

## STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0456-AOP-R4 AFIN: 52-00035

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Anthony Timberlands, Inc.  
Second and Plum Streets  
Bearden, Arkansas 71720

3. PERMIT WRITER:

Charles Hurt

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Drying Kilns, Lumber, Manufacturing  
NAICS Code: 333298

5. SUBMITTALS:

12/29/2008

6. REVIEWER'S NOTES:

Anthony Timberlands, Incorporated (AFIN: 52-00035) owns and operates a pine sawmill physically located at Second and Plum Streets in downtown Bearden (Ouachita County), Arkansas. Anthony submitted a Title V renewal application which includes modifications to permitted emission limits for existing equipment. Particulate emissions from the haul roads were quantified, and two previous permit modifications were subjected to retroactive PSD review. Anthony did not request permission to install new equipment. Overall, permitted PM, PM<sub>10</sub>, SO<sub>2</sub>, VOC, CO and NO<sub>x</sub> increased by 104.5 tpy, 70.6 tpy, 1.2 tpy, 0.6 tpy, 416.0 tpy, and 11.0 tpy respectively.

### Boiler Permitted Emission Limits Revisions

Review of the application resulted in the discovery that the permittee was improperly applying AP-42 emission factors for calculating emissions from each of the four boilers.

Specifically the permittee failed to consider boiler efficiency and used heat output instead of heat input to estimate emissions.

The permit has also been revised to require monthly recordkeeping of heat input to each of the boilers and calculation of a 12-month rolling total. Previous revisions of the permit allowed the permittee to demonstrate compliance with emission limits based on lumber production (Specific Condition #49). The application does not clearly document the relationship between lumber production and actual heat input to the boiler. A limit on total heat input to the boilers and tracking is necessary to allow review involving PSD issues.

#### Basis for PSD Review

Permit No. 456-AOP-R2 was issued on June 24, 2004 and required for the first time stack testing for PM<sub>10</sub> and CO for SN-02 and SN-03. Anthony conducted the required stack testing on November 11, 2005 on SN-03 for both pollutants, and the results of the tests indicated the permitted limits based on AP-42 emission factors significantly under estimated actual emissions.

Had this testing been conducted before 456-AOP-R0 was issued this facility would have been classified as a major source under 40 CFR §52.21. Anthony identified two PSD modifications which occurred after the issuance of Permit No. 456-AOP-R0, a kiln construction project (Permit No. 456-AOP-R1) and the construction of a second planer mill (SN-25) with an increase in dried lumber throughput from 135 MMBF/yr to 200 MMBF/yr (Permit No. 456-AOP-R3). The kiln production project triggered PSD review for VOC, only. For the construction of the second planer mill, PSD review was triggered for PM<sub>10</sub>, VOC, CO, and NO<sub>x</sub>.

#### Drying Kiln Construction Project

After applying the “top down” approach Anthony determined there are no existing VOC control technologies for drying kilns. Thus BACT for the kilns was determined to be no controls. Anthony also stated the project did not contribute to a violation of NAAQS for ozone and that a PSD increment has not been established for ozone, either. Anthony did not expect the kiln project to impact growth in the surrounding area, soils and vegetation, regional visibility, or Class I Area visibility.

#### Planer Mill (SN-25)

Permit No. 456-AOP-R3 was modified to allow the construction of a planer mill (SN-25) which relieved the facility of its bottleneck of 135 MMBF of dried lumber production. The permitted lumber production increased to 200 MMBF. In regards to the BACT determination, SN-25 has a potential to emit (PTE) of 5.6 tpy PM<sub>10</sub> before any controls or recovery devices. The planer mill is equipped with a cyclone for transferring shavings

for fuel. The application stated the cyclone is 95% efficient in reducing PM<sub>10</sub>. Therefore, the emissions from SN-25 were estimated at 0.28 tpy PM<sub>10</sub>.

The permittee demonstrated that none of the typical control techniques were economically feasible regardless if the cyclone was considered a control device or a recovery device. While the Air Division agrees with the overall determination that BACT for SN-25 is no controls, the Air Division disagrees with some of assumptions and methods used by the permittee to demonstrate certain control technologies are not economically feasible. This is a case by case determination and may not properly apply to other facilities with similar modifications.

Listed below are the permitted production limits at the facility for the permits involved and the 2-year average production for the years preceding the construction and operation of SN-25.

2-Year Average Dried Lumber Production MMBF/yr	Dried Lumber Limit 456-AOP-R2 MMBF/yr	Dried Lumber Limit 456-AOP-R3 MMBF/yr
119	135	200

As stated previously, the planer mill resulted in debottlenecking dried lumber production. This resulted in significant increases (before applying netting) of VOC at the kilns and PM, PM<sub>10</sub>, CO and NO<sub>x</sub> at the four boilers between the future PTE and past actual emissions. The applicant did not identify creditable emission decreases within the contemporaneous period of the project. Therefore, PSD review is triggered without performing a full netting analysis.

Pollutant	Future PTE <sup>A</sup> tpy	Past Actual tpy	Difference tpy	Significant Increase Threshold tpy	Is PSD Review required?
PM <sub>10</sub> <sup>B</sup>	171.5	102.1	69.4	15	Yes
SO <sub>2</sub>	12.5	N/A	N/A	40	No
VOC	356.5	212.2	144.3	40	Yes
CO	757.3	<sup>C</sup>	>100	100	Yes
NO <sub>x</sub>	110.0	65.5	44.5	40	Yes
Lead (Pb)	0.024	N/A	N/A	0.6	No

<sup>A</sup> The PTE reflects only the sources affected by the construction of SN-25 and the debottlenecking of dried lumber production and may not match total reported in the emission summary table of the permit.

<sup>B</sup> Emissions are based on most recent testing (Method 201A and 202) with Method 19 (F-factor for PM<sub>10</sub>) used to calculate lb PM<sub>10</sub> per MMBTU of boiler heat input.

<sup>C</sup> Although information about actual heat input was requested, the permittee failed to provide such information. Therefore, the amount of past actual CO emissions was estimated based on the most recent testing for CO and other information provided in the application.

A preliminary air quality impact analysis was performed for PM<sub>10</sub> and NO<sub>x</sub> increment. AERMOD was used to model the offsite impacts of the modifications. The results from the model indicate offsite impacts of less than 1 µg/m<sup>3</sup> should be expected. Therefore, a full impact analysis was not warranted. Compliance with NAAQS for the pollutants that triggered PSD is addressed later modeling results section of this document.

The permittee performed an additional impacts analysis to estimate impacts on growth (industrial and residential), impacts on soil and vegetation, and visibility. The application indicates that there will not be any additional impacts on the current workforce, and that no adverse impact on soils, vegetation, or visibility is expected.

The facility is approximately 145 km from Caney Creek which is the nearest Class I Area. The impact on visibility and increment consumption for NO<sub>x</sub> and PM<sub>10</sub> were evaluated. The facility was modeled out to 10km from the facility using AERMOD, and neither modeled pollutants exceed the Class I Area Significant Impact Level. Therefore, it is presumed that this project will have no adverse effect on increment consumption in Class I Areas. The results of the modeling are listed below:

Pollutant	Class I Area Significant Impact Level* (µg/m <sup>3</sup> )	Averaging Period	Offsite Impact (µg/m <sup>3</sup> )
PM <sub>10</sub>	0.3	24-hour	0.15
PM <sub>10</sub>	0.2	Annual	0.013
NO <sub>x</sub>	0.1	Annual	0.08

\* See Page 38292 Federal Register / Vol. 61, No. 142 / Tuesday, July 23, 1996.

The permittee utilized VISCREEN to assess the impact visibility on Caney Creek. . The results predicted that light extinction and change in contrast were below the first level of screening (*i.e.* ΔE ≤2.0 and C<sub>p</sub>≤0.05). Based on the worst cast emission of pollutants which affect visibility and the distance of the source from the nearest Class I area and FLAG guidance, the (Q/D) is less than 3.6 for all Class I areas that can be potentially affected by activities at the facility. Therefore, it is presumed this project will have no adverse effect on any Class I area visibility.

7. COMPLIANCE STATUS:

The facility is currently operating under CAO LIS 09-015 and Permit No. 456-AOP-R3. The facility was last inspected on June 2, 2008 and ADEQ determined the facility was operating out of compliance. CAO LIS 09-015 addresses a failed stack test at SN-03 and failure to conduct the required opacity readings on the boilers. The stack test at SN-03 was conducted in order to demonstrate compliance for both SN-02 and SN-03.

8. PSD APPLICABILITY:

- a. Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? Y
- b. Is the facility categorized as a major source for PSD? Y  
*Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list?*

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Facility	PM <sub>10</sub> , VOC, CO	PSD
SN-01, SN-22	None. Daily recordkeeping for amount of fuel combusted	NSPS Dc

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m <sup>3</sup> )	Averaging Time	Highest Concentration (µg/m <sup>3</sup> )**	% of NAAQS
PM <sub>10</sub>	77.1	50	Annual	36.7	73.4%
		150	24-Hour	124.9	83.3%
CO	225.8	10,000	8-Hour	92.6	<1%
		40,000	1-Hour	145.0	<1 %
NO <sub>x</sub>	37.4	100	Annual	0.9	<1 %
Pb	0.024	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	0.00173*	1.1%

\* The high, first high concentration of Pb is based on a 24-hour average. Therefore, due to a relatively low impact, post processing using LEADPOST is not necessary to determine compliance with the NAAQS.

\*\* Includes Little Rock, AR 2008 background concentration

## 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?
Acenaphtylene	0.2	0.022	8.60E-04	YES
Acetaldehyde	45.0	4.95	1.78	YES
Acrolein	0.229	0.0252	1.01	No
Benzene	1.6	0.176	0.74	No
Benzo(a)pyrene	0.2	0.022	1.80E-03	YES
Cadmium	0.002	2.20E-04	7.00E-04	No
Chlorine	1.45	0.160	0.13	YES
Fluorene	1.55	0.1705	5.76E-04	YES
Formaldehyde	18.4	2.03	1.63	YES
HCl	2.98	0.328	3.3	No
Lead	0.05	5.50E-03	8.20E-03	No
Manganese	0.10	0.011	0.27	No
Mercury	0.01	1.10E-03	6.00E-04	YES
Methanol	262.1	28.8	12.05	YES
Phenol	19.2	2.1	8.80E-03	YES
Styrene	85.2	9.4	0.33	YES

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 ( $\mu\text{g}/\text{m}^3$ ) = 1/100 of Threshold Limit Value	Modeled Concentration ( $\mu\text{g}/\text{m}^3$ )	Pass?
Acrolein	2.29	0.15	Yes
Benzene	15.97	0.16	Yes
Cadmium	0.02	1.4 E-04	Yes
HCl	29.83	0.68	Yes
Manganese	1.00	0.058	Yes

## Other Modeling:

The facility is not a significant source for hydrogen sulfide or styrene. Therefore, odor modeling is not warranted at this time.

## 12. CALCULATIONS:

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
01, 22	AP-42	0.35 lb <sub>PM</sub> /MMBtu 0.32 lb <sub>PM10</sub> /MMBtu 0.22 lb <sub>NOx</sub> /MMBtu 0.025 lb <sub>SO2</sub> /MMBtu 0.60 lb <sub>co</sub> /MMBtu* 0.013 lb <sub>voc</sub> /MMBtu	Multi-clone	95%	Total heat input for SN-01, SN-02, SN-03, and SN-22 shall be limited 1,000,000 MMBtu/yr.
02, 03	AP-42 Stack Test	0.22 lb <sub>NOx</sub> /MMBtu 0.025 lb <sub>SO2</sub> /MMBtu 0.013 lb <sub>voc</sub> /MMBtu  S.T.** results: 24.3 lb/hr PM/PM <sub>10</sub> 91.3 lb/hr CO	Multi-clone	95%	Total heat input for SN-01, SN-02, SN-03, and SN-22 shall be limited 1,000,000 MMBtu/yr.
04	AP-42	0.02 lb/ton	Cyclone	95%	
05	AP-42	0.04 lb/ton	Cyclone	95%	Stack test performed on similar cyclone concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 95% capture efficiency is a conservative estimate.
06	AP-42	1.0 lb/ton	Cyclone	95%	
07	AP-42	0.35 lb/ton	Cyclone	95%	
09	AP-42	0.35 lb/ton	Cyclone	95%	Sieve testing conducted at a competitor's softwood lumber mill. Stack test performed on similar cyclone concluded that the sawdust bin cyclone captures 99.99% of the PM generated from the sawing operations. The 95% capture efficiency is a conservative estimate.
11	AP-42	0.35 lb/ton	Cyclone	95%	
25	AP-42	0.35 lb/ton	Cyclone	95%	
12, 13, 14, 15, 16, 25	ADEQ Factors	3.5 lb <sub>voc</sub> /MBF 0.016 lb <sub>For</sub> /MBF 0.21 lb <sub>methanol</sub> /MBF	None		Facility limited to 200 MMBF of lumber per any 12 consecutive months.
17	Mass Balance	1.44 lb/gal VOC	None		Facility limited to 7500 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.

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
23, 24	AP-42	200 MMBF of lumber per any 12 consecutive months.	Building	50%	Log Debarking assume 10% PM/PM <sub>10</sub> airborne. Log Sawing assume 10% PM/PM <sub>10</sub> airborne and 50% control efficiency because operations are indoors.
26	AP-42	0.535 lb PM <sub>10</sub> /VMT 19,813 mi/yr			

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
SN-01 SN, 02, SN-03 SN-22	PM <sub>10</sub>	201 A	Test one boiler of each size once every five years. SN-01 and SN-22 are 28.7 MMBTU/hr, and SN-02 and SN-03 are 55.5 MMBTU/hr.	Compliance Verification
SN-01, SN-02, SN-03, SN-22	CO	10	Test one boiler of each size once every five years. SN-01 and SN-22 are 28.7 MMBTU/hr, and SN-02 and SN-03 are 55.5 MMBTU/hr.	Compliance Verification.
SN-01, SN-02, SN-03, SN-22	NO <sub>x</sub>	7E	Test one boiler of each size once every five years. SN-01 and SN-22 are 28.7 MMBTU/hr, and SN-02 and SN-03 are 55.5 MMBTU/hr.	Compliance Verification

14. MONITORING OR CEMS

This permit does not require CEMS or other monitoring devices.

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)
01, 02, 03, 22	weight of green wet wood residue	Not to exceed 1,000,000	Monthly	Yes



SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	(4,500 btu/lb) and kiln dried wood residue (8,000 btu/lb)	MMBTU/yr heat input to boilers, combined		
02, 03	Hours of Operation	7,884 hrs/yr/source	Monthly	Yes
04, 05, 06, 07, 09, 11 12, 13, 14, 15, 16, 23, 24, 25, 26	kiln dried lumber	200 MMBF/yr	Monthly	Yes
17	Chemical usage and VOC content	7,500 gallons 1.44 lb/gal VOC	Monthly	Yes

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01, 22	20%	NSPS Dc	Daily observation
02, 03	20%	§19.503	Daily observation
04, 05, 06, 07, 09, 11, 25	20%	§19.503	Daily Observation
26	5%	§19.503	Weekly

17. DELETED CONDITIONS:

Former SC	Justification for removal
8-22	Redundant.
PW 10 and 11	Replaced by SC 11

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)		
		VOC	HAPs	
			Single	Total
Underground Gasoline Storage Tank (10,000 gallons)	A-13	0.625	*	*
Underground Diesel Fuel Storage Tank (14,000 gallons)	A-3	0.003	*	*
Underground Diesel Fuel Storage Tank (10,000 gallons)	A-3			

Source Name	Group A Category	Emissions (tpy)		
		VOC	HAPs	
			Single	Total
Kerosene Aboveground Storage Tank (250 gallons)	A-3	<0.001	*	*

\* The VOC emitted from these sources contain some components that are HAPs. Considering only 0.63 tpy of VOC total is emitted from these listed activities, it can be concluded without quantifying HAPs that neither limit of 1.0 tpy of single HAP nor 2.5 tpy combination of HAP will be exceeded.

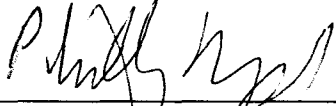
19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
0456-AOP-R3

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

  
 \_\_\_\_\_  
 Phillip Murphy, P.E.  
 Engineering Supervisor, Air Division

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

## Fee Calculation for Major Source

Facility Name: Anthony Timberlands, Inc.  
 Permit Number: 456-AOP-R4  
 AFIN: 52-00035

\$/ton factor	22.07	Annual Chargeable Emissions (tpy)	<u>779.5</u>
Permit Type	Modification	Permit Fee \$	<u>2653.6968</u>

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source Permit	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	120.24
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 condensable 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	<input checked="" type="checkbox"/>	178.7	283.2	104.5	104.5	283.2
PM <sub>10</sub>	<input type="checkbox"/>	161.2	231.8	70.6		
SO <sub>2</sub>	<input checked="" type="checkbox"/>	11.3	12.5	1.2	1.2	12.5
VOC	<input checked="" type="checkbox"/>	361.3	363.9	2.6	2.6	363.9
CO	<input type="checkbox"/>	337.5	753.7	416.2		
NO <sub>x</sub>	<input checked="" type="checkbox"/>	99	110	11	11	110
Acenaphthylene	<input type="checkbox"/>	0.0023	0.0025	0.0002		
Acetaldehyde	<input type="checkbox"/>		3.9	3.9		
Acrolein	<input type="checkbox"/>	1.8	2.6	0.8		
Benzene	<input type="checkbox"/>	1.9	2.1	0.2		
Benzo(a)pyrene	<input type="checkbox"/>	0.0012	0.0013	0.0001		
Cadmium	<input type="checkbox"/>	0.0019	0.0021	0.0002		
Chlorine	<input checked="" type="checkbox"/>	0.36	0.4	0.04	0.04	0.4
Fluorene	<input type="checkbox"/>	0.0016	0.0017	1E-04		
Formaldehyde	<input type="checkbox"/>	3.6	4.1	0.5		
HCl	<input checked="" type="checkbox"/>	8.6	9.5	0.9	0.9	9.5
Lead	<input type="checkbox"/>	0.022	0.024	0.002		
Manganese	<input type="checkbox"/>	0.72	0.8	0.08		
Mercury	<input type="checkbox"/>	0.0016	0.0054	0.0038		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Methanol	<input type="checkbox"/>	21	26.5	5.5		
Phenol	<input type="checkbox"/>	0.023	0.026	0.003		
Styrene	<input type="checkbox"/>	0.86	0.95	0.09		