

Arkansas Department of Pollution Control and Ecology  
Division of Air Pollution Control

Summary Report Relative to Permit Application

Submitted By: Nekoosa Papers Inc.  
Ashdown (Little River County)

CSN: 410002

Submittals: May 31, 1983; November 15, 1983; November 23,  
1983; December 15, 1983; August 10, 1984;  
August 27, 1984; October 11, 1984; November 14,  
1984; and January 10, 1985.

SUMMARY:

Nekoosa Paper, Incorporated, is proposing five modifications to their existing pulp and paper mill located in Ashdown.

The modifications include the installation of two natural gas fired package boilers. Package boiler Number 1 will have a capacity of 115,000 pounds of steam per hour; the Number 2 package boiler will have a capacity of 150,000 pounds of steam per hour. Both boilers will have the capability to burn No. 6 oil during periods of natural gas curtailment.

The other modifications deal with increasing the permitted capacities of three sources. Specifically, Nekoosa would like to:

- a) increase the permitted capacity of the number 2 power boiler from 500,000 pounds of steam per hour to 575,000 pounds per hour,
- b) increase the permitted capacity of the number 2 recovery boiler from 3.5 million pounds of black liquor solids per day to 4.4 million pounds per day, and to
- c) increase the permitted capacity of each of the smelt dissolving tank vents on the number 2 recovery boiler from 45,583 pounds per hour of salt cake to 57,292 pounds per hour.

Changes "b" and "c" are equivalent to increasing the capacity from 1,094 tons of pulp per day to 1,375 tons per day. The implementation of all five modifications will increase the mill's potential to emit sulfur dioxide (SO<sub>2</sub>) by 187.4 pounds per hour. Particulate emissions (TSP) will increase by 15.7 pounds per hour, and the potential to emit oxides of nitrogen (NO<sub>x</sub>) will increase by 123.4 pounds per hour.

Estimated Cost:	N/A	Total Project:	N/A				
Installation:	N/A	Operation:	N/A				
Recommendation:	Approval	Permit Number:	287-AR-3				
Code *	SIP	*	PSD	*	NSPS	*	NESHAP
Reviewed By:	MAP	Approved By:	JDW	Approved:			

The increases in the potential to emit SO<sub>2</sub>, TSP, and NO<sub>x</sub> are significant as defined by 40 CFR 52.21. Thus, these modifications are subject to the PSD regulations. The predicted ambient concentrations due to the proposed increase in emissions will be well below the de minimis values found in 40 CFR 52.21(i)(8)(i), allowing Nekoosa to obtain an exemption from the pre-construction ambient monitoring requirements of the PSD regulations.

The proposed emission increases will result in consumption of 1.6% of the short term TSP increment, 0.0% of the annual TSP increment, 5.2% of the short term SO<sub>2</sub> increment, and 2.0% of the annual SO<sub>2</sub> increment. There is no increment for NO<sub>x</sub>.

As a PSD source, Nekoosa is required to use the Best Available Control Technology (BACT) to control each pollutant which will have a significantly increased emission rate. BACT is defined as an emission limitation based on the maximum degree of reduction achievable for each pollutant emitted in significant amounts (in this case NO<sub>x</sub>, TSP, and SO<sub>2</sub>) "... taking into account energy, environmental, and economic impacts and other costs .... "

For the two package boilers, Nekoosa is proposing that the use of natural gas be considered BACT for SO<sub>2</sub> and TSP and that the use of low excess air (8-12%) be considered BACT for NO<sub>x</sub>. For the Number 2 power boiler, Number 2 recovery boiler, and Number 2 smelt dissolving tank vents, Nekoosa is proposing that the existing control equipment be considered BACT. While it is theoretically possible to obtain additional emission reduction on these three sources, the capital cost of the equipment necessary to do so is equivalent to \$9,600 per ton of SO<sub>2</sub> removed and \$108,000 per ton of TSP removed. Issuance of this permit will constitute this Department's acceptance of Nekoosa's BACT proposals.

The allowable emission rates are summarized in Table I. The results of the ambient air impact analysis are summarized in Tables II, III, IV.

Specific Conditions

1. Except as provided under specific condition 2, the number 1 package boiler shall burn pipeline quality natural gas with a heat input no greater than 160 million BTU per hour; the number 2 package boiler shall burn pipeline quality natural gas with a heat input no greater than 210 million BTU per hour.
2. During periods of natural gas curtailment, both package boilers will be allowed to burn #6 fuel oil provided the heat input to each boiler does not exceed the limits specified in specific condition 1. The #1 power boiler shall also be allowed to burn #6 oil during periods of natural gas curtailment.
3. The following test methods, found in 40 CFR Part 60 Appendix A, are to be used for any (and all) testing required by this permit:

Method 5	--	Total Suspended Particulate
Method 6 or 6a	--	Sulfur Dioxide
Method 7	--	Nitrogen Oxide
Method 9	--	Opacity
Method 16 or 16a	--	Total Reduced Sulfur

4. Within the time limits specified by general condition 6, Nekoosa shall test the number 2 power boiler for TSP, and NOx; the number 2 recovery boiler for SO2, and TSP; and both smelt dissolving tank vents on the number 2 recovery boiler for TSP, SO2, and TRS.
5. All previous permit requirements, except those relating to equipment capacity shall remain in effect. This includes the requirement that Nekoosa install and operate the following continuous emission monitors:

# 2 Recovery Boiler	--	Total Reduced Sulfur, Oxygen, and Opacity
# 2 Power Boiler	--	Sulfur Dioxide and Oxygen
# 2 Lime Kiln	--	Total Reduced Sulfur

The performance specifications which the monitors are required to meet (PS 1, 2, 3, and 5) are found in 40 CFR Part 60 Appendix B.

6. In accordance with Section 8(e) of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control, the opacity limit of the number 2 recovery boiler is 20%. The Standards of Performance for New Stationary Sources requires Nekoosa to submit, on a quarterly basis, a list of all six minute average opacities that exceed 35%. It is not the intent of this permit to change either requirement.
  
7. In approving this permit, the Director has determined that the application complies with the applicable provisions of the stack height regulations promulgated by EPA on February 8, 1982 (47 FR 5864). Portions of these regulations have been overturned by a panel of the U.S. Court of Appeals for the D.C. Circuit. Sierra Club v. EPA, 719 F.2d 436 (D.C. Cir., 1983). That court decision has been appealed to the U.S. Supreme Court by a group of affected industries. Consequently, this permit may be subject to modification when the judicial process is completed and any regulations are revised in response. This may result in emission limitations or may affect other actions taken by the source owners or operators.

TABLE I  
 ALLOWABLE EMISSION RATES

Source	Pollutant	Emission Rate	Opacity
* Number 2 Power Boiler	TSP	82 lb/hr	0.1 lb/mmBTU
	SO <sub>2</sub>	983 lb/hr	1.2 lb/mmBTU
	NO <sub>x</sub>	574 lb/hr	0.7 lb/mmBTU
* Number 2 Recover Boiler	TSP	84.4 lb/h	0.044 gr/dscf
	SO <sub>2</sub>	286 lb/hr	250 ppm
	TRS	7.4 lb/hr	5 ppm
* Number 2 Smelt Dissolving Tanks (Both)	TSP	18 lb/hr	0.2 lb/Ton BLS
	SO <sub>2</sub>	10.6 lb/hr	----
	TRS	2.1 lb/hr	0.0084 g/kg BLS BLS---Black Liquor Solids
* Number 2 Lime Kiln	TSP	51 lb/hr	0.067 g/dscf
	SO <sub>2</sub>	16.7 lb/hr	----
	TRS	8 lb/hr	8 ppm
* Number 1 Package Boiler	TSP	0.5 lb/hr	160 mm BTU/hr
	SO <sub>2</sub>	0.1 lb/hr	Maximum Heat Input
	NO <sub>x</sub>	21 lb/hr	
* Number 2 Package Boiler	TSP	0.6 lb/hr	210 mm BTU/hr
	SO <sub>2</sub>	0.2 lb/hr	Maximum Heat Input
	NO <sub>x</sub>	27.4 lb/hr	
Number 1 Recovery Boiler	TSP	400 lb/hr	
	SO <sub>2</sub>	196 lb/hr	
	TRS***	23.4 lb/hr	40 ppm
Number 1 Smelt Tank	TSP	40 lb/hr	
	SO <sub>2</sub>	4.0 lb/hr	
	TRS**	4.3 lb/hr	0.0084 g/kg BLS
Number 1 Power Boiler	TSP	300 lb/hr	

\* NSPS Sources

\*\* These emission limits do not take effect until the compliance date specified in the TRS III-d-plan.

TABLE II  
 Protection of NAAQS

TSP		
	24 hr. Values	Annual Values
Modeled Values	21.1 ug/m <sup>3</sup>	2.4 ug/m <sup>3</sup>
Background	73 ug/m <sup>3</sup>	39.9 ug/m <sup>3</sup>
Total	94.1 ug/m <sup>3</sup>	42.3 ug/m <sup>3</sup>
Primary NAAQS	260 ug/m <sup>3</sup>	70 ug/m <sup>3</sup>
Secondary NAAQS	150 ug/m <sup>3</sup>	60 ug/m <sup>3</sup>

SO <sub>2</sub>			
	24 hr. Values	3 hr. Values	Annual Values
Modeled Values	40.5 ug/m <sup>3</sup>	230.5 ug/m <sup>3</sup>	3.5 ug/m <sup>3</sup>
Background	20 ug/m <sup>3</sup>	20 ug/m <sup>3</sup>	20 ug/m <sup>3</sup>
Total	60.5 ug/m <sup>3</sup>	250.5 ug/m <sup>3</sup>	23.5 ug/m <sup>3</sup>
Primary NAAQS	365 ug/m <sup>3</sup>	-----	80 ug/m <sup>3</sup>
Secondary NAAQS	-----	1300 ug/m <sup>3</sup>	-----

NOx	
	Annual Values
Modeled Values	2.2 ug/m <sup>3</sup>
Background	20.0 ug/m <sup>3</sup>
Total	22.2 ug/m <sup>3</sup>
Primary NAAQS	100 ug/m <sup>3</sup>
Secondary NAAQS	100 ug/m <sup>3</sup>

TABLE III  
Increment Consumption Analysis

TOTAL Increment Consumption After this Permit:

13.3 ug/m <sup>3</sup> 24-hr (36%)	1.6 ug/m <sup>3</sup> Annual (8.4%)
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Increment Consumption Resulting From this Permit:

0.6 ug/m <sup>3</sup> 24-hr (1.6%)	0.0 ug/m <sup>3</sup> Annual (0%)
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TSP Increment: 19 ug/m<sup>3</sup> Annual; 37 ug/m<sup>3</sup> 24-hr

TOTAL Increment Consumption After this Permit:

1.0 ug/m <sup>3</sup> Annual (5%)	8.4 ug/m <sup>3</sup> 24-hr (9.2%)	47.5 ug/m <sup>3</sup> 3-hr (9.3%)
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Increment Consumption Resulting From this Permit:

0.4 ug/m <sup>3</sup> Annual (2%)	4.7 ug/m <sup>3</sup> 24-hr (5.2%)	26.5 ug/m <sup>3</sup> 3-hr (5.2%)
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SO<sub>2</sub> Increment: 20 ug/m<sup>3</sup> Annual; 91 ug/m<sup>3</sup> 24-hr

Number in parentheses represents the percent of increment being consumed.

TABLE IV

Ambient Impact Resulting from Emission Increase Only

TSP (24 hour values)

YEAR	HIGHEST 1st HIGH	HIGHEST 2nd HIGH
1	0.5 ug/m <sup>3</sup>	0.5 ug/m <sup>3</sup>
2	0.8 ug/m <sup>3</sup>	0.6 ug/m <sup>3</sup>
3	0.6 ug/m <sup>3</sup>	0.5 ug/m <sup>3</sup>
4	0.8 ug/m <sup>3</sup>	0.6 ug/m <sup>3</sup>
5	0.8 ug/m <sup>3</sup>	0.6 ug/m <sup>3</sup>

de minus value: 10 ug/m<sup>3</sup>

SO<sub>2</sub> (24 hour values)

YEAR	HIGHEST 1st HIGH	HIGHEST 2nd HIGH
1	4.2 ug/m <sup>3</sup>	3.1 ug/m <sup>3</sup>
2	4.9 ug/m <sup>3</sup>	4.7 ug/m <sup>3</sup>
3	4.0 ug/m <sup>3</sup>	3.7 ug/m <sup>3</sup>
4	5.4 ug/m <sup>3</sup>	3.6 ug/m <sup>3</sup>
5	4.8 ug/m <sup>3</sup>	3.6 ug/m <sup>3</sup>

de minus value: 13 ug/m<sup>3</sup>

NOx

YEAR	ANNUAL AVERAGE
1	1.1 ug/m <sup>3</sup>
2	0.9 ug/m <sup>3</sup>
3	1.0 ug/m <sup>3</sup>
4	1.0 ug/m <sup>3</sup>
5	1.1 ug/m <sup>3</sup>

de minus value: 14 ug/m<sup>3</sup>