

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **032009-008** Project Number: 2008-10-068

Parent Company: Flickerwood Farms, Incorporated

Parent Company Address: 3027 Larch Lane, Jackson, Missouri 63755

Installation Name: Flickerwood Farms, Incorporated

Installation Address: 3027 Larch Lane, Jackson, Missouri 63755

Location Information: Cape Girardeau County, S12, T32N, R12E

Application for Authority to Construct was made for:
The installation of a wood shavings mill and dryer. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
 - Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

MAR 13 2009

EFFECTIVE DATE



DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

Page No.	3
Permit No.	
Project No.	2008-10-068

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Flickerwood Farms
Cape Girardeau County, S12, T32N, R12E

1. Emission Limitation
 - A. Flickerwood Farms shall emit less than 15.0 tons of particulate matter less than ten (10) microns in diameter (PM₁₀) in any consecutive 12 month period from the activities related to the emission units (EU1-EU12) outlined in Table 1 and Table 2.
 - B. Flickerwood Farms shall maintain an accurate record of PM₁₀ emitted into the atmosphere from the emission units (EU1-EU12). Attachment A or an equivalent form shall be used for this purpose. Flickerwood Farms shall maintain all records required by this permit for not less than five (5) years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
 - C. Flickerwood Farms shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten (10) days after the end of the month during which the records from Special Condition 1.B. indicate that the source exceeds the limitation of Special Condition 1.A.
2. Undocumented Haul Road Watering - Flickerwood Farms shall water haul roads whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2008-10-068
Installation ID Number: 031-0119
Permit Number:

Flickerwood Farms
3027 Larch Lane
Jackson, Missouri 63755

Complete: October 27, 2008

Parent Company:
Flickerwood Farms, Incorporated
3027 Larch Lane
Jackson, Missouri 63755

Cape Girardeau County, S12, T32N, R12E

REVIEW SUMMARY

- Flickerwood Farms has applied for authority to install a wood shavings manufacturing facility.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment due to the combustion of wood waste materials.
- None of the New Source Performance Standards (NSPS) apply to the proposed equipment.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) or currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment.
- A cyclone is being used to control the PM₁₀ emissions from the equipment in this permit.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are conditioned below de minimis levels.
- This installation is located in Cape Girardeau County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was not performed since the potential emissions of the application are limited to below de minimis levels.
- Emissions testing is not required for the equipment.

- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Flickerwood Farms, Incorporated (Flickerwood Farms) is an existing livestock products supply facility in Cape Girardeau County. The source is located at 3027 Larch Lane in Jackson, Missouri. The existing facility is a de minimis source and was constructed in 1983. Flickerwood Farms supplies livestock products including animal feed and animal bedding and also supplies mulch for local users. The feed mill has a maximum design capacity of 10 tons of feed per hour based on the maximum receiving capacity of the facility. The existing potential emissions for the source were determined for this project and include emissions from the feedmill, existing haul roads, and existing mulch storage piles.

Table 1: Existing Emissions Units

Point ID	Description	MHDR	Units
EU1	Feedmill Receiving	10	ton feed / hr
EU2	Feedmill Internal Handling	10	ton feed / hr
EU3	Feedmill Storage	10	ton feed / hr
EU4	Feedmill Shipping (Bagging)	2.5	ton feed / hr
EU5	Feedmill Shipping (Bulk Loadout)	7.5	ton feed / hr
EU6	Haul Road (750 ft)	0.070	VMT/hr
EU7	Storage Pile (100 ft)	0.025	VMT/hr

PROJECT DESCRIPTION

Flickerwood Farms is expanding their facility by adding a pine shavings production operation. Large pine logs will be received by the facility and stored in the log yard. Logs will be transferred approximately 100 feet from the log yard to the shaver mill by front end loaders with a capacity of one ton per load. The shaver mill will be equipped with 3 shaving mills (EU8, EU9, and EU10) each with a maximum design rate determined by the applicant of 2.08 tons of shavings per hour.

The shavings from the mills (EU8, EU9, and EU10) are blown into a rotary drum dryer where shavings are transported through the dryer in three passes before exiting the dryer through a cyclone separator. After the cyclone removes the dried wood shavings from the dryer exhaust, a screen filters the larger shavings which will be bagged for shipment (EU11). The smaller wood particles pass through the screen and are conveyed to the 24 MMBTU/hr wood fired burner (EU12) where they are combusted. The wood burner is the source of heat for the triple pass shavings dryer. All emissions from the burner are vented through the triple pass dryer and enter the ambient air at the cyclone exhaust. Table 2 contains a summary of the emission points and equipment that were considered for this project, including the increase in emissions from the haul roads and log storage pile.

Table 2: Project Emissions Units

Point ID	Description	MHDR	Units
EU6	Haul Road (750 ft)	0.386	VMT/hr (due to project)
EU7	Storage Pile (100 ft)	0.118	VMT/hr (due to project)
EU8	Shaving Mill 1	2.08	Tons logs processed/hr
EU9	Shaving Mill 1	2.08	Tons logs processed/hr
EU10	Shaving Mill 1	2.08	Tons logs processed/hr
EU11	Shavings Bagger	6.25	Tons logs processed/hr
EU12	Wood Fired Burner/Dryer	24	MMbtu/hr

EMISSIONS/CONTROLS EVALUATION

The emission factors used to calculate potential emissions from the shaving mills (EU8 – EU10) and bagging operation (EU11) were obtained from the U.S. Environmental Protection Agency Factor Information Retrieval (FIRE) Data System (v6.25) for log sawing (SCC 30700802) and sawdust chip pile handling (SCC 30700803). A control efficiency of 3.7% was assumed for the emissions from the shaving mills (EU8 – EU10) and bagging (EU11) because these activities will occur in an enclosed building with 4 sides and a roof. The emission factors and control efficiencies used in the analysis of the wood burner and the feed mill were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 *Grain Elevators & Processes* (5/03) and Section 1.6 *Wood Residue Combustion in Boilers* (9/03).

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8,760 hours per year.) The facility has requested a voluntary limit of 15.0 tons per year PM₁₀ on all emission units (EU1-EU12), so that the facility will not need to obtain an operating permit. The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Potential Emissions of the Application	New Conditioned Potential
PM ₁₀	15.0	2.167	42.861	<15
SO _x	40.0	N/A	2.628	1.389
NO _x	40.0	N/A	51.509	27.222
VOC	40.0	N/A	1.787	0.944
CO	100.0	N/A	63.072	33.333
HAPs	25.0	N/A	1.141	0.603

N/A = Not Applicable

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are limited to below de minimis levels.

APPLICABLE REQUIREMENTS

Flickerwood Farms shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-3.090

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400
- *Restriction of Emission of Sulfur Compounds*, 10 CSR 10-6.260
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-3.060

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Kathi Jantz
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated October 22, 2008, received October 27, 2008, designating Flickerwood Farms, Incorporated as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Southeast Regional Office Regional Office Site Survey, dated November 7, 2008.

Attachment A - PM₁₀ Compliance Worksheet

Flickerwood Farms
 Cape Girardeau County, S12, T32N, R12E
 Project Number: 2008-10-068
 Installation ID Number: 031-0119
 Permit Number: _____

This sheet covers the period from _____ to _____.
 (month, year) (month, year)

	Emission Units 1-7 and 12 Feed Mill, Haul Roads, Storage Piles, Burner			Emission Units 8-11 Shavings Mill/Bagging			1 Month Total PM ₁₀ Emissions	Previous Month's 12 Month Total	Previous Year's 1 month Total	12 month Total PM ₁₀ Emissions
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
	(EU1-7,12) Hours of Operation (per month)	(EU1-7,12) Composite Emission Factor (tons per hour)	(EU1-7,12) Emissions (tons)	Shavings Mill Emissions (EU8-11) (Tons Logs Processed)	Emission Factor (EU8-11) (Tons/ton Logs)	Shavings Mill Emissions (EU8-11) (tons)	Monthly PM ₁₀ Emissions (tons)	12 month Rolling Total PM ₁₀ Emissions (tons)	Monthly PM ₁₀ Emissions (tons)	12 month Rolling Total PM ₁₀ Emissions (tons)
Example (Month/Year)	248	0.0036	0.89	400	0.00028	0.11	1.00			
		0.0036								
		0.0036								
		0.0036								
		0.0036								
		0.0036								

Instructions:

- C2 = the total hours of operation for the facility during the month and year indicated in C1
- C3 = 0.0036, the composite emission factor for emission units (EU1-EU7 and EU12)
- C4 = C2 x C3
- C5 = the total logs processed through the shavings mill for the month and year indicated in C1
- C6 = 0.00028, the composite emission factor for the shavings mill and bagging operations (EU8-EU11)
- C7 = C5 x C6
- C8 = C4 + C7
- C9 = the 12 month rolling total PM₁₀ emissions from the previous month
- C10 = the monthly total PM₁₀ emissions from the previous year
- C11 = C8 + C9 - C10 **Note: A value less than 15.0 tons is necessary for continued compliance.**