



west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-2849
Plant ID No.: 077-00085
Applicant: Appalachian Wood Pellets, Inc.
Facility Name: Kingwood Facility
Location: Kingwood, Preston County
SIC Code: 2499 Wood Container and Pellet Manufacturing
Application Type: Construction
Received Date: 7/7/2010
Engineer Assigned: David Keatley
Fee Amount: \$1,000
Date Received: 7/9/2010
Complete Date: October 29, 2010
Due Date: December 14, 2010
Applicant Ad Date: 7/17/2010
Newspaper: *Preston County News*
UTM's: Easting: 616.257 km Northing: 4,369.287 km Zone: 17
Description: This facility makes wood pellets from wood chips, bark, and sawdust. Installation is proposed as soon as this permit is issued. Operation is proposed to start on or about January, 2011.

DESCRIPTION OF PROCESS

Wood chips are transferred from Appalachian Wood Products (AWP) Kingwood Sawmill via an overhead pneumatic conveyor to two 510 ton wood chip storage silos (B-2 and B-3). These bins are equipped with target boxes which allow the wood chips to be separated from the air stream. Wood chips may also be received via truck from other AWP sawmills. A truck unloading station is provided for wood chip unloading and payloader transfer to one of the storage silos.

The wood chips are fed to the wood chip metering bins (B-2 and B-3), and then are conveyed into the rotary drum dryer (S-001). Heat for the dryer is supplied by a flex fuel burner. The burner has a maximum design heat input of 25 MMBTU/hr. Bark is the fuel and is conveyed from the sawmill by an overhead conveyor belt or supplied

by truck from off site. A partially covered 300 ton capacity concrete pad is used to provide emergency-use bark storage in the event the AWP Kingwood Sawmill is unable to supply bark for use as fuel. A truck unloading station and payloader are used to unload and transfer the bark from the storage pile to a 10 ton/hr capacity bark shredder. Under normal conditions the bark is conveyed by overhead belt conveyor from the sawmill to the shredder. The conveying and receiving of high moisture content "green" bark, sawdust, and chips from the sawmill or from off site does not generate dust so no fugitive or point emissions of particulate are associated with part of this process.

Shredded bark is then conveyed by bucket elevator to the bark storage bin (B-1). Up to 51% of the burner exhaust gases can be routed back to the dryer for heat recovery. The exhaust gases from the burner and dryer are controlled by a multicyclone control device (C-001). Ash from the flex fuel burner and from the multicyclone is collected and transported off site to be recycled (soil compost) by another company. Wood chips and saw dust enter at a maximum capacity of 28,800 lb/hr and the dryer has a maximum design production rate of 16,000 lb/hr of dried wood chips. The dried wood chips exit the dryer and enter a surge bin (B-4). They then pass through a rotary feeder and are conveyed under negative pressure into one of two hammer mills (S-002A and S-002B).

The hammer mills crush the wood chips into fine sawdust. The sawdust is transferred to the pellet mill metering bin (B-5) through a cyclone. The metering bin supplies dried sawdust to the two pellet mills. The cyclone exhaust air is vented to the baghouse (C-004). The pellet mills compress the sawdust into pellets. Small volumes of water and soybean oil are added to the sawdust to enhance pellet formation. Approximately one-half gallon of soybean oil is added per ton of wood.

Wood pellets are transferred via sealed chain break conveyors that are vented to the pellet mill cyclone (C-003). The cyclone receives primarily steam from the pellet forming process. The steam is vented to atmosphere (E-003). The pellets are conveyed into the pellet cooler (S-004). Dust from the pellet mill cyclone is transferred to bin B-1. The cooled pellets are transferred from the cooler to a sealed screener (S-005) by a rotary feeder. Emissions from the pellet screener are controlled by the baghouse (C-004). Undersize pellets/pieces collected from the pellet screener are transferred via an elevator to the bulk pellet silo. The finished pellets are sent to the bagging equipment area or loaded into bulk trucks. The bagging and truck loading operations are vented to the baghouse (C-004). The dust collected by the baghouse (C-004) is transferred to bin B-1 for use as fuel.

SITE INSPECTION

The permit writer performed a site inspection on August 9, 2010. The site is at the junction of CR7 and CR72. Directions from Charleston, I79 N to I68 E. On I68 E take exit 4. Take CR7 East until the junction of CR72, turn onto CR72 and take first left to site. Existing facility is on the right, proposed site on the left.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Source ID	Emission Source	Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tpy)
E-001	Multiclone	Nitrogen Oxides	19.87	59.6
		Carbon Monoxide	19.87	59.6
		Sulfur Dioxide	0.63	1.88
		Total Particulate Matter	18.82	56.44
		Volatile Organic Matter	20	53.97
E-002	Bin Vent	Total Particulate Matter	0.2	0.6
E-003	Cyclone	Total Particulate Matter	5.2	15.6
E-004	Hammer Mill #1, Hammer Mill #2, and Screener	Total Particulate Matter	2.47	7.41

REGULATORY APPLICABILITY

45CSR4 - *To Prevent and Control the Discharge of Air Pollutants Into the Open Air Which Causes or Contributes to an Objectionable Odor or Odors*

The facility is subject to the requirements of 45CSR4 and shall not allow the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.

45CSR7 - *To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations*

Emission point E001 is a type 'a' source that has a process rate of 28,800 lb/hr and a rule 7 maximum allowable total stack emission rate of 21.28 lb/hr of total particulate matter. Emission points E002, E003, and E004 are type 'a' sources and have a process rate of 20,000 lb/hr and a rule 7 maximum total stack emission rate of 16 lb/hr. The proposed emission rates are below the respective maximum total stack emission rates. This rule also establishes a maximum opacity of 20 percent.

45CSR13 - *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation*

Allegheny Wood Products is subject to 45CSR13 because this source would emit at least 6 lb/hr and 10 tons/year of total particulate matter (any uncontrolled regulated air pollutant).

45CSR22 - Air Quality Management Fee Program

The facility is subject to the requirements of 45CSR22 and shall pay all fees according to the application fee schedule and Certificate to Operate fee schedule. The proper application fee for a construction application (\$1,000) was received on July 9, 2010.

AIR QUALITY IMPACT ANALYSIS

The facility will not be a major source as defined by 45CSR14. Based on the nature of the emissions and the annual emission rate, no air quality impact analysis was performed.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates Appalachian Wood Pellets, Inc.'s wood pellet manufacturing facility meets all the requirements of applicable rules regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Preston County location should be granted a 45CSR13 Construction permit for their facility.

David Keatley
Engineer

Date