

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 456-AOP-R2

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

2. APPLICANT:

Bearden Lumber Company, Inc.
Second and Plum Streets
Bearden, Arkansas 71720

3. PERMIT WRITER:

Siew Low

4. PROCESS DESCRIPTION AND NAICS CODE:

Sawmill, NAICS: 321113

5. SUBMITTALS:

November 25, 2003, December 22, 03, February 12, 04, and February 20, 04.

6. REVIEWER'S NOTES:

Bearden Lumber Company owns and operates a pine sawmill physically located at Second and Plum Streets in downtown Bearden (Ouachita County), Arkansas. In this Title V renewal, the permitting action includes permitting two existing emission sources, log debarking (SN-23) and log sawing (SN-24), allowing an annual emissions bubble for the four boilers (SN-01, SN-02, SN-03, and SN-22), and updating emission rates using the most up-to-date emission factors. Compliance Assurance Monitoring (CAM) Rule requirements have also been specified for the four boilers, as well as stack testing provisions for SN-02 and SN-03. The NO_x emissions increase is a result of the more accurate recalculations. No physical or operational changes are occurring in this permitting action.

7. COMPLIANCE STATUS:

The facility is in compliance at the time of the drafting of this permit.

8. APPLICABLE REGULATIONS:

A. Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera) (Y/N) Y
 Has this facility underwent PSD review in the past (Y/N) Y Permit # 456-AOP-R0
 Is this facility categorized as a major source for PSD? (Y/N) N
 \$ 100 tpy and on the list of 28 (100 tpy)? (Y/N) N
 \$ 250 tpy all other (Y/N) Y

B. PSD Netting

Was netting performed to avoid PSD review in this permit? (Y/N) N

C. Source and Pollutant Specific Regulatory Applicability

Source	Pollutant	Regulation [NSPS, NESHAP (Part 61 & Part 63), or PSD only]
SN-01, SN-22		40 CFR 60, Subpart Dc

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 456-AOP-R1	Air Permit 456-AOP-R2	Change
PM	149.3	155.9	+6.6
PM ₁₀	149.3	153.2	+3.9
SO ₂	2.6	7.6	+5.0
VOC	247.9	248.1	+0.2
CO	177.8	182.3	+4.5
NO _x	13.0	66.9	+53.9
<i>Acrolein</i>	0	1.3	+1.3
<i>Benzene</i>	0	1.3	+1.3
<i>Chlorine</i>	0	0.24	+0.24
<i>Formaldehyde</i>	0	2.5	+2.5
<i>Hydrogen Chloride</i>	0	5.8	+5.8
<i>Methanol</i>	0	14.2	+14.2
<i>Styrene</i>	0	0.58	+0.58
<i>Cumene</i>	0.04	0	-0.04

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 456-AOP-R1	Air Permit 456-AOP-R2	Change
Xylene	0.08	0	-0.08

10. MODELING:

A. Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
PM ₁₀	73.8	50	Annual	3.1080	6.2%
		150	24-hour	31.084	20.7%
CO	101.2	10,000	8-hour	467.36	4.67%
		40,000	1-hour	1628.519	4.07%
VOC	not applicable, emissions are < 500 tons per year				

11. Non-Criteria Pollutants

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The PAER was deemed by the Department to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
<i>Acrolein</i>	0.23	0.025	0.70	No
<i>Benzene</i>	1.597	0.175	0.74	No
<i>Chlorine</i>	1.45	0.16	0.16	Yes
<i>Formaldehyde</i>	0.37	0.040	1.49	No
<i>Hydrogen Chloride</i>	2.98	0.32	3.30	No
<i>Methanol</i>	262	28.82	9.60	Yes
<i>Styrene</i>	85.2	9.37	0.34	Yes

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2nd Tier Screening (PAIL)

ISCST3 air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound was deemed by the Department to be one one-hundredth of the Threshold Limit Value, as listed by the ACGIH.

Pollutant	(PAIL, µg/m3) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m3)	Pass?
Acrolein	2.3	0.169	Yes
Benzene	15.97	0.179	Yes
Formaldehyde	15.0*	14.27	Yes
Hydrogen Chloride	29.8	0.7766	Yes

* Surrogate screening value adopted by ADEQ (see Steve Patrick memo of October 19, 1998).

12. CALCULATIONS:

SN	Pollutant	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
01 02 03 22	PM ₁₀	AP-42 5 th Edition Section 1.6 Wood Residue Combustion in Boilers	0.35 lb/MMBtu	Zurn Multi- cyclone	95%	Facility limited to 135 MMBF of lumber per any 12 consecutive months. This in turn limits the amount of steam that must be produced to dry that amount of lumber. Control efficiency of the multi-cyclone is not used in calculating PM/ PM ₁₀ emission rates.
	PM		0.32 lb/MMBtu			
	SO ₂		0.025 lb/MMBtu	None	N/A	
	VOC		0.013 lb/MMBtu			
	CO		0.60 lb/MMBtu			
	NO _x		0.22 lb/MMBtu			
	HAPs		See AP-42			
04	PM ₁₀	AP-42 4 th Edition	0.02 lb/ton	Cyclone	80%	Stack test performed on similar cyclone at the pine sawmill in Malvern, concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 80% capture efficiency is a conservative estimate.
05	PM ₁₀	AP-42 4 th Edition	0.04 lb/ton	Cyclone	80%	Stack test performed on similar cyclone at the pine

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SN	Pollutant	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
						sawmill in Malvern, concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 80% capture efficiency is a conservative estimate.
06	PM ₁₀	AP-42 4 th Edition	1.0 lb/ton	Cyclone	80%	Stack test performed on similar cyclone at the pine sawmill in Malvern, concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 80% capture efficiency is a conservative estimate.
07	PM ₁₀	AP-42 4 th Edition	0.35 lb/ton	Cyclone	80%	Stack test performed on similar cyclone at the pine sawmill in Malvern, concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 80% capture efficiency is a conservative estimate.
09	PM ₁₀	AP-42 4 th Edition	0.35 lb/ton	Cyclone	80%	Sieve testing conducted at a competitor's softwood lumber mill. Stack test performed on similar cyclone at the pine sawmill in Malvern, concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 80% capture efficiency is a conservative estimate.
11	PM ₁₀	AP-42 4 th Edition	0.35 lb/ton	Cyclone	80%	Sieve testing conducted at a competitor's softwood lumber mill. Stack test performed on similar cyclone at the pine sawmill in Malvern, concluded that the sawdust bin cyclone captures

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SN	Pollutant	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
						99.99% of the PM generated from the sawing operations. The 80% capture efficiency is a conservative estimate.
12 13 14 15	VOC	ADEQ Softwood Drying Factor	3.5 lb/1000 BF	None	N/A	Facility limited to 135 MMBF of lumber per any 12 consecutive months.
16	Formaldehyde Methanol	ADEQ emission factors	0.016lb/1000 BF 0.210 lb/1000BF			
17	VOC	Chemical Throughput & VOC Content	6000 gal/yr & 1.44 lb VOC/gal	None	N/A	Facility limited to 6000 gallons per year and VOC content as listed in the Emission Factor units. Max lb/hr emissions are based on 2000 hr/yr and are considered very conservative.
18 19 20 21	VOC	TANKS	lb/hr	None	N/A	No tank large enough to be subject to NSPS subpart Kb.
23 24	PM ₁₀	AP-42	lb/hr	None	N/A	Log Debarking assume 10% PM/PM ₁₀ airborne Log Sawing assume assume 10% PM/PM ₁₀ airborne and 50% control efficiency because operations are indoor

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13. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
02 or 03	PM ₁₀	201A or 202	Fail – Every Other Year Pass – Every five years	Dept. Guidance
	CO	10	One time test	

14. MONITORING OR CEMS

The following are parameters that must be monitored with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
01, 02, 03, and 22	Opacity limit	Method 9	Daily	Yes

* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

** Indicates whether the item needs to be included in reports

15. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

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SN	Recorded Item	Limit (as established in permit)	Frequency*	Report (Y/N)**
01	Fuel combusted each day.	N/A (NSPS Dc)	Daily	Yes
22	Fuel combusted each day.	N/A (NSPS Dc)	Daily	Yes
12,13,14,15,16	Board feet of Lumber dried per year	135 million	Monthly	Yes
17	Dipping chemical usage & VOC content	6000 gallons & 1.44 lb/gal VOC	Monthly	Yes
18	Gasoline throughput	120,000 gallons	Monthly	Yes
19	Diesel throughput	240,000 gallons	Monthly	Yes
20	Diesel throughput	240,000 gallons	Monthly	Yes
21	Kerosene throughput	1,500 gallons	Monthly	Yes

* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

** Indicates whether the item needs to be included in reports

16. OPACITY

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
01	20	NSPS Dc (Zurn Multi-cyclone)	Daily Observation
02	20	Dept. Guidance (Zurn Multi-cyclone)	Daily Observation
03	20	Dept. Guidance (Zurn Multi-cyclone)	Daily Observation
22	20	NSPS Dc (Zurn Multi-cyclone)	Daily Observation
04, 05, 06, 07, 09, and 11	20	Dept. Guidance (Cyclone)	Daily Observation

17. DELETED CONDITIONS:

The following Specific Conditions were included in the previous permit, but deleted for the current permitting action.

Former SC	Justification for removal
41, 44, and 45	Relative toxicity of cumene and Xylene in the dipping chemicals is below de minimis level.

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18. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

List all active permits for this facility which are voided/superseded/subsumed by issuance of this permit.

Permit #
456-AOP-R1

19. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Lyndon Poole, P.E.