

PSD PRELIMINARY DETERMINATION
T.R. Miller Mill Company, Inc. - Brewton Mill
Brewton, Escambia County, Alabama
Air Permit No. 502-S002-X024

On December 23, 2019 the Air Division received a Prevention of Significant Deterioration (PSD) application from T.R. Miller Mill Company, Inc. (TRMM) for the construction of a direct-fired biomass continuous pole kiln (approx. 3.2 MMCF/yr each). A complete application was received on January 14, 2020, and a replacement of the ADEM Form 105 was received January 23, 2020. This facility is currently a major source under Title V and PSD regulations, and its status would not change after the modification. Air Permit No. X024 would be issued for the proposed kiln pending the resolution of any comments that may be received during the public comment period.

Current Operations

TR Miller Mill Company, Inc. (TRMM) operates a sawmill, pole mill, and wood treating facility in Brewton, Escambia County, Alabama. The significant sources of air pollutants at this facility are the 68 MMBtu/hr (SB-1) and 35.62 MMBtu/hr (SB-2) wood-fired boilers that provide indirect heat to two (2) 11.4 MBF/hr continuous dual path lumber dry kilns (DPK-1 and DPK-2); one (1) wood-fired (with a natural gas backup) continuous pole dry kiln (TP-1); a planer mill with pneumatic conveyance system utilizing a cyclone and baghouse; a box factory with pneumatic conveyance system utilizing four (4) cyclones; a specialty shop with pneumatic conveyance system utilizing a dual cyclone; a sawmill; a 240 HP Diesel-fired Emergency Fire Water Pump Engine; and one (1) gasoline storage tank (9,000 gallon). Insignificant emission sources at this facility include space heaters, debarkers, wood/lumber chippers, bark/chip/sawdust mechanical handling and transfer systems, penta/CCA/diesel storage tanks, and storage piles.

Proposed Project

The primary purpose of the proposed project would be the replacement of their natural gas pole kiln (TP-1A), which was destroyed after a fire caused extensive damage to the kiln in July 2019. The proposed new kiln would be a continuous pole drying kiln designated as TP-2 which would dry wood poles and piling utilizing the direct heat exhaust generated from a 27MMBtu/hr wood-fired burner.

The replacement kiln would be a steel-frame, insulated, metal clad building with rails that run through the kiln on each side. It would measure approximately 221 feet in length with a 125' center and two 48' end chambers. The poles would be stacked on kiln trams and continuously fed through both ends of the kiln at an approximate rate of 4-6 ft/hr. All emissions would exhaust through the open doors at each end of the kiln. The maximum potential production of the kiln would be approximately 3.2 MMCF/yr. The previous pole kiln, TP-1A had an average production of 398,177 CF/yr.

No debottlenecking is associated with this project as no existing sources would be affected by the construction of the proposed project. Demand growth was not considered for this addition as it would not change the result of the project being a major modification for VOC.

Applicability: Federal Regulations

Title V

This facility is currently a major source under Title V regulations because potential emissions for particulate matter (as PM/PM₁₀/PM_{2.5}), sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) each exceed the 100 TPY major source threshold. The facility is a major source for Hazardous Air Pollutants (HAP) because the potential emissions of methanol and hydrogen chloride exceed the 10 TPY major source threshold and the potential emissions of combined HAP exceed the 25 TPY major source threshold. After the project, the facility's status under Title V would remain the same.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAP requires that any facility whose potential emissions of hazardous air pollutants (HAPs) exceed 10 TPY of a single hazardous air pollutant (HAP) or 25 of combined HAPs must control these emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. The NESHAP standards are established for source categories and prescribed based on whether the source is "existing" or "new". The continuous pole dry kiln would be considered a "new" source. The facility is a major source for HAPs and an affected source under the NESHAP Subpart DDDD, *Plywood and Composite Wood Products* (PWCP MACT).

The PCWP MACT 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 lumber kilns, are specifically not required to comply with the compliance options, work practice requirements, performance testing, monitoring, startup/shutdown/maintenance (SSM) plans, and recordkeeping or reporting requirements of this 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 a continuous dual path pole kiln, an affected source under PCWP MACT. There are no other proposed sources subject to a NESHAP.

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 thresholds of concern are 250 TPY for criteria pollutants. The facility is currently a major source under PSD regulations for PM, CO, and VOC. After the project, the facility's status under PSD would remain the same.

Based on the application, the proposed project would result in a significant net emission increase of VOC (increase of 81.59 TPY VOC). TRMM has also accepted a synthetic minor source limit of 3 lbs/hour to avoid a significant emissions increase for TSP. All other criteria pollutants were also evaluated. The net emissions increase for each was less than the significance threshold and there would be no associated SER increases from any other existing sources.

Pollutant	Potential Emissions (TPY) of Pole Division Continuous Direct Fired Kiln 2 (TP-2)	Past Actual Emissions (TPY) of Pole Division Batch Natural Gas Kiln 2 (TP-1A)	Corrected Emissions of TP-2	PSD SER	PSD Significant
VOC (WPP1)	93.05	-11.46	81.59	40	YES
Formaldehyde (HAP)	1.25	-0.04	1.21	NA	NA
Methanol (HAP)	3.46	-0.43	3.03	NA	NA
Acetaldehyde (HAP)	0.77	-0.1	0.67	NA	NA
Acrolein (HAP)	0.08	-0.01	0.07	NA	NA
Phenol (HAP)	0.19	-0.02	0.17	NA	NA
Propionaldehyde (HAP)	0.08	-0.01	0.07	NA	NA
PM	13.14	-0.06	13.08	25	NO
PM-10	2.69	-0.06	2.63	15	NO
PM-2.5	1.34	-0.03	1.31	10	NO
CO	59.13	-1	58.13	100	NO
NOx	21.68	-1.19	20.49	40	NO
SO2	14.45	-0.01	14.44	40	NO
Lead	0.005	0	0.005	0.6	NO
CO2e	13770	-933	12837	75,000	NO

TRMM is required to conduct a PSD review for VOC. A major source or major modification (one subject to PSD) must be constructed with Best Available Control Technology (BACT) and must have its effect on soils, vegetation, visibility, and ambient air quality addressed for each applicable pollutant. Applicability is determined by comparing each regulated pollutant's potential emission increase to its significant increase value.

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 will be posted on the public notice portion of ADEM's website for 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 in the Department's eFile system. The final determination consists of copies of the signed permits, 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-heated pole dry kiln.

BACT must be determined for VOC emissions from the proposed pole kiln. TRMM 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:

TRMM examined the feasibility of the following control technologies: incineration, adsorption, absorption, condensation, biological treatment, and proper maintenance and kiln operation.

Incineration

Incineration as a VOC control technology may be employed with several different approaches including direct incineration, regenerative thermal oxidation (RTO), or regenerative catalytic

oxidation (RCO). These devices use the VOC laden air stream as a fuel source in addition to natural gas. High VOC content streams can see significant destruction efficiencies, as high as 99% depending on the exact characteristics of the incoming air stream and the oxidation technology used.

Adsorption

Adsorption is another technology that could be used for the control of VOC air emissions. In the adsorption process, organics are collected on the surface of a porous solid such as activated carbon or synthetic resins. As a VOC laden air stream passes through the material, it is adsorbed into the activated carbon or synthetic resin. Over time the adsorbents must be replaced or regenerated when they become saturated with VOC. These systems may produce control efficiencies in the 90% range.

Absorption

Absorption can be employed to capture VOC into a liquid substrate, most commonly water. This can be accomplished in what is typically referred to as a wet scrubber, and these devices can typically be found controlling emissions from stacks, usually for PM.

Condensation

Condensation is a simple vapor-liquid equilibrium process whereby the VOC vapors are cooled and converted into a liquid. This technology is difficult to employ on its own and may need a secondary control technology as well.

Biological Treatment

Typically known as biofiltration, this technology uses microorganisms to absorb and breakdown the incoming waste stream. This technology is more common in wastewater treatment.

Proper Maintenance and Kiln Operation

This technology employs best operating practices, proper maintenance, and proper drying techniques based on the type of lumber and wood moisture content to effectively reduce VOC emissions.

Step 2. Eliminate technically infeasible options:

Incineration

Incineration as a VOC control technology is generally done with a regenerative thermal oxidizer, RTO, or in a regenerative catalytic oxidizer, RCO. To achieve a destruction and removal efficiency of greater than 90% in an RTO, a temperature of approximately 1,500°F with a residence time of at least one second is required. With the kiln exit temperature being only 140°F and containing significant moisture, routing this air to a 1500°F RTO would create significant issues inside the device. Additionally, due to the resinous nature of the VOCs released from drying, it would foul the duct work and media in the device over time. Thus, due to the resinous characteristics, the high moisture content, and the low exit temperature of the kiln exhaust, an RTO is infeasible.

In an RCO, the required temperature is typically reduced to 500°F-800°F. As in an RTO, the resinous nature of the kiln exhaust could foul the duct work and media in the device. The catalysts are very susceptible to fouling due to PM and other air stream contaminants causing frequent catalyst change outs or an additional control device upstream of the RCO. Due to the resinous characteristics, the high moisture content, and very low exit temperature of the kiln exhaust, an RCO is infeasible.

Adsorption

Using a media such as activated carbon to adsorb the VOC onto the substrate may be accomplished at a temperature suitable with the kiln; however, the high moisture content and resinous nature of the kiln exhaust would reduce the capacity and efficiency of the substrate causing “blinding” of the carbon and in turn reduce efficiencies and require frequent changing of the adsorbent.

Absorption

Technology such as a wet scrubber is compatible with the kiln exhaust temperature; however, this technology requires an exhaust stream that is soluble in water. The VOC in the kiln exhaust is relatively insoluble in water. A different scrubbing absorbent could be considered, but these are typically classified as VOC which conflicts with the control purpose.

Condensation

This technology cannot achieve a typical EPA-required removal efficiency of 90% for pinenes, the dominant VOC in the kiln exhaust, using standard condensers. A technical analysis shows that a condensing temperature of -35°F would be required. Due to the PM and resinous characteristics of the kiln exhaust, additional control would be required up stream of the condenser. The high moisture content of the kiln exhaust would cause freezing of the condenser at 32°F. This control technology has been ruled as infeasible.

Biological Treatment

These systems typically operate at 105°F or less causing incompatibility with the higher kiln exhaust temperature VOC stream, which would harm the microorganisms. Additionally, the resinous VOC stream would have a tendency to foul the biofilter. The cooling of the VOC stream would create process wastewater requiring treatment before being discharged. This control technology has been ruled as infeasible.

Step 3 Rank remaining control technologies by control effectiveness:

Rank	Control Technology	Potential Control Efficiency
1	Proper Maintenance and Kiln Operation	Base Case

Step 4. Evaluate most effective controls and document results:

Proper maintenance and operating practices is the only remaining technically feasible option for minimizing VOC emissions for the proposed pole dry kiln. None of the other control

technologies have been proposed or demonstrated for use on a dry kiln according to a search performed using the U.S. EPA's RACT/BACT/LAER Clearinghouse (RBLC). ADEM concurs with this determination.

Step 5. Select BACT:

TRMM proposed the following emission level as BACT:

Pollutant	BACT Determination	BACT Emission Limit	Equivalent Emissions
VOC	Proper Kiln Operation and Maintenance Practices	58.152 lb/MCF (as WPP1)	93.05 TPY (at max capacity of 3.2 MMft ³)

A search of EPA RACT/BACT/LAER Clearinghouse indicated that no facilities are utilizing add-on controls for dry kilns, and the proposed VOC emission limit of 58.152 lb/MCF (as WPP1) is similar to other BACT determinations for continuous kilns in the wood products industry. However, none of the BACT limits in the RBLC for continuous kilns have been verified by testing. The Air Division concurs that proper maintenance and kiln operation and 58.152 lb/MCF (as WPP1) represents BACT for the proposed continuous steam-heated kiln.

In addition to the BACT emission limit, the following maintenance and operating practices would be incorporated into the permit as enforceable conditions:

- Within six (6) months of issuance of Temporary Authorization to Operate the continuous direct-heated kiln, the Permittee shall develop and submit to the Air Division a site-specific operating and maintenance plan for the kiln. The plan shall identify key parameters to be monitored which are related to VOC emissions from the kiln and the frequency and/or averaging period of the monitoring. Upon Air Division concurrence with the plan, the Permittee shall begin implementation of the proposed monitoring and recordkeeping.
- Key parameters for proper kiln operation should include but are not limited to the following:
 - Operate kiln in accordance with manufacturer's recommendations.
 - Minimize short circuiting by minimizing space between stacks to the extent practical;
 - Set target moisture content as high as possible while minimizing the percent of product that requires redrying.
- Key parameters for proper maintenance should include but are not limited to the following:
 - Ensure that kiln stickers are uniformly placed to the extent practical;
 - Inspect kiln components on a weekly basis and provide repairs on a timely basis.

Modeling

As TRMM's proposed project is subject to PSD permitting for VOC, as a precursor to ozone, it is necessary to conduct an air quality analysis of the ambient air impacts associated with the project. The analysis should demonstrate that the project emissions will neither cause nor contribute to a violation of the NAAQS or PSD increments.

EPA recommends a two-tiered approach for addressing single source impacts on ozone (O₃). Tier 1 involves use of appropriate and technically credible relationships between emissions and ambient impacts developed from existing modeling studies that are determined sufficient for evaluating the project impacts. Tier 2 involves chemical transport modeling. Tier 1 sufficiently demonstrates there will be no negative impact to the air quality as a result of this project.

Following the steps outlines in US EPA's Guidance on the *Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM_{2.5} under the PSD Permitting Program* dated April 30, 2019, hereafter called "Guidance", the following section documents how the facility satisfies the compliance demonstration requirements for ozone under the PSD program. The steps required by the EPA are:

Step 1 – Identify representative hypothetical source. Start with lowest, most conservative, illustrative MERPs for selected Climate Zone (Table 4-1 of Guidance copied below).

Step 2 – Acquire source characteristics and associated source impact modeling results. Screen the closest hypothetical sources to the project facility and select the lowest, most conservative, MERPs.

Step 3 – Apply the source characteristics and photochemical modeling results from Step 2 to the MERP equation with the appropriate significant impact level (SIL) value to assess the project source impacts.

In the context of the PSD program, precursors to O₃ include volatile organic compounds (VOC) and nitrogen oxides (NO_x) thus contribution of both from the project are evaluated.

TRMM's project proposes an increase in emissions of 81.59 TPY of VOC (WPP1) and 20.49 TPY NO_x. Being located in Brewton, AL, there are no unusual circumstances regarding complex terrain, proximity to very large sources of either NO_x, or VOC, or meteorology. Thus, the climate zone is defined as the relevant geographic area such that the lowest MERPs from Guidance's Table 4-1, for the southeast region could be considered representative and chosen for comparison with the project emissions in lieu of selecting a particular hypothetical source from this same climate zone.

Table 4-1. Lowest, median, and highest illustrative MERP values (tons per year) by precursor, pollutant and climate zone.

Note: illustrative MERP values are derived based on EPA modeling and EPA recommended SILs from EPA's final SILs guidance (U.S. Environmental Protection Agency, 2018).

Climate Zone	8-hr O ₃ from NO _x			8-hr O ₃ from VOC		
	Lowest	Median	Highest	Lowest	Median	Highest
Northeast	209	495	5,773	2,068	3,887	15,616
Southeast	170	272	659	1,936	7,896	42,964
Ohio Valley	126	340	1,346	1,159	3,802	13,595
Upper Midwest	125	362	4,775	1,560	2,153	30,857
Rockies/Plains	184	400	3,860	1,067	2,425	12,788
South	190	417	1,075	2,307	4,759	30,381
Southwest	204	422	1,179	1,097	10,030	144,744
West	218	429	936	1,094	1,681	17,086
Northwest	199	373	4,031	1,049	2,399	15,929
Climate Zone	Daily PM2.5 from NO _x			Daily PM2.5 from SO ₂		
	Lowest	Median	Highest	Lowest	Median	Highest
Northeast	2,218	15,080	34,307	623	3,955	8,994
Southeast	1,943	8,233	23,043	367	2,475	5,685
Ohio Valley	2,570	10,119	32,257	348	3,070	16,463
Upper Midwest	2,963	10,043	29,547	454	2,482	6,096
Rockies/Plains	1,740	9,389	31,263	251	2,587	19,208
South	1,881	8,079	24,521	274	1,511	10,112
Southwest	6,514	26,322	101,456	1,508	8,730	27,219
West	1,073	8,570	34,279	188	2,236	24,596
Northwest	3,003	11,943	20,716	1,203	3,319	8,418
Climate Zone	Annual PM2.5 from NO _x			Annual PM2.5 from SO ₂		
	Lowest	Median	Highest	Lowest	Median	Highest
Northeast	10,142	47,396	137,596	4,014	21,353	41,231
Southeast	5,679	45,076	137,516	859	14,447	25,433
Ohio Valley	7,625	31,931	150,868	3,098	23,420	58,355
Upper Midwest	10,011	33,497	139,184	2,522	17,997	45,113
Rockies/Plains	9,220	39,819	203,546	2,263	16,939	106,147
South	7,453	41,577	110,478	1,781	11,890	58,612
Southwest	11,960	128,564	779,117	10,884	38,937	105,417
West	3,182	29,779	103,000	2,331	11,977	66,773
Northwest	7,942	21,928	71,569	11,276	15,507	18,263

No modeling was performed for non-criteria HAP pollutants as the continuous kilns are subject to 40 CFR Part 63 Subpart DDDD, The Plywood and Composite Wood Products MACT. For further discussion of modeling, see the attached memo from the Meteorological Section of the Planning Branch (Appendix B).

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. 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. TRMM addressed the impacts of the proposed kiln with respect to growth, soils and vegetation, and visibility.

The proposed changes should not have any measureable effect on the surrounding population, nor should there be any additional industrial or residential growth attributed to these modifications. No construction is proposed in unutilized areas of the site and no adverse impact would be expected to soils or vegetation. The effects to visibility on the nearby area are expected to be negligible. The facility is not located within 100 km of any PSD Class I Area and no Class I area impact analysis would be required.

Applicability: State Regulations

Particulate Matter

The kiln would be subject to the State particulate matter emission standards for process industries-general as provided in ADEM Admin. Code r. 335-3-4-.04(1). The kiln and associated burner would not be subject to ADEM Admin. Code r. 335-3-4-.03(1) because the unit would be direct-fired and, therefore not considered a fuel burning unit.

Visible Emissions

The proposed kiln would be subject to the State visible emission standards of ADEM Admin. Code r. 335-3-4-.01(1), which state 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

The kiln would be subject to the State sulfur dioxide emission standards for fuel combustion as provided in ADEM Admin. Code r. 335-3-5-.01(1)(b).

Emission Testing and Monitoring

I recommend that no emission testing be required for the proposed kiln at this time since it is expected that the kiln would be able to comply with the proposed BACT limitation, testing for continuous kilns is not easily conducted, and there are no emission control devices. In addition, the state emission regulations do not require testing of VOC sources. As further justification, the Air Division also contends that the value of testing this kiln is questionable as far as the usefulness

of the information that would be obtained. Should the tested emission rate be higher than what was proposed as BACT, the facility would be allowed to reassess BACT and obtain a higher limit without adding controls. However, should the testing at other sources indicate potential issues with this facility's ability to meet the BACT limits, the permit does allow ADEM to require testing at a future time.

To ensure that the maximum capacity of the proposed kiln is not exceeded, TRMM would be required to calculate the kiln production on a monthly and 12-month rolling total basis, to be updated within ten (10) days of the end of each calendar month.

Recordkeeping and Reporting

Recordkeeping

TRMM would be required to maintain records of its actions taken to comply with its proper maintenance and operating practices. These records shall be maintained on-site in a permanent form readily available for inspection.

Reporting

TRMM would be required to submit a Semiannual Monitoring Report for the continuous kiln, which would include a certification that all 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 T.R. Miller Mill Company, Inc. be issued Air Permit No. X024 for the proposed construction of the continuous dual-path direct-heated pole kiln pending the resolution of any comments received during the 30-day public comment period.

Anna W. Wood
Chemical Branch
Air Division

February 13, 2020

Appendix A
Emissions Summary

Appendix B
Air Quality Analysis



Alabama Department of Environmental Management
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January 16, 2020

MEMORANDUM

TO: Anna Wood *AW*
Natural Resources Section
Chemical Branch
Air Division

FROM: Geoffrey Healan *GH*
Meteorological Section
Planning Branch
Air Division

SUBJECT: Air Quality Analysis for TR Miller Prevention of Significant Deterioration Permit Application

ADEM has completed its review of an air quality analysis performed by TR Miller for their facility in Brewton, Alabama. The purpose of the analysis was to assess the impacts on air quality from emissions of VOC from a proposed plant expansion project. Since the project is only significant for VOC, AERMOD air dispersion modeling was not required for this project. However, a Modeled Emission Rates for Precursors (MERPs) analysis for Ozone was required since the project is significant for VOC.

MERPs ANALYSIS:

Precursor emission impacts for Ozone (O₃) were considered and a Modeled Emission Rates for Precursors (MERPs) analysis was performed. The O₃ precursors are the pollutants VOC and NO_x. If the calculations from the MERPs analyses are less than 100%, it indicates that the air quality threshold will not be exceeded and no further evaluation is required. For O₃, the following total emissions were considered: for VOC, 81.59 TPY; and for NO_x, 20.49 TPY. TR Miller used the Most Conservative (Lowest) Illustrative MERP Values (tons per year) by precursor for 8-hour O₃ for three hypothetical sources: Autauga County, AL Bay County, FL and Smith County, MS. These values are 190 TPY for NO_x and 1936 TPY for VOC. Using these values in the MERPs equation provides the following calculation:



$(20.49 \text{ TPY NO}_x / 190 \text{ TPY NO}_x \text{ 8-hr daily max O}_3 \text{ MERP}) + (81.59 \text{ TPY VOC} / 1936 \text{ TPY VOC 8-hr daily max O}_3 \text{ MERP}) \times 100\% = 15\%$.

This shows that the MERPs value for Ozone is below 100%, and no further analysis is required.

In addition, preconstruction monitoring requirements were addressed, and it was determined that preconstruction monitoring was not required. Ozone data provided by ADEM for the Dothan, Alabama Ozone monitor is included in the application.

CONCLUSION:

In conclusion, emissions of VOC from the proposed plant expansion project at the TR Miller plant in Brewton, Alabama, are not expected to cause or contribute to any violation of the 8 hour O₃.

Appendix C
Permit



AIR PERMIT

PERMITTEE: T.R. MILLER MILL COMPANY, INC.
FACILITY NAME: T.R. MILLER MILL COMPANY, INC.
LOCATION: BREWTON, ESCAMBIA COUNTY, ALABAMA

<u>PERMIT NUMBER</u>	<u>DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE</u>
502-S002-X024	3.2 MMCF/yr Continuous, Direct-Fired Pole Dry Kiln (TP-2) with a 27 MMBtu/hr wood-fired burner.

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

Alabama Department of Environmental Management

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 or 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. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.
9. 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.

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10. 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.
11. 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.
12. 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.
13. 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.
14. 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 15 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

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15. 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.

16. 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.

17. 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.

18. 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.

19. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

20. A compliance certification shall be submitted no later than 60 days after the anniversary of the Major Source Operating Permit unless more frequent periods are specified according to the specific rule governing the source or required by the Department.

- (a) The compliance certification shall include the following:

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- 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.

Emission Unit No. X024 (Continuous Dry Kiln No. TP-2)

Summary Page

Description: 3.2 MMCF/yr Continuous, Direct-Fired Pole Dry Kiln (TP-2) with a 27 MMBtu/hr wood-fired burner utilized to dry poles and pilings

Permitted Operating Schedule: $\frac{24 \text{ Hours}}{\text{Day}} \times \frac{7 \text{ Days}}{\text{Week}} \times \frac{52 \text{ Weeks}}{\text{Year}} = \frac{8760 \text{ Hours}}{\text{Year}}$

Emission limitations:

Emission Point No.	Description	Pollutant	Emission limit	Regulation
TP-2	Kiln openings on ends	TSP	E=3.59P ^{0.62} <i>or</i> E = 17.31P ^{0.16}	ADEM Admin. Code r. 335-3-4-.04 (SIP)
			3.0 lb/hr	ADEM Admin. Code r. 335-3-14-.04 (SMS)
		VOC	58.152 lb/MCF (as WPPI)	ADEM Admin. Code r. 335-3-14-.04
		SO ₂	4.0 lb/MMBtu heat input	ADEM Admin. Code r. 335-3-5-.01 (SIP)
		NO _x	N/A	N/A
		CO	N/A	N/A
		HAP	N/A	40 CFR Part 63 Subpart DDDD

Emission Unit No. X024 (Continuous Dry Kiln No. TP-2)

Unit Specific Provisos

Federally Enforceable Provisos	Regulations
<p>1. <u>Applicability</u></p> <p>(a) This unit is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "Major Source Operating Permits."</p> <p>(b) This unit is subject 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 (PSD))."</p> <p>(c) This unit is subject to synthetic minor source limits to restrict its potential to emit below the significant emission rates for TSP established at ADEM Admin. Code r. 335-3-14-.04, "Air Permits Authorizing Construction in Clean Air Areas (Prevention of Significant Deterioration (PSD))."</p> <p>(d) This unit is subject to the applicable requirements of 40 CFR Part 63, Subpart DDDD, National Emission Standards for Hazardous Air Pollutants for Plywood and Composite Wood Products, and the applicable requirements of 40 CFR Part 63, Subpart A, General Provisions as provided in Table 10 to Subpart DDDD.</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. 335-3-14-.04</p> <p>ADEM Admin. Code r. 335-3-11-.06(81); 40 CFR Part 63, Subpart DDDD</p>
<p>2. <u>Emission Standards</u></p> <p>(a) The permittee shall not cause or allow the emissions of particulate matter (as TSP) in any one hour from this unit in excess of the amount determined by the following equation:</p> $E = 3.59P^{0.62} \quad (P < 30 \text{ tons per hour})$ <p style="text-align: center;">OR</p> $E = 17.31P^{0.16} \quad (P \geq 30 \text{ tons per hour})$ <p style="text-align: center;">where</p> <p>E = Emissions in pounds per hour and</p> <p>P = Process weight in tons per hour.</p>	<p>ADEM Admin. Code r. 335-3-4-.04(1)</p>
<p>(b) The permittee shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. Opacity shall be determined by 40 CFR Part 60, Appendix A, Method 9.</p>	<p>ADEM Admin. Code r. 335-3-4-.01</p>

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Federally Enforceable Provisos	Regulations
(c) The permittee shall not cause or allow emissions of sulfur dioxide from this boiler to exceed 4.0 lb/MMBtu of heat input.	ADEM Admin. Code r. 335-3-5-.01(1)(b)
(d) The Permittee shall not cause or allow the VOC emissions from the kiln to exceed 58.152 lb/MCF, measured as WPP1	ADEM Admin. Code r. 335-3-14-.04
(e) The permittee shall not cause or allow emissions of TSP from this unit to exceed 3.0 lb/hr.	ADEM Admin. Code r. 335-3-14-.04
(f) The permittee shall only use untreated wood to fire this kiln. Approval must be received from the Air Division prior to burning any other type of fuel.	ADEM Admin. Code r. 335-3-16-.05(a)
3. <u>Compliance and Performance Test Methods and Procedures</u>	
(a) Within six (6) months of issuance of Temporary Authorization to Operate this continuous kiln, the Permittee shall develop and submit to the Air Division a site-specific operating and maintenance plan for the kiln. The plan shall identify key parameters to be monitored which are related to VOC emissions from the kiln and the frequency and/or averaging period of the monitoring. Upon Air Division concurrence with the plan, the Permittee shall begin implementation of the proposed monitoring and recordkeeping.	ADEM Admin. Code r. 335-3-14-.04
(b) If testing is required, the particulate matter (as TSP) emission rate shall be measured in accordance with 40 CFR Part 60, Appendix A, Method 5. An alternative test method may be utilized provided prior approval is granted by the Air Division.	ADEM Admin. Code r. 335-3-1-.05
(c) If testing is required, the VOC emission rate shall be measured in accordance with 40 CFR Part 60, Appendix A, Method 25A. An alternative test method may be utilized provided prior approval is granted by the Air Division.	ADEM Admin. Code r. 335-3-1-.05
(d) Opacity of stack emissions shall be determined in accordance with Method 9 at 40 CFR Part 60, Appendix A.	ADEM Admin. Code r. 335-3-1-.05
(e) Any compliance or performance test 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.	ADEM Admin. Code r. 335-3-1-.05

Federally Enforceable Provisos	Regulations
<p>4. <u>Emission Monitoring</u></p> <p>(a) The Permittee shall maintain records documenting its compliance with the proper operating and maintenance practices required by the site-specific operating and maintenance plan for the kiln provided by the Permittee required by Provisio 3a for the emission unit.</p> <p>(b) The Permittee shall maintain records of kiln production, including monthly production and 12-month rolling totals. Within ten (10) days of the end of each calendar month, records of the total throughput for the last calendar month shall be recorded and the rolling 12-month total updated</p>	<p>ADEM Admin. Code r. 335-3-14-.04</p> <p>ADEM Admin. Code r. 335-3-14-.04</p>
<p>5. <u>Recordkeeping and Reporting Requirements</u></p> <p>(a) If this kiln should exceed an applicable limit at any time, the Permittee shall notify the Air Division in writing within two (2) working days of determining that the exceedance occurred.</p> <p>(b) 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.</p> <p>(c) The Permittee shall submit a Semiannual Monitoring Report for this kiln to the Air Division as part of the Semiannual Monitoring Report required by the permittee's Major Source Operating Permit. This report shall include a certification that all proper operating and maintenance practices were accomplished as required during the reporting period, and if not, describe the date and reason any required action was not accomplished.</p>	<p>ADEM Admin. Code r. 335-3-14-.04</p> <p>ADEM Admin. Code r. 335-3-16.05(c)2</p> <p>ADEM Admin. Code r. 335-3-16-.05(c)</p>