

STATEMENT OF BASIS

For the issuance of Air Permit # 1681-AOP-R14 AFIN: 70-00473

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Anthony Forest Products Company, LLC  
1236 Urbana Road  
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Alexander Sudibjo

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Sawmills  
NAICS Code: 321113

5. ALL SUBMITTALS:

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
1/13/2017	Minor Mod	New 175 bhp diesel-fired emergency fire pump and 240 gallon diesel tank

6. REVIEWER'S NOTES:

With this minor modification, the facility is installing a new 175 bhp diesel-fired emergency fire pump (SN-26) and a 240 gallon tank for diesel fuel (insignificant activity). The facility's permitted annual emissions are increasing by 0.1 tpy PM/PM<sub>10</sub>, 0.2 tpy SO<sub>2</sub>, 0.2 tpy VOC, 0.3 tpy CO, and 0.3 tpy NO<sub>x</sub>.

7. COMPLIANCE STATUS:

As of January 13, 2017, there are no compliance issues with the facility.

8. PSD APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

b) Is the facility categorized as a major source for PSD? Y

- Single pollutant  $\geq 100$  tpy and on the list of 28 or single pollutant  $\geq 250$  tpy and not on list

If yes, explain why this permit modification is not PSD. This permit does not include a major modification as defined by 40 CFR §52.21(b)(2).

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Facility	-	40 CFR Part 63, Subpart DDDD
26	-	40 CFR Part 60, Subpart IIII
26	-	40 CFR Part 63, Subpart ZZZZ

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. AMBIENT AIR EVALUATIONS:

a) Reserved.

b) Non-Criteria Pollutants:

1<sup>st</sup> Tier Screening (PAER)

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

Pollutant	TLV ( $\text{mg}/\text{m}^3$ )	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
Acrolein	0.229284254	2.52E-02	0.21	No
Antimony	0.5	5.50E-02	5.73E-04	Pass
Arsenic	0.01	1.10E-03	1.60E-03	No

Pollutant	TLV (mg/m <sup>3</sup> )	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Beryllium	0.00005	5.50E-06	7.98E-05	No
Cadmium	0.002	2.20E-04	2.98E-04	No
Chromium	0.5	5.50E-02	1.52E-03	Pass
Chromium VI	0.01	1.10E-03	2.54E-04	Pass
Cobalt	0.02	2.20E-03	4.72E-04	Pass
Manganese	0.2	2.20E-02	0.12	No
Mercury	0.01	1.10E-03	2.54E-04	Pass
Methanol	262.1	28.8	3.17	Pass
Nickel	0.1	0.011	2.39E-03	Pass
Pentachlorophenol	0.5	0.055	3.70E-06	Pass
Phosphorus	0.1	0.011	1.96E-03	Pass
Selenium	0.2	0.022	2.03E-04	Pass
Acetaldehyde	45.04	4.95	0.01	Pass
Formaldehyde	0.368	0.04	0.01	Pass

## 2<sup>nd</sup> Tier Screening (PAIL)

AERMOD 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 has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL (µg/m <sup>3</sup> ) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m <sup>3</sup> )	Pass?
Acrolein	2.29	1.82	Y*
Arsenic	0.1	0.021	Y
Beryllium	0.0005	0.00104	N**
Cadmium	0.02	0.0039	Y
Manganese	2.0	1.52	Y

\* Exceeds PAIL for 2008. See discussion for Acrolein below.

\*\* Exceeds PAIL for 2007, 2008, 2009, 2010, and 2011

Acrolein Evaluation

For Acrolein out of the five years that were evaluated only in 2008 was the PAIL exceeded. In order to be consistent with ADEQ’s “Non-Criteria Pollutant Control Strategy” and EPA’s “Guideline on Air Quality Models”, Acrolein was modeled using five discrete model runs covering the years for 2007 through 2011 and the highest, second high offsite impact (2008) was compared to the PAIL. However, the Air Division has in the past allowed and currently continues to allow evaluation based on the most recent year and the highest offsite impact. Based on this allowance the offsite impact from Acrolein does not warrant any further screening.

Beryllium Evaluation

The PAIL analysis, above, is designed to provide conservative thresholds to determine acceptable off-site impacts of a pollutant. However, there are certain situations where other applications of science suggest that offsite impacts may be acceptable. The applicant provided information showing off-site impacts from Beryllium may be considered acceptable.

For non-carcinogenic effects the applicant identified screening thresholds other reviewing agencies such as Texas Commission of Environmental Quality, California EPA, and US EPA use to likely to be without risk of deleterious effects. The applicant identified the screening thresholds and provided air dispersion modeling to show predicted impacts below those screening thresholds.

Effect	Averaging Period	Screening Threshold (µg/m <sup>3</sup> )	Maximum Modeled Impact (µg/m <sup>3</sup> )	Below Threshold
Non-carcinogenic	1-hr	2.0E-02	5.47E-03	Yes
	24-hr	2.0E-02	1.09E-03	Yes
	Annual	2.0E-03	1.60E-04	Yes

For carcinogenic effects of a known or suspected carcinogen reviewing agencies such as the US EPA do not set a safe exposure level. There is no safe exposure limit for carcinogenic effects. The applicant identified standards from US EPA and California EPA that exposure to 4.0E-04 µg/m<sup>3</sup> ambient concentration, annually over a lifetime of exposure could result in an increased cancer risk of 1 in 1,000,000. The modeling provided by the applicant predicts impacts below that standard.

Effect	Averaging Period	Screening Threshold (µg/m <sup>3</sup> )	Maximum Modeled Impact (µg/m <sup>3</sup> )	Below Threshold
Carcinogenic	Annual	4.0E04	1.60E-04	Yes

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
06	AP-42 Section 10.1	Rough Logs throughput: 600,000 (174.0 MMBF/yr) ton/yr and 192 ton/hr (55,680 BF/hr) (The estimate conversion factor for rough logs to BF for the modernized sawmill is 0.29 MBF/ton logs.)  0.024 lb PM/ton (debarking) 0.00048 lb PM10/ton (debarking) 0.35 lb PM/ton (sawing) 0.007 lb PM10/ton (sawing)	Cyclone, which vents inside the sawmill building (50% reduction is taken for the control efficiency of being within an enclosure)	50%	As the Sawmill is within a building, a 50% reduction is taken for the control efficiency of being within an enclosure for the sawing portion of emissions.
		Emissions have historically been estimated for the AFP Urbana Sawmill using log throughput and AP-42 Section 10.1 emission factors for Total Suspended Particulate (TSP). Although this section of AP-42 has been revoked by EPA, no better factors have been identified and thus the emission factors are frequently used by facilities and regulatory agencies. PM <sub>10</sub> emissions are conservatively estimated to be equal to 2% of PM or TSP emissions. Various particle size distribution evaluations have indicated that the percentage of sawdust and bark which can be classified as PM <sub>10</sub> is in the range of 0.07% to 1.89%. ADEQ memorandum dated August 22, 2003 from Charles Hurt to Thomas Rheume supported this as well as North Carolina DENR document Titled "Estimating Emissions from Generation and Combustion of "Waste" Wood".			
20	AP-42	660,000 ton logs/yr 13,680 VMT 0.6 mi of road	Wet Suppression	50%	
21	Vendor	0.01 gr/scf 42,800 cfm	Cyclone and Baghouse	Cyclone 94% & Baghouse 99.9%	This equipment vents through a cyclone. The outlet of the cyclone vents to baghouse and then to the atmosphere (SN-21). Shavings and sawdust from the baghouse/cyclone are dropped into a woodwaste storage bin (insignificant activity) where it is then loaded onto a truck and shipped off-site. Control efficiency included in emission factor.

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
					Dried Lumber throughput= 170.0 MMBF/yr
23 (DPK#1) & 14(DPK #2)	<p>NCDENR Wood Kiln Emission Calculator Factor Sheet for Softwood*</p> <p>AP42 Table 1.6-2 average of wet and dry wood factors and Table 1.6-3</p>	<p>PM = 0.36 lb/MBF            PM<sub>10</sub> = 0.216 lb/MBF            VOC as C = 3.830 lb/MBF            VOC as VOC (pinene) = 4.340 lb/MBF            SO<sub>2</sub> = 2.50E-02 lb/MMBtu            NO<sub>x</sub> = 2.56E-01 lb/MMBtu            CO = 0.6 lb/MMBtu            Methanol = 0.161 lb/MBF            Phenol = 0.01 lb/MBF            Formaldehyde = 0.047 lb/MBF            Acetaldehyde = 0.052 lb/MBF            Acrolein = 0.007 lb/MBF            Benzene = 4.20E-03 lb/MMBtu            Chlorine = 7.90E-04 lb/MMBtu            Styrene = 1.90E-03lb/MMBtu            Acetone = 1.90E-04 lb/MMBtu            Arsenic = 2.20E-05 lb/MMBtu            Chromium hexavalent = 3.50E-06 lb/MMBtu            Lead = 4.80E-05 lb/MMBtu            Manganese = 1.60E-03 lb/MMBtu            HCl = 1.90E-02 lb/MMBtu</p>	None	N/A	<p>Throughput at design capacity Kiln#1:            71,610 MBF/yr            8.175 MBF/hr            25MMBtu/hr</p> <p>Throughput at design capacity DP Kiln#2:            93,500 MBF/yr            11.5 MBF/hr            30 MMBtu/hr</p> <p>DPK #1 = 25 MMBtu/hr sawdust burner;            DPK #2 = 30 MMBtu/hr sawdust burner.            DPK#1 =5705 lb of sawdust per hour            DPK #2) = 6846 lb of sawdust per hour</p> <p>Pollutant emissions generated during sawdust combustion and lumber drying will be emitted from the kiln's entrance and exit doors (estimated 40% of total emissions equally divided among pseudo-stacks A and B) and through stacks above each of those doors (estimated 60% of total emissions equally divided among 4 stacks, C, D, E, and F). The gasifiers will each be equipped with a by-</p>

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
					pass stack; this stack will only operate during cold startups, kiln shutdowns, and equipment malfunctions.
	*VOC as C (NCDENR Wood Kiln Emission Calculator Factor Sheet for Softwood), VOC as VOC (pinene) (NCDENR Wood Kiln Emission Calculator Factor Sheet for Softwood), Methanol (NCDENR Wood Kiln Emission Calculator Factor Sheet for Softwood), Phenol (NCDENR: Table 2A to App B emission factors for PCWP MACT) Formaldehyde (Maximum run plus 20% safety factor from stack testing completed at a similar unit), Acetaldehyde (Industry Group factor for a full scale kiln plus 20% safety factor), Acrolein (NCDENR Wood Kiln Emission Calculator Factor Sheet for Softwood plus 20% safety factor), PM total (Unpublished industry group factor previously used in permitting similar units plus a 20% safety factor), and PM 10 (PM total factor (0.36 lb/MBF) with conservative assumption that 60% of PM is smaller than 10 micron or PM10)				
23 (DPK#1) & 14(DPK #2)	VOC (pinene)	4.340 lb/MBF	None	N/A	Emissions for the facility's kilns for continuous lumber drying from direct firing of biomass are estimated using emission factors from various sources. Only HAPs that require inclusion per the PAER evaluation are listed on the HERT.
23 (DPK#1) & 14(DPK #2)	VOC (pinene) Methanol Phenol Acrolein	4.340 lb/MBF 0.161 lb/MBF 0.01 lb/MBF 0.007 lb/MBF	None	N/A	NCDER Wood Kiln Emission Control Factor for Softwood
	Formaldehyde	0.047 lb/MBF	None	N/A	Stack testing from similar facility
	SO <sub>2</sub> NO <sub>x</sub> CO	0.025 lb/MMBtu 0.256 lb/MMBtu 0.6 lb/MMBtu	None	N/A	AP42 Table 1.6-2
24 and 25	Startup DPK #1/DPK#2 Combined using Diesel fuel (Abort Stack Emissions)	SO <sub>2</sub> = 7.1 lb/1000 gal NO <sub>x</sub> = 20 lb/1000 gal CO = 5 lb/1000 gal PM = 2 lb/1000 gal TOC = 1.1 lb/1000 gal			Lumber Drying Kilns Emission Calculations for startup using Diesel Fuel as Starter Fluid Maximum usage of diesel for startup: 10 gal/hr 240 gal/yr
24 and 25	Startup using sawdust (Abort Stack	PM = 0.33 lb/MMBtu PM <sub>10</sub> = 0.29 lb/MMBtu SO <sub>2</sub> = 0.025 lb/MMBtu			Ap-42, Table 1.6-1 (9/03) for wet wood AP-42, Table 1.6-2

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	Emissions)	NO <sub>x</sub> = 0.22 lb/MMBtu CO = 0.6 lb/MMBtu VOC = 0.017 lb/MMBtu			(9/03)
24 and 25		Acrolein=4.00E-03 lb/MMBtu Formaldehyde=4.40E-03 lb/MMBtu Benzene=4.20E-03 lb/MMBtu Acetaldehyde=9.10E-07lb/MMBtu HCl=1.90E-02 lb/MMBtu Manganese=1.60E-03 lb/MMBtu Arsenic=2.20E-05 lb/MMBtu	None	N/A	AP-42, Table 1.6-2 (9/03) AP-42, Table 1.6-3 (9/03) AP-42 Table 1.6-4 (9/03) <ul style="list-style-type: none"> <li>Sawdust heat value Heat Value = 4382 Btu/lb</li> <li>Throughput (Startup sawdust )=2000 lb/hour</li> <li>Abort Stack Max Operation = 288 hour per year per kiln</li> <li>Maximum burner capacity during startup or idling events =8.8 maximum MMBtu/hr</li> <li>Maximum duration of startup = 24 hours</li> <li>Maximum 12 startups for each kiln in a year or 288 hr/yr</li> </ul>
26	NSPS III Tier 3 Limit	PM/PM <sub>10</sub> = 0.15 g/bhp-hr NO <sub>x</sub> = 3.0 g/bhp-hr CO = 2.6 g/bhp-hr	-	-	175 bhp 1.47 MMBtu/hr 500 hr/yr
	AP-42, 3.3-2	VOC = 0.36 lb/MMBtu SO <sub>2</sub> = 0.29 lb/MMBtu Various HAPs			



13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
23(DPK#1)	PM <sub>10</sub>	5	Test only one kiln every five years (alternating schedule)	Dept. Guidance (Test for Emission Verification)
14(DPK#2)	CO	10	Test only one kiln every five years (alternating schedule)	

14. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
None				

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
06	Logs debarked and sawed	600,000 tons	Monthly	Y
20	Wet Suppression Application	As needed to control visible emissions from traffic	As needed but no less than once a month	N
	Logs	660,000 tons/yr	Monthly	Y
21	Lumber Throughput	170.0 MMBF/yr	Monthly	Y
23 (DP Kiln#1)	Lumber Throughput	71.61 MMBF/yr	Monthly	Y
	VOC emissions	See Plantwide Condition #15	Annual	Y
14 (DP Kiln#2)	Lumber Throughput	93.5 MMBF/yr	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	VOC emissions	See Plantwide Condition #15	Annual	Y
24	Abort stack operating hours	288/yr	Monthly	Y
	Sawdust throughput limit for gasifier/burner	2000 lb of sawdust per hour	Daily when in startup	N
24 and 25	Diesel fuel usage limit as starter fluid	240 gallons per year for both DPK #1 and #2 combined	Daily when in startup	N
25	Abort stack operating hours	288/yr	Monthly	Y
	Sawdust throughput limit for gasifier/burner	2000 lb of sawdust per hour	Daily when in startup	N
26	Hours of Operation	500 hours per calendar year	Monthly	Y

16. OPACITY:

SN	Opacity %	Justification for limit	Compliance Mechanism
06	20	Regulation 19	Weekly observation
20	5	Regulation 18	Weekly observation
21	5	Regulation 18	Monthly observation
23 (DP Kiln#1)	20	Regulation 19	Weekly observation
14 (DP Kiln#2)	20	Regulation 19	Weekly observation
26	20	Regulation 19	Daily Observation when use exceeds 24-hours per event

17. DELETED CONDITIONS:

Former SC	Justification for removal
	None

18. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	Group A Category	Emissions (tpy)							
		PM	PM <sub>10</sub>	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs	
								Single	Total
Bark storage pile	A-13	1.0	0.5						
Sawdust storage pile	A-13	1.3	0.7						
Boiler ash (Biochar) storage Pile	A-13	1.5	0.8						
Planer Mill Woodwaste storage bin	A-13	0.06	0.01						
Fuel Storage Silo	A-13	0.03	0.02						
1,000 Gasoline tank	A-13				0.67				
Parts Washer	A-13				0.01				
500 gallon diesel tank	A-3				0.01				
600 gallon diesel tank	A-3				0.01				
1000 gallon diesel tank	A-3				0.01				
240 gallon diesel tank	A-2				0.01				

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1681-AOP-R13



## APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

## Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Anthony Forest Products Company  
 Permit Number: 1681-AOP-14  
 AFIN: 70-00473

\$/ton factor	23.93	Annual Chargeable Emissions (tpy)	513.44094
Permit Type	Minor Mod	Permit Fee \$	500

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	0.8
Initial Title V Permit Fee Chargeable Emissions (tpy)	

*HAPs not included in VOC or PM:*

*Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride*

*Air Contaminants:*

*All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)*

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		122.5	122.6	0.1	0.1	122.6
PM <sub>10</sub>		29.5	29.6	0.1		
PM <sub>2.5</sub>		0	0	0		
SO <sub>2</sub>		6.3	6.5	0.2	0.2	6.5
VOC		316.5	316.7	0.2	0.2	316.7
CO		146.2	146.5	0.3		
NO <sub>x</sub>		62.4	62.7	0.3	0.3	62.7
Lead	<input type="checkbox"/>	0.0116912	0.0116912	0		

