

Commonwealth of Kentucky  
Division for Air Quality  
***STATEMENT OF BASIS / SUMMARY***

Conditional Major, Construction/Operating

Permit: F-24-063

Dunaway Timber Co 2

214 Easton Road

Fordsville, KY 42343

1/17/2025

Kayla Thurman, Reviewer

SOURCE ID: 21-183-00070

AGENCY INTEREST: 44386

ACTIVITY: APE20240004

**Table of Contents**

<b>SECTION 1 – SOURCE DESCRIPTION .....</b>	<b>2</b>
<b>SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM.....</b>	<b>3</b>
<b>SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS .....</b>	<b>4</b>
<b>SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS .....</b>	<b>12</b>
<b>SECTION 5 – PERMITTING HISTORY .....</b>	<b>14</b>
<b>SECTION 6 – PERMIT APPLICATION HISTORY.....</b>	<b>15</b>
<b>APPENDIX A – ABBREVIATIONS AND ACRONYMS .....</b>	<b>15</b>

## SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 2421, Sawmills and Planing Mills, General (sawmills)

Single Source Det. ☐ Yes ☒ No If Yes, Affiliated Source AI:

Source-wide Limit ☒ Yes ☐ No If Yes, See Section 4, Table A

28 Source Category ☐ Yes ☒ No If Yes, Category:

County: Ohio

Nonattainment Area ☒ N/A ☐ PM<sub>10</sub> ☐ PM<sub>2.5</sub> ☐ CO ☐ NO<sub>x</sub> ☐ SO<sub>2</sub> ☐ Ozone ☐ Lead

If yes, list Classification:

PTE\* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No

If yes, for what pollutant(s)?

☒ PM<sub>10</sub> ☐ PM<sub>2.5</sub> ☐ CO ☐ NO<sub>x</sub> ☐ SO<sub>2</sub> ☒ VOC

PTE\* greater than 250 tpy for any criteria air pollutant ☐ Yes ☒ No

If yes, for what pollutant(s)?

☐ PM<sub>10</sub> ☐ PM<sub>2.5</sub> ☐ CO ☐ NO<sub>x</sub> ☐ SO<sub>2</sub> ☐ VOC

PTE\* greater than 10 tpy for any single hazardous air pollutant (HAP) ☒ Yes ☐ No

If yes, list which pollutant(s): Methanol

PTE\* greater than 25 tpy for combined HAP ☒ Yes ☐ No

\*PTE does not include self-imposed emission limitations.

### Description of Facility:

Dunaway Timber Co 2 is owned and operated by Dunaway Timber Company, is located in Fordsville, KY and primarily produces rail road ties. Other products include lumber, pallet parts, and staves for bourbon and wine barrels. The facility is planning to construct a hardwood pellet facility in 2025.

Permit: F-24-063

**SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM**

Permit Number: F-24-063

Activity: APE20240004

Application Received: October 3, 2024

Application Complete Date(s): October 28, 2024

Permit Action: ☒ Initial ☐ Renewal ☒ Significant Rev ☐ Minor Rev ☐ Administrative  
 Construction/Modification Requested? ☒ Yes ☐ No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☐ Yes ☒ No

**Description of Action:**

The application is for the construction and operation of a pellet mill which consists of the following emission units:

- Addition of EU 11-15, and 17 Greenwood Material Handling
- Addition of EU 18, Greenwood Walking Floor Trailer
- Addition of EU 16, Green Hammer Mill Equipment
- Addition of EU 19, Rotary Drum Dryer & Wood Pellet Processing
- Addition of EU 20, Natural Gas-fired Boiler
- Addition of EUs 21-23, Material Storage
- Addition of EU 24, Pellet Packaging
- Addition of EU 25, Haul Roads

The increased emission rates from the pellet mill caused the facility to exceed major source thresholds as defined in 401 KAR 52:001 for VOC, Methanol and Combined HAPs. The facility chose to take limits on these pollutants to be less than major source threshold.

F-24-063 Emission Summary				
Pollutant	2023 Actual (tpy)	Previous PTE S-15-007 (tpy)	Change (tpy)	Revised PTE F-24-063 (tpy)
CO	-	0.00	74.18	74.18
NO <sub>x</sub>	-	0.00	62.01	62.01
PT	7.49	63.66	-1.06	62.60
PM <sub>10</sub>	7.49	56.79	-0.83	55.96
PM <sub>2.5</sub>	1.12	8.93	-0.01	8.92
SO <sub>2</sub>	-	0.00	1.63	1.63
VOC	-	0.00	187.80	187.8
Lead	-	0.00	6.53E-5	6.53E-5
Greenhouse Gases (GHGs)				
Carbon Dioxide	-	0.00	15,669	15,669
Methane	-	0.00	1.38	1.38
Nitrous Oxide	-	0.00	0.86	0.86
CO <sub>2</sub> Equivalent (CO <sub>2</sub> e)	-	0.00	15,959	15,959
Hazardous Air Pollutants (HAPs)				
Combined HAPs:		0.00	52.3	52.3
Acetaldehyde		0.00	2.18	2.18
Formaldehyde		0.00	4.01	4.01
Hydrochloric Acid		0.00	1.24	1.24
Methanol		0.00	44.19	44.19

### SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

#### Emission Units 01-07, 09, 10, 21-24 Sawmills, Wood Pellet Storage and Packaging

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM*	$P \leq 0.5$ , $E = 2.34$ lb/hr; $0.5 < P \leq 30$ $E = 3.59P^{0.62}$	401 KAR 59:010, Section 3(2)	See Table	Compliance is assumed with proper operation of control devices
	20% Opacity	401 KAR 59:010, Section 3(1)	N/A	Visible observation and US EPA Reference Method 9

\*Where P is process rate weight in tons/hour and E is the maximum allowable particulate emission in lb/hour

#### Process Description:

EU	Description	Construction Date	Capacity	PM Emission Factor*	Control Device and Efficiency
01	Circle Sawmill #1	1979	1500 bd ft/hr	4.8 lb/1000 bd ft	Enclosure, 85%
02	Circle Sawmill #2	1979	1500 bd ft/hr	4.8 lb/1000 bd ft	Enclosure, 85%
03	Whole Log Chipper	1979	10 tons/hr	0.2 lb/ton	No Equipment
04	Pallet Parts Mill	1979	2000 bd ft/hr	7.2 lb/1000 bd ft	Cyclone, 85%
05	Bandsaw Mill; Sawmill #3	1992	1500 bd ft/hr	4.8 lb/1000 bd ft	Enclosure, 70%
06	Bandsaw Mill; Sawmill #4	2005	1500 bd ft/hr	2 lb/1000 bd ft	Enclosure; 70%
07	Bandsaw Mill; Sawmill #5	2006	1500 bd ft/hr	2 lb/1000 bd ft	Enclosure; 70%
09	Stave Mill	2013	463 bd ft/hr	2 lb/1000 bd ft	Enclosure; 70%
10	Loadouts From EU 06 and 09	2005	1960 bd ft/hr	2 lb/1000 bd ft	Enclosure; 70%
21	Dry Sawdust Storage Bin	Proposed 2025	11.65 tons/hr	0.0015 lb/ton; EPA Region 10 Memo**	Bin Vent Filter
22	Briquette Bin		11.65 tons/hr	0.0015 lb/ton; EPA Region 10 Memo**	Bin Vent Filter

\* PM emission factors were accepted by the Division in 1991 with the initial application for the facility. The Division still considers these to be conservative.

\*\* PM emission factor is from EPA Region 10 Memorandum regarding PM PTE Emission Factors for Activities at Sawmills, dated May 8, 2014

#### Applicable Regulation:

**401 KAR 59:010, New process operations.** This regulation is applicable to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975.

**Emission Units 01-07, 09, 10, 21-24 Sawmills, Wood Pellet Storage and Packaging**

**Comments:**

For particulate matter emission rate compliance, a feed of 100% hickory wood with a density of 58.1 lb/ft<sup>3</sup> was utilized, as this is the highest density wood species processed at the facility and provides the most conservative estimation.

**Emission Units 11-15, 17, 18, 25 – Pellet Mill Fugitive Emissions & Haul Roads**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
Visible fugitive dust emissions	None beyond lot line for > 5 min. during any 60-mins nor >20 min. during any 24-hrs	401 KAR 63:010, Section 3(2)	N/A	N/A

**Process Description:**

Emission Unit	Description	Construction Date	PM Emission Factor and Basis	Capacity
11	Greenwood Truck Unloading	Proposed 2025	0.00075 lb/ton; EPA Region 10 Memo*	13.54 tons/hr
12	Outdoor Greenwood Storage Pad		0.38 lb/ton; EPA Region 10 Memo*	1 acre
13	Greenwood Handling to Feed Hopper		0.00075 lb/ton; EPA Region 10 Memo*	15 tons/hr
14	Feed Hopper		0.00075 lb/ton; EPA Region 10 Memo*	15 tons/hr
15	Open Conveyor Belt		0.00075 lb/ton; EPA Region 10 Memo*	15 tons/hr
17	Greenwood Handling to Trailer		0.00075 lb/ton; EPA Region 10 Memo*	15 tons/hr
18	Open Walking Floor Trailer		0.00075 lb/ton; EPA Region 10 Memo*	15 tons/hr
25	Haul Roads		12.91 lb/VMT; AP-42 Equation 13.2.2-1a	3701.1 VMT/yr

\* PM emission factor is from EPA Region 10 Memorandum regarding PM PTE Emission Factors for Activities at Sawmills, dated May 8, 2014

**Emission Units 11-15, 17, 18, 25 – Pellet Mill Fugitive Emissions & Haul Roads**

**Applicable Regulation:**

**401 KAR 63:010**, *Fugitive emissions* applies to an apparatus, operation, or road that emits or could emit fugitive emissions not elsewhere subject to an opacity standard within 401 KAR Chapters 50 through 68.

**Comments:**

The permittee shall monitor and maintain a log of reasonable precautions taken to prevent PM from becoming airborne on a daily basis. If fugitive dust emissions beyond the lot line are observed, the permittee shall either conduct a U.S. EPA Reference Method 22 or immediately perform a corrective action which results in **no** visible fugitive dust emissions beyond the lot line of the property, documenting the date and time of the qualitative fugitive emissions observation, initials of observer, whether any fugitive dust emissions were observed, any U.S. EPA Reference Method 22 performed with field records, and any corrective action taken with the results.

**Emission Units 16, 19, 23, & 24 – Wood Pellet Production**

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	$P \leq 0.50$ , $E = 2.34$ ; $0.50 < P \leq 30$ , $E = 3.59P^{0.62}$	401 KAR 59:010, Section 3(2)	See Table	Assumed with proper operation of controls
	20% Opacity	401 KAR 59:010, Section 3(1)	N/A	Visual observation and U.S. EPA Reference Method 9
VOC	90 tpy sourcewide	Preclude 401 KAR 52:020	See Table	Monthly and 12-month rolling total calculated monthly and reported semiannually
Methanol	9 tpy sourcewide	Preclude 401 KAR 52:020	See Table	
Formaldehyde	1.27 tpy sourcewide	401 KAR 63:020 compliance based on modeling	See Table	

\*Where P is process weight rate in tons/hour and E is allowable emission rate in lb/hour

**Initial Construction Date:** September 2023

**Process Description:**

Emission Unit	Description	Maximum Process Rate	PM Emission Factor & Basis	Control Equipment
16	Green Hammermill	15 tons/hr	0.35 lb/ton; EPA Region 10 Memo	Koger Cyclone
19-01	Wood Drying	11.65 tons/hr	3.4 lb/ton, AP-42 Table 10.6.2-1	Multiple Cyclones

**Emission Units 16, 19, 23, & 24 – Wood Pellet Production**

19-02	Sawdust Combustion	1.65 tons/hr	3.6 lb/ton, AP-42 Table 1.6-1	
19-03	Natural Gas Combustion	0.03 MMscf/hr	7.6 lb/MMscf, AP-42 Table 1.4-2	
19-04	Dry Hammermill	11.65 tons/hr	0.039 lb/ton; AP-42 Table 11.19.2-2	Cyclone; Dryer
19-05	Pellet Mills (x3)	6.5 tons/hr each	0.00075 lb/ton; EPA Region 10 Memo	Enclosure; Dryer
19-06	Pellet Screeners (x2)	11.65 tons/hr combined	0.025 lb/ton; AP-42 Table 11.19.2-2	Enclosure; Dryer
19-07	Pellet Cooler	11.65 tons/hr	0.00075 lb/ton; EPA Region 10 Memo	Cyclone; Dryer
23	Pellet Storage Silos (x3)	0.0242 tons/hr	0.0015 lb/ton; EPA Region 10 Memo	No Equipment
24	Pellet Packaging	11.65 tons/hr	0.0015 lb/ton; EPA Region 10 Memo	Enclosure

30 MMBtu/hr direct fired rotary drum dryer. Natural gas is utilized for startup and sawdust is combusted to maintain heat. Wood drying processing rate is based on output tons.

**Applicable Regulation:**

**401 KAR 59:010**, *New process operations* applies to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulates in this chapter.

**State-Origin Requirement:**

**401 KAR 63:020**, *Potentially hazardous matter or toxic substances* applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances.

**Comments:**

Emissions from EUs 19-04 through 19-07 are recirculated through the dryer for VOC and HAP control. Testing for VOC, Acetaldehyde, Formaldehyde and Methanol will be conducted on the outlet of the dryer. An emission factor for each pollutant will be determined for this gas stream and represents the sum of emissions from 19-01 through 19-07. VOC, Acetaldehyde, Formaldehyde, and Methanol emission factors for all units except 19-02 and 19-03 are based on test data from Appling County Pellet Mill using 100% hardwood feed.

<b>Emission Units 16, 19, 23, &amp; 24 – Wood Pellet Production</b>					
<b>Emission Unit</b>	<b>Description</b>	<b>PM Emission Factor and Basis</b>	<b>VOC Emission Factor and Basis</b>	<b>Methanol Emission Factor and Basis</b>	<b>Formaldehyde Emission Factor and Basis</b>
16	Green Hammermill	0.35 lb/ton; Appling Co*	0.57 lb/ton; Appling Co	0.559 lb/ton; Appling Co	0.00012 lb/ton; Appling Co
19-01	Wood Drying	3.5 lb/ton; Appling Co	2.4 lb/ton; Appling Co	0.143 lb/ton; Appling Co	0.07 lb/ton; Appling Co
19-02	Sawdust Combustion	3.6 lb/ton; AP-42 Table 1.6-1	0.153 lb/ton; AP-42 Table 1.6-1	N/A	0.0396 lb/ton; AP-42 Table 1.6-3
19-03	Natural Gas Combustion	7.6 lb/MMscf; AP-42 Table 1.4-2	5.5 lb/MMscf; AP-42 Table 1.4-2	N/A	0.075 lb/MMscf; AP-42 Table 1.4-3
19-04	Dry Hammermill	0.039 lb/ton; AP-42 Table 11.19.2-2	0.0001 lb/ton; Appling Co	N/A	0.002 lb/ton; Appling Co
19-05	Pellet Mills (x3)	0.00075 lb/ton; EPA Region 10 Memo	0.134 lb/ton; Appling Co	0.006 lb/ton; Appling Co	0.001 lb/ton; Appling Co
19-06	Pellet Screeners (x2)	0.025 lb/ton; AP-42 Table 11.19.2-2	0.4 lb/ton; Appling Co	0.001 lb/ton; Appling Co	0.002 lb/ton; Appling Co
19-07	Pellet Cooler	0.00075 lb/ton; EPA Region 10 Memo	0.13 lb/ton; Appling Co	0.006 lb/ton; Appling Co	0.001 lb/ton; Appling Co
23	Pellet Storage Silos	0.0015 lb/ton; EPA Region 10 Memo	0.4 lb/ton; Appling Co	0.001 lb/ton; Appling Co	0.002 lb/ton; Appling Co
24	Pellet Packaging	0.0015 lb/ton; EPA Region 10 Memo	0.4 lb/ton; Appling Co	0.001 lb/ton; Appling Co	0.002 lb/ton; Appling Co

\*Appling Co refers to testing conducted at Appling County Pellet Mill using 100% hardwood feed



Emission Unit 20 – Natural Gas-fired Indirect Heat Exchanger				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	0.56 lb/MMbtu	401 KAR 59:015, Section 4(1)(a)	7.6 lb/MMscf, AP-42 Table 1.4-1	Assumed with natural gas combustion
	20% Opacity	401 KAR 59:015, Section 4	N/A	
SO <sub>2</sub>	3.0 lb/MMBtu	401 KAR 59:015, Section 5(1)(a)1.	0.6 lb/MMscf; AP-42 Table 1.4-2	
VOC	90 tpy sourcewide	Preclude 401 KAR 52:020	5.5 lb/MMscf; AP-42 Table 1.4-2	Monthly and 12-month rolling total calculated monthly and reported semiannually
Formaldehyde	1.27 tpy sourcewide	401 KAR 63:020 compliance based on modeling	0.075 lb/MMscf; AP-42 Table 1.4-3	
<b>Initial Construction Date:</b> Proposed 2025				
<b>Process Description:</b> 1.26 MMBtu/hr natural gas-fired Lattner 30HP-WLF Boiler				
<b>Applicable Regulation:</b> <b>401 KAR 59:015</b> , <i>New indirect heat exchangers</i> applies to an indirect heat exchanger having a heat input capacity greater than 1 MMBtu/hr.				
<b>State-Origin Requirement:</b> <b>401 KAR 63:020</b> , <i>Potentially hazardous matter or toxic substances</i> applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances.				
<b>Comments:</b> Emission factors are from AP-42 Section 1.4 for Natural Gas Combustion from External Combustion Sources.  Reasonable steps should be taken to minimize frequency, duration, and impact on ambient air during startups and shutdowns, which should be conducted according to the manufacturer’s recommended procedures, or other similar procedures as approved by the Cabinet.				

### SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

#### Testing Requirements/Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Thruput and Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
16	Cyclone	VOC	To preclude 401 KAR 51:017 and 52:020	Initial	25A	VOC Sourcewide 90 tpy	TBD	TBD	TBD	TBD
16	Cyclone	Acetaldehyde	To preclude 401 KAR 52:020	Initial		N/A	TBD	TBD	TBD	TBD
16	Cyclone	Methanol	To preclude 401 KAR 52:020	Initial	OTM-26 (WPP-1)	Sourcewide 9 tpy	TBD	TBD	TBD	TBD
16	Cyclone	Formaldehyde	401 KAR 63:020	Initial	OTM-26 (WPP-1)	Sourcewide 1.27 tpy	TBD	TBD	TBD	TBD
19	Cyclone	VOC		Initial	25A	Sourcewide 90 tpy	TBD	TBD	TBD	TBD
19	Cyclone	Acetaldehyde		Initial		N/A	TBD	TBD	TBD	TBD

Permit: F-24-063

19	Cyclone	Methanol		Initial	OTM-26 (WPP-1)	Sourcewide 9 tpy	TBD	TBD	TBD	TBD
19	Cyclone	Formaldehyde		Initial	OTM-26 (WPP-1)	Sourcewide 1.27 tpy	TBD	TBD	TBD	TBD

**Footnotes:**

## SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

**Table A - Group Requirements:**

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of PM 10 emissions	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
90 tpy of VOC	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
9 tpy of Methanol	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
22.5 tpy of Combined HAPs	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
1.27 tpy of Formaldehyde	401 KAR 63:020, <i>Potentially hazardous matter or toxic substances</i>	Source-wides

**Table B - Summary of Applicable Regulations:**

Applicable Regulations	Emission Unit
401 KAR 59:010, <i>New process operations</i>	EUs 01, 02, 03, 04, 05, 06, 07, 09, 10, 16, 19, 21, 22, 23, 24
401 KAR 59:015, <i>New indirect heat exchangers</i>	EU 20,
401 KAR 63:010, <i>Fugitive emissions</i>	EUs 11, 12, 13, 14, 15, 17, 18, 25
401 KAR 63:020, <i>Potentially hazardous matter or toxic substances</i>	EUs 16, 19, 20, 23, 24

**Table C - Summary of Precluded Regulations:**

N/A

## **SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)**

### **Table D - Summary of Non Applicable Regulations:**

N/A

### **Air Toxic Analysis**

#### **401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances***

The Division for Air Quality (Division) has performed modeling using AERMOD on December 4, 2024, of potentially hazardous matter or toxic substances (Acetaldehyde, Formaldehyde, Methanol) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

### **Single Source Determination**

N/A

## SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
O-92-047	Operating permit	077-3080-0070	N/A	4/29/1992	Initial Operating Permit	N/A
S-94-194	Renewal	N/A	10/1/1999	11/8/1994	Renewal	N/A
S-99-111	Renewal	Log#G223	N/A	10/15/1999	Renewal	N/A
S-15-007	Renewal	APE20150001	1/20/2015	2/9/2015	Renewal	N/A

## **SECTION 6 – PERMIT APPLICATION HISTORY**

None

## **APPENDIX A – ABBREVIATIONS AND ACRONYMS**

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
MSDS	– Material Safety Data Sheets
mmHg	– Millimeter of mercury column height
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO <sub>x</sub>	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM <sub>10</sub>	– Particulate Matter equal to or smaller than 10 micrometers
PM <sub>2.5</sub>	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO <sub>2</sub>	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds