

Hours/Year	8760	Potential
Hours/Year	2700	Actual

Input Capacity	0.51	MMBtu/hr
Btu value of Fuel (dry)	1000	
Primary Fuel	Wood	

Pollutant	Emission Factors	Units	Rating	Controls	AP-42 Source	Type of Wood
PM-F	0.40	lb/MMBtu	A	no	Table 1.6-1	Dry
PM-C	0.017	lb/MMBtu	A	no/all	Table 1.6-1	All
PM-T	0.417	lb/MMBtu	A			
SO2	0.025	lb/MMBtu	A	no	Table 1.6-2	Dry
CO	0.60	lb/MMBtu	A	no	Table 1.6-2	Dry
VOC	0.017	lb/MMBtu	D	no	Table 1.6-3	Dry
NOx	0.49	lb/MMBtu	A	no	Table 1.6-2	Dry
HAP Total*	0.035	lb/MMBtu	-	no	Table 1.6-3	Dry

Potential

PM-T*	0.347 lb	0.51 MMBtu	0.21267	lb/hr	0.931495	TPY
	MMBtu	hr				

SO2	0.025 lb	0.51 MMBtu	0.01275	lb/hr	0.055845	TPY
	MMBtu	hr				

CO	0.6 lb	0.51 MMBtu	0.306	lb/hr	1.34028	TPY
	MMBtu	hr				

VOC	0.017 lb	0.51 MMBtu	0.00867	lb/hr	0.037975	TPY
	MMBtu	hr				

NOx	0.22 lb	0.51 MMBtu	0.2499	lb/hr	1.094562	TPY
	MMBtu	hr				

HAP	0.035 lb	0.51 MMBtu	0.01785	lb/hr	0.078183	TPY
	MMBtu	hr				

Actual

0.21267	lb/hr	0.287105	TPY

0.01275	lb/hr	0.017213	TPY

0.306	lb/hr	0.4131	TPY

0.00867	lb/hr	0.011705	TPY

0.2499	lb/hr	0.337365	TPY

0.01785	lb/hr	0.024098	TPY

Operation Hours	9 hours/day 6 days/week 50 weeks/year 300 days/year
Actual Op Hours	2700 hours/year
Potential Op Hours	8760 hours/year

Design Input of Wood	52.56 lb/hr	
	0.026 tons/hr	
	2589.000 bf/hr	(bf = board feet)

Pollutant	Emission Factor		Throughput (bf/hr)	PTE (lb/hr)	PTE (TPY)
	lb/mbf	lb/bf			
VOC	0.358	0.000358	2589.0	0.926862	4.06
Acetaldehyde	0.00032	0.00000032	2589.0	0.00082848	0.004
Acrolein	0.000	0.000	2589.0	0.00	0.00
Formaldehyde	0.000	0.000	2589.0	0.00	0.00
methanol	0.000	0.000	2589.0	0.00	0.00
phenol	0.000	0.000	2589.0	0.00	0.00

**The emission factors in the VA DEQ memo were obtained from the article, "Quantification of the VOCs released during kiln-drying red oak and white oak lumber (volatile organic compounds)" by Brian W. Beakler, Paul R. Blankenhorn, Nicole R. Brown, Matthew S. Scholl, & Lee R. Stover in the Forest Products Journal, November 2007. Emission factors for HAPs, excluding acetaldehyde, were not provided; however, the memo referenced the article stated a previous study of red oak showed the primary VHAP component of the non-condensable portion of VOC drying of red oak is acetaldehyde. [Solliday et al. (1999)]. Based on this information and for the purposes of permitting, acetaldehyde is the only HAP considered in the kiln drying operation. See the attached memo from the VA DEQ.*

10.3 MMBtu Wood fired Boiler

Franklin County

Particulate Matter				
0.330 grains of PM/ dcf		Source:	1200-03-06-.05(2)(a)	
corrected to 12% CO2				

Sulfur Dioxide (SO2)				
Johnson County	Class VI			
E (lb/MMBtu)	5	Source:	1200-03-14-.02(2)(a)	
E(lb/hr)	2.55			

Particular Matter Allowable

0.330 gr 1739 acf 60 min 1 lb 4.918886 lb/hr
 dcf min 1 hr 7000 gr