



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: **082013-013**

Project Number: 2013-06-029

Installation Number: 139-0016

Parent Company: ISCO Holding Company

Parent Company Address: P.O. Box 104, Lebanon, MO 65536

Installation Name: New Florence Wood Products

Installation Address: 49 Stave Mill Road, New Florence, MO 63363

Location Information: Montgomery County, S34, T48N, R5W

Application for Authority to Construct was made for:

Installation of a 9.78 MMBtu/hr sawdust-fired boiler, four wood drying kilns, and the associated sawdust handling equipment. This review was conducted in accordance with Section (6), 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.

AUG 26 2013

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 Department's Air Pollution Control Program of the anticipated date of startup 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 startup 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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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."

New Florence Wood Products
Montgomery County, S34, T48N, R5W

1. PM_{2.5} Emission Limitation
 - A. New Florence Wood Products shall emit less than 10.0 tons of total PM_{2.5} (filterable and condensable) in any consecutive 12-month period from emission points associated with this project as shown in Table 1.
 - 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 Conditions 1.A.

Table 1: Emission Points

Emission Point	Description	Bottlenecked MHDR
EP-23	Loader Transfer to Live Bottom Bin	0.98 tons
EP-24	Live Bottom Bin	0.98 tons
EP-25	Vibrating Conveyor Screener	0.98 tons
EP-26	Hog Pile (waste wood)	0.04 tons
EP-27	Sawdust-fired Boiler	9.78 MMBtu
EP-28a	Enclosed Ash Dumpster	0.00054 tons
EP-28b	Bottoms Ash	0.0049 tons
EP-29	Four Hardwood Dry Kilns	406.5 Board feet
EP-30	Chipper Pile to Boiler Haul Road	0.015 VMT
EP-31	Stave Shipping Haul Road	0.037 VMT

2. Control Device Requirement-Multiclone
 - A. New Florence Wood Products shall control emissions from the sawdust-fired boiler (EP-27) using a multiclone (several cyclones that operate in parallel simultaneously and are manufactured as one unit) as specified in the permit application.

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SPECIAL CONDITIONS:

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

- B. The multiclone shall be operated and maintained in accordance with the manufacturer's specifications. The multiclone shall be equipped with a gauge or meter, which indicates the pressure drop across the control device. These gauges or meters shall be located such that the Department of Natural Resources' employees may easily observe them.
 - C. New Florence Wood Products shall monitor and record the operating pressure drop across the multiclone at least once every 24 hours. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.
 - D. New Florence Wood Products shall maintain a copy of the multiclone manufacturer's performance warranty on site.
 - E. New Florence Wood Products shall maintain an operating and maintenance log for the multiclone 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. Paved Roads
- A. The permittee shall pave the Chipper Pile to Boiler Haul Road (EP-30) and the Stave Shipping Haul Road (EP-31) with materials such as asphalt, concrete, and/or other material(s) after receiving approval from the program. The pavement shall be applied in accordance with industry standards for such pavement so as to achieve "Control of Fugitive Emissions" while the plant is operating.
 - B. Maintenance and/or repair of the road surface shall be conducted as necessary according to American Society for Testing and Materials (ASTM) standards to ensure that the physical integrity of the pavement is adequate to achieve control of fugitive emissions from the paved haul road while the plant is operating. The permittee shall document which ASTM standards the installation is complying with.
 - C. The permittee shall periodically water, wash, and/or otherwise clean all of the paved portions of the haul road(s) as necessary to achieve control of fugitive emissions from the paved haul road while the plant is operating.

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SPECIAL CONDITIONS:

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

4. **Operational Requirement – Boiler Fuel**
New Florence Wood Products shall burn exclusively untreated and unpainted white oak within the wood-fired boiler (EP-27).
5. **Record Keeping and Reporting Requirements**
 - A. New Florence Wood Products 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. New Florence Wood Products shall report to the Air Pollution Control Program's Compliance/Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 10 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 (6) REVIEW

Project Number: 2013-06-029
Installation ID Number: 139-0016
Permit Number:

New Florence Wood Products
49 Stave Mill Road
New Florence, MO 63363

Complete: June 11, 2013

Parent Company:
ISCO Holding Company
P.O. Box 104
Lebanon, MO 65536

Montgomery County, S34, T48N, R5W

REVIEW SUMMARY

- New Florence Wood Products has applied for authority to install a 9.78 MMBtu/hr sawdust-fired boiler, four wood drying kilns, and the associated sawdust handling equipment.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are products of combustion of oak sawdust.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR 60 *New Source Performance Standards for Small Industrial-Commercial-Institutional Boilers* (NSPS Dc) does not apply to this facility because the boiler has an MHDR less than ten MMBtu/hr.
- 40 CFR 63 *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers* (MACT JJJJJJ) applies to this facility.
- A multiclone is being used to control the filterable particulate matter emissions from the sawdust-fired boiler (EP-27) in this permit.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM_{2.5} are conditioned below the de minimis level. Potential emissions of PM are above the de minimis level but remain below the major source level.
- This installation is located in Montgomery 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 for this review. No ambient air quality standard currently exists for PM.
- Emissions testing is 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

New Florence Wood Products operates a wood processing installation in Montgomery County. This installation manufactures staves and heading from stave logs. The existing process includes wood saws, debarkers, a chipper, and a wood hog. Each of these processes generates wood waste. New Florence Wood Products is considered a minor source for construction permitting purposes and a basic source for operating permitting purposes.

The following New Source Review permits have been issued to New Florence Wood Products from the Air Pollution Control Program.

Table 2: Permit History

Permit Number	Description
0997-031	Increase Production
0298-008	Debarker, splitter, resaw, edgers, cut-off saws
0399-019	Wood-fired heater and Storage bin
0599-015	New chipper, saws, and debarker
012002-013	Band-type resaw

PROJECT DESCRIPTION

New Florence Wood Products has proposed the installation of a 9.78 MMBtu/hr sawdust-fired boiler, four wood drying kilns, and the associated sawdust handling equipment. The emission points and their respective design rates that are associated with this project can be found in Table 1. New Florence Wood Products will use the steam created in the sawdust-fired boiler (EP-27) to heat the four hardwood dry kilns (EP-29) in order to lower the moisture content in the oak that will be used to create staves. The kilns will heat the white oak to remove excess moisture. Heating the green oak too quickly can cause damage to the wood which would render it useless. Therefore the temperature of the kilns will slowly increase from a starting temperature around 100°F to a final drying temperature around 160°F during the drying cycle. Each drying cycle is estimated to take around 42 days to complete. Emissions from the boiler (EP-27) will be controlled by a multiclone (CD-8). A multiclone is a single control device

that consists of several cyclones that operate in parallel simultaneously to control particulate matter emissions. This project will not cause an increase in throughput for any existing emission points.

EMISSIONS/CONTROLS EVALUATION

The emission factors used in this analysis for the boiler were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.6 *Combustion of Wood Residue in Boilers*, September 2003, 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 emission factor for ash handling was obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 11.12 *Concrete Batching*, June 2006 (SCC 3-05-011-17). The emission factor for sawdust handling was obtained from the U.S. Environmental Protection Agency Factor Information Retrieval (FIRE) Data System for sawdust chip pile handling (SCC 30700803). The emission factors for the hardwood drying kilns were obtained from North Carolina Division of Air Quality industry guidance spreadsheet for estimating emissions from lumber kilns. The pollutants included in the North Carolina Division of Air Quality industry guidance are products of wood drying and include particulate matter, VOC, acetaldehyde, acrolein, formaldehyde, methanol, phenol, and propionaldehyde. The emission factors found in the spreadsheet are intended for estimating emissions from steam heated softwood drying kilns. However, due to a lack of emission factors for steam heated hardwood drying kilns, these emission factors were used to estimate the emissions associated with the four hardwood drying kilns (EP-29) associated with this project. The MHDR for the boiler was calculated based on an hourly burning capacity equal to 0.98 tons of wood, as provided by the applicant, with a 40% moisture content and 5,200 Btu per pound of wood burned based on EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, *Appendix A*, September 1985. The composite emission factor associated with sawdust burning in Attachment A accounts for PM_{2.5} emissions from sawdust handling, ash handling, and sawdust combustion.

The following table provides an emissions summary for this project. Existing potential emissions were taken from permit number 012002-013 and permit determinations between permit number 012002-013 and the current project. Existing actual emissions were taken from the installation's 2012 EIQ. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year).

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2012 EIQ)	Conditioned Potential Emissions of the Application	Unconditioned Potential Emissions of the Application	Potential Emissions of the Installation
PM	25.0	N/D	N/D	27.91	31.96	N/D
PM ₁₀	15.0	59.56	10.41	14.99	17.16	74.55
PM _{2.5}	10.0	N/D	7.32	<10.0	11.45	N/D
SO _x	40.0	N/D	0.04	0.94	1.07	N/D
NO _x	40.0	N/D	0.4	8.23	9.43	N/D
VOC	40.0	0.7	0.03	1.3	1.49	2.0
CO	100.0	N/D	1.06	22.45	25.70	N/D
GHG (CO ₂ e)	100,000	N/D	N/D	7,463	8,545.7	N/D
GHG (mass)	0.0 / 100.0	N/D	N/D	7,297	8,355.6	N/D
HAPs	10.0/25.0	0.01	N/D	0.73	0.84	0.74

N/D = Not Determined

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM_{2.5} are conditioned below the de minimis level. Potential emissions of PM are above the de minimis level but remain below the major source level.

APPLICABLE REQUIREMENTS

New Florence Wood Products 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
- *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 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes*, 10 CSR 10-6.400 applies to sawdust handling, but New Florence Wood Products is in compliance with the emission limitation.
- *New Source Performance Regulations*, 10 CSR 10-6.070
 - *Standards of Performance for Small Industrial, Commercial, and Institutional Boilers*, 40 CFR Part 60, Subpart Dc does not apply to the boiler (EP-27) because the maximum heat input is less than 10 MMBtu/hr.
- *MACT Regulations*, 10 CSR 10-6.075
 - *National Emission Standards for Industrial, Commercial, and Institutional Boilers*, 40 CFR Part 63, Subpart JJJJJJ applies to the boiler (EP-27)
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405 applies to this boiler, but the boiler is in compliance.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

J Luebbert
New Source Review Unit

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 7, 2013, received June 11, 2013, designating ISCO Holding Company as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- U.S. Environmental Protection Agency Factor Information Retrieval (FIRE) Data System.
- North Carolina Division of Air Quality industry guidance spreadsheet for estimating emissions from lumber kilns.

Attachment A – PM_{2.5} Compliance Worksheet

Project Number: 2013-06-029
 Installation ID Number: 139-0016
 Permit Number:

New Florence Wood Products
 Montgomery County, S34, T48N, R5W

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

(a)	(b)		(c)	(d)	(e)	(f)	(g)	(h)
Month	Sawdust Burned (tons) or Wood Dried (1,000 Board feet)		PM _{2.5} Emission Factor	Monthly PM _{2.5} Emissions (pounds)	Monthly PM _{2.5} Emissions (tons)	Previous Month's 12-Month PM _{2.5} Emissions (tons)	Monthly PM _{2.5} Emissions from Previous Year (tons)	Current 12-Month PM _{2.5} Emissions (tons)
<i>Example</i> 09/2012	<i>Sawdust</i>	<i>1,000.0</i>	<i>2.77 lb/ton</i>	<i>2,770.0</i>	<i>1.94</i>	<i>2.0</i>	<i>1.0</i>	<i>2.94</i>
	<i>Dried</i>	<i>50,000</i>	<i>0.022 lb/Mbf dried</i>	<i>1,100</i>				
<i>Example</i> 10/2012	<i>Sawdust</i>	<i>1,000</i>	<i>2.77 lb/ton</i>	<i>2,770.0</i>	<i>2.49</i>	<i>2.94</i>	<i>1.0</i>	<i>4.43</i>
	<i>Dried</i>	<i>100,000</i>	<i>0.022 lb/Mbf dried</i>	<i>2,200</i>				
	Sawdust		2.77 lb/ton					
	Dried		0.022 lb/Mbf dried					
	Sawdust		2.77 lb/ton					
	Dried		0.022 lb/Mbf dried					
	Sawdust		2.77 lb/ton					
	Dried		0.022 lb/Mbf dried					
	Sawdust		2.77 lb/ton					
	Dried		0.022 lb/Mbf dried					
	Sawdust		2.77 lb/ton					
	Dried		0.022 lb/Mbf dried					
	Sawdust		2.77 lb/ton					
	Dried		0.022 lb/Mbf dried					

- a) Record the date
- b) Record the amount of sawdust and wood burned in the boiler (tons) and the amount of wood dried in the kiln (Mbf)(thousand board feet of green wood dried). The emission factor for sawdust accounts for sawdust handling (1.34 lb of PM_{2.5}/ ton of sawdust/wood burned), ash handling (0.0047 lb of PM_{2.5}/ ton of sawdust/wood burned), and boiler emissions (1.43 lb of PM_{2.5}/ ton of sawdust/wood burned).
- c) Emission factor for each process
- d) Calculate using the following equation: (d) = (b)*(c)
- e) Calculate using the following equation: (e) = [(d)_{sawdust} + (d)_{dried}]/2000
- f) Record the Previous month's 12-Month PM_{2.5} Emissions ((h)_{last month})
- g) Record the PM_{2.5} Emissions from this month last year ((e)_{this month last year})
- h) Calculate using the following equation: (h) = (e) + (f) - (g)

A value less than 10.0 tons of PM_{2.5} indicates compliance with Special Condition 1.

APPENDIX A

Abbreviations and Acronyms

%	percent	m/s	meters per second
°F	degrees Fahrenheit	Mgal	1,000 gallons
acfm	actual cubic feet per minute	MW	megawatt
BACT	Best Available Control Technology	MHDR	maximum hourly design rate
BMPs	Best Management Practices	MMBtu	Million British thermal units
Btu	British thermal unit	MMCF	million cubic feet
CAM	Compliance Assurance Monitoring	MSDS	Material Safety Data Sheet
CAS	Chemical Abstracts Service	NAAQS ...	National Ambient Air Quality Standards
CEMS	Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR	Code of Federal Regulations	NO_x	nitrogen oxides
CO	carbon monoxide	NSPS	New Source Performance Standards
CO₂	carbon dioxide	NSR	New Source Review
CO_{2e}	carbon dioxide equivalent	PM	particulate matter
COMS	Continuous Opacity Monitoring System	PM_{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
CSR	Code of State Regulations	PM₁₀	particulate matter less than ten microns in aerodynamic diameter
dscf	dry standard cubic feet	ppm	parts per million
EQ	Emission Inventory Questionnaire	PSD	Prevention of Significant Deterioration
EP	Emission Point	PTE	potential to emit
EPA	Environmental Protection Agency	RACT	Reasonable Available Control Technology
EU	Emission Unit	RAL	Risk Assessment Level
fps	feet per second	SCC	Source Classification Code
ft	feet	scfm	standard cubic feet per minute
GACT	Generally Available Control Technology	SIC	Standard Industrial Classification
GHG	Greenhouse Gas	SIP	State Implementation Plan
gpm	gallons per minute	SMAL	Screening Model Action Levels
gr	grains	SO_x	sulfur oxides
GWP	Global Warming Potential	SO₂	sulfur dioxide
HAP	Hazardous Air Pollutant	tph	tons per hour
hr	hour	tpy	tons per year
hp	horsepower	VMT	vehicle miles traveled
lb	pound	VOC	Volatile Organic Compound
lbs/hr	pounds per hour		
MACT	Maximum Achievable Control Technology		
µg/m³	micrograms per cubic meter		

Mr. Dale Eichmeyer
Engineer
New Florence Wood Products
P.O. Box 104
Lebanon, MO 65536

RE: New Source Review Permit - Project Number: 2013-06-029

Dear Mr. Eichmeyer:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. 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 amended 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 J Luebbert, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102, or by telephone at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Susan Heckenkamp
New Source Review Unit Chief

SH:jlk

Enclosures

c: St. Louis Regional Office
PAMS File: 2013-06-029

Permit Number: