STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1681-AOP-R20 AFIN: 70-00473

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Anthony Forest Products Company, LLC
4337 Lawson Road
El Dorado, Arkansas 71730

3. PERMIT WRITER:

Alexander Sudibjo

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Sawmills
NAICS Code: 321113

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

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
7/6/2022	Modification	New DPK#4 + abort stack, new planer mill with quad pack cyclone to replace old planer mill

6. REVIEWER'S NOTES:

Anthony Forest Products Company (AFIN: 70-00473) operates a sawmill and ancillary operations in Urbana, Arkansas. The facility is making several upgrades to increase the total production to 360.11 MMBf/yr. The upgrades include:

1. Upgrades to the sawmill (SN-06) and wood residual systems to increase the hourly capacity from 225 tons green log/hr to 300 tons green log/hr. Also include controls from a partial enclosure.

2. Install a fourth direct fired dual path lumber kiln (SN-32). The new kiln will be equipped with a 40 MMBtu/hr biomass burner with an abort stack (SN-33) and will have an annual capacity of 120 MMBf/yr. This results in a net increase in VOC emissions that exceeds the PSD significance level. An initial test is required to verify PM_{10} and CO emissions.
3. Remove the planer mill (SN-21) and its associated cyclone (IA) and install a new planer mill with a quad pack cyclone system (SN-34).
4. Update the haul roads emissions (SN-20) to incorporate new routes, update the annual throughput, and silt content of the roads.
5. Update the insignificant activity list.

The facility's permitted annual emissions are increasing by 5.1 tpy PM_{10}, 4.5 tpy SO_2, 228.1 tpy VOC, 90.2 tpy CO, 17.1 tpy NOx, 8.4E-03 tpy lead, 1.4E-03 tpy antimony, 3.88E-03 tpy arsenic, 1.94E-04 tpy beryllium, 7.2E-04 tpy cadmium, 4.48E-01 tpy chlorine, 3.66E-03 tpy chromium, 6.1E-04 tpy chromium VI, 1.14E-03 tpy cobalt, 10.63 tpy HCl, 2.83E-01 tpy manganese, 6.2E-04 tpy mercury, 13.08 tpy methanol, 9E-06 tpy pentachlorophenol, 4.8E-03 tpy phosphorus, 5E-04 tpy selenium, 6.91 tpy formaldehyde. The facility's permitted annual emissions are decreasing by 22.5 tpy PM and 1.73E-01 tpy acrolein.

7. COMPLIANCE STATUS:

The facility was last inspected on April 11, 2022. The inspection revealed no violations found during the inspection. ECHO (https://echo.epa.gov/detailed-facility-report?fid=110001702346) shows no air violation identified.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? Y
If yes, were GHG emission increases significant? N

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*

If yes for 8(b), explain why this permit modification is not PSD.

The existing kilns (SN-23, SN-30, and SN-27) serve as the production bottleneck of the facility. The existing upstream or downstream source from the kilns could obtain the existing production limit of 240.1 MMBf/yr with increased hours of operations without a physical change or change in method of operation. AFP is submitting this application to make several upgrades to the mill to increase the total overall production capacity of the facility from 204.11 MMBf/yr to 360.11 MMBf/yr dried lumber. The upgrades to the mill include the following:

1. Upgrades to the sawmill and wood residual systems to increase the hourly capacity from 225 ton green log/hr to 300 tons green log/hr.
2. Installing a fourth direct fired dual path lumber kiln, DPK #4 (proposed SN-32). The new kiln will be equipped with a 40 MMBtu/hr biomass burner with an Abort Stack (proposed SN-33) and will have an annual capacity of 120 MMBf/yr.

3. Upgrades to the planner mill including replacing the existing planer mill cyclone (SN-21) and planer mill trim cyclone (IA-A13) with a new quad pack cyclone system (proposed SN-34).
4. Misc upgrades including a new bark bin (IA-13) and a new route to the Haul Roads (SN-20).
5. The increased production capacity will debottleneck most processes at the facility including the Log Yard Haul Roads (SN-20), Sawdust Storage Silo (IA-13), Bins (IA-13), and storage piles (IA-13).

AFP believes the project to replace the fuel tanks in late 2021 and early 2022 and the proposed capacity upgrades to the mill are independent project and are financially and technically feasible without the other.

Significant Emission Increase

According to 40 CFR §52.21(a)(2)(iv)(b), the procedure for calculating whether a major modification occurs is based on if there will be a significant emission increase of an NSR regulated pollutant and the type of emission units being modified. These procedures are outlined in 40 CFR § 52.21(a)(2)(iv)(c)-(f). As this project is a change to an existing facility involving a new emission unit and affecting existing emission units, the hybrid test of 40 CFR § 52.21(a)(2)(iv)(f) is the relevant method for calculating the emission increases associated with the project.

The hybrid test requires an actual-to-projected-actual applicability test (ATPAT) for existing sources and actual-to-potential test (ATPT) for new emission units. The hybrid test evaluates the sum of the emission increases from the two sets of tests to determine if the significant emission rate (SER) is exceeded for each NSR pollutant. The existing sources as defined in 40 CFR § 52.21(b)(7)(ii) include all modified emissions units and unmodified but affected emissions units. The following emissions units are existing source impacted by the project:

- Sawmill (SN-06)
- Log Yard Haul Roads (SN-20)
- Planer Mill (SN-21)/Quad Pack Cyclone (SN-34)
- Sawdust Storage Silo (IA-13)
- Chip Bin (IA-13)
- Planer Mill Woodwaste Storage Bins (IA-13)
- Planer Mill Trim Cyclone (IA-13)
- Bark Pile Handling (IA-13)
- Sawdust Pile Handling (IA-13)
- BioChar Pile Handling (IA-13)
- Chip Overflow Pile Handling (IA-13)
- Bark Pile (Wind Erosion) (IA-13)
- Sawdust Pile (Wind Erosion) (IA-13)
- BioChar Pile (Wind Erosion) (IA-13)
- Chip Overflow Pile (Wind Erosion) (IA-13)

AFP believes that the Planer Mill is the emissions unit as defined within 40 CFR § 52.21(b)(7). Therefore, the replacement of the existing cyclone system (SN-21) with a Quad Pack Cyclone (SN-34) does not make the Planer Mill emissions unit a new source. Of note for this project the resulting emissions increases in the hybrid test do not change if the Planer Mill emissions unit is considered a new or existing emissions unit. The new sources as defined in 40 CFR § 52.21(b)(7)(i) include:

- DPK #4 (SN-32)
- DPK #4 Abort Stack (SN-33)
- Bark Bin (IA-13)
- Sawdust Conveyance (IA-13)
- Chips Conveyance (IA-13)
- Sawdust Fines Conveyance (IA-13)

The existing dual path kilns (SN-23, SN-30, and SN-27), Emergency Fire Pump Engine (SN-26) and the parts washer (IA-13) are not modified, debottlenecked, or have an increase in emissions due to the project.

Actual-to-Projected-Actual Test

The procedure for the ATPAT is outlined in 40 CFR § 52.21(a)(2)(iv)(c). Additionally, 40 CFR § 52.21(b)(41) provides the methodology on how the Projected Actual Emissions (PAE) should be calculated within the ATPAT. The PAE should evaluate the exclusion of any Could Have Accommodated (CHA) emissions as defined in 40 CFR § 52.21(b)(41)(ii)(c). Excludable Emissions (EE) are calculated as the portion of adjusted CHA above the BAE that the existing emissions unit could have accommodated and that does not result from the project.

Actual-to-projected-actual test (ATPA): Debottlenecked Sources			
Source	PM	PM_{10}	$PM_{2.5}$
Sawmill (SN-06) BAE	2.51	1.31	0.48
Log Yard Haul Roads (SN-20) BAE	15.79	4.02	0.57
Planer Mill (SN-21) BAE	4.60	1.84	0.92
Sawdust Storage Silo (IA-13) BAE	0.090	0.007	0.007
Chip Bin (IA-13) BAE	0.094	0.009	0.009
Planer Mill Biomass Storage Bins (IA-13) BAE	0.059	0.005	0.005
Planer Mill Trim Cyclone (IA-13) BAE	0.122	0.131	0.131
Bark Pile: Handling (IA-13) BAE	6.7E-4	3.2E-4	5E-5

Actual-to-projected-actual test (ATPA): Debottlenecked Sources			
Source	PM	PM_{10}	$PM_{2.5}$
Sawdust Pile: Handling (IA-13) BAE	1.1E-4	5E-5	1E-5
BioChar Pile: Handling (IA-13) BAE	0.0178	0.0084	0.0013
Chip Overflow Pile: Handling (IA-13) BAE	3.2E-4	1.5E-4	2E-5
Bark Pile: Wind Erosion (IA-13) BAE	0.005	0.003	0.0004
Sawdust Pile: Wind Erosion (IA-13) BAE	0.018	0.009	0.0013
BioChar Pile: Wind Erosion (IA-13) BAE	0.051	0.025	0.0038
Chip Overflow Pile: Wind Erosion (IA-13) BAE	0.005	0.003	0.0004
Sawmill (SN-06) PAE	5.47	2.83	1.04
Log Yard Haul Roads (SN-20) PAE	2.46	0.49	0.12
Planer Mill (SN-21) PAE	0.78	0.74	0.63
Sawdust Storage Silo (IA-13) PAE	0.209	0.017	0.017
Chip Bin (IA-13) PAE	0.213	0.021	0.021
Planer Mill Biomass Storage Bins (IA-13) PAE	0.133	0.011	0.011
Planer Mill Trim Cyclone (IA-13) PAE	0	0	0
Bark Pile: Handling (IA-13) PAE	0.007	0.003	0.001
Sawdust Pile: Handling (IA-13) PAE	0.001	2E-4	4E-5
BioChar Pile: Handling (IA-13) PAE	0.041	0.019	0.003
Chip Overflow Pile: Handling (IA-13) PAE	0.001	0.001	1E-4
Bark Pile: Wind Erosion (IA-13) PAE	0.243	0.121	0.018
Sawdust Pile: Wind Erosion (IA-13) PAE	0.788	0.394	0.059
BioChar Pile: Wind Erosion (IA-13) PAE	0.301	0.151	0.023
Chip Overflow Pile: Wind Erosion (IA-13) PAE	0.243	0.121	0.018
Sawmill (SN-06) EE	1.03	0.53	0.20
Log Yard Haul Roads (SN-20) EE	0.42	0.08	0.02
Planer Mill (SN-21) EE	0	0	0
Sawdust Storage Silo (IA-13) EE	0.03	0	0

Actual-to-projected-actual test (ATPA): Debottlenecked Sources			
Source	PM	PM_{10}	$PM_{2.5}$
Chip Bin (IA-13) EE	0.04	0	0
Planer Mill Biomass Storage Bins (IA-13) EE	0.02	0	0
Planer Mill Trim Cyclone (IA-13) EE	0	0	0
Bark Pile: Handling (IA-13) EE	0	0	0
Sawdust Pile: Handling (IA-13) EE	1E-4	0	0
BioChar Pile: Handling (IA-13) EE	0.006	0.003	0
Chip Overflow Pile: Handling (IA-13) EE	0	1E-4	1E-5
Bark Pile: Wind Erosion (IA-13) EE	0	0	0
Sawdust Pile: Wind Erosion (IA-13) EE	-0.017	-0.009	-0.0013
BioChar Pile: Wind Erosion (IA-13) EE	-0.01	-0.006	-9E-4
Chip Overflow Pile: Wind Erosion (IA-13) EE	-0.004	-0.002	-3E-4
Total ATPA BAE	8.79	3.59	1.62
Total ATPA PAE	10.89	4.93	1.96
Total ATPA EE	1.52	0.61	0.22
Total ATPA (PAE – EE – BAE)	**0.58**	**0.73**	**0.12**

Actual-to-Potential Test for New Emission Units

The actual-to-potential test (ATPT) as defined in 40 CFR § 52.21(a)(2)(iv)(d) is used to determine the emission increases from the new emission units. Since the all the new emissions units being reviewed for their emissions increases are being permitted for their initial construction and operation with this application, the BAE for these new sources were set equal to zero in accordance 40 CFR § 52.21(b)(48)(iii).

Actual-to-Potential test (ATP): New Sources									
Source	PM	PM_{10}	$PM_{2.5}$	VOC	SO_2	NOx	CO	Lead	CO_2e
DPK#4 (SN-32) BAE	0	0	0	0	0	0	0	0	0
DPK#4 Abort Stack (SN-33) BAE	0	0	0	0	0	0	0	0	0
Bark Bin (IA-13) BAE	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A

Actual-to-Potential test (ATP): New Sources									
Source	PM	PM_{10}	$PM_{2.5}$	VOC	SO_2	NOx	CO	Lead	CO_2e
Sawdust Conveyance (IA-13) BAE	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
Chips Conveyance (IA-13) BAE	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
Sawdust Fines Conveyance (IA-13) BAE	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A
DPK#4 (SN-32) PTE	6.18	8.46	8.46	228.0	4.38	16.8	89.35	8.4E-3	36,234
DPK#4 Abort Stack (SN-33) PTE	0.42	0.39	0.34	0.02	0.03	0.28	0.76	6.1E-5	264.5
Bark Bin (IA-13) PTE	0.29	0.02	0.02	N/A	N/A	N/A	N/A	N/A	N/A
Sawdust Conveyance (IA-13) PTE	0.01	0.005	0.001	N/A	N/A	N/A	N/A	N/A	N/A
Chips Conveyance (IA-13) PTE	0.022	0.01	0.002	N/A	N/A	N/A	N/A	N/A	N/A
Sawdust Fines Conveyance (IA-13) PTE	2.3E-4	1.1E-4	2E-5	N/A	N/A	N/A	N/A	N/A	N/A
Total BAE	0	0	0	0	0	0	0	0	0
Total PAE	6.92	8.89	8.82	228.02	4.41	17.08	90.11	8.5E-3	36,499
Total ATP New Sources Emission Increase	**6.92**	**8.89**	**8.82**	**228.02**	**4.41**	**17.08**	**90.11**	**8.5E-3**	**36,499**

Hybrid Test

The total increases from both the actual-to-projected-actual test and the actual-topotential test are summed together to determine the total project increases. These increases are compared against the Significant Emission Rate (SER) for each NSR pollutant. As shown in the table below, the proposed project exceeds the SER and thus has a significant emission increase for volatile organic compounds (VOC) only.

Summary of Hybrid Test									
Source	PM	PM_{10}	$PM_{2.5}$	VOC	SO_2	NOx	CO	Lead	CO_2e
Total ATPA Debottlenecked Sources Emission Increase	0.58	0.73	0.12	0	0	0	0	0	0
Total ATP New Sources Emission Increase	6.92	8.89	8.82	228.02	4.41	17.08	90.11	8.5E-3	36,499

Summary of Hybrid Test									
Source	PM	PM_{10}	$PM_{2.5}$	VOC	SO_2	NOx	CO	Lead	CO_2e
Hybrid Test Total Emission Increase	7.50	9.62	8.94	228.02	4.41	17.08	90.11	8.5E-3	36,499
PSD Significant Emission Rate (SER)	25	15	10	40	40	40	100	0.6	75,000
% of PSD SER Threshold	30.0%	64.1%	89.4%	**570%**	11.0%	42.7%	90.1%	1.4%	48.7%

As shown above, a significant emission increase will occur for VOC as a result of the project. Anthony Forest Products has elected not to perform an emission netting review. Therefore, the evaluation of the significant emission increase as outlined above is sufficient.

As Anthony Forest Products Company is subject to PSD permitting for VOC, review of the Best Available Control Technology (BACT) for VOC was completed as required by PSD regulation, 40 CFR § 52.21(j). The BACT summary outlines the control technology analysis completed to ensure the application of BACT for VOC.

Additionally, the PSD required impact analysis of the ambient air impacts associated with the project was completed. The purpose of the analysis is to demonstrate that the emissions from the proposed new major stationary source, in conjunction with applicable emissions increases and decreases from existing and "proposed" new off-site sources, will neither cause nor contribute to a violation of the National Ambient Air Quality Standard (NAAQS). There are separate increment standards for Class I areas (federally protected lands) and Class II areas (all other areas). A PSD impact analysis for this project is required only for ozone of which VOC is a precursor, not for VOC.

Ozone Air Quality Review

Pursuant to 40 CFR § 52.21(m), air quality monitoring must be conducted for each pollutant potentially emitted at a significant emission rate by the proposed source or modification. Because the proposed project triggers PSD review for VOC, an ambient impact analysis for ozone is required. In addition, as the emissions of VOC exceed the monitoring de minimis level of 100 tpy, an evaluation is required to determine if representative ozone data are available in lieu of pre-construction ozone monitoring. Existing air quality may be used in lieu of pre-constructing monitoring if:

- The data are representative of the proposed facility's impact areas;
- The data are of similar quality as would be obtained if the applicant monitored according to the PSD requirements; and
- The data are current; that is, the data have been collected during the two-year period preceding the permit application, provided the data are still representative of current conditions.

The two ozone monitoring sites that best represent the ozone concentration in the region surrounding the facility are Arkadelphia, AR station (05-019-9991) and the Monroe Airport (22-073-0004). These monitors were identified based on the proximity to the facility and the similarity of the surrounding airshed in the region of the monitoring station to AFP. Due to its distance from Cleveland MS station (28-011-0002) (172 km) it was not considered representative of AFP. Both Little Rock (186 km) and Shreveport (140 - 142 km) metropolitan areas have monitor(s), but these monitor(s)' ozone concentrations are driven by their local urban airshed and are not representative of the rural nature of the airshed impacts by AFP.

Arkadelphia, AR station (05-019-9991) and the Monroe Airport (22-073-0004) data is considered of good quality and is suitable for comparison to the O3 NAAQS. EPA operates the Arkadelphia, AR station (05-019-9991) as part of the Clean Air Status and Trends Network (CASTNET). This ozone monitor is compliant with the regulatory requirements in 40 CFR Parts 50, 53, and 58. Therefore, ozone measurements from this site will also be used to determine if an area meets or exceeds the NAAQS. In addition, the Monroe Airport (22-073-0004) station is general background exposure monitor that is suitable for comparison to the O_3 NAAQS. The availability of current, representative monitored ozone data that are of good quality and were collected appropriately precludes the need for additional pre-construction ambient ozone monitoring for the project. The 4th high daily maximum 8-hour concentration averaged over 3 years (2019-2021) are shown in the table below

Background Ozone Concentration				
Station	County	AQS Site ID	Distance (km)	Design Value in ppb (2019-2021)
Arkadelphia, AR	Clark County, AR	05-019-9991	127	57
Monroe Airport	Ouachita Parish, LA	22-073-0004	81	58
Little Rock – North Little Rock – Conway, AR	Pulaski, AR	05-119-1002	186	63
Cleveland, MS	Bolivar, MS	28-011-0002	172	61
Shreveport-Bossier City, LA	Bossier, LA	22-015-0008	140	58
	Caddo, LA	22-017-0001	142	59

Ozone is formed by the reaction of sunlight on air containing VOC and NOX. In the region, ozone formation is limited by NOx emissions due to high amounts of biogenic VOC in the atmosphere. The increase in ozone formation from the proposed kiln conversion at the AFP project is expected to be insignificant. The total potential emission increases associated with the projects is 228 tpy VOC and 17 tpy NOx. This represents a total emitted VOC increase of 0.5% over a 2017 baseline (44,551 tpy) and a NOx increase of 0.5% over a 2017 baseline (3,153 tpy) from Union County as obtained from EPA 2017 National Emission Inventory (NEI) Tier 2 summaries. Because ozone formation is NOX limited in the region, the increase in VOC

emissions from the proposed project is not expected to significantly affect ozone concentrations in the vicinity of, or downwind of AFP.

Based on Union County area's low concentration of ozone, attainment status, and maintenance of the NAAQS, along with the AFP projected VOC emissions presenting a minor increase in total VOC emissions, there is no expected effect on the attainment status of the region.

Modeled Emission Rates for Precursors (MERP)

In December 2016, a final revision to the U.S. EPA's Appendix W, Guideline on Air Quality Models was signed. This revision provided more specific guidance for assessing the impacts of an individual source on ozone. In April 2019, EPA finalized the Modeled Emission Rates for Precursors (MERPs) Tier I guidance. The use of MERPs is a Tier 1 demonstration tool based either on EPA photochemical modeling with the source-specific value for a representative hypothetical source or the source or area-specific value derived from a more similar hypothetical source modeled by a permit applicant or permitting authority. EPA recommends a three step process a permit application can follow when using the MERPs.

1. Identify a representative hypothetical source from EPA's modeling, an EPA derived MERP value available for the broader geographic area or conducting photochemical modeling to derive appropriate information to derive a source or area-specific value.
2. Acquire the source characteristics and associated modeling results for the hypothetical source(s).
3. Apply the source characteristics and photochemical modeling results from Step 2 to the MERP equation with the appropriate SIL value to assess the project source impacts.

AFP is not located in an area with unusual circumstances regarding complex terrain and as shown in above Ozone Impact Analysis Union County is not in proximity to very large stationary sources of either NOx or VOC. In addition, the current design values of all nearby monitors are in obtainment of the NAAQS and would maintain the NAAQS with a SIL increase of 1 ppb. Thus, the climate zone may be defined as the relevant geographic area such that the most conservative (lowest) 8-hour ozone VOC MERP value of 2,307 tpy with Table 4-1 of EPA's guidance for the South Region could be considered representative. This very conservative MERP was chosen for comparison with the project emissions rather than selecting a more representative particular hypothetical source from this same climate zone.

The projects total emissions VOC increase of 228 tpy is expressed as a percent of the selected MERP value in step 2. A value less than 100% indicates that the EPA recommended 8-hour Ozone SIL will not be exceeded by the project. As the calculation demonstrates the project will only have an impact of 6% of the EPA Ozone SIL no further analysis is required.

Additional Impacts

An additional impacts analysis is required under the PSD requirements at 40 CFR § 52.21(o) to evaluate the effects of economic growth and the effect on soils, vegetation, and visibility from

regulated compounds emitted in significant quantities from a new or modified major stationary source. A qualitative approach has been taken to these analyses for areas which do not have well established analytical techniques.

Construction and Growth Impacts

The growth analysis evaluates the impact associated with the project on the general commercial, residential, and industrial growth within the project vicinity. PSD requires an assessment of the secondary impacts from applicable projects. During construction, Anthony Forest Products will minimize the impact on the surrounding environment primarily focusing on reduction of the formation of fugitive particles.

The construction and operation from the project at Anthony Forest Products should not result in any noticeable residential growth in the area. There is expected gradual commercial growth in the area, however, this growth is not expected to be directly due to the proposed project at the Anthony Forest Products facility.

Impact on Soil and Vegetation

PSD regulations require an evaluation of the impact of project emissions on soils and vegetation. The analysis is required only for those pollutants for which PSD review is triggered. EPA guidance, A Screening Procedure for the Impacts of Air Pollution on Plants, Soils and Animals, indicates the relevant pollutants for soils and vegetation are NO_2, SO_2 and CO. The project triggers PSD review for VOC (ozone precursor) only.

The effects of air pollution on vegetation can be classified into three distinct categories: acute, chronic, and long-term. Acute effects are those resulting from a short exposure (< 1 month) to high concentrations. Chronic effects refer to those developed from exposure to a threshold level of pollutant over months or years. Long-term effects refer to abnormal changes in ecosystems and subtle physiological alterations in organisms. Both acute and chronic effects can be the result of an air borne pollutant acting directly on an organism while long-term effects can be indirectly caused by secondary effects such as changes in soil pH.

The secondary NAAQS are intended to protect the public welfare from adverse effects of airborne pollutants. This protection extends to soil and vegetation. Predicted concentrations of VOC resulting from the kiln project will not significantly impact ozone concentration and will not cause or contribute to violation of the NAAQS. Because the NAAQS were established to protect soil and vegetation, no significant impacts on the soil and vegetation are expected due to the proposed project.

Impact on Visibility (Regional Haze Analysis)

One component of the PSD regulations includes the protection of air quality and air quality related values (AQRV) at potentially affected nearby Class I areas. Assessment of the potential impact to visibility is required within 300 km of a Class I area. The only Class I area within

300 km of Anthony Forest Products is the Caney Creek Wilderness Area at about 200 km. The analysis is required only for those pollutants for which PSD review is triggered. The relevant pollutants for visibility are PM, NOx, SO_2, and H_2SO_4. The project triggers PSD review for VOC only. Therefore, a visibility analysis is not necessary because no significant impacts are expected.

However, based on the Federal Land Managers Air Quality Related Values Work Group (FLAG) 2010 Report, Class I evaluations for visibility are not required for a facility if the Q/D ratio for the project is less than or equal to 10 (as long as the Class I area is beyond 50 km from the site). The Q in the Q/D equation is equal to 29.0 tpy and is based on the increase in all visibility affecting pollutants (NOx, SO_2, PM, and H_2SO_4) calculated on the basis of maximum 24-hr emissions in tons/yr resulting from the project. The D in the equation is based on the distance (km) from the site to the lass I area. The Q/D for the Caney Creek Wilderness Area is 0.15 which is well below the screening value of 10.

Given that the amount of visibility affecting pollutants emitted from the project are minimal and that the calculated Q/D value is low, it is concluded that the project will not have a significant effect on visibility in this Class I area. Anthony Forest Products does not believe additional screening is required. The Request for Applicability of Class I Area Modeling Analysis form is attached to confirm this assumption

BACT Analysis

During the lumber drying process, organic compounds present in the wood will be released. These are organic compounds that are in gaseous form at the elevated temperature of the wood, and are comprised largely of lower molecular weight volatiles, and higher molecular weight resin and fatty acids. The type and amounts of compounds released will depend on several factors related to the drying process, including the kiln temperature, the surface area of the wood material relative to its mass, initial moisture content, and the amount of moisture removed from the material as well as the wood species dried. A biomass gasifier/burner is the heat source for DPK #4 (SN-32). An abort stack (SN-33) is necessary during startup, shutdown of the gasifier/burner, or idling.

As the review of the RBLC did not reveal any facilities that have add on control for lumber drying kilns, a search was also completed of VOC control technologies for other processes that could possibly be applied to a lumber drying kiln. Control technologies evaluated are:

- Regenerative Thermal Oxidation
- Regenerative Catalytic Oxidation
- Carbon Adsorption
- Condensation
- Biofiltration
- Wet Scrubbing
- Proper Maintenance & Operation

Regenerative Thermal Oxidation: Regenerative Thermal Oxidizer (RTO) units use beds of ceramic pieces to recover and store heat. A VOC-laden air stream passes through a heated ceramic bed before entering a combustion chamber. In the combustion chamber, the VOC-laden gas stream is heated by auxiliary fuel (natural gas) combustion to a final oxidation temperature typically between 1,400°F to 1,500°F and maintained at this temperature to achieve maximum VOC destruction. The exhaust gases from the combustion chamber are used to heat another ceramic bed. Periodically, the flow is reversed so the bed that was being heated is now used to preheat the VOC-laden gas stream. Usually, there are three or more beds that are continually cycled. Destruction efficiency of VOC depends upon the design criteria (i.e., chamber temperature, residence time, inlet VOC concentration, compound type, and degree of mixing). Typical VOC destructive efficiency ranges from 95 to 99% for RTO systems depending on system requirements and characteristics of the contaminated stream. Lower control efficiencies are generally associated with lower concentration flows.

Due to the high moisture content and low exit temperature in the exhaust stream, RTO would be technically infeasible.

Regenerative Catalytic Oxidation: Regenerative catalytic oxidizer (RCO) units function similar to RTO, except that the heat recovery beds in RCO contain catalytic media. The catalyst accelerates the rate of VOC oxidation and allows for VOC destruction at lower temperatures than in an RTO, typically 600°F to 1,000°F, which reduces auxiliary fuel usage. Typical VOC destructive efficiency ranges from 90 to 99% for RCO systems. However, this also depends on system requirements and characteristics of the contaminated stream.

Although regenerative catalytic oxidizers can operate at a lower temperature than thermal oxidizers, the temperature of the exit stream from lumber drying kilns is still not high enough for optimal function of the catalytic oxidizer. Furthermore, loss of catalytic activity occurs due to fouling by particulate matter or suppression or poisoning from other contaminants in the steam created from the lumber kiln drying process. In order to effectively use catalytic oxidation, the contaminants must be removed from the kiln steam. Removing these contaminants would require additional control equipment which adds greatly to the cost of the system. Catalysts must periodically be replaced due to thermal aging, adding significantly to the cost of operating the unit in addition to creating solid waste. Catalytic oxidation has never been applied to a lumber drying kiln. Regenerative catalytic oxidation is not considered feasible for the proposed lumber drying kiln.

Carbon Adsorption: The core component of a carbon adsorption system is an activated carbon bed contained in a steel vessel. The VOC-laden gases pass through the carbon bed and the VOCs are adsorbed on the activated carbon. The cleaned gas is discharged to the atmosphere. The spent carbon is regenerated either at an onsite regeneration facility or by an off-site activated carbon supplier. Steam is used to replace adsorbed organic compounds at high temperatures to regenerate the spent carbon. At proper operating conditions, carbon adsorption systems have demonstrated VOC reduction efficiencies of approximately 90 to 95%.

Carbon adsorption is not practical because of the high moisture content of the exhaust stream from the lumber drying kilns. At high moisture content, water molecules begin to compete with the hydrocarbon molecules for active adsorption sites. This reduces the capacity and the efficiency of the adsorption system. For the reason stated above and because there are currently no known lumber drying kilns that are equipped with carbon adsorption system, the use of carbon adsorption systems for the proposed lumber drying kiln is not considered technically feasible.

Condensation: Condensation removes vaporous contaminants from the gas stream by cooling it and converting the vapor into a liquid. In some instances, control of VOC can be satisfactorily achieved entirely by condensation. However, most applications require additional control methods. In such cases, the use of a condensation process reduces the concentration load on downstream control equipment. The two most common type of condensation devices are contact or barometric condensers and surface condensers.

Condensation is only effective when the gas stream can be cooled to a temperature where VOC constituents condense as a liquid out of the gas stream. To condense terpenes, the primary constituent of lumber kiln VOC emissions, the temperature would need to be reduced to around -40°F. At this temperature, freezing of the water vapor would generate ice, causing unacceptable plugging of the unit. Condensation is not technically feasible for the proposed lumber drying kiln.

Biofiltration: Biofiltration is an air pollution control technology in which off-gases containing biodegradable organic compounds are vented, under controlled temperature and humidity, through a special filter material containing microorganisms. As exhaust gases pass through the biofilter, VOC is absorbed on the filter material, and the microorganisms break down the compounds and transform them into CO_2 and H_2O with varying efficiency.

The most important variable affecting bioreactor operations is temperature. Most microorganisms can survive and flourish in a temperature range of 60 to 105°F (30 to 41°C). The exiting exhaust temperature of the proposed lumber kilns is approximately 140 - 200°F. Furthermore, the VOC emissions from the kilns are primarily terpenes. Terpenes are highly viscous and would foul the biofilter. The application of biofiltration technology for VOC removal from lumber kiln emissions has not been demonstrated. Due to the temperature requirement, large footprint requirement for a biofiltration system, and the unproven application of biofiltration to this type of process, biofiltration is not technically feasible for the proposed lumber drying kiln.

Wet Scrubbing: Scrubbing of gas or vapor pollutants from a gas stream is usually accomplished in a packed column (or other type of column) where pollutants are absorbed by counter-current flow of a scrubbing liquid. A VOC-laden gas stream with relatively high water solubility is required in order for the wet scrubber to be effective.

The VOC emissions from the kilns are primarily terpenes. Terpenes are not highly soluble. Moreover, they are highly viscous and would foul the absorption media of a wet scrubber. Wet scrubbing is not technically feasible for the proposed lumber drying kiln.

Proper Maintenance and Operation: Proper maintenance and operation of lumber drying kilns can effectively reduce VOC emissions. Proper drying schedule and temperature should be selected based on moisture content and manufacturer's specifications. Routine maintenance should also be completed on all kilns based on manufacturer's recommendations.

Proper maintenance and operation is the only remaining technology/method for this application. No control technology is currently feasible for lumber drying kilns beyond proper maintenance and operation. The RBLC search shows other emission factors utilized in permitting emission limits of VOC; there is no information to determine that these factors can be routinely "achieved in practice." The species of wood dried within a kiln has a distinct impact on the resulting VOC emissions. The emission factor proposed for the VOC emission limits of 3.8 lb/MBf matches the uncontrolled emission factor in the Arkansas Department of Environmental Quality (ADEQ) VOC Emissions from Lumber Drying Kilns Guidance memorandum dated October 31, 2014. This emission factor has also been used by ADEQ for permitting similarly designed direct fired continuous kilns drying similar wood species. Anthony Forest Products Company proposes it as BACT.

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
27, 28, 32, and 33	VOC	PSD

10. UNCONSTRUCTED SOURCES:

Unconstructed Source	Permit Approval Date	Extension Requested Date	Extension Approval Date	If Greater than 18 Months without Approval, List Reason for Continued Inclusion in Permit
SN-32	Issuance of Permit #1681-AOP-R20	N/A	N/A	N/A
SN-33				
SN-34				

11. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? Y

(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Rule 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit? If not, explain why.

For any requested inapplicable regulation in the permit shield, explain the reason why it is not applicable in the table below.

Source	Inapplicable Regulation	Reason
IA Tanks	40 C.F.R. Part 60, Subpart Kb	The tanks have capacities less than 75 m^3.
IA Gasoline Tank	40 C.F.R. Part 63, Subpart CCCCCC	This subpart only applies to area sources. The facility is a major source of HAP.
SN-34	40 C.F.R. Part 64 Compliance Assurance Monitoring	The quad pack cyclone operates as inherent process equipment.

12. COMPLIANCE ASSURANCE MONITORING (CAM) – TITLE V PERMITS ONLY:

List sources potentially subject to CAM because they use a control device to achieve compliance and have pre-control emissions of at least 100 percent of the major source level. List the pollutant of concern and a brief summary of the CAM plan (temperature monitoring, CEMs, opacity monitoring, etc.) and frequency requirements of § 64.

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
SN-34	The quad pack cyclone is not subject to CAM because it is an inherent process equipment.	

13. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

14. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the DEQ Air Permit Screening Modeling Instructions.

b) 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 Department has deemed the PAER 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?
Lead	0.05	5.50E-03	7.75E-03	No
Acrolein	0.229	0.025	0.321	No
Chlorine	0.29	0.032	0.128	No
Formaldehyde	0.368	0.04	3.086	No
HCl	2.98	0.328	3.07	No
Methanol	262.1	28.83	8.118	Yes
Pentachlorophenol	0.5	0.055	8.24E-06	Yes
Antimony	0.5	0.055	1.28E-03	Yes
Arsenic	0.01	1.10E-03	3.55E-03	No
Beryllium	5.00E-05	5.50E-06	1.78E-04	No
Cadmium	0.01	1.10E-03	6.62E-04	Yes
Chromium	0.5	0.055	3.39E-03	Yes
Chromium VI	0.5	0.055	4.43E-04	Yes
Cobalt	0.02	2.20E-03	1.05E-03	Yes
Manganese	0.02	2.20E-03	0.258	No
Mercury	0.01	1.10E-03	5.65E-04	Yes
Phosphorus	0.51	0.056	4.36E-03	Yes
Selenium	0.2	0.022	4.52E-04	Yes

2nd 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 ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Acrolein	2.292	1.05	Yes
Chlorine	2.9	0.376	Yes
Formaldehyde	15	10.65	Yes
HCl	29.83	9.04	Yes
Arsenic	0.1	0.0105	Yes
Beryllium	5.00E-04	4.70E-04	Yes
Manganese	0.2	0.761	No

Review of Additional Standards for Manganese

Given the potential for a ACGIH TLV standard (worker short term exposure) to be conservative when reviewing chronic health-based impacts, Anthony reviewed alternative standards for Manganese. EPA has used its weight of evidence for cancer for manganese and has classified it is not classifiable as to human carcinogenicity. The health-based risks from manganese exposure are generally categorized as either non-carcinogenic short term (acute) and long term (chronic) exposure thresholds that are likely to be without an appreciable risk of deleterious effects during a sensitive receptor's lifetime.

A review of available toxicology data for manganese was completed. Because manganese is an existing HAP, there is substantial toxicology data available. The EPA Office of Air Quality Planning and Standards compiled assessments from air toxics for use in risk assessments. The available health-based standards for manganese are evaluated in the table below. Both acute and chronic standards were available. The available acute standard is based on the IDLH/10 which is established as one-tenth of levels determined by NIOSH to be imminently dangerous to life and health, approximately comparable to mild effects levels for 1-hour exposures. The chronic standard is a minimum risk level (MRL) established for manganese in September of 2012 based on Roels HA, Ghyselen P, Buchet JP, et al. 1992. Assessment of the permissible exposure level to manganese in workers exposed to manganese dioxide dust. Br J Ind Med 49:25-34. This assessment evaluated neurological effects of manganese exposure in 92 workers with average exposure duration of 5.3 years.

Source	Standard Type	Averaging Time	Standard Value ($\mu g/m^3$)	Maximum Modeled Impact($\mu g/m^3$)	Pass?
NIOSH	IDLH/10	Acute, 1-hr	50,000	2.29	Yes
ATSDR	MRL	Chronic, Annual	0.3	0.21	Yes

Generally, the preferred chronic noncancer dose-response value is the EPA Reference Concentration (RfC) within the IRIS database, as it is "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime". However, EPA considers the ATSDR MRL for manganese (Mn) the most appropriate chronic inhalation reference value to be used in its Risk and Technology Review assessments. There is an existing IRIS RfC for Mn (USEPA, 1993a), and ATSDR published an assessment of Mn toxicity which includes a chronic inhalation reference value (i.e., an ATSDR Minimal Risk Level, MRL). Both the 1993 IRIS RfC and the 2012 ATSDR MRL were based on the same study (Roels et al., 1992); however, ATSDR used updated dose-response modeling methodology (benchmark dose approach) and considered recent pharmacokinetic findings to support their MRL derivation. Because of the updated methods, EPA has determined that the ATSDR MRL is the appropriate health reference value to use in RTR risk assessments.

Based on these findings, Anthony proposes that the emissions sources do not cause unacceptable off-site acute or chronic human health impacts, i.e. "air pollution".

c) H_2S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H_2S Standards Y
If exempt, explain: the facility does not have H_2S emissions.

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
06 Debarking	TCEQ Wood Industry Emission Factors (2005)	PM = 0.024 lb/ton PM_{10} = 0.011 lb/ton $PM_{2.5}$ = 0.0046 lb/ton	Partial enclosure	95%	1,410,000 ton/yr 300 ton/hr
06 Sawing	TCEQ Wood Industry Emission Factors (2005)	PM = 0.35 lb/ton PM_{10} = 0.2 lb/ton $PM_{2.5}$ = 0.0665 lb/ton	Building Enclosure Partial Enclosure	90% 85%	1,410,000 ton/yr 300 ton/hr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
06 Log Bucking	FIRE Database for sawdust storage pile handling	PM = 1 lb/ton PM_{10} = 0.36 lb/ton $PM_{2.5}$ = 0.19 lb/ton	-	-	1,835.9 ton/yr 5.2 ton/hr
20	AP-42, 13.2	17 paved sections 0 unpaved sections sL = 0.6	Wet Suppression	50%	Logs = 1,410,000 ton/yr Chips/barks = 455,763 ton/yr Shavings = 80,370 ton/yr Finished Lumber = 424,510 ton/yr
23, 27, 30 Biomass	ADEQ Memo (10/31/2014)	VOC = 3.8 lb/MBF	-	-	<u>SN-23</u> 25 MMBtu/hr 8.2 MBF/hr 71,610 MBF/yr 219,000 MMBtu/yr 2.9 tons sawdust/hr <u>SN-27</u> 31.5 MMBtu/hr 8.7 MBF/hr 75,000 MBF/yr 275,940 MMBtu/yr 3.6 tons sawdust/hr <u>SN-30</u> 30 MMBtu/hr 11.9 MBF/hr 93,500MBF/yr 262,800 MMBtu/yr 3.4 tons sawdust/hr
	EPA Memo (6/30/2017)	$PM/PM_{10}/PM_{2.5}$ = 0.143 lb/MBF Acetaldehyde = 0.04 lb/MBF Acrolein = 0.004 lb/MBF Formaldehyde = 0.065 lb/MBF Methanol = 0.18 lb/MBF Phenol = 0.01 lb/MBF Propionaldehyde = 0.004 lb/MBF			
	AP-42, 1.6	SO_2 = 0.025 lb/MMBtu CO = 0.6 lb/MMBtu NOx = 0.22 lb/MMBtu Various HAPs			
	GHG Mandatory Reporting Rule	CO_2 = 93.8 kg/MMBtu CH_4 = 0.0072 kg/MMBtu N_2O = 0.0036 kg/MMBtu			
32 Biomass	ADEQ Memo (10/31/2014)	VOC = 3.8 lb/MBF	-	-	40 MMBtu/hr 16.3 MBF/hr 120,000 MBF/yr 350,400 MMBTu/yr 390 MBF/day
	NCDENR Wood Kiln Emission Calculator	PM = 0.143 lb/MBF $PM_{10}/PM_{2.5}$ = 0.141 lb/MBF			
	EPA Memo (6/30/2017)	Acetaldehyde = 0.04 lb/MBF Acrolein = 0.004 lb/MBF Formaldehyde = 0.065 lb/MBF Methanol = 0.18 lb/MBF Phenol = 0.01 lb/MBF Propionaldehyde = 0.004 lb/MBF			
	AP-42, 1.6	SO_2 = 0.025 lb/MMBtu CO = 0.51 lb/MMBtu Various HAPs			
	NCASI from Weyerhaeuser NR Lumber Mill (May 2010 permit)	NOx = 0.28 lb/MMBtu			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	GHG Mandatory Reporting Rule	CO_2 = 93.8 kg/MMBtu CH_4 = 0.0072 kg/MMBtu N_2O = 0.0036 kg/MMBtu			
27 Natural Gas	AP-42, 1.4	NOx = 0.27 lb/MMBtu Various HAPs	-	-	31.6 MMBtu/hr
25, 28, 31, 33 Diesel Fuel	AP-42, 1.3	SO_2 = 7.1 lb/1000 gal NO_X = 20 lb/1000 gal CO = 5 lb/1000 gal PM = 2 lb/1000 gal VOC = 1.1 lb/1000 gal	-	-	Max diesel usage 15 gal/hr 360 gal/yr
25, 28, 31, 33 Sawdust	AP-42, 1.3 for distillate oil fired bilers < 100 MMBtu/hr AP-42, 1.6 for wet wood	PM = 0.35 lb/MMBtu PM_{10} = 0.33 lb/MMBtu $PM_{2.5}$ = 0.31 lb/MMBtu SO_2 = 0.025 lb/MMBtu NO_X = 0.22 lb/MMBtu CO = 0.6 lb/MMBtu VOC = 0.017 lb/MMBtu Various HAPs	-	-	8.8 MMBtu/hr 4382 Btu/lb 2000 lb/hour Max duration of startup = 24 hours Max 12 startups per kiln in a year Max hours of operation = 288 hour/yr per kiln
	GHG Mandatory Reporting Rule	CO_2 = 93.8 kg/MMBtu CH_4 = 0.0072 kg/MMBtu N_2O = 0.0036 kg/MMBtu			
26	NSPS IIII Tier 3 Limit	PM/PM_{10} = 0.15 g/bhp-hr NOx = 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_2 = 0.29 lb/MMBtu Various HAPs			
34	Manufacturer's Spec	0.78 lb PM/hr per 80,000 lb shavings PM_{10} = 95% of PM $PM_{2.5}$ = 80% of PM	Quad Pack Cyclone		Shavings throughput 80,000 lb/hr 80,370 ton/yr

16. 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_{10}	5	One time (performed on February 28, 2018)	Dept. Guidance (Test for Emission Verification)
	CO	10		
30 (DPK#2)	PM_{10}	5	One time	Dept. Guidance (Test for Emission Verification)
	CO	10		
27 (DPK#3)	PM_{10}	201/201A	One time (performed on	Dept. Guidance

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
	CO	10	October 2, 2018)	(Test for Emission Verification)
32 (DPK#4)	PM_{10}	5	One time	Dept. Guidance (Test for Emission Verification)
	CO	10		

17. 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)
N/A				

18. 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)
20	Wet Suppression Application	As needed to control visible emissions from traffic	As needed but no less than once a month	N
	Products Transported	in tons of product per consecutive 12 months Logs: 1,410,000 Finished Lumber: 424,510	Monthly	Y
23 & 25	Lumber Throughput	71.61 MMBF per consecutive 12 months	Monthly	Y
27 & 28	Lumber Throughput	75.0 MMBF per consecutive 12 months	Monthly	Y
30 & 31	Lumber Throughput	93.5 MMBF per consecutive 12 months	Monthly	Y
32 & 33	Lumber Throughput	120.0 MMBF per consecutive 12 months	Monthly	Y
25	Diesel fuel usage limit as starter fluid	360 gallons per consecutive 12 months	Daily when in startup	N
	Abort stack	288 hours per consecutive 12	Monthly	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	operating hours	months		
	Sawdust throughput limit for gasifier/burner	2000 lb of sawdust per hour	Daily when in startup	N
28	Diesel fuel usage limit as starter fluid	360 gallons per consecutive 12 months	Daily when in startup	N
	Abort stack operating hours	288 hours per consecutive 12 months	Monthly	Y
	Sawdust throughput limit for gasifier/burner	2000 lb of sawdust per hour	Daily when in startup	N
31	Diesel fuel usage limit as starter fluid	360 gallons per consecutive 12 months	Daily when in startup	N
	Abort stack operating hours	288 hours per consecutive 12 months	Monthly	Y
	Sawdust throughput limit for gasifier/burner	2000 lb of sawdust per hour	Daily when in startup	N
33	Diesel fuel usage limit as starter fluid	360 gallons per consecutive 12 months	Daily when in startup	N
	Abort stack operating hours	288 hours per consecutive 12 months	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
34	Wood Shavings Throughput	80,370 tons of wood shavings per rolling 12 month	Monthly	Y

19. OPACITY:

SN	Opacity %	Justification for limit	Compliance Mechanism
06	20	Rule 19.503	Weekly observation
20	5	Rule 18.501	Monthly or more frequent watering depending on weekly observation

SN	Opacity %	Justification for limit	Compliance Mechanism
23, 27, 30, 32	20	Rule 19.503	Weekly observation
25, 28, 31, 33	20	Rule 19.503	Observation during Startup
26	20	Rule 19.503	Daily observation when use exceeds 24-hours per event
34	5	Rule 18.501	Monthly observation

20. DELETED CONDITIONS:

Former SC	Justification for removal
27-32	SN-21 has been removed.

21. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

Source Name	Group A Category	Emissions (tpy)							
		PM	PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
								Single	Total
Sawdust Conveyance	A-13	0.011	0.001						
Chips Conveyance	A-13	0.022	0.011						
Sawdust Fines Conveyance	A-13	0.001	0.001						
Bark storage pile	A-13	0.25	0.125						
Sawdust storage pile	A-13	0.789	0.394						
Boiler ash (Biochar) storage Pile	A-13	0.342	0.17						
Chip Overflow Pile	A-13	0.244	0.122						
Planer Mill Woodwaste storage bin	A-13	0.133	0.011						
Fuel Storage Silo	A-13	0.209	0.017						
Chip Storage Bin	A-13	0.213	0.021						
Fines Bin	A-13	0.019	0.002						
Bark Bin	A-13	0.293	0.023						

Source Name	Group A Category	Emissions (tpy)							
		PM	PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
								Single	Total
1,000 Gasoline tank	A-13				0.04				
Parts Washer	A-13				0.01				
A-13 Total		2.52	0.90		0.05				
2000 gallon diesel tank	A-3				0.01				
10000 gallon diesel tank	A-3				0.03				

22. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1681-AOP-R19

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-20
AFIN: 70-00473

$/ton factor	25.13	Annual Chargeable Emissions (tpy)	845.7
Permit Type	Modification	Permit Fee $	5709.536

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	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	227.2
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		59.3	36.8	-22.5	-22.5	36.8
PM_{10}		26.6	31.7	5.1		
$PM_{2.5}$		0	0	0		
SO_2		10.1	14.6	4.5	4.5	14.6
VOC		456.8	684.9	228.1	228.1	684.9
CO		230.1	320.3	90.2		
NO_X		92.3	109.4	17.1	17.1	109.4
Lead	☐	1.84E-02	2.68E-02	0.0084		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Acrolein	☐	9.16E-01	7.43E-01	-0.173		
Antimony	☐	3.02E-03	4.42E-03	0.0014		
Arsenic	☐	8.42E-03	1.23E-02	0.00388		
Beryllium	☐	4.21E-04	6.15E-04	0.000194		
Cadmium	☐	1.57E-03	2.29E-03	0.00072		
Chlorine	☐	0.00E+00	4.48E-01	0.448		
Chromium	☐	8.04E-03	1.17E-02	0.00366		
Chromium VI	☐	1.33E-03	1.94E-03	0.00061		
Cobalt	☐	2.49E-03	3.63E-03	0.00114		
HCl	☐	0.00E+00	10.63	10.63		
Manganese	☐	6.12E-01	8.95E-01	0.283		
Mercury	☐	1.34E-03	1.96E-03	0.00062		
Methanol	☐	19.34	32.42	13.08		
Pentachlorophenol	☐	1.95E-05	2.85E-05	0.000009		
Phosphorus	☐	1.03E-02	1.51E-02	0.0048		
Selenium	☐	1.07E-03	1.57E-03	0.0005		
Formaldehyde	☐	4.83	11.74	6.91		
Total Other HAPs	☐	18.29	14.33	-3.96		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		
	☐	0	0	0		