

**PRELIMINARY DETERMINATION**  
**Jasper Forest Products LLC; dba Jasper Lumber Company LLC**  
**Facility No. 414-S002**  
**Air Permit No. X020**

**Introduction**

On January 7, 2025, Jasper Forest Products LLC submitted an initial Prevention of Significant Deterioration (PSD) permit application for the proposed conversion of its existing batch lumber dry kiln No. 1 (DK-1) to a continuous direct-fired kiln (CDK) at the Jasper Lumber Company LLC (JLC) facility located at 2700 Highway 78 West, Jasper, Walker County, Alabama. Updates to the application were received on February 4, 2025, and February 25, and the application was determined to be complete on February 25, 2025.

As a result of the proposal in the application, and pending the resolution of any comments that may be received during the public comment period, the following Air Permit would be issued (the draft permit is included in Appendix B):

- **X020** - 100,000 MBF/yr Continuous Direct-Fired Lumber Dry Kiln (DK-1) with 29.8 MMBtu/hr Wood-Fired Burner [PSD]

**Background**

Jasper Lumber Company LLC produces kiln-dried, dimensional pine lumber from logs. Southern Wood Chips LLC produces wood chips from logs. The two facilities are considered one source under the Title V and PSD regulations as they share common ownership, SIC major grouping, and are located on contiguous property. The significant sources of air pollutants at JLC include two batch lumber dry kilns directly heated by wood-fired burners (Units 003/DK-1 and 004/DK-2), a 120 MMBF/yr CDK with wood-fired burner (X019), a sawmill operation (X016/Unit 001), and various mill processes and their associated wood residuals transfer cyclones (Units X017/002 and X019/005). The significant sources of air pollutants at Southern Wood Chips LLC include a chip mill operation and a re-chipper with a wood residual transfer cyclone (Unit 006). JLC underwent PSD in 2021 for a new 120 MMBF/yr CDK (DK-3) and 40 MMBtu/hr wood-fired burner, with Air Permit No. X018 issued on July 20, 2021. Authorization to Operate the CDK was issued on October 5, 2022. During that PSD action, Air Permit Nos. X016, X017, and X019 were also issued on July 20, 2021, to institute particulate emission and operating hour limits for the exiting sawmill, pneumatic sawdust transfer system, and planer mill, respectively, to avoid PSD review for particulate matter.

**Proposed Project**

JLC proposes to physically modify one of the two existing batch lumber dry kilns (003/DK-1) to be a continuous dry kiln (CDK) capable of drying 100,000 MBF of pine lumber per year. The existing 29.8 MMBtu/hr slope-grate wood-fired burner would be

used to supply direct heat to the modified kiln. Sawdust fuel would be mechanically supplied to the burner from the existing kiln burner bin #1. In its current batch operation, two tracks of lumber stacks are placed in the kiln and undergo a drying cycle of approximately 34+ hours. At the end of the cycle, the dried lumber is removed from the kiln and the kiln is re-loaded with the next batch to be dried. After the CDK conversion, lumber would flow continuously through the kiln via the two tracks in a counter current direction. Rather than the multiple roof vents utilized in the batch kiln configuration, emissions would be released out of two powered stacks (one at each end) through which a portion of the airflow would be exhausted (DK-1a/DK-1b), with the remaining airflow exiting the kiln ends. No additional sawmill or planer mill equipment would be necessary to support the increase in lumber production. As a result of the project, the facility-wide dried lumber production capability would increase from approximately 220,000 MBF to 270,000 MBF annually.

### **Applicability: Federal Regulations**

#### **Title V**

This existing facility is a major source under the Title V regulations because potential emissions of Carbon Monoxide (CO), and Volatile Organic Compounds (VOC) exceed the 100 TPY major source threshold. The facility is also a major source of hazardous air pollutants (HAP). It has the potential to emit more than 10 TPY of methanol and formaldehyde, and more than 25 TPY of combined HAP. After the project, the facility would be a major source of CO, VOC, individual HAP (methanol/formaldehyde/acetaldehyde), and combined HAP emissions.

The facility would be required to submit an application for a significant modification of its Major Source Operating Permit within 12 months of commencing operation of the proposed CDK, which would be marked by the issuance of Temporary Authorization to Operate (TAO) for Air Permit No. X020.

#### **NSPS**

Since the existing/proposed CDK burner would provide direct heat to the kiln in which the combustion gases would contact the lumber being dried, it would not be subject to 40 CFR Part 60, Subpart Dc. There are no other NSPS potentially applicable to the project, or to the combined facility.

#### **MACT**

There are no sources at the facility potentially subject to a MACT standard other than the lumber dry kilns. The PCWP MACT, 40 CFR Part 63, Subpart DDDD, regulates HAP emissions from activities associated with the manufacture of plywood and other composite wood products, including stand-alone lumber kilns, in accordance with 40 CFR §63.2232. Processes that are not subject to the compliance options or work practice requirements specified in 40 CFR §63.2240, such as the proposed converted CDK, are specifically not

required to comply with the compliance options, work practice requirements, performance testing, monitoring, and recordkeeping or reporting requirements of the subpart, or any other requirements in 40 CFR 63 Subpart A, except the initial notification requirements in 40 CFR §63.9(b) in accordance with 40 CFR §63.2252. The application serves as the initial notification of the intention to construct the modified CDK, an affected source under PCWP MACT.

The two existing batch lumber dry kilns, 003/DK-1; 004/DK-2, are currently limited to the drying of 100 MMBF of lumber per year (total). The production limit was instituted in Air Permit No. X009, issued on September 2, 2004, to be a synthetic minor source of HAP emissions. The combined facility became a major source of HAP emissions with the addition of Air Permit No. X012 on June 17, 2008, for the B&T Shavings, Inc. facility. The B&T Shavings facility was sold in 2023 and subsequently removed from JLC/SWC's Title V permit in an administrative amendment on August 14, 2023. Even without the emissions from B&T Shavings, the facility is a major source of HAP emissions. As such, the 100 MMBF/yr production limit serves no purpose, and as a major source of HAP, the lumber dry kilns are subject to the PCWP MACT, as discussed in the previous paragraph.

#### Prevention of Significant Deterioration (PSD)

This facility is located in an attainment area for all criteria pollutants, and the facility operations are not one of the listed 28 major source categories. Therefore, the major source threshold of concern is 250 TPY for criteria pollutants. The facility is currently a major source under the PSD regulations for VOC emissions. After the proposed project, the facility would remain a major source under the PSD regulations for the same pollutant.

Jasper Lumber Company LLC presented an applicability analysis for the project. Since the potential emissions of VOC from the project would exceed the significant emission rate, the facility provided a netting analysis utilizing the baseline actual emissions (BAE) to potential emissions (PE) comparison for existing units that would be affected by the project (i.e. "debottlenecking"), as well as for the proposed conversion (physical modification) of the No. 1 batch kiln to a CDK. The existing designation for the No. 1 batch kiln, DK-1, would be retained as the designation for the converted CDK. For baseline particulate actual emissions, the facility utilized actual emissions averaged from consecutive calendar years as shown in the following tables. The potential PM emissions are based on the existing Synthetic Minor Source limits of 2.0 lb/hr each from cyclones C-1, C-2, C-3, and C-4/5/6, and the existing operating hour limits for the sawmill operation, the pneumatic sawdust transfer system, and the planer mill of 7,500 hours during any consecutive 12-month period, each. Only an increase in actual operating hours (but less than the operating hour limit) would be needed to accommodate the increase in production. The potential PM emissions for the converted CDK were based on a source test at a similar facility, and a production limit of 100,000 MBF during any consecutive 12-month period. The emission calculations were based on emission factors from NCASI, AP-42, EPA publications, and the results of testing at similar sources. The following tables summarize the calculations for determining the net emission increases:



### Potential Emissions (PE) in TPY for the Proposed Continuous Dry Kiln (CDK)

	PM	*PM <sub>10</sub>	*PM <sub>2.5</sub>	VOC	SO <sub>2</sub>	CO	NO <sub>x</sub>	CO <sub>2e</sub>
100,000 MBF CDK (X020/DK-1)	3.4	5.15	4.93	240	3.26	21.5	14	29,298
<b>PE</b>	3.4	5.15	4.93	240	3.26	21.5	14	29,298

\*Includes condensable PM. Emission factors based on testing at a similar source and NCASI data.

### Potential Emissions (PE) in TPY for Debottlenecked Existing Units

	*PM	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	SO <sub>2</sub>	CO	NO <sub>x</sub>	CO <sub>2e</sub>
Sawmill Operations (001; C-1)	7.50	3.0	0.75	--	--	--	--	--
Sawdust Transfer System (002; C-4/5/6)	7.50	3.0	0.75	--	--	--	--	--
Planer Mill (005; C-2, C-3)	15.0	6.0	1.50	--	--	--	--	--
<b>PE</b>	30.00	12.0	3.00	--	--	--	--	--

\*SMS limits of 2.0 lb PM/hr per cyclone (C-4/5/6 can only operate one line at a time), and 7,500 operating hours/yr.

### Baseline Actual Emissions (BAE) in TPY for Debottlenecked Existing Units

PM - 2022- 2023  
PM<sub>10</sub> – 2013- 2014  
PM<sub>2.5</sub> – 2014-2015  
VOC – 2015-2016  
SO<sub>2</sub>/CO<sub>2e</sub> – 2019-2020  
NO<sub>x</sub>/CO – 2016-2017

	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	SO <sub>2</sub>	CO	NO <sub>x</sub>	CO <sub>2e</sub>
Sawmill Operations (001; C-1)	3.81	1.31	0.24	--	--	--	--	--
Sawdust Transfer System (002; C-4/5/6)	3.81	1.31	0.24	--	--	--	--	--
Planer Mill (005; C-2, C-3)	6.2	2.27	0.51	--	--	--	--	--
No. 1 Batch Lumber Dry Kiln (003/DK-1)	4.45	6.29	6.25	77.66	1.59	13.61	6.55	26,577
<b>BAE</b>	18.27	11.18	7.24	77.66	1.59	13.61	6.55	26,577

### Net Emission Increases for the CDK Project

(PE minus BAE)

	Net Emissions Increase (TPY)							
	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	SO <sub>2</sub>	CO	NO <sub>x</sub>	CO <sub>2e</sub>
Future Potential Emissions	33.4	17.15	7.93	240	3.26	21.5	14	29,298
Baseline Actual Emissions	-18.27	-11.18	-7.24	-77.66	-1.59	-13.61	-6.55	-26,577
<b>Net Emissions Increase</b>	15.13	5.97	0.69	162.34	1.67	7.89	7.45	2,721
<b>PSD Significant Emission Rate</b>	25	15	10	40	40	100	40	75,000
<b>PSD Triggered?</b>	No	No	No	Yes	No	No	No	No

Based on this netting analysis, the net VOC emissions increase from the project would be 162.34 TPY, which exceeds the PSD significance level of 40 TPY for VOC. Therefore, Jasper Lumber Company LLC is required to conduct a PSD review for VOC emissions.



Sources subject to PSD must satisfy the following requirements before being allowed to initiate construction:

1. Provide opportunity for public participation in the permitting process relative to the air quality impact the source would have if it were built.
2. Obtain a permit which sets forth emission limitations.
3. Demonstrate that the emissions from the source would not cause or contribute to a violation of the PSD increment or the NAAQS.
4. Apply best available control technology (BACT), which is defined in terms of an emission limitation, based on the maximum degree of reduction of each pollutant which is determined to be technically and economically achievable for that particular source.
5. Analyze the impairment to visibility, soils, and vegetation that might occur as a result of operation of the source.
6. Analyze the air quality impacts projected due to the growth associated with the facility.
7. Conduct any ambient air quality monitoring necessary to determine the effect of the emissions on air quality.

#### **Public Participation**

In order to satisfy the public participation requirement, a copy of the preliminary determination (this engineering analysis) and the permit applications provided on the ADEM website for at least 30 days of public review. After the 30-day public comment period and within 5 days of the PSD permit issuance, the final determination will be made available on the ADEM website. The final determination consists of copies of the signed permit, any comments received during the public comment period, and any responses made to those comments.

#### **BACT Determination**

During a PSD review, new and modified sources must be assessed for Best Available Control Technology, or BACT, if the emissions increase is significant. BACT is an emission limit based on the maximum pollutant reduction achievable considering energy, economic, and environmental impacts. BACT is determined on a unit by unit, pollutant by pollutant basis. The BACT limit can be no less stringent than any applicable New Source Performance Standard (NSPS), National Emission Standard for Hazardous Air Pollutants (NESHAP), or other applicable standard. No applicable NSPS has been promulgated for continuous direct-fired lumber dry kilns. The provisions of 40 CFR Part 63, Subpart DDDD (PCWP MACT) would be applicable to the converted CDK. However, Subpart DDDD does not include emission limits for lumber dry kilns.

For the proposed project, BACT must be determined for VOC emissions from the converted CDK. Jasper Lumber Company LLC utilized the “top-down” approach for the BACT analysis. This approach considers the most stringent control option available and a determination of its technical feasibility for the emission unit in question. If the option is not rejected, the applicant must analyze the option based upon economic, environmental, and energy considerations. Below are the five basic steps of a top-down BACT review procedure as identified by the US EPA in the March 15, 1990, Draft BACT Guidelines:

Step 1. Identify all control technologies

Step 2. Eliminate technically infeasible options

Step 3. Rank remaining control technologies by control effectiveness

Step 4. Evaluate most effective controls and document results

Step 5. Select BACT

*Step 1. Identify all control technologies:*

Jasper Lumber Company LLC examined the feasibility of the following seven control technologies:

- Carbon Adsorption;
- Regenerative Thermal Oxidation (RTO);
- Regenerative Catalytic Oxidation (RCO);
- Condensation;
- Biofiltration;
- Wet Scrubbing;
- Proper Maintenance & Operation

#### 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%.

### 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 and 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 gas stream. Lower control efficiencies are generally associated with lower concentration flows.

### Regenerative Catalytic Oxidation

Regenerative catalytic oxidizer (RCO) units function similar to an RTO, except that the heat recovery beds in the 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 gas stream.

### Condensation

Condensation systems remove VOC emissions 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.

### Biofiltration

Biofiltration is an air pollution control technology in which off-gasses 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<sub>2</sub> and H<sub>2</sub>O with varying efficiency.



### 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.

### 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 specifications. Routine maintenance should also be completed on kilns based on manufacturer recommendations.

Specific maintenance and operation items may include the following:

- Minimize over-drying the lumber;
- Maintain consistent moisture content for the process lumber charge;
- Dry the lumber at the minimum temperature;
- Develop a written Operation and Maintenance (O&M) Plan;
- Identifying the above practices and the operation and maintenance requirements from the kiln manufacturer;
- Record and monitor the total monthly amount and 12-month rolling total of wood dried.

*Step 2. Eliminate technically infeasible options:*

### Carbon Adsorption

Carbon adsorption is not practical for this application due to the high moisture content of the exhaust stream. At high moisture content, water molecules compete with the hydrocarbon molecules for active adsorption sites. This reduces the capacity and efficiency of the adsorption system. There are no known lumber dry kilns equipped with a carbon adsorption system. The applicant indicated that this technology is technically infeasible.

### Regenerative Thermal Oxidation

According to the application, the use of an RTO would be technically infeasible due to the high moisture content and low exit temperature of the kiln exhaust gas stream. No such system has been applied to a lumber dry kiln.

### Regenerative Catalytic Oxidation

Although a RCO can operate at a lower temperature than a RTO, the temperature of the exit stream from the kiln is not high enough for the optimal function of the

RCO. Additionally, the catalyst would be subject to fouling or poisoning from the particulate and other contaminants in the gas stream. In order for the RCO system to operate effectively, the contaminants must be removed from the incoming gas stream, which would add greatly to the cost of the control system. No such system has been applied to a lumber dry kiln. The applicant indicated that this technology is technically infeasible.

#### Condensation

Condensation is effective when the gas stream can be cooled to a temperature where VOC 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 well below 0°F in order to have a low enough vapor pressure to use condensation. At this temperature, freezing of the water vapor would produce ice, causing plugging of the unit. The applicant indicated that this technology is technically infeasible.

#### Biofiltration

Temperature is an important variable affecting biofilter operations. Microorganisms can survive and flourish in a temperature range of 60°F to 105°F. The exhaust temperature of the proposed kiln would be approximately 120°F to 140°F. Also, the VOC emissions from the kiln would be primarily terpenes, which are highly viscous and would foul the biofilter. Due to the temperature requirement, large footprint requirement for a biofilter system, and the unproven application of biofiltration to this type of process, the applicant indicated that this technology is technically infeasible.

#### Wet Scrubbing

According to the applicant, while some VOCs that will be present in the exhaust stream are highly soluble in water, other VOCs, most notably  $\alpha$ -pinene, are only slightly soluble in water due to the lower Henry's Law constant as described in Perry's Chemical Engineer's Handbook. Lower Henry's Law constant VOCs would require a much longer residence time within a scrubber packed column and would eliminate this as a technically viable solution for the constant stream that would need to be handled by a continuous kiln.

#### *Step 3 Rank remaining control technologies by control effectiveness:*

#### Proper Maintenance and Operation

According to the application, the only technically feasible control technology for controlling VOC emissions from the proposed CDK is the use of proper maintenance and operating practices. Since this was the only remaining BACT

control technology technically or economically feasible, no cost analysis was performed.

*Step 5. Select BACT:*

Jasper Lumber Company LLC proposed the following emission level as BACT for the CDK:

Pollutant	BACT Determination	BACT Emission Limit	Equivalent Emissions
VOC	Proper Kiln Maintenance and Operation	4.80 lb/MBF, as WPP1 VOC*	240 TPY (based on a design capacity of 100,000 MBF/yr)

\*“WPP1 VOC” is an acronym for Wood Products Protocol 1 VOC. WPP1 VOC refers to VOC emissions expressed in accordance with the document “Interim VOC Measurement Protocol for the Wood Products Industry – July 2007.” This EPA document established procedures and emission measurement methods to approximate VOC emissions for determining applicability with Federal programs and to establish consistency across State programs for the forest products industry.

A search of the EPA RACT/BACT/LAER Clearinghouse provided in the application indicated that no facilities are utilizing add-on controls for lumber kilns, and the proposed VOC emission limit of 4.80 lb/MBF appears to be consistent with other BACT determinations for similar continuous kilns in the wood products industry with VOC limits.

The Air Division concurs that proper kiln maintenance and operation and the 4.80 lb/MBF (as WPP1 VOC) emission limit represents BACT for the proposed CDK.

For monitoring, the Air Permit for the CDK would include a requirement to develop, implement, and submit to the Air Division a maintenance and operation plan within six months of issuance of Temporary Authorization to Operate for the kiln.

### Modeling

Air Toxics modeling was not required for this application. The applicant provided a Modeled Emission Rates for Precursors (MERPs) analysis, which was performed to evaluate whether VOC emissions from the project would significantly contribute to Ozone concentrations. If the calculation from the MERPs analysis is less than the EPA recommended 8-hr Ozone Significant Impact Level (SIL) of 1 part per billion (ppb), further modeling is not required. The MERPs analysis for the proposed project, at 0.051 ppb of the Ozone SIL, indicates that the project is expected to be protective of the NAAQS and no further analysis is required. A memo from the Meteorological Section of the Planning Branch is attached in Appendix A.



Although the VOC (ozone precursor) increase is expected to exceed the 100 TPY PSD de minimus impact level, the Air Division accepted the use of representative regional ozone data from the McAdory, Jefferson County, Alabama monitor in lieu of site-specific monitoring for ozone.

Because the facility is located within 100 km of a PSD Class I Area, the Federal Land Manager must be notified of the project. Accordingly, ADEM forwarded a copy of the permit application to the Federal Land Manager for the Sipsey Wilderness Area.

#### Additional Impacts

An additional impact analysis assesses the impacts of air, ground, and water pollution on soils, vegetation, and visibility caused by any increase in emissions of any regulated pollutant resulting from the modification under review and from associated growth. The depth of the analysis depends on existing air quality, the quantity of emissions, and the sensitivity of local soils, vegetation, and visibility in the source's impact area. Jasper Lumber Company LLC addressed the impacts of the proposed project with respect to growth, soils and vegetation, and visibility.

The Sipsey Wilderness Area is approximately 50 km from the facility. The project is undergoing a PSD review only for VOC emissions. The application must show that PSD increments are not exceeded in nearby Class I Areas, and that there are no adverse effects on visibility or Air Quality Related Values (AQRVs). According to the application, no PSD increments have been established for VOC emissions, and a Class I Area analysis is not required since there would be no adverse impact or AQRVs associated with VOC emissions.

SO<sub>2</sub>, NO<sub>x</sub>, CO, and Ozone can have an adverse impact on soils and vegetation. The analysis is conducted mainly for pollutants undergoing a PSD review. VOC is a precursor to ozone formation. However, according to the application, ozone formation in the area is NO<sub>x</sub> limited and ozone formation due to this project would not be expected. The applicant stated that no adverse impacts on soils and vegetation is anticipated.

Regarding growth, the application indicated that new employees may be hired in the future in order to achieve increases in production, but it is believed that any new employees are already part of the existing labor force in the surrounding area. Therefore, no significant residential, commercial or industrial growth is anticipated as a result of the project.

#### Applicability: State Regulations

##### Particulate Matter

The converted CDK would be subject to the State particulate matter emission standards for process industries as provided in ADEM Admin. Code r. 334-3-4-.04(1). The process weight is determined by the weight of fuel burned in the burner. As the burner would

supply direct heat to the kiln, it would not be considered “fuel burning equipment”, and therefore not subject to ADEM Admin. Code r. 335-3-4-.03(1).

#### Visible Emissions

The CDK would be subject to the State visible emission standards of ADEM Admin. Code r. 335-3-4-.01(1), which states that no air emission source may emit particulate of an opacity greater than 20% (as measured by a six-minute average) more than once during any 60-minute period and at no time shall emit particulate of an opacity greater than 40% (as measured by a six-minute average).

#### Sulfur Dioxide

Since the burner for the CDK would provide direct heat, it would not be subject to the State SO<sub>2</sub> emission standard for fuel burning equipment found in ADEM Admin. Code r. 335-3-5-.01(1).

### **Emission Testing and Monitoring**

I recommend that no emission testing be required for the proposed CDK at this time since testing for continuous kilns is not easily conducted and there are no emission control devices.

To ensure that the maximum capacity of the proposed converted CDK is not exceeded, Jasper Lumber Company LLC would be required to calculate the kiln production on a monthly and 12-month rolling total basis, to be updated within 20 days of the end of each calendar month.

### **Recordkeeping and Reporting**

#### *Recordkeeping*

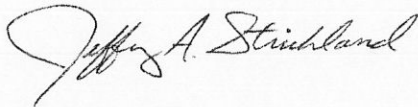
Jasper Lumber Company LLC would be required to maintain records of its actions taken to comply with its proper maintenance and operating practices plan that must be submitted within 6 months of startup. Records of monthly and 12-month rolling total production through the CDK would also be required. These records must be maintained onsite in a permanent form readily available for inspection.

#### *Reporting*

Jasper Lumber Company LLC would be required to submit Semiannual Monitoring Reports for the CDK, which would include a certification that all emission monitoring and proper maintenance and operating practices were accomplished as required during the reporting period, and if not, describe the date and reason any required action was not accomplished.

### **Conclusions and Recommendations**

This analysis indicates that the facility would meet the requirements of all applicable Federal and State rules and regulations. Therefore, I recommend that Jasper Lumber Company LLC be issued Air Permit No. X020 for the proposed kiln conversion project, pending the resolution of any comments received during the 30-day public comment period.



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Jeffrey A. Strickland  
Chemical Branch  
Air Division

March 7, 2025  
Date



# **APPENDIX A**

## **MERPs Analysis Review Memo**





Alabama Department of Environmental Management  
adem.alabama.gov

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February 6, 2025

**MEMORANDUM**

TO: Jeff Strickland   
Natural Resources Section  
Chemical Branch  
Air Division

FROM: Megan Travis   
Meteorological Section  
Planning Branch  
Air Division

SUBJECT: Modeled Emission Rates for Precursors (MERPs) Analysis for Jasper Lumber  
Company Prevention of Significant Deterioration Permit Application

ADEM has completed its review of the Modeled Emission Rates for Precursors (MERPs) analysis performed by Layton Environmental Engineering, LLC on behalf of Jasper Lumber Company LLC. The purpose of the analysis was to assess the impacts on air quality from emissions of Volatile Organic Compounds (VOCs) from a proposed sawmill construction project located in Walker County, Alabama.

This MERPs analysis was performed to evaluate whether VOC emissions will significantly contribute to Ozone concentrations. Precursor emission impacts to Ozone were considered and included VOCs and NO<sub>x</sub>. If the calculation from the MERPs analysis is less than the EPA recommended 8-hr Ozone Significant Impact Level (SIL) of 1 part per billion (ppb), further modeling is not required. For Ozone, the following total emissions were considered: 162.34 TPY for VOCs and 7.45 TPY for NO<sub>x</sub>. Layton performed the analysis using the representative hypothetical source located in Autauga County. The results from the MERPs analysis are presented in Table 1. Additional details can be found within the application.

**TABLE 1**  
**MERPs Analysis Results**

Pollutant	Project Impact
Ozone	0.051 ppb

The MERPs analysis is below the EPA SIL of 1 ppb. This indicates that the addition of secondary impacts are protective of the NAAQS and no further analysis is required.



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# **APPENDIX B**

**Draft Air Permit No. X020**



## AIR PERMIT

**PERMITTEE:** JASPER FOREST PRODUCTS, LLC  
**FACILITY NAME:** JASPER LUMBER COMPANY, LLC  
**LOCATION:** JASPER, WALKER COUNTY, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
414-S002-X020	100,000 MBF/yr Continuous Direct-Fired Lumber Dry Kiln (DK-1) with 29.8 MMBtu/hr Wood-Fired Burner [PSD]

*In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.*

**ISSUANCE DATE:** DRAFT

**JASPER FOREST PRODUCTS, LLC  
DBA JASPER LUMBER COMPANY, LLC  
JASPER, ALABAMA  
PERMIT NO. 414-S002-X020  
PROVISOS**

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.
2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.
3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate, reduce, or control the issuance of air contaminants.
4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.
5. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.
6. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shutdown as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.
7. This process, including all air pollution control devices and capture systems for which this permit is issued, shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.
8. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

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9. Additions and revisions to the conditions of this permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.
10. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.
11. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.
12. Unless otherwise stated in this permit or an applicable regulation, the Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

- (a) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.
- (b) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).
- (c) A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.
- (d) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 30 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

13. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3)



approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.

14. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.
15. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

- (a) by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;
- (b) by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;
- (c) by paving;
- (d) by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

16. Precautions shall be taken by the permittee and its personnel to ensure that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire in such a manner as to cause the Department's rules and regulations applicable to open burning to be violated.
17. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.
18. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
19. The permittee shall submit a complete and accurate compliance certification by February 19<sup>th</sup> of each year for each annual reporting period of Jasper Lumber Company LLC / Southern Wood Chips LLC's Title V Major Source Operating Permit (December 20<sup>th</sup> – December 19<sup>th</sup>).

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- (a) The compliance certification shall include the following:
  - i) The identification of each term or condition of this permit that is the basis of the certification;
  - ii) The compliance status;
  - iii) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);
  - iv) Whether compliance has been continuous or intermittent; and
  - v) Such other facts as the Department may require to determine the compliance status of the source.
- (b) The compliance certification shall be submitted to:

Alabama Department of Environmental Management  
Air Division  
P.O. Box 301463  
Montgomery, AL 36130-1463

The compliance certification shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.

**100,000 MBF/yr Continuous Direct-Fired Lumber Dry Kiln  
Summary Page**

**Description:** 100,000 MBF/yr Continuous Direct-Fired Lumber Dry Kiln [PSD]

**Installation Date:** 2025 (proposed)

**Operating Capacity:** 4,277 lb/hr (bone dry fuel); 433,790 lb/hr (lumber)

**Operating Schedule:** 24 hrs/day, 7 days/week, 52 weeks/yr

**Pollutants Emitted:**

Emission Point	Point Description	Pollutant	Emission Limit	Standard
DK-1a/b	Kiln Emission Points a/b	Opacity	$\leq 20\%$ as determined by six-minute average, with one six-minute period up to 40% in any one hour period.	ADEM Admin. Code r. 335-3-4-.01
		PM	$E = 3.59(P)^{0.62}$ for $P < 30$ TPH Or $E = 17.31(P)^{0.16}$ for $P \geq 30$ TPH	ADEM Admin. Code r. 335-3-4-.04
		PM	100,000 MBF/yr (production limit)	ADEM Admin. Code r. 335-3-14-.04
		VOC	4.80 lb/MBF (as WPP1)	ADEM Admin. Code r. 335-3-14-.04



100,000 MBF/yr Continuous Direct-Fired Lumber Dry Kiln

	Regulations
<p><b>1. <u>Applicability</u></b></p> <p>(a) This source is subject to the applicable requirements of Rule 335-3-16-.03, "Major Source Operating Permits".</p> <p>(b) This source is subject to a Best Available Control Technology (BACT) limit for volatile organic compounds (VOC) established pursuant to the applicable requirements of ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration Permitting (PSD)]".</p> <p><b>2. <u>Emission Standards</u></b></p> <p>(a) The permittee shall not cause or allow the emission of particulate matter (as TSP) in any one hour from any process in excess of the amount determined by the following equations:</p> $E=3.59P^{0.62} \text{ (P<30 TPH)}$ $E=17.31P^{0.16} \text{ (P}\geq\text{30 TPH)}$ <p>Where:</p> <p>E = Emissions (in pounds per hour)</p> <p>P = Process weight (in tons per hour)</p> <p>(b) The permittee shall not cause or allow visible emissions with a six-minute average opacity greater than 20% to be emitted more than once during any 60-minute period. The permittee shall not cause or allow visible emissions with a six-minute average opacity of greater than 40% to be emitted at any time.</p> <p>(c) The permittee shall not cause or allow the VOC emissions from the CDK to exceed 4.8 lb/MBF as WPP1 (as VOC expressed as propane, determined as <math>VOC_{as \text{ C}} \times 1.225 + [(1-0.65) \times \text{Methanol}] + \text{Formaldehyde}</math>).</p> <p>(d) The permittee shall not cause or allow the dried lumber production through the CDK (DK-1) to exceed 100,000 MBF during any consecutive 12-month period.</p>	<p>ADEM Admin. Code r. 335-3-16-.03</p> <p>ADEM Admin. Code r. 335-3-14-.04</p> <p>ADEM Admin. Code r. 335-3-4-.04</p> <p>ADEM Admin. Code r. 335-3-4-.01(1)</p> <p>ADEM Admin. Code r. 335-3-14-.04</p> <p>ADEM Admin. Code r. 335-3-14-.04</p>

	Regulations
(e) Within six (6) months of issuance of Temporary Authorization to Operate for this kiln, the Permittee shall develop, implement, and submit to the Air Division a maintenance and operation plan for the kiln.	ADEM Admin. Code r. 335-3-14-.04
<b>3. <u>Compliance and Performance Test Methods and Procedures</u></b>	
(a) Compliance with the particulate emission rates shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 5.	ADEM Admin. Code r. 335-3-1-.05
(b) Compliance with the visible emissions standard shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9.	ADEM Admin. Code r. 335-3-1-.05
(c) Compliance with the volatile organic compound emission rate shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 18, 25, 25A, or 25B.	ADEM Admin. Code r. 335-3-1-.05
<b>4. <u>Emission Monitoring</u></b>	
(a) The permittee shall document its compliance with the maintenance and operation plan required by Proviso 2.(e) in the Emission Standards Section of this permit.	ADEM Admin. Code r. 335-3-16-.05(c)
(b) The permittee shall calculate and record the total kiln production, including monthly production and 12-month rolling totals. Within 20 days of the end of each calendar month, the permittee shall calculate and record the total throughput for the last calendar month and update the rolling 12-month total.	ADEM Admin. Code r. 335-3-16-.05(c)
<b>5. <u>Recordkeeping and Reporting Requirements</u></b>	
(a) The permittee shall retain all required records in a permanent form suitable and readily available for inspection for a period of five (5) years from the date of generation of each record.	ADEM Admin. Code r. 335-3-16-.05(c)
(b) Should this facility, at any time, exceed any emission limit, the permittee shall notify the Air Division in writing within two (2) working days of determining that the exceedance occurred.	ADEM Admin. Code r. 335-3-16-.05(c)

	Regulations
(c) The permittee shall submit a Semiannual Monitoring Report, as required by General Proviso No. 21(a) of Jasper Lumber Company LLC / Southern Wood Chips LLC's Title V Major Source Operating Permit (January 1 <sup>st</sup> – June 30 <sup>th</sup> and July 1 <sup>st</sup> – December 31 <sup>st</sup> ). The report for this CDK shall include a certification that all preventive maintenance activities were accomplished as required during the reporting period, and if not, describe the date and reason any required action was not accomplished.	ADEM Admin. Code r. 335-3-16-.05(c)