - AOS: firing No. 6 fuel oil, sludge, and/or tire derived fuel only

ID No. ES-B3- AOS: firing No. 6 fuel oil, sludge, and/or tire derived fuel only

b. 2D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"

i. Regulation Analysis

Since No. 6 fuel oil, sludge and tire derived fuel can be burned for the primary purpose of producing heat by indirect heat transfer, boilers B1, B2, and B3 are subject to 2D .0503. Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$E = 1.090(Q)^{0.2594}$$

where, E = allowable particulate matter emissions (pounds per million Btu),

Q = actual heat input rate (million Btu per hour).

The total maximum heat inputs of fuel firing indirect heat exchangers at the plant (Q = 306.4 million Btu per hour,) established prior to the effective date of this regulation (February 1, 1983) is used to determine the allowable emission limit (E = 0.25 pounds per million Btu).

The uncontrolled emission rate from No. 6 fuel oil was calculated based on the DAQ spreadsheet to be 0.06 pounds per million Btu. Boilers B2 and B3 have also been permitted in the past to burn sludge and tire derived fuel (TDF) however these fuels are not currently burned and the facility has no plans to resume combustion of either. If the facility ever burns TDF, compliance with the emission limit will be verified by stack testing the boilers. Results of the stack testing are required within 90 days of firing TDF.

Emissions of particulate matter from the combustion of No. 6 fuel oil will always be less than the

allowable.

ii. Monitoring/Recordkeeping/Reporting Requirements

The particulate matter emissions from the combustion of No. 6 fuel oil will always be less than the allowable emissions rate. For this reason monitoring and recordkeeping are not required for the combustion of No. 6 fuel oil. Notification will be required prior to burning TDF or sludge.

ID Nos. ES-B2 and ES-B3 - POS-firing wood fuel only

c. 2D .0504 "Particulates from Wood Fuel Burning Indirect Heat Exchangers"

i. Regulation Analysis

Boilers ES-B2 and ES-B3 are subject to 2D .0504 since wood fuel is burned for the primary purpose of producing heat by indirect heat transfer. Allowable emissions of particulate matter from wood combustion are calculated as follows:

$$E = 1.1698(Q)^{0.2230}$$

where, E = allowable particulate matter emissions (pounds per million Btu),
Q = actual heat input rate (million Btu per hour).

The total maximum heat input of wood firing indirect heat exchangers at the plant (Q = 249 (66 for B2 and 183 for B3)) established prior to the effective date of this regulation (February 1, 1983) are used to determine the allowable emission limits (E = 0.34 pounds per million Btu) for the boilers.

Particulate emissions are controlled by one multicyclone and one scrubber on each boiler. The worst case uncontrolled emission rate is realized when firing wood and is calculated based on AP-42 factors for bark and wood firing to be 0.58 pounds million Btu. The emissions will be reduced by multicyclone and one fan scrubber on boiler B2 and multicyclone and one venturi scrubber on boiler B3. The applicant estimates that emissions will be reduced by 90% from each boiler. Compliance is demonstrated with this regulation since estimated emissions are less than the allowables.

For Title V purposes, the DAQ requires wood-fired boilers to be tested if the boiler has not ever been tested or 5 years has passed since the last test. A condition will be placed in the permit requiring the applicant to stack test these boilers in the first two years of the term of the permit.

ii. Monitoring/Recordkeeping Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the multicyclones and scrubbers, inspections and maintenance will be performed as recommended by the manufacturer. If no manufacturer's recommendations are available, as a minimum, the inspections will include an annual internal inspection of the multicyclones' and scrubbers' structural integrity and a monthly external visual inspection of the ductwork and collection units for leaks. Monthly inspections should provide assurance of compliance since the expected life times of multicyclones and scrubbers are several years. Additional stack testing is required for boilers B2 and B3 to ensure compliance with this regulation. In addition, the test method condition will be put in the permit in the event that DAQ finds that due to improper operation violations, etc., source testing is required.

iii. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control device shall be reported within 30 days of a written request by DAQ.

ID No. ES-B2 - AOS: firing wood in combination with No. 6 fuel oil, sludge, and/or tire derived fuel

ID No. ES-B3- AOS: firing wood in combination with No. 6 fuel oil, sludge, and/or tire derived fuel

d. 2D .0504 “Particulates From Wood Burning Indirect Heat Exchangers”

i. Regulatory Analysis

Boilers B2 and B3 are also subject to 2D .0504 since wood fuel and No. 6 fuel oil, sludge, and/or tire derived fuel are burned for the primary purpose of producing heat by indirect heat transfer. Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$Ec' [(0.34)(Qw)\%(0.25)(Qo)]/Qt$$

where, Ec = allowable particulate matter emission rate (pounds per million Btu)
 Qw = actual wood heat input rate (million Btu per hour)
 Qo = actual heat input rate of other fuels (million Btu per hour)
 Qt = total actual heat input rate, Qw + Qo (million Btu per hour)

Qw, Qo, and Qt are variables dependent on the actual amounts burned at any time. Depending on the proportion of other fuels burned, the allowable emissions rate will range from the allowable emissions rate for wood to the allowable emissions rate for other fuels.

Particulate emissions are controlled by one multicyclone and one scrubber on each boiler. The worst case uncontrolled emission rate is realized when firing wood and is calculated based on AP-42 factors for bark and wood firing to be 0.58 pounds million Btu. The emissions will be reduced by multicyclone and one fan scrubber on boiler B2 and multicyclone and one venturi scrubber on boiler B3. The applicant estimates that emissions will be reduced by 90% from each boiler. Compliance is demonstrated with this regulation since estimated emissions are less than the allowables.

ii. Monitoring/Recordkeeping Requirements

To ensure that optimum control efficiency of particulate matter is obtained by the multicyclones and scrubbers, inspections and maintenance will be performed as recommended by the manufacturer. If no manufacturer's recommendations are available, as a minimum, the inspections will include an annual internal inspection of the multicyclones' and scrubbers' structural integrity and a monthly external visual inspection of the ductwork and collection units for leaks. Monthly inspections should provide assurance of compliance since the expected life times of multicyclones and scrubbers are several years. Additional stack testing is required for boilers B2 and B3 to ensure compliance with this regulation. In addition, the test method condition will be put in the permit in the event that DAQ finds that due to improper operation violations, etc., source testing is required.

iii. Reporting Requirements

A summary report of the monitoring will be submitted by January 30 and July 30 of each year. The results of any maintenance to the control device shall be reported within 30 days of a written request by DAQ.

ID Nos. ES-B1, ES-B2, and ES-B3:

e. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

i. Regulation Requirements

These boilers are sources of emissions from combustion which discharge through a stack and therefore are subject to 2D .0516(a). Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input.

Wood is an inherently low sulfur emitting fuel. Emissions of sulfur dioxide from the combustion of wood will always be less than the emission limit. Emissions of sulfur dioxide from the combustion of No. 6 fuel oil are calculated to be less than the allowable when the sulfur content of the No. 6 fuel oil is less than 2.1%. However, .0402 requires that the sulfur content of the fuel oil be less than 1.5%. Compliance with this regulation is indicated since estimated emissions are less than the allowable.

Boilers B2 and B3 have also been permitted in the past to burn sludge and tire derived fuel (TDF) however these fuels are not currently burned and the facility has no plans to resume combustion of either. If the facility ever burns TDF, compliance with the emission limit will be verified by stack testing the boilers. Results of the stack testing are required within 90 days of firing TDF.

ii. Monitoring/Recordkeeping/Reporting Requirements

The sulfur dioxide emissions from the combustion of wood will always be less than the allowable emissions rate. For this reason monitoring and recordkeeping are not required for the combustion of wood. The monitoring, recordkeeping, and reporting requirements for .0402 will also ensure compliance with .0516 for No. 6 fuel oil.

ID Nos. ES-B1, ES-B2, and ES-B3:f. 2D .0521 “Control of Visible Emissions”

i. Regulation Analysis

Boiler ES-B3 was established after July 1, 1971 and therefore is subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Boilers ES-B1 and ES-B2 were established before July 1, 1971 and therefore are subject to 2D .0521(d). Per this regulation, visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period except that six-minute period averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Compliance is demonstrated with this regulation because the latest scheduled inspection report did not cite any opacity exceedances.

ii. Monitoring Requirements

The Permittee shall observe these boilers once a day for any visible emissions above normal.

iii. Recordkeeping Requirements

The Permittee shall record the results of the observations along with any corrective actions taken to

reduce visible emissions to normal.

iv. Reporting Requirements

Reporting requirements include a summary report of the records by January 30 and July 30 of each year.

ID No. ES-B3:

g. 2D .0530 "Prevention of Significant Deterioration"

i. Regulation Analysis

In order to avoid applicability of this regulation, the applicant has requested in the past that the emissions of nitrogen oxide from the boiler B3 (ID No. ES-B3) be less than 355.3 tons per year total.

ii. Monitoring/Recordkeeping Requirements

The fuel input to the boiler will be limited to no more than 180.6 million Btu per hour per 12 month period on a 12 month rolling average. A monthly log will be kept of the energy inputs to the boiler and the steam production. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if these records are not kept or if the emission limit is exceeded.

iii. Reporting Requirements

The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter.

ID No. ES-B3:

h. 2D .0530 "Prevention of Significant Deterioration"

i. Regulation Analysis

This facility has undergone a PSD analysis for emissions of particulate matter from boiler B3 in the past. The BACT limit agreed upon was 0.10 pounds of PM per million Btu.

ii. Monitoring/Recordkeeping Requirements

The monitoring and recordkeeping for .0503 and .0504 will also ensure compliance with this limit.

iii. Reporting Requirements

The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter.

ID No. ES-B2 - AOS: firing sludge

ID No. ES-B3- AOS: firing sludge

i. 15A NCAC 2D .0524: NSPS 40 CFR Part 61, Subpart E

i. Emission Limitations

Boilers B2 and B3 have been permitted in the past to incinerate wastewater treatment sludge. 40 CFR

61.52(b) limits emissions of mercury to 3200 grams per 24-hour period. The current permit contains a limit of 3 tons per hour sludge fired in both boilers combined. Sludge is not currently burned and the facility has no plans to resume combustion of sludge.

ii. Monitoring Requirements

The current permit contains a limit of 3 tons per hour sludge fired in both boilers combined.

iii. Recordkeeping Requirements

The Permittee shall keep records of the amount of sludge combusted in the boilers per hour.

iv. Reporting Requirements

The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter. The Permittee shall submit notification prior to combusting sludge.

j. Alternative Operating Scenarios

The Permittee, contemporaneously with making a change from one alternate operating scenario to another, shall record in a log the scenario under which it is operating.

VII. Multiple Emission Source Limits

The following emission source(s) and associated control device(s) are subject to this multiple emission source limit:
FACILITY-WIDE

The above emission sources are subject to these multiple emission source limits and/or standards:

Regulated Pollutant	Limits/Standards	Applicable Regulation
volatile organic compounds	work practice standards	15A NCAC 2D .0958
toxic air pollutants	State-enforceable only: see below	15A NCAC 2D .1100
odorous emissions	State-enforceable only: odorous emissions must be controlled	15A NCAC 2D .1806
toxic air pollutants	State-enforceable only: see below	15A NCAC 2Q .0711

A. 15A NCAC 2D .0958: "Work Practices for Sources of Volatile Organic Compounds"

Emission sources which discharge volatile organic compounds to the atmosphere from the use of solvents are subject to 2D .0958. This regulation requires several work practices to minimize the emissions of VOCs. Compliance with the work practice standards is expected.

State-enforceable only:

B. 15A NCAC 2D .1100: "Control of Toxic Air Pollutants"

Emissions of toxic air pollutants from the facility are limited by this “State-enforceable only” regulation. A modeling demonstration has been made in the past. Emission limits, monitoring, recordkeeping, and reporting are described in the permit.

State-enforceable only:

- C. 15A NCAC 2D .1806: “Control and Prohibition of Odorous Emissions”

Odorous emissions shall be controlled as described in the permit.

State-enforceable only:

- D. 2Q .0711: “Toxic Air Pollutant Emissions Limitation Requirement”

Emissions of toxic air pollutants from the facility are also limited by this “State-enforceable only” regulation. Emissions shall be below the limits in the permit in order to avoid a modeling demonstration. Emission limits, monitoring, recordkeeping, and reporting are described in the permit.

VIII. MACT Applicability and Requirements

Based on a review of the current operations and emission sources, the facility is not subject to any currently promulgated MACT standards. The facility will be subject to the future MACT - Plywood and Composite Wood Products, subpart DDDD.

IX. Permit Shield (including non-applicable requirements)

In accordance with 2Q .0512 the permit will contain a provision stating that compliance with the terms, conditions, and limitations of the Title V permit shall be deemed in compliance with applicable requirements specifically identified in the permit, as of the date of permit issuance. If the permit does not expressly state that a permit shield exists then it shall be presumed not to provide such a shield.

XI. General Conditions

The “General Conditions” section of the Title V Operating Permits lists additional applicable rule requirements that the permittee must adhere to, as with any other permit condition. These requirements in general are common to all Title V facilities. The general conditions include provisions such as annual fee payment, permit renewal and expiration, transfer of ownership or operation, property rights, submission of documents, inspections and entry procedures, reopen for cause, and severability.

XII. Insignificant Activities

The insignificant activities listed in the application have been reviewed and verified. Because an emission source or activity is insignificant does not mean that the emission source or activity is exempted from any applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.

XIII. Public Notice

Pursuant to 15A NCAC 2Q .0521, a notice of the draft Title V Operating Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30 day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list, Tennessee, Virginia, Forsyth County, and EPA.

XIV. Recommendations

The initial Title V application for Louisiana-Pacific has been reviewed by the DAQ to determine compliance with all procedures and requirements under 15A NCAC 2Q .0500 and 40 CFR Part 70. The DAQ has made a preliminary determination that the facility is complying or will achieve compliance as specified in the draft permit with all applicable requirements. Therefore, the DAQ is proposing to issue the Title V Operating Permit upon completion of the public comment period and the EPA review.