



## 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: 112010-006      Project Number: 2010-06-004  
Installation Number: 103-0026

Parent Company:              Cardwell Lumber, Inc.

Parent Company Address: P.O. Box 177, Novelty, MO 63460

Installation Name:              Cardwell Lumber, Inc.

Installation Address:              Highway 15, North, Novelty, MO 63460

Location Information:              Knox County, S36, T61N, R12W

Application for Authority to Construct was made for:  
Installation of a stave mill and a six million British thermal units per hour (MMBtu/hr) waste wood fired boiler. These emission units were constructed without first obtaining a permit. This review was conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

NOV 10 2010

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 these air contaminant sources. 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 these air contaminant sources.

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 sources(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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Permit No.	
Project No.	2010-06-004

### 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."*

Cardwell Lumber, Inc.  
Knox County, S36, T61N, R12W

1. Haul Road Watering  
Cardwell Lumber, Inc. shall water haul roads and vehicular activity areas whenever conditions exist which would cause visible fugitive emissions to enter the ambient air beyond the property boundary.
2. Control Device Requirement-Cyclone
  - A. Cardwell Lumber, Inc. shall control emissions from the all saws using cyclones as specified in the permit application.
  - B. The cyclones shall be operated and maintained in accordance with the manufacturer's specifications.
  - C. Cardwell Lumber, Inc. shall maintain an operating and maintenance log for the cyclones which shall include the following:
    - 1) Incidents of malfunction, with impact on emissions, duration of event, probable cause, and corrective actions; and
    - 2) Maintenance activities, with inspection schedule, repair actions, and replacements, etc.
3. Record Keeping and Reporting Requirements
  - A. Cardwell Lumber, Inc. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.
  - B. Cardwell Lumber, Inc. 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: 2010-06-004  
Installation ID Number: 103-0026  
Permit Number:

Cardwell Lumber, Inc.  
Highway 15, North  
Novelty, MO 63460

Complete: June 1, 2010

Parent Company:  
Cardwell Lumber, Inc.  
P.O. Box 177  
Novelty, MO 63460

Knox County, S36, T61N, R12W

REVIEW SUMMARY

- Cardwell Lumber, Inc. has applied for authority to construct a stave mill and six million British thermal units per hour (MMBtu/hr) waste wood fired boiler. These emission units were constructed without first obtaining a permit.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment. HAPs are emitted as products of combustion and are below their screen modeling action levels.
- None of the New Source Performance Standards (NSPS) apply to the installation. Specifically NSPS Subpart Dc does not apply because the boiler has a maximum design heat input capacity less than 10 MMBtu/hr.
- 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.
- Cyclones are being used to control the particulate matter 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 all pollutants are below de minimis levels.
- This installation is located in Knox 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 each project are below de minimis levels.
- Emissions testing are not required for the equipment.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

### INSTALLATION DESCRIPTION

Cardwell Lumber, Inc. operates a saw mill in Novelty, Missouri. The saw mill was constructed before 1983 and was not required to obtain a construction permit. The saw mill consists of a saw, an edger and a chipper, which processes waste material. In 1992 the mill's saw was upgraded to a ban saw. This change was not considered a modification because the new saw did not increase the mills capacity and decreased the amount of sawdust generated per board foot, which caused a decrease in potential emissions. In 1996 or 1997, Cardwell Lumber, Inc. constructed a stave mill consisting of a three saws that cut logs to length, then halve and quarter the logs; a ban saw that finishes the staves; and a hogger that processes waste materials. The uncontrolled PM<sub>10</sub> emissions from this process are greater than the de minimis level and the installation does not meet the criteria found in 10 CSR 10-6.061 *Construction Permit Exemptions* paragraph (3)(A)2.AA, so a permit should have been obtained before the stave mill was constructed. In 2008, Cardwell Lumber, Inc. constructed a six MMBtu/hr waste wood fired boiler. The boiler is not covered by an exemptions or exclusions in 10 CSR 10-6.061, so a permit should have been obtained before construction. Emissions from the equipment are controlled by cyclones.

The maximum hourly design rate of the installation was calculated using 120 percent of the installation's typical actual annual throughput. This value was proposed by the applicant.

No permits have been issued to Cardwell Lumber, Inc. from the Air Pollution Control Program.

### EMISSIONS/CONTROLS EVALUATION

Emissions from the saw mill and stave mill were calculated using an emissions factor found in the EPA Factor Information Retrieval (FIRE) Database version 6.25 under Source Classification Code 3-07-008-01 PM<sub>10</sub>. Emissions of criteria pollutants and many individual HAPs from the boiler were calculated using the emission factor from AP-42 section 1.6 "Wood Residue Combustion in Boilers," September 2003. The emission factors for the remaining individual HAPs were obtained from the National Council for Air and Stream Improvement (NCASI) Technical bulletin No. 858, Table 20A. The NACSI paper reassessed emission factors for many HAPs based on data

pertaining to only those boilers that were considered relevant to the burning of wood residues in forest products industry boilers. Thus, emissions data corresponding to wood combustion in furniture industry boilers and combustion of biomass other than virgin wood residues (e.g., agricultural waste, treated wood, etc.) were not included. Emissions of chlorinated dibenzo-p-dioxins and chlorinated dibenzo-p-furans were calculated using emission factors found in an EPA document entitled *Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds National Academy Sciences (NAS) Review Draft, Section 4 "Combustion Sources of CDD/CDF: Power/Energy Generation."* Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year.) The following table provides an emissions summary for this project.

Table 2: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Potential Emissions of Saw Mill	Potential Emissions of Stave Mill	Potential Emissions of Boiler	Potential Emissions of the Installation
PM <sub>2.5</sub>	10.0	5.53	7.55	8.07	21.15
PM <sub>10</sub>	15.0	6.51	8.88	8.86	24.25
SO <sub>x</sub>	40.0	N/A	N/A	0.66	0.66
NO <sub>x</sub>	40.0	N/A	N/A	12.88	12.88
VOC	40.0	N/A	N/A	0.45	0.45
CO	100.0	N/A	N/A	15.77	15.77
HAPs	10.0/25.0	N/A	N/A	0.63	0.63

N/A = Not Applicable; N/D = Not Determined

### 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 all pollutants are below de minimis levels.

### APPLICABLE REQUIREMENTS

Cardwell Lumber, Inc. 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. For a complete list of applicable requirements for your installation, please consult your operating permit.

### 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.

- *Operating Permits*, 10 CSR 10-6.065
- *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

- *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.

\_\_\_\_\_  
Michael Mittermeyer  
Environmental Engineer

\_\_\_\_\_  
Date

#### PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 25, 2010, received June 1, 2010, designating Cardwell Lumber, Inc. 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 June 17, 2010.

Mr. Mark Cardwell  
Vice President  
Cardwell Lumber, Inc.  
P.O. Box 177  
Novelty, MO 63460

RE: New Source Review Permit - Project Number: 2010-06-004

Dear Mr. Cardwell:

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 Michael Mittermeyer, at the Departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale  
New Source Review Unit Chief

KBH:mml

Enclosures

c: Northeast Regional Office  
PAMS File: 2010-06-004

Permit Number: