

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: 012011-012 Project Number: 2010-11-046

Parent Company: Freedom Products Co.

Parent Company Address: 4329 Highway 50 East, Linn, MO 65051

Installation Name: Freedom Products Co.

Installation Number: 151-0025

Installation Address: 4329 Highway 50 East, Linn, MO 65051

Location Information: Osage County, S22, T43N, R7W

Application for Authority to Construct was made to:  
Permit an existing hardwood lumber manufacturing facility. 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.

JAN 24 2011

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 within 30 days of actual startup. 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.

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Project No.	2010-11-046

### 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."*

Freedom Products Co.  
Osage County, S22, T43N, R7W

1. Emission Limitation
  - A. Freedom Products Co. shall emit less than 40.0 tons of Volatile Organic Compounds (VOCs) in any consecutive 12-month period from emission units (EU) listed below:
    - 1) Gluing (EU4)
    - 2) Staining and Finish Coating (EU10)
  - B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Condition 1.A.
2. Operational Requirement

Freedom Products Co. shall keep the glue, finish coats, stains and cleaning solutions in sealed containers whenever the materials are not in use. Freedom Products Co. shall provide and maintain suitable, easily read, permanent markings on all glue, finish coats, stains and cleaning solution containers used with this equipment.
3. Record Keeping and Reporting Requirements
  - A. Freedom Products Co. 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. These records shall include Material Safety Data Sheets (MSDS) for all materials used.
  - B. Freedom Products Co. shall report to the Air Pollution Control Program's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than ten days after the end of the month during which any record required by this permit show an exceedance of a limitation imposed by this permit.

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

Project Number: 2010-11-046  
Installation ID Number: 151-0025  
Permit Number:

Freedom Products Co.  
4329 Highway 50 East  
Linn, MO 65051

Complete: November 17, 2010

Parent Company:  
Freedom Products Co.  
4329 Highway 50 East  
Linn, MO 65051

Osage County, S22, T43N, R7W

REVIEW SUMMARY

- Freedom Products Co. has applied for authority to operate a manufacturing facility to construct commercial wood products such as interior doors, stair parts and custom furniture.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment in minimal amounts. The HAP of concern from this process is formaldehyde (CAS # 50-00-0).
- None of the New Source Performance Standards (NSPS) apply to the installation.
- None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to this installation. None of the currently promulgated Maximum Achievable Control Technology (MACT) regulations apply to the proposed equipment. The applicability of MACT Subpart JJ (National Emission Standards for Wood Furniture Manufacturing Operations) and MACT Subpart DDDD (National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products) to this installation was evaluated, but because this installation is not a major source for HAPs they do not apply.
- A building enclosure is being used to control the particulate matter less than 10 microns in diameter (PM<sub>10</sub>) emissions from the staining and woodworking operations 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 VOCs are conditioned below de minimis levels.
- This installation is located in Osage County, an attainment area for all criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of the application are below de minimis levels.
- Emissions testing is not required for the equipment at this installation.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Freedom Products Co., herein referred to as Freedom Products, processes lumber into finished wood products through drying, woodworking, gluing and staining operations. Freedom Products is an existing manufacturer of commercial wood products such as interior doors, stair parts and custom furniture located in Linn, Missouri, in Osage County. The facility installed all existing equipment at this location between 1978, and 1998, without a construction permit from the Air Pollution Control Program. In a letter dated February 17, 2010, Freedom Products requested that the facility's existing potential emissions be reviewed for permit applicability purposes. This evaluation resulted in the Air Pollution Control Program concluding that a construction permit was required. Freedom Products submitted a construction permit application to the Air Pollution Control Program on November 16, 2010.

Freedom Products processes lumber into finished wood products by using the following emission units (EU): planing (EU2), rough cut sawing (EU3), gluing (EU4), molding and routing (EU5), rip sawing (EU6), finish sanding (EU7), edge sanding (EU8), molding and shaping (EU9), staining and finish coating (EU10) and sawdust storing (EU11). Sawdust collection activities are performed throughout the facility with cyclones (EU12) and the sawdust is reused to fuel a 1 million British thermal unit per hour (MMBTU/hr) boiler (EU1) that heats the dry kiln, shop area and building.

### PROJECT DESCRIPTION

PM<sub>10</sub> emissions are expected from the woodworking operations (EU2, EU3, EU5, EU6, EU7, EU8, EU9 and EU11) finish coatings and boiler use. VOCs and HAPs are expected from the glue, finish coat, wood stain and boiler use. The glue contains formaldehyde, which is not expected to exceed its 2.0 tons per year Screen Model Action Level (SMAL). Potential VOC emissions are based upon on historical averages and were calculated to be 67.63 tons per year assuming maximum application rates of 1.0 gallon per hour (gal/hr) of glue, 1.25 gal/hr of finish coat, and 0.5 gal/hr of wood stain. The glue and wood stain is hand applied and the finish coat is sprayed.

The maximum hourly design rate of the equipment is 2,000 board-feet per day for the woodworking equipment. When wood is brought to Freedom Products, it is dried outdoors for at least four months and then kiln dried for ten days before it is processed into products. Freedom Products has been in operation for 90 years. Some of the woodworking equipment was installed before May 13, 1982, and therefore doesn't need a permit. This equipment includes the: straight line rip saw, cut off saw, facer, 24" planer, 44" planer, table saw, cut off saw, edge sander and drum sander.

The uncontrolled potential to emit (PTE) for all equipment added after May 13, 1982, is less than de minimis levels for PM<sub>10</sub>, PM<sub>2.5</sub>, sulfur oxides (SO<sub>x</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and total and individual HAPs. The uncontrolled PTE of volatile organic compounds (VOCs) for equipment added after May 13, 1982, is above the 40.0 tons per year de minimis level, therefore a permit is required.

## EMISSIONS/CONTROLS EVALUATION

PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO and VOC emission factors for the boiler are taken from Table 1.6-1 and Table 1.6-2 of the United States Environmental Protection Agency (EPA) document AP-42 *Compilation of Air Pollutant Emission Factors*, Fifth Edition (AP-42) of Section 1.6 "Wood Residue Combustion in Boilers" (September 2008). HAP emission factors for the boiler are from the following: Table 1.6-3 of AP-42, National Council for Air and Stream Improvement (NCASI) Technical bulletin No. 858, Table 20A, and EPA's National Center for Environmental Assessment (NCEA) document "The Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States: The Year 2000 Update," Table 4-14. The boiler's VOC and HAP emissions are expected to be less than 1.0 ton per year each.

PM<sub>10</sub> emissions from the woodworking equipment and saw dust storage pile were determined using emission factors from the Environmental Protection Agency document Factor Information Retrieval (FIRE) Version 6.25, *Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants* (SCC # 3-07-008-02). Emissions from the glue, finish coat and wood stain usage were determined by using a mass balance approach using each substance's Material Safety Data Sheets (MSDSs) from the manufacturer and assuming 100% of VOCs and HAPs are emitted. The glue is applied by hand and pressurized machinery, therefore a transfer efficiency of 100 % is assumed. Because all processes are located indoors, a 3.70 % control efficiency was used for PM<sub>10</sub>. The control efficiency of PM<sub>10</sub> emissions was obtained from AP-42, Fifth Edition, Appendix B2 "Generalized Particle Size Distributions," Table B.2-3.

Potential emissions of the installation represent the potential of all equipment assuming continuous operation (8,760 hours per year). The following table provides an emissions summary for this project.

**Table 1: Emissions Summary (tons per year)**

Pollutant	Regulatory <i>De Minimis</i> Levels	<sup>1</sup> Potential Emissions of Existing Equipment	Existing Actual Emissions	Potential Emissions of Installation	New Installation Conditioned Potential
PM <sub>10</sub>	15.0	1.23	N/A	8.31	N/A
PM <sub>2.5</sub>	10.0	N/A	N/A	1.43	N/A
SO <sub>x</sub>	40.0	N/A	N/A	0.11	N/A
NO <sub>x</sub>	40.0	N/A	N/A	2.15	N/A
VOC	40.0	N/A	N/A	67.63	< 40.0
CO	100.0	N/A	N/A	2.63	N/A
HAPs	10.0/25.0	N/A	N/A	0.11	N/A

N/A = Not Applicable

<sup>1</sup> Potential Emissions of Existing Equipment represent potential emissions of all equipment installed prior to May 13, 1982.

### 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 VOCs are conditioned below de minimis levels.

### APPLICABLE REQUIREMENTS

Freedom Products Co. 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 on April 1 for paper submittals or May 1 for MOEIS submittals for the previous year's emissions. Payment of emission fee is required by June 1.
- *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 10-6.165

## SPECIFIC REQUIREMENTS

- *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.

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Daronn Williams  
Environmental Engineer

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Date

## PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated November 16, 2010, received November 16, 2010, designating Freedom Products Co. as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Site Survey, dated December 7, 2010.
- Material Safety Data Sheets (MSDSs) from the manufacturer.
- Environmental Protection Agency's document Factor Information Retrieval (FIRE) Version 6.25, Source Classification Codes and Emission Factors Listing for Criteria Air Pollutants.
- National Council for Air and Stream Improvement (NCASI) Technical bulletin No. 858, Table 20A.
- Environmental Protection Agency's National Center for Environmental Assessment (NCEA) document "The Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States: The Year 2000 Update," Table 4-14.



Mr. Terry Homfeldt  
Owner  
Freedom Products Co.  
4329 Highway 50 East  
Linn, MO 65051

RE: New Source Review Permit - Project Number: 2010-11-046

Dear Mr. Homfeldt:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Daronn Williams at the Department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your time and attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH:dwk

Enclosures

c: Northeast Regional Office  
PAMS File: 2010-11-046

Permit Number: