

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: 102018-012 Project Number: 2018-03-049
Installation Number: 105-0001

Parent Company: ISCO Holding Company

Parent Company Address: 1078 Jefferson Street, Lebanon, MO 65536

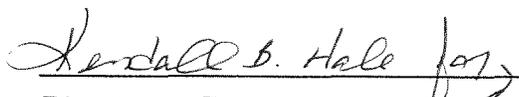
Installation Name: Independent Stave Company

Installation Address: 1078 Jefferson Street, Lebanon, MO 65536

Location Information: Laclede County, S34, T12S, R16W

Application for Authority to Construct was made for:
Replacing kilns, adding a boiler, and a new system for hauling waste saw dust off site. 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.



Director or Designee
Department of Natural Resources

OCT 22 2018

Effective Date

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 Enforcement and Compliance Section of 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 Enforcement and Compliance Section of the Department's 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's 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 the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's 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 using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:

<http://dnr.mo.gov/regions/>

Page No.	3
Permit No.	102018
Project No.	2018-03-049

012

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."

Independent Stave Company
Laclede County, S34, T12S, R16W

1. Superseding Condition

The conditions of this permit supersede the following special conditions found in the previously issued construction permit 052016-001A issued by the Air Pollution Control Program.

- A. Special Condition 2- CO Emissions Limitation
- B. Special Condition 3- HAP Emissions Limitation
- C. Special Condition 4- NOx Emissions Limitation
- D. Special Condition 5- Fuel Requirement

2. CO Emission Limitation

A. Independent Stave Company shall emit less than 250.0 tons of CO in any consecutive 12-month period from the entire installation, as shown in Table 1.

B. Independent Stave Company shall develop and use forms to demonstrate compliance with Special Condition 2.A. The forms shall contain at a minimum the following information:

- 1) Installation name
- 2) Installation ID
- 3) Permit number
- 4) Current month
- 5) Emission units with identifier
- 6) Emission unit's respective current monthly throughput with units of measure matching Table 1
- 7) Emission factor for each emission unit equivalent to those listed in Table 1
- 8) Monthly emissions for each emission unit
- 9) Total monthly emissions for Carbon Monoxide (CO)
- 10) 12-month rolling total for CO that includes the sum of all startup, shutdown, and malfunction emissions, as reported to the Air

SPECIAL CONDITIONS:

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

- Pollution Control Program's Compliance & Enforcement Section
- 11) Indication of compliance with Special Condition 2.A.

Table 1: Facility Emission Units That Emit CO

Emission Unit	Description	CO Emission Factor*
EU-03	Wood-fired Heine Boiler	9.84 lb/ton of wood
EU-05	Wine Head Toaster	9.84 lb/ton of wood
EU-06	Bourbon Head Char	9.84 lb/ton of wood
EU-07	Wine Barrel Toaster/Bending	9.84 lb/ton of wood
EU-08	Bourbon BBL Char – Wood	9.84 lb/ton of wood
	Bourbon BBL Char – Natural Gas	84 lb/MMCF
EU-11	Barrel Pre-Heater No. 1	9.84 lb/ton of wood
EU-24	Drum Heater No. 1 – Wood Waste	9.84 lb/ton of wood
	Drum Heater No. 1 – Natural Gas (NG)	84 lb/MMCF
EU-36	Wine Barrel Laser	13.6 lb/ton
EU-40	Stave Toaster	9.84 lb/ton of wood
EU-45	Alternatives Tank Stave Oven – NG	84 lb/MMCF
EU-47	Electric Tank Stave Toaster	9.84 lb/ton of wood
EU-51a,b,c,d	Propane Fired Chip Roasters – NG	84 lb/MMCF
EU-60A	Chip Roaster Burner – NG	84 lb/MMCF
EU-60B	Chip Roaster Burner – NG	84 lb/MMCF
EU-68	Tank Stave Oven Wood Breakdown	9.84 lb/ton of wood
EU-69A	Tank Stave Toasting	9.84 lb/ton of wood
EU-69B	Tank Stave Toasting	9.84 lb/ton of wood
EU-70A	Wood Fire Pot Combustion	9.84 lb/ton of wood
EU-70B	Wood Fire Pot Combustion	9.84 lb/ton of wood
EU-83A	Wood-fired Boiler	9.84 lb/ton of wood
EU-83B	Wood-fired Boiler	9.84 lb/ton of wood
EU-87A	Craft Barrel Char (Wood burning from process)	9.84 lb/ton of wood
EU-87B	Craft Barrel Char Burner- NG	84 lb/ MMCF
EU-88	21 mmBtu/hour Boiler- NG	84 lb/ MMCF

*CO emission factor is based on higher heating value equal to 8,200 Btu per pound of wood and an emission factor equal to 0.6 lb/MMBtu.

*Emission factors from AP-42 Section 1.4 and 1.6 (If AP-42 sections 1.4 or 1.6 get updated with new emissions factors the new emission factors may be used.)

3. HAP Emission Limitation

- A. Independent Stave Company shall emit less than 10.0 tons of any individual HAP and less than 25.0 tons of total HAPs in any consecutive 12-month period from the entire installation as shown in Table 2.

Page No.	5
Permit No.	102018-012
Project No.	2018-03-049

SPECIAL CONDITIONS:

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

- B. Emissions from EU-55 through EU-57 shall be calculated using a mass balance approach assuming particulate transfer efficiency equal to 50% and particulate control efficiency equal to 95%.
- C. When considering using an alternative coating in the painting booth (EU-55) that is different than a material listed previously permitted, Independent Stave Company shall calculate the potential emissions of VOCs and all individual HAP in the alternative material using mass balance analysis from the new coatings SDS sheet.
- D. If the alternative coating contains a HAP that is also a product of combustion of wood or natural gas, Independent Stave shall track that individual HAP's emissions from all combustion equipment and add them to the alternative coating emissions.
- E. Independent Stave Company shall seek approval from the Air Pollution Control Program before use of the alternative material in the following cases:
 - 1) If the potential VOC emissions for the alternative material is greater than or equal to 131.8 tons per year; or
 - 2) If the potential individual HAP emissions for the alternative material are greater than or equal to the screening model action level (SMAL) for any chemical listed in Appendix A, or the most recent HAP SMAL table located at: <http://dnr.mo.gov/env/apcp/docs/cp-hapsmaltbl6.pdf>
- F. Independent Stave Company shall develop and use forms to demonstrate compliance with Special Condition 3.A. The forms shall contain at a minimum the following information:
 - 1) Installation name
 - 2) Installation ID
 - 3) Permit number
 - 4) Current month
 - 5) Current 12-month date range
 - 6) Emission units with identifier
 - 7) Emission unit's respective current monthly throughput with units of measure matching Table 2
 - 8) Emission factor for each emission unit equivalent to those listed in Table 2

SPECIAL CONDITIONS:

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

- 9) Monthly emissions for each emission unit
- 10) Total monthly emissions for total HAPs and individual HAPs
- 11) 12-month rolling total for total HAPs and individual HAPs that includes the sum of all startup, shutdown, and malfunction emissions, as reported to the Air Pollution Control Program's Compliance & Enforcement Section
- 12) Indication of compliance with Special Condition 3.A.

Table 2: Facility Emission Units That Emit HAPs

Emission Unit	Description	HAP Emission Factor**	
		Individual	Total
EU-03	Wood-fired Heine Boiler (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Wood-fired Heine Boiler (Hexane)	0.005 lb/ton of wood	
	Wood-fired Heine Boiler (Ethylbenzene)	0.0001 lb/ton of wood	
	Wood-fired Heine Boiler (Toluene)	0.0005 lb/tons of wood	
	Wood-fired Heine Boiler (Xylene)	0.0005 lb/tons of wood	
	Wood-fired Heine Boiler (Cobalt)	0.000003 lb/tons of wood	
EU-05	Wine Head Toaster (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Wine Head Toaster (Hexane)	0.005 lb/ton of wood	
	Wine Head Toaster (Ethylbenzene)	0.0001 lb/ton of wood	
	Wine Head Toaster (Toluene)	0.0005 lb/tons of wood	
	Wine Head Toaster (Xylene)	0.0005 lb/tons of wood	
	Wine Head Toaster (Cobalt)	0.000003 lb/tons of wood	
EU-06	Bourbon Head Char (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Bourbon Head Char (Hexane)	0.005 lb/ton of wood	
	Bourbon Head Char (Ethylbenzene)	0.0001 lb/ton of wood	
	Bourbon Head Char (Toluene)	0.0005 lb/tons of wood	
	Bourbon Head Char (Xylene)	0.0005 lb/tons of wood	
	Bourbon Head Char (Cobalt)	0.000003 lb/tons of wood	
EU-07	Wine Barrel Toaster/Bending (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Wine Barrel Toaster/Bending (Hexane)	0.005 lb/ton of wood	
	Wine Barrel Toaster/Bending (Ethylbenzene)	0.0001 lb/ton of wood	
	Wine Barrel Toaster/Bending (Toluene)	0.0005 lb/tons of wood	
	Wine Barrel Toaster/Bending (Xylene)	0.0005 lb/tons of wood	
	Wine Barrel Toaster/Bending (Cobalt)	0.000003 lb/tons of wood	
EU-08	Bourbon BBL Char-Wood (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Bourbon BBL Char-Wood (Hexane)	0.005 lb/ton of wood	
	Bourbon BBL Char-Wood (Ethylbenzene)	0.0001 lb/ton of wood	
	Bourbon BBL Char-Wood (Toluene)	0.0005 lb/tons of wood	
	Bourbon BBL Char-Wood (Xylene)	0.0005 lb/tons of wood	
	Bourbon BBL Char-Wood (Cobalt)	0.000003 lb/tons of wood	
	Bourbon BBL Char – Natural Gas (NG)	1.8 lb/MMCF	1.88

SPECIAL CONDITIONS:

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

	(Hexane)		lb/MMCF
	Bourbon BBL Char-Wood (Toluene)	0.0034 lb/MMCF	
	Bourbon BBL Char-Wood (Cobalt)	0.000084 lb/MMCF	
EU-11	Barrel Pre-Heater No. 1 (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Barrel Pre-Heater No. 1 (Hexane)	0.005 lb/ton of wood	
	Barrel Pre-Heater No. 1 (Ethylbenzene)	0.0001 lb/ton of wood	
	Barrel Pre-Heater No. 1 (Toluene)	0.0005 lb/tons of wood	
	Barrel Pre-Heater No. 1 (Xylene)	0.0005 lb/tons of wood	
	Barrel Pre-Heater No. 1 (Cobalt)	0.000003 lb/tons of wood	
EU-24	Drum Heater No. 1 - Wood (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Drum Heater No. 1 - Wood (Hexane)	0.005 lb/ton of wood	
	Drum Heater No. 1 - Wood (Ethylbenzene)	0.0001 lb/ton of wood	
	Drum Heater No. 1 - Wood (Toluene)	0.0005 lb/tons of wood	
	Drum Heater No. 1 - Wood (Xylene)	0.0005 lb/tons of wood	1.88 lb/MMCF
	Drum Heater No. 1 - Wood (Cobalt)	0.000003 lb/tons of wood	
	Drum Heater No. 1 - (NG) (Hexane)	1.8 lb/MMCF	
	Drum Heater No. 1 - (NG) (Toluene)	0.0034 lb/MMCF	
EU-36	Drum Heater No. 1 - (NG) (Cobalt)	0.000084 lb/MMCF	0.3 lb/ton of wood
	Wine Barrel Laser (HCl)	0.164 lb/ton of wood	
	Wine Barrel Laser (Hexane)	0.005 lb/ton of wood	
	Wine Barrel Laser (Ethylbenzene)	0.0001 lb/ton of wood	
	Wine Barrel Laser (Toluene)	0.0005 lb/tons of wood	
	Wine Barrel Laser (Xylene)	0.0005 lb/tons of wood	
EU-40	Wine Barrel Laser (Cobalt)	0.000003 lb/tons of wood	0.3 lb/ton of wood
	Stave Toaster (HCl)	0.164 lb/ton of wood	
	Stave Toaster (Hexane)	0.005 lb/ton of wood	
	Stave Toaster (Ethylbenzene)	0.0001 lb/ton of wood	
	Stave Toaster (Toluene)	0.0005 lb/tons of wood	
	Stave Toaster (Xylene)	0.0005 lb/tons of wood	
EU-45	Stave Toaster (Cobalt)	0.000003 lb/tons of wood	1.88 lb/MMCF
	Alternatives Tank Stave Oven - NG (Hexane)	1.8 lb/MMCF	
	Alternatives Tank Stave Oven - NG (Toluene)	0.0034 lb/MMCF	
EU-47	Alternatives Tank Stave Oven - NG (Cobalt)	0.000084 lb/MMCF	0.3 lb/ton of wood
	Electric Tank Stave Toaster (HCl)	0.164 lb/ton of wood	
	Electric Tank Stave Toaster (Hexane)	0.005 lb/ton of wood	
	Electric Tank Stave Toaster (Ethylbenzene)	0.0001 lb/ton of wood	
	Electric Tank Stave Toaster (Toluene)	0.0005 lb/tons of wood	
	Electric Tank Stave Toaster (Xylene)	0.0005 lb/tons of wood	
EU-51 (a,b,c,d)	Electric Tank Stave Toaster (Cobalt)	0.000003 lb/tons of wood	1.88 lb/MMCF
	Propane Fired Chip Roasters - NG (Hexane)	1.8 lb/MMCF	
	Propane Fired Chip Roasters - NG (Toluene)	0.0034 lb/MMCF	
EU-55	Propane Fired Chip Roasters - NG (Cobalt)	0.000084 lb/MMCF	Mass balance approach assuming all HAPs are emitted, Except PM HAPs
EU-56	Building #4 Paint Booth		
EU-57	Truck Shop Parts Cleaner		
EU-60A	Building #2 Parts Cleaner		1.88
	Chip Roaster Burner - NG (Hexane)	1.8 lb/MMCF	

SPECIAL CONDITIONS:

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

	Chip Roaster Burner – NG (Toluene)	0.0034 lb/MMCF	lb/MMCF
	Chip Roaster Burner – NG (Cobalt)	0.000084 lb/MMCF	
EU-60B	Chip Roaster Burner – NG (Hexane)	1.8 lb/MMCF	1.88 lb/MMCF
	Chip Roaster Burner – NG (Toluene)	0.0034 lb/MMCF	
	Chip Roaster Burner – NG (Cobalt)	0.000084 lb/MMCF	
EU-68	Tank Stave Oven Wood Breakdown (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Tank Stave Oven Wood Breakdown (Hexane)	0.005 lb/ton of wood	
	Tank Stave Oven Wood Breakdown (Ethylbenzene)	0.0001 lb/ton of wood	
	Tank Stave Oven Wood Breakdown (Toluene)	0.0005 lb/tons of wood	
	Tank Stave Oven Wood Breakdown (Xylene)	0.0005 lb/tons of wood	
	Tank Stave Oven Wood Breakdown (Cobalt)	0.000003 lb/tons of wood	
EU-69A	Tank Stave Toasting (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Tank Stave Toasting (Hexane)	0.005 lb/ton of wood	
	Tank Stave Toasting (Ethylbenzene)	0.0001 lb/ton of wood	
	Tank Stave Toasting (Toluene)	0.0005 lb/tons of wood	
	Tank Stave Toasting (Xylene)	0.0005 lb/tons of wood	
	Tank Stave Toasting (Cobalt)	0.000003 lb/tons of wood	
EU-69B	Tank Stave Toasting (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Tank Stave Toasting (Hexane)	0.005 lb/ton of wood	
	Tank Stave Toasting (Ethylbenzene)	0.0001 lb/ton of wood	
	Tank Stave Toasting (Toluene)	0.0005 lb/tons of wood	
	Tank Stave Toasting (Xylene)	0.0005 lb/tons of wood	
	Tank Stave Toasting (Cobalt)	0.000003 lb/tons of wood	
EU-70A	Wood Fire Pot Combustion (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Wood Fire Pot Combustion (Hexane)	0.005 lb/ton of wood	
	Wood Fire Pot Combustion (Ethylbenzene)	0.0001 lb/ton of wood	
	Wood Fire Pot Combustion (Toluene)	0.0005 lb/tons of wood	
	Wood Fire Pot Combustion (Xylene)	0.0005 lb/tons of wood	
	Wood Fire Pot Combustion (Cobalt)	0.000003 lb/tons of wood	
EU-70B	Wood Fire Pot Combustion (HCl)	0.164 lb/ton of wood	0.3 lb/ton of wood
	Wood Fire Pot Combustion (Hexane)	0.005 lb/ton of wood	
	Wood Fire Pot Combustion (Ethylbenzene)	0.0001 lb/ton of wood	
	Wood Fire Pot Combustion (Toluene)	0.0005 lb/tons of wood	
	Wood Fire Pot Combustion (Xylene)	0.0005 lb/tons of wood	
	Wood Fire Pot Combustion (Cobalt)	0.000003 lb/tons of wood	
EU-30 (A,B)	Steam Heated Kilns (Acetaldehyde)	0.052 lb/1,000 board feet	0.29 lb/1,000 board feet
	Steam Heated Kilns (Acrolein)	0.0075 lb/1,000 board feet	
	Steam Heated Kilns (Formaldehyde)	0.018 lb/1,000 board feet	
	Steam Heated Kilns (Methanol)	0.2 lb/1,000 board feet	
	Steam Heated Kilns (Phenol)	0.01 lb/1,000 board feet	
	Steam Heated Kilns (Propionaldehyde)	0.0009 lb/1,000 board feet	
EU-83A	Wood-Fired Boiler (Acetaldehyde)	0.014 lb/ton of wood	0.64 lb/ton of wood
	Wood-Fired Boiler (Benzene)	0.069 lb/ton of wood	
	Wood-Fired Boiler (Formaldehyde)	0.072 lb/ton of wood	

SPECIAL CONDITIONS:

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

EU-83B	Wood-Fired Boiler (Acetaldehyde)	0.014 lb/ton of wood	0.64 lb/ton of wood
	Wood-Fired Boiler (Benzene)	0.069 lb/ton of wood	
	Wood-Fired Boiler (Formaldehyde)	0.072 lb/ton of wood	
EU-87 A	Craft Barrel Char- Wood Burning(Acetaldehyde)	0.014 lb/ton of wood	0.64 lb/ton of wood
	Craft Barrel Char- Wood Burning(Benzene)	0.069 lb/ton of wood	
	Craft Barrel Char - Wood Burning(Formaldehyde)	0.072 lb/ton of wood	
EU-87 B	Craft Barrel Char Burner-NG(Hexane)	1.8 lb/MMCF	1.88 lb/MMCF
	Craft Barrel Char Burner-NG(Toluene)	0.0034 lb/MMCF	
	Craft Barrel Char Burner-NG (Cobalt)	0.000084 lb/MMCF	
EU-88	NG Fired Boiler (Hexane)	1.8 lb/MMCF	1.88 lb/MMCF
	NG Fired Boiler (Toluene)	0.0034 lb/MMCF	
	NG Fired Boiler (Cobalt)	0.000084 lb/MMCF	

**Emission factors are based on AP-42 Section 1.4 & 1.6 emission factors and a higher heating value equal to 8,200 Btu per pound. (If AP-42 sections 1.4 or 1.6 get updated with new emissions factors the new emission factors may be used.)

4. NO_x Emission Limitation

- A. Independent Stave Company shall emit less than 40.0 tons of NO_x in any consecutive 12-month rolling period from the equipment shown in Table 4.
- B. Independent Stave Company shall develop and use forms to demonstrate compliance with Special Condition 4.A. The forms shall contain at a minimum the following information:
 - 1) Installation name
 - 2) Installation ID
 - 3) Permit number
 - 4) Current month
 - 5) Emission units
 - 6) Emission unit's respective current monthly throughput with units of measure matching Table 4.
 - 7) Emission factor for each emission unit equivalent to those listed in Table 1
 - 8) Monthly emissions for each emission unit
 - 9) Total monthly emissions for Nitrogen Oxides (NO_x)
 - 10) 12-month rolling total for NO_x that includes the sum of all startup, shutdown, and malfunction emissions, as reported to the Air Pollution Control Program's Compliance & Enforcement Section
 - 11) Indication of compliance with Special Condition 4.A.

SPECIAL CONDITIONS:

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

Table 4: Project Emission Units That Emit NO_x

Emission Unit	Description	NO _x Emission Factor*
EU-83A	Wood-fired Boiler	0.49 lbs/MMBTU
EU-83B	Wood-fired Boiler	0.49 lbs/MMBTU
EU-87A	Craft Barrel Char (Wood burning from process)	0.49 lbs/MMBTU
EU-87B	Craft Barrel Char Burner- NG	100.0 lb/MMFT ³
EU-88	21 mmBtu/ hr -NG Fired Boiler	100.0 lb/MMFT ³

*Emission factors from AP-42 Section 1.4 and 1.6 (If AP-42 sections 1.4 or 1.6 get updated with new emissions factors the new emission factors may be used.)

5. Fuel Requirement

A. Independent Stave Company shall burn exclusively untreated wood or natural gas in the emission units listed in Table 1.

6. Control Device Requirement-Baghouses

A. Independent Stave Company shall control emissions from the listed equipment using baghouses as specified in the permit application.

- 1) EP-89A Process Cyclone HV54 #1
- 2) EP-89B Process Cyclone HV54 #2
- 3) EP-90 Alternative Silo
- 4) EP-91 Enclosed Truck Loadout

B. The baghouses shall be operated and maintained in accordance with the manufacturer's specifications. The baghouse 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 Department of Natural Resources' employees may easily observe them.

C. Replacement filters for the baghouse shall be kept on hand at all times. The filters shall be made of fibers appropriate for operating conditions expected to occur (i.e. temperature limits, acidic and alkali resistance, and abrasion resistance).

D. Independent Stave Company shall monitor and record the operating pressure drop across the baghouse at least once every 24 hours while the plant is operating. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

SPECIAL CONDITIONS:

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

- E. Independent Stave Company shall maintain a copy of the dust collector manufacturer's performance warranty on site.
- F. Independent Stave Company shall maintain an operating and maintenance log for the baghouse 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.
- 7. Capture Device Requirement (Enclosure)– EP-91
 - A. All doors and windows of the enclosure shall be closed during truck load from the alternative silo to the truck.
 - B. All air intake vents shall be equipped with a visual indicator, such as streamers, which show air flow into the baghouse.
 - C. Independent Stave Company shall wait 8 minutes from the end of truck loading before opening the doors and/or window to allow the displacement of the air inside the enclosure to be filtered through the baghouse.
 - D. Independent Stave shall record the time waited from the end of truck loading till the time the doors/windows are open to show compliance with special condition 7.C.
- 8. Record Keeping and Reporting Requirements
 - A. Independent Stave Company 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. Independent Stave Company 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 shows an exceedance of a limitation imposed by this permit.

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

Project Number: 2018-03-049
Installation ID Number: 105-0001
Permit Number: 102018-012

Installation Address:
Independent Stave Company
1078 Jefferson Street
Lebanon, MO 65536

Parent Company:
ISCO Holding Company
1078 Jefferson Street
Lebanon, MO 65536

Laclede County, S34, T12S, R16W

REVIEW SUMMARY

- Independent Stave Company has applied for authority to replace kilns, adding a boiler, and the addition of a new system for hauling/ storing waste saw dust off site.
- The application was deemed complete on September 5, 2018.
- HAP emissions are expected from the proposed equipment. HAPs of concern from this process are from burning natural gas and from the wood kilns(Hexane, Toluene, Cobalt, Acetaldehyde, Acrolein, Formaldehyde, Methanol, Phenol, and Propionaldehyde)
- New Source Performance Regulations, 40 CFR Part 60 Subpart Dc - *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* applies to the boiler and hot water heater (EU-88).
- None of the NESHAPs apply to this project. None of the currently promulgated MACT regulations apply to the proposed equipment.
- Baghouses and cyclone combinations, and a truck load out enclosure 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 conditioned below de minimis levels.
- This installation is located in Laclede County, an attainment/ unclassifiable 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 as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- Submittal of an application to amend your intermediate Operating Permit is required for this installation within 90 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Independent Stave Company manufactures oak barrels and oak flavoring products for the alcoholic beverage industry. Independent Stave Company is located in Lebanon, Missouri, is a minor source for construction permits, and currently has an intermediate operating permit. The following New Source Review permits have been issued to Independent Stave Company from the Air Pollution Control Program:

Table 5: Permit History

Permit Number	Description
0995-014	Wood/ bark waste-fired boiler for wine barrel toasting
072001-008	Bucket loader, metering bin, and a hammermill
0995-014A	Electric barrel toasting elements replace wood/ bark waste
092002-024	Sawdust loading
082006-007	New barrel types
052009-005	New screen and conveyors
022010-004	Surface coating booth
092010-007	Sawdust bagging
022015-005	(2) NG-fired chip roasters, (2) wood-fired stave toasters, stave oven, bulk bagging
052016-001	Two 200 horsepower wood-fired boilers and three steam-heated dry kilns
052016-001A	New Craft Barrel Process

PROJECT DESCRIPTION

Independent Stave Company will be adding a 21 mmBtu/hr input natural gas boiler (EU-88), two 200,000 board feet/hour steam dry kilns(EU-30A, 30B), and a new saw dust storage and load out process (EU- 90, 89A, 89B, 91, T29, T30).

Independent Stave Company will replace 5 kilns with a total capacity of 400,000-425,000 board feet with 2 kilns (EU-30A, 30B) with a 400,000 bd feet total capacity. In addition to the two new kilns Independent Stave Company would like to add a 500 hp

Superior natural gas fired boiler rated at 21.0 MMBtu/hr. The boiler is a backup boiler and is expected to run from December to February, as needed and other times if the other boilers malfunction. The replacement of the kilns and addition of the backup boiler does not debottleneck any other processes.

The new saw dust storage and loadout process (EU- 90, 89A, 89B, 91, T29, T30). consists of having saw dust sent from the 2 previously permitted baghouses (CD 1F & CD 1G) to either the new process cyclones (HV54 #1 & HV54 #2) or to their existing boiler silo via the existing boiler baghouse. The new silo will have cyclones for each line to separate most of the dust out. The exhaust air from the cyclones will be filtered through the two new baghouses (CD 30A and CD 30B) with the fines from the two baghouses blown back into one of the process cyclones on the silo. The cyclones are close coupled to the baghouse so they are not an emission source. The new silo will also be able to feed dust to a blower that will transport the dust to an existing permitted cyclone, CD 8. The alternative blower will be close coupled to the silo unloading system so there is no emission point. For maximum emissions, the flow rate is split up 50/50 between the existing silo and new silo.

Table 6: Project Emission units:

Emission unit number:	
EU-90	Alternative saw dust silo
EU-89A	Process cyclone HV 54 #1
EU-89B	Process cyclone HV 54 #2
EU-91	Truck Loadout
EU-T29	Paved road to silo
EU-T30	Paved haul out
EU-30A	200,000 bdf/hr dry kiln
EU-30B	200,000 bdf/hr dry kiln
EU-88	21 mmBtu/hr natural gas boiler

EMISSIONS/CONTROLS EVALUATION

Kiln emissions were calculated using the North Carolina Division of Air Quality *Lumber Kiln Emissions Spreadsheet* (Revision C, July 2007). Emissions for the new saw dust system were estimated using an emission factor for Wood Waste Storage Bin Vents and loadouts, taken from EPA's WebFIRE (FIRE 6.23) database, using SCC 30700801, 30700802, and 30703002. The cyclone and baghouse coupled system for the alternative silo was given a 90% capture efficiency and a 99% control efficiency. The sawdust loadout is done in an enclosure. It was given a 75% capture and a 99% control efficiency as it is hooked to the baghouse system. For this capture efficiency and control efficiency to be representative we are letting baghouse run for 8 min before opening the doors on the loadout enclosure to make sure all the air has time to be displaced in the building.

The natural gas emissions from the new 21 mmBtu/hour boiler were calculated using EPA AP-42 Chapter 1.4 *Natural Gas Combustion* (July 1998) Table 1.4-1 and Table 1.4-2.

The following table provides an emissions summary for this project. Existing potential emissions were taken from permit number: 052016-001. Existing actual emissions were taken from the installation's 2017 EIQ. Potential emissions of the application represent the potential of the new equipment/, assuming continuous operation (8760 hours per year).

Table 7: Emissions Summary (tpy)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions (2017 EIQ)	Potential Uncontrolled Emissions of the Application	Potential Controlled Emissions of the Application	New Installation Conditioned Potential
PM	25.0	N/D	N/D	59.74	11.02	<major
PM ₁₀	15.0	174.47	25.88	35.94	7.31	181.78
PM _{2.5}	10.0	N/D	17.82	35.81	7.18	N/D
SO _x	40.0	4.16	1.68	0.05	0.05	4.21
NO _x	40.0	121.36	33.91	9.02	9.02	130.38
VOC	40.0	118.59	4.12	1.20	1.20	119.79
CO	100.0	<250	41.12	7.57	7.57	<250
GHG (CO ₂ e)	N/A	N/D	N/D	N/D	N/D	N/A
GHG (mass)	N/A	N/D	N/D	N/D	N/D	N/A
HAPs	10.0/25.0	<10.0/25.0	0.66	0.67	0.67	<10.0/ 25.0

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 conditioned below de minimis levels.

APPLICABLE REQUIREMENTS

Independent Stave Company 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

- *Operating Permits*, 10 CSR 10-6.065
 - Submittal of an application to amend your intermediate Operating Permit is required for this installation within 90 days of equipment startup.

- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
 - Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *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
- *Control of Sulfur Dioxide Emissions*, 10 CSR 10-6.261
- *Restriction of Particulate Matter Emissions From Fuel Burning Equipment Used for Indirect Heating*, 10 CSR 10-6.405

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*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

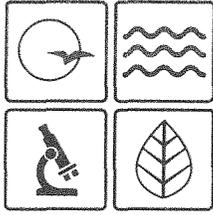
The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated August 15, 2018, received August 15, 2018, designating ISCO Holding Company as the owner and operator of the installation.

APPENDIX A

Abbreviations and Acronyms

%percent	Mgal1,000 gallons
°Fdegrees Fahrenheit	MWmegawatt
acfmactual cubic feet per minute	MHDRmaximum hourly design rate
BACTBest Available Control Technology	MMBtuMillion British thermal units
BMPsBest Management Practices	MMCFmillion cubic feet
BtuBritish thermal unit	MSDSMaterial Safety Data Sheet
CAM Compliance Assurance Monitoring	NAAQSNational Ambient Air Quality Standards
CASChemical Abstracts Service	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CEMS Continuous Emission Monitor System	NO_xnitrogen oxides
CFRCode of Federal Regulations	NSPSNew Source Performance Standards
COcarbon monoxide	NSRNew Source Review
CO₂carbon dioxide	PMparticulate matter
CO_{2e}carbon dioxide equivalent	PM_{2.5}particulate matter less than 2.5 microns in aerodynamic diameter
COMS Continuous Opacity Monitoring System	PM₁₀particulate matter less than 10 microns in aerodynamic diameter
CSR Code of State Regulations	ppmparts per million
dscfdry standard cubic feet	PSDPrevention of Significant Deterioration
EIQEmission Inventory Questionnaire	PTEpotential to emit
EPEmission Point	RACTReasonable Available Control Technology
EPAEnvironmental Protection Agency	RALRisk Assessment Level
EUEmission Unit	SCCSource Classification Code
fps feet per second	scfmstandard cubic feet per minute
ftfeet	SDSSafety Data Sheet
GACT Generally Available Control Technology	SICStandard Industrial Classification
GHGGreenhouse Gas	SIPState Implementation Plan
gpmgallons per minute	SMALScreening Model Action Levels
grgrains	SO_xsulfur oxides
GWP Global Warming Potential	SO₂sulfur dioxide
HAPHazardous Air Pollutant	SSMStartup, Shutdown & Malfunction
hrhour	tphtons per hour
hphorsepower	tpytons per year
lbpound	VMTvehicle miles traveled
lbs/hrpounds per hour	VOCVolatile Organic Compound
MACTMaximum Achievable Control Technology	
µg/m³micrograms per cubic meter	
m/smeters per second	



Missouri Department of

dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

OCT 22 2018

Mr. Jeff Anderson
Plant Manager
Independent Stave Company
P.O. Box 104
Lebanon, MO 65536

RE: New Source Review Permit - Project Number: 2018-03-049

Dear Mr. Anderson:

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 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 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.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty 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 administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oa.mo.gov/ahc.



Recycled paper

Mr. Jeff Anderson
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Jordan Hull, at the Department of Natural Resources' 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



Susan Heckenkamp
New Source Review Unit Chief

SH:jhj

Enclosures

c: Southwest Regional Office
PAMS File: 2018-03-049

Permit Number: 102018-012

Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ACETALDEHYDE	75-07-0	9		Y	N	CHLOROMETHYL METHYL ETHER	107-30-2	0.1		Y	N
ACETAMIDE	60-35-5	1		Y	N	CHLOROPRENE	126-99-8	1		Y	N
ACETONITRILE	75-05-8	4		Y	N	CHROMIUM (VI) COMPOUNDS		0.002	L	N	Y
ACETOPHENONE	98-86-2	1		Y	N	CHROMIUM COMPOUNDS		5	L	N	Y
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005	V	Y	Y	CHRYSENE	218-01-9	0.01	V	Y	N
ACROLEIN	107-02-8	0.04		Y	N	COBALT COMPOUNDS		0.1	M	N	Y
ACRYLAMIDE	79-06-1	0.02		Y	N	COKE OVEN EMISSIONS	8007-45-2	0.03	N	Y	N
ACRYLIC ACID	79-10-7	0.6		Y	N	CRESOL, [META-]	108-39-4	1	B	Y	N
ACRYLONITRILE	107-13-1	0.3		Y	N	CRESOL, [ORTHO-]	95-48-7	1	B	Y	N
ALLYL CHLORIDE	107-05-1	1		Y	N	CRESOL, [PARA-]	106-44-5	1	B	Y	N
AMINOBIIPHENYL, [4-]	92-67-1	1	V	Y	N	CRESOLS (MIXED ISOMERS)	1319-77-3	1	B	Y	N
ANILINE	62-53-3	1		Y	N	CUMENE	98-82-8	10		Y	N
ANISIDINE, [ORTHO-]	90-04-0	1		Y	N	CYANIDE COMPOUNDS		0.1	O	Y	N
ANTHRACENE	120-12-7	0.01	V	Y	N	DDE	72-55-9	0.01	V	Y	Y
ANTIMONY COMPOUNDS		5	H	N	Y	DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		Y	N
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1	H	N	Y	DIAMINOTOLUENE, [2,4-]	95-80-7	0.02		Y	N
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1	H	N	Y	DIAZOMETHANE	334-88-3	1		Y	N
ANTIMONY TRIOXIDE	1309-64-4	1	H	N	Y	DIBENZ(A,H)ANTHRACENE	53-70-3	0.01	V	Y	N
ANTIMONY TRISULFIDE	1345-04-6	0.1	H	N	Y	DIOXINS/FURANS		6E-07	D,V	Y	N
ARSENIC COMPOUNDS		0.005	I	N	Y	DIBENZOFURAN	132-64-9	5	V	Y	N
ASBESTOS	1332-21-4	0	A	N	Y	DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01		Y	N
BENZ(A)ANTHRACENE	56-55-3	0.01	V	Y	N	DIBROMOETHANE, [1,2-]	106-93-4	0.1		Y	N
BENZENE	71-43-2	2		Y	N	DIBUTYL PHTHALATE	84-74-2	10		Y	Y
BENZIDINE	92-87-5	0.0003	V	Y	N	DICHLOROBENZENE, [1,4-]	106-46-7	3		Y	N
BENZO(A)PYRENE	50-32-8	0.01	V	Y	N	DICHLOROBENZIDENE, [3,3-]	91-94-1	0.2	V	Y	Y
BENZO(B)FLUORANTHENE	205-99-2	0.01	V	Y	N	DICHLOROETHANE, [1,1-]	75-34-3	1		Y	N
BENZO(K)FLUORANTHENE	207-08-9	0.01	V	Y	N	DICHLOROETHANE, [1,2-]	107-06-2	0.8		Y	N
BENZOTRICHLORIDE	98-07-7	0.006		Y	N	DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		Y	N
BENZYL CHLORIDE	100-44-7	0.1		Y	N	DICHLOROMETHANE	75-09-2	10		N	N
BERYLLIUM COMPOUNDS		0.008	J	N	Y	DICHLOROPHENOXY ACETIC ACID, [2,4-]	94-75-7	10	C	Y	Y
BERYLLIUM SALTS		2E-05	J	N	Y	DICHLOROPROPANE, [1,2-]	78-87-5	1		Y	N
BIPHENYL, [1,1-]	92-52-4	10	V	Y	N	DICHLOROPROPENE, [1,3-]	542-75-6	1		Y	N
BIS(CHLOROETHYL)ETHER	111-44-4	0.06		Y	N	DICHLORVOS	62-73-7	0.2		Y	N
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003		Y	N	DIETHANOLAMINE	111-42-2	5		Y	N
BROMOFORM	75-25-2	10		Y	N	DIETHYL SULFATE	64-67-5	1		Y	N
BROMOMETHANE	74-83-9	10		Y	N	DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5	P	Y	N
BUTADIENE, [1,3-]	106-99-0	0.07		Y	N	DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1	V	Y	Y
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5	P	Y	N	DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008	V	Y	Y
BUTYLENE OXIDE, [1,2-]	106-88-7	1		Y	N	DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02		Y	N
CADMIUM COMPOUNDS		0.01	K	N	Y	DIMETHYL FORMAMIDE	68-12-2	1		Y	N
CALCIUM CYANAMIDE	156-62-7	10		Y	Y	DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008		Y	N
CAPROLACTAM (Delisted)	105-60-2					DIMETHYL PHTHALATE	131-11-3	10		Y	N
CAPTAN	133-06-2	10		Y	Y	DIMETHYL SULFATE	77-78-1	0.1		Y	N
CARBARYL	63-25-2	10	V	Y	Y	DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1		Y	N
CARBON DISULFIDE	75-15-0	1		Y	N	DIMETHYLANILINE, [N-N-]	121-69-7	1		Y	N
CARBON TETRACHLORIDE	56-23-5	1		Y	N	DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	E	Y	Y
CARBONYL SULFIDE	463-58-1	5		Y	N	DINITROPHENOL, [2,4-]	51-28-5	1		Y	N
CATECHOL	120-80-9	5		Y	N	DINITROTOLUENE, [2,4-]	121-14-2	0.02		Y	N
CHLORAMBEN	133-90-4	1		Y	Y	DIOXANE, [1,4-]	123-91-1	6		Y	N
CHLORDANE	57-74-9	0.01		Y	Y	DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	V	Y	Y
CHLORINE	7782-50-5	0.1		N	N	DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	V	Y	N
CHLOROACETIC ACID	79-11-8	0.1		Y	N	EPICHLOROHYDRIN	106-89-8	2		Y	N
CHLOROACETOPHENONE, [2-]	532-27-4	0.06		Y	N	ETHOXYETHANOL, [2-]	110-80-5	10	P	Y	N
CHLOROBENZENE	108-90-7	10		Y	N	ETHOXYETHYL ACETATE, [2-]	111-15-9	5	P	Y	N
CHLOROBENZILATE	510-15-6	0.4	V	Y	Y	ETHYL ACRYLATE	140-88-5	1		Y	N
CHLOROFORM	67-66-3	0.9		Y	N	ETHYL BENZENE	100-41-4	10		Y	N



Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
ETHYL CHLORIDE	75-00-3	10		Y	N	NITROBENZENE	98-95-3	1		Y	N
ETHYLENE GLYCOL	107-21-1	10		Y	N	NITROBIPHENYL, [4-]	92-93-3	1	V	Y	N
ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2					NITROPHENOL, [4-]	100-02-7	5		Y	N
ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5	P	Y	N	NITROPROPANE, [2-]	79-46-9	1		Y	N
ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003		Y	N	NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001		Y	N
ETHYLENE OXIDE	75-21-8	0.1		Y	N	NITROSOMORPHOLINE, [N-]	59-89-2	1		Y	N
ETHYLENE THIOUREA	96-45-7	0.6		Y	Y	NITROSO-N-METHYLUREA, [N-]	684-93-5	0.0002		Y	N
FORMALDEHYDE	50-00-0	2		Y	N	OCTACHLORONAPHTHALENE	2234-13-1	0.01	V	Y	N
GLYCOL ETHER (ETHYLENE GLYCOL ETHERS)		5	P	Y	N	PARATHION	56-38-2	0.1		Y	Y
GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS)		5	P	Y	N	PCB [POLYCHLORINATED BIPHENYLS]	1336-36-3	0.009	X	Y	Y
HEPTACHLOR	76-44-8	0.02		Y	N	PENTACHLORONITROBENZENE	82-68-8	0.3		Y	N
HEXACHLOROBENZENE	118-74-1	0.01		Y	N	PENTACHLOROPHENOL	87-86-5	0.7		Y	N
HEXACHLOROBUTADIENE	87-68-3	0.9		Y	N	PHENOL	108-95-2	0.1		Y	N
HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	F	Y	N	PHENYLENEDIAMINE, [PARA-]	106-50-3	10		Y	N
HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	F	Y	N	PHOSGENE	75-44-5	0.1		Y	N
HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	F	Y	N	PHOSPHINE	7803-51-2	5		N	N
HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	F	Y	N	PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1		N	N
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		Y	N	PHTHALIC ANHYDRIDE	85-44-9	5		Y	N
HEXACHLOROETHANE	67-72-1	5		Y	N	POLYCYLIC ORGANIC MATTER		0.01	V	Y	N
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		Y	N	PROPANE SULTONE, [1,3-]	1120-71-4	0.03		Y	Y
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01		Y	N	PROPIOLACTONE, [BETA-]	57-57-8	0.1		Y	N
HEXANE, [N-]	110-54-3	10		Y	N	PROPIONALDEHYDE	123-38-6	5		Y	N
HYDRAZINE	302-01-2	0.004		N	N	PROPOXUR [BAYGON]	114-26-1	10		Y	Y
HYDROGEN CHLORIDE	7647-01-0	10		N	N	PROPYLENE OXIDE	75-56-9	5		Y	N
HYDROGEN FLUORIDE	7664-39-3	0.1		N	N	PROPYLENEIMINE, [1,2-]	75-55-8	0.003		Y	N
HYDROQUINONE	123-31-9	1		Y	N	QUINOLINE	91-22-5	0.006		Y	N
INDENO(1,2,3CD)PYRENE	193-39-5	0.01	V	Y	N	QUINONE	106-51-4	5		Y	N
ISOPHORONE	78-59-1	10		Y	N	RADIONUCLIDES		Note 1	Y	N	Y
LEAD COMPOUNDS		0.01	Q	N	Y	SELENIUM COMPOUNDS		0.1	W	N	Y
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE]	58-89-9	0.01	F	Y	N	STYRENE	100-42-5	1		Y	N
MALEIC ANHYDRIDE	108-31-6	1		Y	N	STYRENE OXIDE	96-09-3	1		Y	N
MANGANESE COMPOUNDS		0.8	R	N	Y	TETRACHLORODIBENZO-P-DIOXIN,[2,3,7,8]	1746-01-6	6E-07	D,V	Y	Y
MERCURY COMPOUNDS		0.01	S	N	N	TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		Y	N
METHANOL	67-56-1	10		Y	N	TETRACHLOROETHYLENE	127-18-4	10		N	N
METHOXYCHLOR	72-43-5	10	V	Y	Y	TITANIUM TETRACHLORIDE	7550-45-0	0.1		N	N
METHOXYETHANOL, [2-]	109-86-4	10	P	Y	N	TOLUENE	108-88-3	10		Y	N
METHYL CHLORIDE	74-87-3	10		Y	N	TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		Y	N
METHYL ETHYL KETONE (Delisted)	78-93-3					TOLUIDINE, [ORTHO-]	95-53-4	4		Y	N
METHYL HYDRAZINE	60-34-4	0.06		Y	N	TOXAPHENE	8001-35-2	0.01		Y	N
METHYL IODIDE	74-88-4	1		Y	N	TRICHLOROBENZENE, [1,2,4-]	120-82-1	10		Y	N
METHYL ISOBUTYL KETONE	108-10-1	10		Y	N	TRICHLOROETHANE, [1,1,1-]	71-55-6	10		N	N
METHYL ISOCYANATE	624-83-9	0.1		Y	N	TRICHLOROETHANE, [1,1,2-]	79-00-5	1		Y	N
METHYL METHACRYLATE	80-62-6	10		Y	N	TRICHLOROETHYLENE	79-01-6	10		Y	N
METHYL TERT-BUTYL ETHER	1634-04-4	10		Y	N	TRICHLOROPHENOL, [2,4,5-]	95-95-4	1		Y	N
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	R	N	Y	TRICHLOROPHENOL, [2,4,6-]	88-06-2	6		Y	N
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	V	Y	Y	TRIETHYLAMINE	121-44-8	10		Y	N
METHYLENEDIANILINE, [4,4-]	101-77-9	1	V	Y	N	TRIFLURALIN	1582-09-8	9		Y	Y
METHYLNAPHTHALENE, [2-]	91-57-6	0.01	V	Y	N	TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		Y	N
MINERAL FIBERS		0	T	N	Y	URETHANE [ETHYL CARBAMATE]	51-79-6	0.8		Y	N
NAPHTHALENE	91-20-3	10	V	Y	N	VINYL ACETATE	108-05-4	1		Y	N
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01	V	Y	N	VINYL BROMIDE	593-60-2	0.6		Y	N
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01	V	Y	N	VINYL CHLORIDE	75-01-4	0.2		Y	N
NICKEL CARBONYL	13463-39-3	0.1	U	N	Y	XYLENE, [META-]	108-38-3	10	G	Y	N
NICKEL COMPOUNDS		1	U	N	Y	XYLENES (MIXED ISOMERS)	1330-20-7	10	G	Y	N
NICKEL REFINERY DUST		0.08	U	N	Y						
NICKEL SUBSULFIDE	12035-72-2	0.04	U	N	Y						

Air Pollution Control Program Table of Hazardous Air Pollutants and Screening Model Action Levels

Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM	Chemical	CAS #	SMAL tons/yr	Group ID	VOC	PM
----------	-------	-----------------	-------------	-----	----	----------	-------	-----------------	-------------	-----	----

Legend	
Group ID	
A	Asbestos
B	Cresols/Cresylic Acid (isomers and mixtures)
C	2,4 - D, Salts and Esters
D	Dibenzofurans, Dibenzodioxins
E	4, 6 Dinitro-o-cresol, and Salts
F	Lindane (all isomers)
G	Xylenes (all isomers and mixtures)
H	Antimony Compounds
I	Arsenic Compounds
J	Beryllium Compounds
K	Cadmium Compounds
L	Chromium Compounds
M	Cobalt Compounds
N	Coke Oven Emissions
O	Cyanide Compounds
P	Glycol Ethers
Q	Lead Compounds (except elemental Lead)
R	Manganese Compounds
S	Mercury Compounds
T	Fine Mineral Fibers
U	Nickel Compounds
V	Polycyclic Organic Matter
W	Selenium Compounds
X	Polychlorinated Biphenyls (Aroclors)
Y	Radionuclides
Notes	The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million

NOTICE: This spreadsheet is for your use only and should be used with caution. MoDNR does not guarantee the accuracy of the information it contains. This spreadsheet is subject to continual revision and updating. It is your responsibility to be aware of the most current, accurate and complete information available. MoDNR is not responsible for errors or omissions in this spreadsheet. Submittal of the information contained in this spreadsheet (workbook) does not relieve the responsible official of the certification statement signed on the first page of the application.

		Pollutant	Justification for Limit	Limit Hours per Year
Hours per day	24.0	PM10	NAAQS	Limit Hours per Year w/ 24 hr day
Days per year	365.0	N/A	N/A	
Hours per year	8760.0	PM10	De Minimis	

Pollutant	Potential Emissions of Process Equipment (tons/yr)	Potential Emissions including fugitives (tons/yr)	Allowable Emissions for 8760 hours per year (tons/yr)	DeMinimis Thresholds	Plant-wide Composite Emission Factor (lb/ton)
PM	3.69	11.11	11.11	25	0.0235
PM ₁₀	1.70	4.77	4.77	15	0.0101
PM _{2.5}	0.79	1.33	1.33	10	0.0028
SO ₂	0.01	0.01	0.01	40	0.0000
NO ₂	1.07	1.07	1.07	40	0.0023
VOC	0.06	0.06	0.06	40	0.0001
CO	0.89	0.89	0.89	100	0.0019
CH ₂ O	0.00	0.00	0.00	2	0.0000
C ₁₁ H ₁₀	0.00	0.00	0.00	-	0.0000
Pb	0.00	0.00	0.00	0.01	0.0000
HAPs	0.02	0.02	0.02	10	0.0000
CO ₂	1.25	1.25	1.25	100	0.0026
N ₂ O	0.00	0.00	0.00	100	0.0000
CH ₄	0.00	0.00	0.00	100	0.0000
GHG _{mass}	1.25	1.25	1.25	100	0.0026
CO ₂ eq	1.25	1.25	1.25	100,000	0.0026

Maximum hourly design rate (tons/hr)	108
--------------------------------------	-----

Tons of product per day	2,592.0
Tons of product per year	946,080.0

PROPOSED EMISSIONS INCREASE

POLLUTANT	Uncontrolled Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)	Uncontrolled Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)
PM	13.64	2.52	59.74	11.02
PM10	8.21	1.67	35.94	7.31
PM2.5	8.18	1.64	35.81	0.72 7.18
CO	1.73	1.73	7.57	7.57
NOX	2.06	2.06	9.02	9.02
SO2	0.01	0.01	0.05	0.05
VOC	0.28	0.28	1.20	1.20
TOTAL HAPS	0.15	0.15	0.67	0.67

DESCRIPTION	POLLUTANT	LBS/HR	TONS/YR
500 hp Superior Natural Gas Fired Boiler	PM	0.04	0.17
(Model: Seminole 6-5-2500-s150-1C-G/LPG)	PM10	0.16	0.69
	PM2.5	0.16	0.69
	CO	1.73	7.57
	NOX	2.06	9.02
	SO2	0.01	0.05
	VOC	0.11	0.50
	BENZENE	4.324E-05	1.894E-04
	DICHLOROBENZENE	2.471E-05	1.082E-04
	FORMALDEHYDE	1.544E-03	6.763E-03
	HEXANE	3.706E-02	1.623E-01
	TOLUENE	7.000E-05	3.066E-04
	TOTAL ORGANICS	3.874E-02	1.697E-01
	LEAD	1.029E-05	4.509E-05
	CADMIUM	2.265E-05	9.919E-05
	CHROMIUM	2.882E-05	1.262E-04
	MANGANESE	7.824E-06	3.427E-05
	NICKEL	4.324E-05	1.894E-04
	TOTAL METALS	1.128E-04	4.942E-04
	TOTAL HAPS	3.885E-02	1.702E-01
	CO2	2,470.59	10,821.18
	CH4	4.735E-02	2.074E-01
	N2O	4.529E-02	1.984E-01
	CO2e	2,470.68	10,821.58
TWO NEW 200,000 BD FT KILNS	PM	8.706E-03	3.813E-02
	PM10	8.706E-03	3.813E-02
	PM2.5	8.706E-03	3.813E-02
	VOC	1.619E-01	7.089E-01
	ACETALDEHYDE	2.058E-02	9.013E-02
	ACROLEIN	2.968E-03	1.300E-02
	FORMALDEHYDE	7.123E-03	3.120E-02
	METHANOL	7.915E-02	3.467E-01
	PHENOL	3.957E-03	1.733E-02
	PROPIONALDEHYDE	3.562E-04	1.560E-03
	TOTAL HAPS	1.141E-01	4.999E-01
THREE NEW 200,000 BD FT KILNS	PM	1.306E-02	5.720E-02
	PM10	1.306E-02	5.720E-02
	PM2.5	1.306E-02	5.720E-02
	VOC	2.428E-01	1.063E+00
	ACETALDEHYDE	3.087E-02	1.352E-01
	ACROLEIN	4.452E-03	1.950E-02
	FORMALDEHYDE	1.068E-02	4.680E-02
	METHANOL	1.187E-01	5.200E-01
	PHENOL	5.936E-03	2.600E-02
	PROPIONALDEHYDE	5.342E-04	2.340E-03
	TOTAL HAPS	1.712E-01	7.498E-01
TWO NEW 200,000 BD FT KILNS AND ONE 55,000 BD FT KILN	PM	9.903E-03	4.338E-02
	PM10	9.903E-03	4.338E-02
	PM2.5	9.903E-03	4.338E-02
	VOC	1.841E-01	8.064E-01
	ACETALDEHYDE	2.341E-02	1.025E-01
	ACROLEIN	3.376E-03	1.479E-02
	FORMALDEHYDE	8.103E-03	3.549E-02
	METHANOL	9.003E-02	3.943E-01
	PHENOL	4.502E-03	1.972E-02
	PROPIONALDEHYDE	4.051E-04	1.775E-03
	TOTAL HAPS	1.298E-01	5.686E-01

DESCRIPTION	POLLUTANT	LBS/HR	TONS/YR
500 hp Superior Natural Gas Fired Boiler	PM	4.782E-02	2.095E-01
(Model: Seminole 6-5-2500-s150-1C-G/LPG)	PM10	1.652E-01	7.235E-01
TWO NEW 200,000 BD FT KILNS	PM2.5	1.652E-01	7.235E-01
	CO	1.729E+00	7.575E+00
	NOX	2.059E+00	9.018E+00
	SO2	1.235E-02	5.411E-02
	VOC	2.751E-01	1.205E+00
	CO2	2,470.59	10,821.18
	CH4	4.735E-02	2.074E-01
	N2O	4.529E-02	1.984E-01
	CO2e	2,470.68	10,821.58
	TOTAL HAPS	1.530E-01	6.701E-01
500 hp Superior Natural Gas Fired Boiler	PM	5.218E-02	2.285E-01
(Model: Seminole 6-5-2500-s150-1C-G/LPG)	PM10	1.695E-01	7.425E-01
THREE NEW 200,000 BD FT KILNS	PM2.5	1.695E-01	7.425E-01
	CO	1.729E+00	7.575E+00
	NOX	2.059E+00	9.018E+00
	SO2	1.235E-02	5.411E-02
	VOC	3.560E-01	1.559E+00
	CO2	2,470.59	10,821.18
	CH4	4.735E-02	2.074E-01
	N2O	4.529E-02	1.984E-01
	CO2e	2,470.68	10,821.58
	TOTAL HAPS	2.101E-01	9.200E-01
500 hp Superior Natural Gas Fired Boiler	PM	4.902E-02	2.147E-01
(Model: Seminole 6-5-2500-s150-1C-G/LPG)	PM10	1.664E-01	7.287E-01
TWO NEW 200,000 BD FT KILNS AND ONE 55,000 BD FT KILN	PM2.5	1.664E-01	7.287E-01
	CO	1.729E+00	7.575E+00
	NOX	2.059E+00	9.018E+00
	SO2	1.235E-02	5.411E-02
	VOC	2.973E-01	1.302E+00
	CO2	2,470.59	10,821.18
	CH4	4.735E-02	2.074E-01
	N2O	4.529E-02	1.984E-01
	CO2e	2,470.68	10,821.58
	TOTAL HAPS	1.687E-01	7.388E-01

MISSOURI COOPERAGE

Emission Point No.	Emission Unit Description	POLLUTANT	Max Hourly Design Rate	UNITS	Uncontrolled Emission Factor	Emission Factor (units)	Emission Factor Reference	Transfer Efficiency (%)	Capture Efficiency (%)	Control Device	Control Device Efficiency (%)	Uncontrolled Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)	Uncontrolled Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)
		PM	5.15	TONS/HR	1.00E+00	lbs/ton	FIRE 6.23 SCC 30703001	0.0	90%	Baghouse	89.100%	5.150E+00	5.614E-01	2.256E+01	2.459E+00
90	Alternative Silo	PM10	5.15	TONS/HR	5.80E-01	lbs/ton	FIRE 6.23 SCC 30703001	0.0	90%	Baghouse	89.100%	2.987E+00	3.256E-01	1.308E+01	1.426E+00
		PM2.5	5.15	TONS/HR	5.80E-01	lbs/ton	FIRE 6.23 SCC 30703001	0.0	90%	Baghouse	89.100%	2.987E+00	3.256E-01	1.308E+01	1.426E+00
		PM	2.45	TONS/HR	3.50E-01	lbs/ton	FIRE 6.23 SCC 30700802	0.0	90%	Baghouse	89.100%	8.575E-01	9.347E-02	3.756E+00	4.094E-01
89A	PROCESS CYCLONE *	PM10	2.45	TONS/HR	2.000E-01	lbs/ton	FIRE 6.23 SCC 30700802	0.0	90%	Baghouse	89.100%	4.900E-01	5.341E-02	2.146E+00	2.339E-01
	HV54 #1	PM2.5	2.45	TONS/HR	2.000E-01	lbs/ton	FIRE 6.23 SCC 30700802	0.0	90%	Baghouse	89.100%	4.900E-01	5.341E-02	2.146E+00	2.339E-01
		PM	2.7	TONS/HR	3.50E-01	lbs/ton	FIRE 6.23 SCC 30700802	0.0	90%	Baghouse	89.100%	9.450E-01	1.030E-01	4.139E+00	4.512E-01
89B	PROCESS CYCLONE *	PM10	2.7	TONS/HR	2.000E-01	lbs/ton	FIRE 6.23 SCC 30700802	0.0	90%	Baghouse	89.100%	5.400E-01	5.886E-02	2.365E+00	2.578E-01
	HV54 #2	PM2.5	2.7	TONS/HR	2.000E-01	lbs/ton	FIRE 6.23 SCC 30700802	0.0	90%	Baghouse	89.100%	5.400E-01	5.886E-02	2.365E+00	2.578E-01
		PM	3.32	TONS/HR	2.00E+00	lbs/ton	FIRE 6.23 SCC 30703002	0.0	75%	Enclosure	74.250%	6.640E+00	1.710E+00	29.0832	7.489E+00
91	TRUCK LOADOUT	PM10	3.32	TONS/HR	1.200E+00	lbs/ton	FIRE 6.23 SCC 30703002	0.0	75%	Enclosure	74.250%	3.984E+00	1.026E+00	1.745E+01	4.493E+00
		PM2.5	3.32	TONS/HR	1.200E+00	lbs/ton	FIRE 6.23 SCC 30703002	0.0	75%	Enclosure	74.250%	3.984E+00	1.026E+00	1.745E+01	4.493E+00
T29	WASTE WOOD PAVED	PM10	0.007	vmt/hr	1.98929695	lbs/vmt	AP-42	0.0	0%		0.000%	1.393E-02	1.393E-02	6.099E-02	6.099E-02
	ROAD TO SILO	PM2.5	0.007	vmt/hr	0.48128152	lbs/vmt	AP-42	0.0	0%		0.000%	3.369E-03	3.369E-03	1.476E-02	1.476E-02
T30	WASTE WOOD PAVED	PM10	0.013	vmt/hr	1.98929695	lbs/vmt	AP-42	0.0	0%		0.000%	2.586E-02	2.586E-02	1.133E-01	1.133E-01
	HAUL OUT	PM2.5	0.013	vmt/hr	0.48128152	lbs/vmt	AP-42	0.0	0%		0.000%	6.257E-03	6.257E-03	2.740E-02	2.740E-02

* - Process Cyclone has a 89.5% removal efficiency

PROPOSED EMISSIONS INCREASE

POLLUTANT	Uncontrolled Emission Rate (lb/hr)	Controlled Emission Rate (lb/hr)	Uncontrolled Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)
PM	13.59	2.47	59.54	10.81
PM10	8.04	1.50	35.22	6.59
PM2.5	8.01	1.47	35.09	6.45