

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: **082018-011**

Project Number: 2018-05-026
Installation Number: 201-0133

Parent Company: North American Tie & Timber Tie Yard

Parent Company Address: 2575 Kelley Pointe Pkwy, Suite 225, Edmond, OK 73034

Installation Name: North American Tie & Timber Tie Yard

Installation Address: 915 Main Street, Scott City, MO 63780

Location Information: Scott County, S32, T30N, R14E

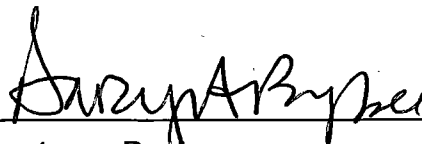
Application for Authority to Construct was made for:
Wood tie processing yard. This review was conducted in accordance with Section (6),
Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

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

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



Prepared by
Chad Stephenson
New Source Review Unit



Director or Designee
Department of Natural Resources

AUG 15 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/>

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."

North American Tie & Timber Tie Yard
Scott County, S32, T30N, R14E

1. Production Limit For Wood Tie Processing
 - A. North American Tie & Timber Tie Yard shall limit its wood tie production to less than 1,250,000 ties in any consecutive 12-month period from the equipment in Table 1.

Table 1: Installation Emission Points

Emission Point	Description
EP-1	Trim Saw
EP-2	Sawdust Handling
EP-3	Vehicular Activity
EP-4	Haul Road

- B. North American Tie & Timber Tie Yard shall demonstrate compliance with Special Condition 1.A using Attachment A or another equivalent form that has been approved by the Air Pollution Control Program, including an electronic form.
2. Control Device Requirements – Cyclone Dust Collector
 - A. North American Tie & Timber Tie Yard shall control emissions from the sawing activities (EP-1) using a cyclone dust collector.
 - B. The cyclone dust collector shall be operated and maintained in accordance with the manufacturer's specifications.
 - C. North American Tie & Timber Tie Yard shall conduct visible emissions observations of EP-1 at least once each week. While the cyclones are operating normally, EP-1 should emit zero visible emissions (not 0% opacity). North American Tie & Timber Tie Yard shall record the results of each weekly visible emissions observation.
 - D. North American Tie & Timber Tie Yard shall maintain an operating and maintenance log for the cyclone dust collector which shall include the following:

SPECIAL CONDITIONS:

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

- 1) Incidents of malfunctions, with impacts on emissions, duration of events, probable causes, and corrective actions; and
 - 2) Maintenance activities, with inspection schedules, repair actions, and replacements, etc.
3. Control Device – Sawdust and Chip Trailer
- A. North American Tie & Timber Tie Yard shall keep the sawdust and chip trailer (EP-2) covered and enclosed at all times during loading.
4. Record Keeping and Reporting Requirements
- A. North American Tie & Timber Tie Yard 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. North American Tie & Timber Tie Yard shall report to the Air Pollution Control Program's Compliance/Enforcement Section, by mail at P.O. Box 176, Jefferson City, MO 65102 or by email at AirComplianceReporting@dnr.mo.gov, 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 (6) REVIEW

Project Number: 2018-05-026
Installation ID Number: 201-0133
Permit Number: 082018-011

Installation Address:

North American Tie & Timber Tie Yard
915 Main Street
Scott City, MO 63780

Parent Company:

North American Tie & Timber Tie Yard
2575 Kelley Pointe Pkwy, Suite 225
Edmond, OK 73034

Scott County, S32, T30N, R14E

REVIEW SUMMARY

- North American Tie & Timber Tie Yard has applied for authority to construct a wood tie processing yard.
 - The application was deemed complete on May 30, 2018.
-
- HAP emissions are not expected from the proposed equipment.
 - None of the New Source Performance Standards (NSPS) apply to the installation.
 - None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment.
 - A cyclone dust collector is being used to control the particulate matter emissions from the log sawing. A sawdust and chip trailer enclosure is being used to control the particulate matter emissions from the saw buildings.
 - This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ and PM_{2.5} are conditioned below the de minimis level by the voluntary production limit. Potential emissions of PM are above the de minimis level but below the major source level.
 - This installation is located in Scott 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.
- No operating permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

North American Tie & Timber (NAT&T) operates a wood tie processing yard located at 915 Main Street in Scott City, Missouri. Emissions are the result of trim saw activities, sawdust handling, and haul roads/vehicular activity areas. The existing facility was built without obtaining a construction permit. This permit is part of a remedial action required by the Air Pollution Control Program.

No permits have been issued to North American Tie & Timber Tie Yard from the Air Pollution Control Program.

PROJECT DESCRIPTION

Ties are cut at a sawmill and shipped to the facility either by truck or rail, primarily by truck. Ties are then processed with the following steps:

- Ends are trimmed;
- Lumber is graded;
- Ties are sorted by variety;
- Ties are insized (process of aerating the ties);
- Ties are end-plated (metal plates are attached to the ends of the tie to reduce warpage and cracking); and
- Ties are stacked to dry, on average, approximately 6 months.

Once the tie has reached the required dryness, it is loaded out via railcar or truck. Maximum annual tie throughput at the facility is based on the maximum trim saw throughput of 10 ties/min. This equates to 5,256,000 ties per year if the trim saw operates 8,760 hours/year. NAT&T does not anticipate ever processing more than 1,000,000 ties per year. Special Condition 1 of this permit limits the processing to no more than 1,250,000 ties per year in order to keep PM₁₀ and PM_{2.5} emissions below de minimis levels.

EMISSIONS/CONTROLS EVALUATION

The emission factors used for unpaved haul roads (EP-4) and vehicular activity areas (EP-3) in this analysis were obtained from the EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 13.2.2 *Unpaved Roads* (uncontrolled; November, 2006). Haul road emissions were based upon silt contents presented in AP-42 Table 13.2.2-1 for unpaved roads. Specifically, silt content was conservatively assumed to be 8.4% which was equivalent to that of lumber sawmills. Haul roads were assumed to receive the Missouri average of 105 days of rain with greater than 0.01" in accumulation. The haul road for the trucks entering and leaving the facility was estimated to be 370 feet with an average loaded truck weight of 40 tons and an average unloaded truck weight of 25 tons. The vehicular activity areas were estimated to be 2,500 feet with an average loaded loader weight of 39.75 tons and an average unloaded loader weight of 27 tons.

A maximum of 19.5 acres of storage area is expected. Each tie is 240 pounds and because of their size no particulate emissions are expected from wind erosion or load-in and load-out of storage piles.

Wood cutting emission factors for the trim saw (EP-1) and the sawdust handling (EP-2) were derived from EPA Memorandum entitled, "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country." This document provides a PM emission factor but assumes the PM₁₀ emission factor and PM_{2.5} emission factor will be 50% and 25% of the total particulate, respectively. For a more realistic particulate distribution, the CEIDARs particulate distribution was applied to the Memorandum's PM emission factor. Combining the Memorandum PM emission factor and the CEIDARs particle distribution yields emission factors for PM, PM₁₀, and PM_{2.5} of 0.350 lb/ton, 0.140 lb/ton, and 0.099 lb/ton, respectively. Particulate emissions from the trim saw are pulled under the saw and conveyed to a cyclone located west of the building. The cyclone sits on top of a building and empties sawdust into a trailer truck, which is parked in the building. Trailer trucks of sawdust are shipped out when full, approximately one per month. The trailers are enclosed on four sides. Covers are being used to control particulate matter emissions for the sawing operations. The EPA Memorandum indicates that if any activity occurs within a building, the PM, PM₁₀ and PM_{2.5} emission factor ("EF") should be reduced by 100 percent (engineering judgement) as emissions struggle to escape through doorways and other openings. Conservatively, a 90% control efficiency for PM, PM₁₀ was assigned in this project for both EP-1 and EP-2. Only a 50% control efficiency for PM_{2.5} was assigned for both EP-1 and EP-2 since PM_{2.5} is less likely to settle out.

The following table provides an emissions summary for this project. There are no existing actual or potential emissions since this a newly permitted facility. Potential emissions of the application represent the potential of the equipment, assuming continuous operation (8760 hours per year) with no controls. Conditioned potential emissions account for a voluntary production limit in any consecutive 12 month period to less than 1,250,000 ties with controls.

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Project	New Installation Conditioned Potential
PM	25.0	N/D	N/D	311.90	50.43
PM ₁₀	15.0	N/D	N/D	100.39	14.49
PM _{2.5}	10.0	N/D	N/D	34.18	1.87
SO _x	40.0	N/D	N/D	N/A	N/A
NO _x	40.0	N/D	N/D	N/A	N/A
VOC	40.0	N/D	N/D	N/A	N/A
CO	100.0	N/D	N/D	N/A	N/A
GHG (CO ₂ e)	N/A	N/D	N/D	N/A	N/A
GHG (mass)	N/A	N/D	N/D	N/A	N/A
HAPs	10.0/25.0	N/D	N/D	N/A	N/A

N/A = Not Applicable; 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 PM₁₀ and PM_{2.5} are conditioned below the de minimis level by the voluntary production limit. Potential emissions of PM are above the de minimis levels but below the major source level.

APPLICABLE REQUIREMENTS

North American Tie & Timber Tie Yard 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

- *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

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*, 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 May 2, 2018, received May 11, 2018, designating North American Tie & Timber Tie Yard as the owner and operator of the installation.

Other Relied Upon Documents

The Engineering ToolBox summary of seasoned white oak which suggests average density of pressure treated lumber is approximately 47 lbs/ft³

- Appendix 2. Conversion Factors for Wood Products of USFS "An Analysis of the Timber Situation in the United States 1989-2040"
- EPA Memorandum from Region 10 entitled, "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" (May 08, 2014) which provides emission factors for sawing and sawdust handling.

Attachment A: Production Tracking Sheet
 North American Tie & Timber Tie Yard 201-0133
 Project Number: 2018-05-026
 Permit Number:

082018-011

This sheet covers the period from _____ to _____
 (Copy as needed) (Month, Day Year) (Month, Day Year)

Date (Month/Year)	Production (ties)	12-Month Rolling Total Production ¹ (tons)
<i>Example</i>	<i>100,000</i>	<i>100,000 + previous 11 months</i>

¹Add the monthly production to the sum of the monthly production from the previous eleven months. A total of less than 1,250,000 ties is necessary for compliance

APPENDIX A

Abbreviations and Acronyms

%percent	Mgal1,000 gallons
°Fdegrees Fahrenheit	MWmegawatt
acfm actual 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
fpsfeet per second	scfmstandard cubic feet per minute
ftfeet	SDSSafety Data Sheet
GACT Generally Available Control Technology	SICStandard Industrial Classification
GHG Greenhouse Gas	SIPState Implementation Plan
gpm gallons 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	

Attachment 1
North American Tie Timber
Scott City, MO
Trim Saw Emissions

Trim Saw Emissions

Emissions based on trim saw maximum throughput of 10 ties/hr, 8760 hours/year.

Trim Saw Throughput	
Annual Tie Throughput:	5,256,000 ties/year
Tie Dimensions:	7" x 9" x 8.5' per tie
H:	0.58 ft
W:	0.75 ft
L:	0.0833 ft (assume 1" since just shaving off ends)
V:	0.0365 ft ³
Weight	3.50 lb (two ends per tie)
Annual weight (white oak weighs 48 lb/ft ³ on average):	18,396,000 lb
	9,198 tons/yr
Area:	0.88 ft ² (area of the ends)
Annual tie area:	4,599.0 Mbf/year

Pollutant	Emission Factor	Units	Uncontrolled Emissions		Controlled Emissions	
			lb/hr	tons/yr	lb/hr	tons/yr
Sawmills - Emission Factor ¹						
PM	43.26	lb/Mbf	22.71	99.48	1.19E+00	5.22
PM ₁₀	17.31	lb/Mbf	9.09	39.79	4.77E-01	2.09
PM _{2.5}	12.24	lb/Mbf	6.42	28.14	1.69E+00	7.39

Sawdust Handling ²						
PM	0.185415	lb/Mbf per drop point	0.10	0.43	9.73E-03	4.26E-02
PM ₁₀	0.074166	lb/Mbf per drop point	0.04	0.17	3.89E-03	1.71E-02
PM _{2.5}	0.052472445	lb/Mbf per drop point	0.03	0.12	1.38E-02	6.03E-02

1. E.F. are from USEPA Memorandum dated 5/8/14 "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers." For controlled emissions, assume 90% control efficiency since the activity occurs in a building, see footnote 1 of the memo. This document provides a PM emission factor but assumes the PM10 emission factor and PM2.5 emission factor will be 50% and 25% of the total particulate, respectively. For a more realistic particulate distribution, the CEIDARs particulate distribution was applied to the Memorandum's PM emission factor. Combining the Memorandum PM emission factor and the CEIDARs particle distribution yields emission factors for PM, PM10, and PM2.5 of 0.350 lb/ton, 0.140 lb/ton, and 0.099 lb/ton, respectively.

2. Assume 1 drop point: dropping out of cyclone onto truck (storage pile). For controlled emissions, assume 90% control efficiency since the activity occurs in a building, see footnote 1 of the memo.

Convert lb/ton log to lb/Mbf: = (lbPM/ton log)*(ton/2000 lb)*(LD lb/ft3)*(LRF bf lumber/ft3 log)*(1000 bf/Mbf)

Where:	LD =	47.00	seasoned white oak (lb/ft3)
	LRF =	softwood	6.44 bf/ft3 log
		hardwood	5.26 bf/ft3 log

Equation from Note 3 on USEPA Memorandum dated 5/8/14 "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers."

LD values provided by The Engineering Toolbox.

LRF values in Appendix 2. Conversion Factors for Wood Products of USFS "An Analysis of the Timber Situation in the United States 1989-2040"

Attachment 1
North American Tie Timber
Scott City, MO
Trim Saw Emissions

Conditioned Trim Saw Emissions account for voluntary 1,250,000 ties/yr limit

Emissions based on trim saw maximum throughput of 10 ties/hr, 8760 hours/year.

	Trim Saw Throughput	
Annual Tie Throughput:	1,250,000	ties/year
Tie Dimensions:	7" x 9" x 8.5'	per tie
H:	0.58	ft
W:	0.75	ft
L:	0.0833	ft (assume 1" since just shaving off ends)
V:	0.0365	ft ³
Weight	3.50	lb (two ends per tie)
Annual weight (white oak weighs 48 lb/ft ³ on average):	4,375,000	lb
Area:	2,188	tons/yr
Area:	0.88	ft ² (area of the ends)
Annual tie area:	1,093.8	Mbf/year

Pollutant	Emission Factor	Units	Uncontrolled Emissions		Controlled Emissions	
			lb/hr	tons/yr	lb/hr	tons/yr
Sawmills - Emission Factor¹						
PM	43.26	lb/Mbf	5.40	23.66	6.74E-02	0.30
PM ₁₀	17.31	lb/Mbf	2.16	9.46	2.70E-02	0.12
PM _{2.5}	12.24	lb/Mbf	1.53	6.69	9.54E-02	0.42
VOC ²	0.13	lb/MSF	1.62E-02	0.07	1.62E-02	0.07
Methanol ²	0.38	lb/MSF	0.05	0.21	0.05	0.21

Sawdust Handling³						
PM	0.185415	lb/Mbf per drop point	0.02	0.10	2.32E-03	1.01E-02
PM ₁₀	0.074166	lb/Mbf per drop point	0.01	0.04	9.26E-04	4.06E-03
PM _{2.5}	0.052472445	lb/Mbf per drop point	0.01	0.03	3.28E-03	1.43E-02

1. E.F. are from USEPA Memorandum dated 5/8/14 "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers." For controlled emissions, assume 90% control efficiency since the activity occurs in a building, see footnote 1 of the memo. This document provides a PM emission factor but assumes the PM10 emission factor and PM2.5 emission factor will be 50% and 25% of the total particulate, respectively. For a more realistic particulate distribution, the CEIDARs particulate distribution was applied to the Memorandum's PM emission factor. Combining the Memorandum PM emission factor and the CEIDARs particle distribution yields emission factors for PM, PM10, and PM2.5 of 0.350 lb/ton, 0.140 lb/ton, and 0.099 lb/ton, respectively.

2. AP-42 Table 10.6.3-7

3. Assume 1 drop point: dropping out of cyclone onto truck (storage pile). For controlled emissions, assume 90% control efficiency since the activity occurs in a building, see footnote 1 of the memo.

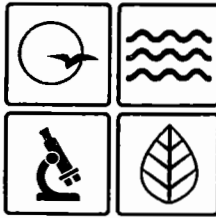
Convert lb/ton log to lb/Mbf: = (lbPM/ton log)*(ton/2000 lb)*(LD lb/ft3)*(LRF bf lumber/ft3 log)*(1000 bf/Mbf)

Where:	LD =	47.00		seasoned white oak (lb/ft3)
LRF =		softwood	6.44	bf/ft3 log
		hardwood	5.26	bf/ft3 log

Equation from Note 3 on USEPA Memorandum dated 5/8/14 "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers."

LD values provided by The Engineering Toolbox.

LRF values in Appendix 2. Conversion Factors for Wood Products of USFS "An Analysis of the Timber Situation in the United States 1989-2040"



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Carol S. Comer, Director

AUG 15 2018

Mr. George White
Facility Manager
North American Tie & Timber Tie Yard
915 Main Street
Scott City, MO 63780

RE: New Source Review Permit - Project Number: 2018-05-026

Dear Mr. White:

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 and your new source review permit application 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.



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Mr. George White
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Chad Stephenson, 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:csj

Enclosures

c: Southeast Regional Office
PAMS File: 2018-05-026

Permit Number: **082018-011**

Activity	MHDR			Truck Types				We*	Wf*
	(tons/hr)	(trips/hr)	loader	haul truck	type				
Vehicular Activity (EP-3)	72.0	5.647	100%					27	39.75
Haul Road (EP-4)	72.0	4.800		100%				25	40
title	0.000							0	0
title	0.000							0	0
title	0.000							0	0
title	0.000							0	0
title	0.000							0	0
title	0.000							0	0
title	0.000							0	0
Road Segment ID	1	2	3	4	5	6	7	8	
D one way (feet)	2500	370							
D one way (miles)	0.473	0.070							
Vehicular Activity (EP-3)	3								
Haul Road (EP-4)		3							
title									
title									
title									
title									
title									
title									
Vehicular Activity (EP-3)	33.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Haul Road (EP-4)	0.000	32.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	33.38	32.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved
E(PM2.5) (lbs/VMT):	0.32175	0.32175	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM10) (lbs/VMT):	3.21747	3.21747	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM30) (lbs/VMT):	11.28755	11.28755	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM2.5) (lbs/VMT):	0.22919	0.22919	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM10) (lbs/VMT):	2.29180	2.29180	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM30) (lbs/VMT):	8.04045	8.04045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vehicular Activity (EP-3)	5.347594	0	0	0	0	0	0	0	0
Haul Road (EP-4)		0.672	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0
MHDR (VMT/hr)	5.347594	0.672	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr)	1.720572	0.216214	0	0	0	0	0	0	0
PTE PM10 (lb/hr)	17.20572	2.16214	0	0	0	0	0	0	0
PTE PM30 (lb/hr)	60.36123	7.585234	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr) w/ rain	1.225613	0.154015	0	0	0	0	0	0	0
PTE PM10 (lb/hr) w/ rain	12.25613	1.540154	0	0	0	0	0	0	0
PTE PM30 (lb/hr) w/ rain	42.89704	5.40318	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr)	7.536106	0.947017	0	0	0	0	0	0	0
PTE PM10 (tons/yr)	75.36106	9.470172	0	0	0	0	0	0	0
PTE PM30 (tons/yr)	264.3622	33.22333	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr) w/ rain	5.368185	0.674588	0	0	0	0	0	0	0
PTE PM10 (tons/yr) w/ rain	53.68185	6.745876	0	0	0	0	0	0	0
PTE PM30 (tons/yr) w/ rain	188.3271	23.66563	0	0	0	0	0	0	0

Truck Type	We (tons)	Wf (tons)
loader	27	39.75
haul truck	25	40
type		
type		

truck type row must sum to 100% per each activity
 only one activity per row

1=empty
 2=full
 3=both

Annual Tie Throughput:	5,256,000	ties/year
Weight:	240	lb/tie
Annual weight:	1,261,440,000	lb/yr
	630,720	tons/yr

tpy	PM
211.99	PM
60.43	PM10
6.04	PM2.5

There is no added control % for dry cleaning paved roads, but the sL decreases.
 sL of 2.0 g/m2 is assumed for light industry (except more fugitive materials such as grain, aggregate, coal, etc may have higher sL).
 sL lower than 2.0 can be used with a permit limit, cleaning, and testing required.
 unpaved control for "BMP" is 90%, 80%, 74%. For undocumented watering is 50%, 50%, 41.1%. PM, PM10, PM2.5 respectively.

rates to modeling 24 hr max throughput (lb/hr)	rates to modeling annual throughput (lb/hr)
paved w/o rain	paved w/with rain
paved with control reduced sL or contr, w/o rain	paved with dry sweeping/vac reduced sL, with rain
unpaved w/o rain	paved with washing reduced sL or same sL w/ control, w/o rain
unpaved with control controlled w/o rain	unpaved w/with rain
	unpaved with control controlled w/o rain
tpy rates to permit PTE annual throughput	
paved w/with rain	
paved with dry sweeping/vac reduced sL, with rain	
paved with washing reduced sL or same sL w/ control, w/o rain	
unpaved w/with rain	
unpaved with control controlled w/o rain	

to portion out an activity in order to add to a composite emission factor:
 apply this equation to each segment that the activity travels on and sum the results: MHDR / MHDR(VMT/hr) x PTE(lb/hr)
 then divide by that activity's MHDR (tpy) to get lb/ton emission factor

Activity	MHDR		Truck Types					
	(tons/hr)	(trips/hr)	loader	haul truck	type	W6*	W7*	
Vehicular Activity (EP-3)	17.1	1,343	100%				27	38.75
Haul Road (EP-4)	17.1	1,343		100%			25	40
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
Road Segment ID	1	2	3	4	5	6	7	8
D one way (feet)	2500	370						
D one way (miles)	0.473	0.070						
Vehicular Activity (EP-3)	3							
Haul Road (EP-4)		3						
title								
title								
title								
title								
title								
title								
Vehicular Activity (EP-3)	33.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Haul Road (EP-4)	0.000	32.500	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W-Surface	33.38	32.50	0.00	0.00	0.00	0.00	0.00	0.00
	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved
E(PM2.5) (lbs/NMT)	0.32175	0.32175	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM10) (lbs/NMT)	3.21747	3.21747	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM30) (lbs/NMT)	11.28755	11.28755	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM2.5) (lbs/NMT)	0.22919	0.22919	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM10) (lbs/NMT)	2.29190	2.29190	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Ext(PM30) (lbs/NMT)	8.04045	8.04045	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Vehicular Activity (EP-3)	1.271783	0	0	0	0	0	0	0
Haul Road (EP-4)	0	0.159817	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0
MHDR (VMT/hr)	1.271783	0.159817	0	0	0	0	0	0
PTE PM2.5 (lb/hr)	0.409192	0.051421	0	0	0	0	0	0
PTE PM10 (lb/hr)	4.091924	0.514208	0	0	0	0	0	0
PTE PM30 (lb/hr)	14.35532	1.803946	0	0	0	0	0	0
PTE PM2.5 (lb/hr) w/ rain	0.39148	0.036628	0	0	0	0	0	0
PTE PM10 (lb/hr) w/ rain	2.914795	0.366285	0	0	0	0	0	0
PTE PM30 (lb/hr) w/ rain	10.2257	1.285003	0	0	0	0	0	0
PTE PM2.5 (tons/yr)	1.792263	0.225223	0	0	0	0	0	0
PTE PM10 (tons/yr)	17.92263	2.252229	0	0	0	0	0	0
PTE PM30 (tons/yr)	62.87629	7.901286	0	0	0	0	0	0
PTE PM2.5 (tons/yr) w/ rain	1.27698	0.160433	0	0	0	0	0	0
PTE PM10 (tons/yr) w/ rain	12.7698	1.604327	0	0	0	0	0	0
PTE PM30 (tons/yr) w/ rain	44.78859	5.628313	0	0	0	0	0	0

Truck Type	W6 (tons)	W7 (tons)
loader	27	38.75
haul truck	25	40
type		
type		

truck type row must sum to 100% per each activity
 only one activity per row

1=empty
 2=full
 3=both

Annual Tie Throughput:	1,250,000	ties/year
Weight:	240	lb/tie
Annual weight:	300,000,000	lb/yr
	150,000	tons/yr

tpy	PM	PM10	PM2.5
50.42			
14.37			
1.44			

There is no added control % for dry cleaning paved roads, but the sL decreases.
 sL of 2.0 g/m2 is assumed for light industry (except more fugitive materials such as grain, aggregate, coal, etc may have higher sL).
 sL lower than 2.0 can be used with a permit limit, cleaning, and testing required.
 unpaved control for "BMP" is 50%, 60%, 74%. For undocumented watering is 50%, 50%, 41.1%. PM, PM10, PM2.5 respectively.

rates to modeling 24 hr max throughput (lb/hr)	rates to modeling annual throughput (lb/hr)
paved w/o rain	paved with rain
paved with control	paved with dry sweeping/vac
unpaved w/o rain	reduced sL, with rain
unpaved with control	paved with washing
	reduced sL or same sL w/ control, w/o rain
	unpaved with rain
	unpaved with control
	controlled w/o rain
tpy rates to permit PTE annual throughput	
paved with rain	
paved with dry sweeping/vac	reduced sL, with rain
paved with washing	reduced sL or same sL w/ control, w/o rain
unpaved with rain	
unpaved with control	controlled w/o rain

to portion out an activity in order to add to a composite emission factor:
 apply this equation to each segment that the activity travels on and sum the results: MHDR / MHDR(VMT/hr) x PTE(lb/hr)
 then divide by that activity's MHDR (tph) to get lb/ton emission factor

Haul Road/Haul Truck/Material Hauled Information									
Haul Road ID No.:	1	2	3	4	5	6	7	8	
W (tons):	33.38	33.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s (%):	8.4	8.4							
P (days):	105	105	105	105	105	105	105	105	105
E(PM2.5) (lbs/VMT):	0.3217	0.3217							
E(PM10) (lbs/VMT):	3.2175	3.2175							
E(PM30) (lbs/VMT):	11.2876	11.2876							
Eext(PM2.5) (lbs/VMT):	0.2292	0.2292							
Eext(PM10) (lbs/VMT):	2.2919	2.2919							
Eext(PM30) (lbs/VMT):	8.0404	8.0404							

$E = k (s/12)^a * (W/3)^b$ where:

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

Constants for Equation

Particle Size:	Constant		
	k(lb/VMT)	a	b
PM2.5	0.15	0.9	0.45
PM10	1.5	0.9	0.45
PM30	4.9	0.7	0.45

$E_{ext} = E[(365-P)/365]$ where E is defined above and:

Eext = annual size-specific emission factor extrapolated for natural mitigation (lb/VMT)

P = number of days in a year with at least 0.01 inch of precipitation