west virginia department of environmental protection

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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-1843C
Plant ID No.:	097-00029
Applicant:	Weyerhaeuser
Facility Name:	Buckhannon Facility
Location:	Buckhannon, Upshur County, WV
NAICS Code:	321219 & 321214
Application Type:	Modification
Received Date:	August 12, 2015
Engineer Assigned:	Caraline Griffith
Fee Amount:	$3,500.00
Date Received:	August 13, 2015
Complete Date:	September 24, 2015
Due Date:	December 23, 2015
Applicant Ad Date:	August 14, 2015
Newspaper:	*The Record Delta*
UTM's:	Easting: 569 km Northing: 4318.0 km Zone: 17
Description:	Installation and operation of new spray sealer line.

DESCRIPTION OF PROCESS

Weyerhaeuser has plans to upgrade their Parallam product line to increase its water resistance. In order to accomplish this value added application a spray booth will be installed to apply a MDI sealer to the outside surface of the beams. After the sealer is applied the product will be allowed to cure within a ventilation tunnel, which is integrally attached to the paint booth and final water quench stages. This tunnel is to allow a sufficient cure time before a water deluge is applied to the product as the final setting stage.

The new product treatment line will utilize a 6,000 gallon MDI bulk storage tank to receive new raw material shipments of the sealer. Additionally, a 350 gallon day tank will be used also as a mix tank for a small amount of colorant that is added. Each of these tanks will be blanketed with dry air from a conditioning system which keeps the pressure on the tanks

at between 10 and 20 psig.

Emissions will be controlled at the sealer spray booth and its attached ventilation tunnel using 90% efficient paint booth cartridge style PM filters. Additionally, the MDI emissions evolved from the tanks are expected to be minimal due to the conservation vent settings and MDI's relatively low vapor pressure of 0.0006 mm Hg at 100F.

SITE INSPECTION

The writer did not inspect the site. On June 12, 2015 Richard E. Ray inspected the facility for a "Full On Site" Targeted inspection. The inspector gave the site a rating of 30. His notes were as follows:

Records of fuel use, resin use and dry veneer production indicated compliance with permit limits. Fuel analysis results and resin MSDS when taken together with the usage records indicated compliance with SO2 and formaldehyde emission limits. Compliance with the Plywood MACT was indicated in all the semiannual reports received by DAQ and only required that the facility process less than 30% softwood tree species and use no-HAP coatings. No evidence of deviation from either requirement was found during the site visit or record review. No opacity problems, fugitive or otherwise, were found during the site visit and visible emission records, including the COMS based excess emission reports and the quarterly EPA Method 9 checks, indicated nothing unusual, though they did indicate emissions. Records showed that regular pressure drop readings were taken on the bag-houses and that the ESP's were regularly monitored and operated within permitted parameters. Taken together with the fuel use and production records these observations tend to indicate compliance with particulate emission limits. On site observations of the wood boiler's firebox temperature and of O2 content in the wood boiler's flue gas together with records of the O2 content tended to show compliance with NOx, CO, and VOC emission limits. Compliance with VOC limits was further supported by observed and recorded dryer temperatures and records showing that edge seal VOC content, quantity of sealant applied, and application pressures in the spray booth were within permit limits. Although there were some deviations discovered, including exceedances above the O2 limit on the boiler's flue gas and some recorded excess opacity in boiler emissions, concern over these was not that great as they tended to be associated with unusual but permissible operations such as start up, shut down, and idling of the boiler.

Directions to the facility:

From Charleston, take Interstate 79 North to the Weston/Buckhannon Exit (Exit 99). Proceed on Route US 33 East towards Buckhannon, approximately 14 miles, after passing by Route 20 (Phillipi/Buckhannon) Exit. Take the second exit on the left onto Industrial Park Road (Route 15/33). Continue on Industrial Park Road for approximately 1 mile until coming to STOP sign. The Plant is straight ahead.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The following emission estimates were given by Weyerhaeuser and checked by the permit engineer. These calculations were based on Engineering Estimates (EE) given by the company for the three vertical stacks (E09, E08, and E07).

Table 1: Emission Point Description

Emission Point ID	Emission Point Type	Emission Unit Vented Through This Point		Air Pollution Control Device		Maximum Throughput of Tanks	
		ID No.	Source	ID No.	Device Type		
E09	Vertical Stack	42132	Spray-Booth	3C	Filter	9.12 gal/hr	79,842 gal/year
E08	Vertical Stack	42131	MDI Day/Mix Tank	NA	NA	350 gallons	
E07	Vertical Stack	42130	MDI Bulk Tank	NA	NA	6000 gallons	

Table 2: Emission Estimates for Maximum Controlled Emissions

Source	PM10		MDI-HAP	
	lb/hr	TPY	lb/hr	TPY
E09	2.79	12.2	2.79	12.2
E08	0	0	0	0
E07	0	0	0	0

REGULATORY APPLICABILITY

45CSR7: Prevention of PM from Manufacturing Sources

The spray booth was evaluated as a manufacturing source operation due to its potential to generate PM. The source is considered a "type of source operations" where the application of the sealer constitutes a physical change to the product being manufactured. Therefore the source is subject to the 20% opacity limitation and a PM limit based on process weight rate. The weight of the wood products being sealed is 19,200 lb/hr based on an average density of 42 lb/ft^3. Therefore, the emission limit from

45CSR7 is approximately 16 lb/hr. Assuming a 70% transfer efficiency and a 90% average PM control efficiency the spray booth source is not expected to exceed 2.79 lb/hr PM and will be in compliance with this rule.

45CSR13: Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants

The addition of a sealer spray line, curing tunnel, and associated sealer storage tanks (E08 and E07) constitutes a modification under 45CSR13 as a result of exhibiting a potential of 27.9 lb/hr of PM from the uncontrolled spray booth based on 70% transfer efficiency. Under this permit application 90% control of this PM stream is proposed, but actual efficiency is expected to be even higher due to the tendency of this material to polymerize and form large diameter PM. Emissions from all other ancillary activities related to the curing tunnel and storage vessels will be insignificant based on the low vapor pressure classified as a hazardous air pollutant (HAP) under the methylene diphenyl diisocyanate (MDI) compound.

Weyerhaeuser published a legal advertisement in *The Record Delta* on August 14, 2015 and has paid all applicable fees on August 13, 2015.

45CSR22 AIR QUALITY MANAGEMENT FEE PROGRAM

The applicant has paid the $1,000 application fee and the $2,500 NESHAP fee as required by section 3.4.b of this rule because they are subject to NESHAP requirements as described in this regulatory review section.

Additionally, the source is required to maintain their certificate to operate.

45CSR30: Operating Permit Requirements

As a result of the additional equipment to be installed at Weyerhaeuser's Buckhannon Trus Joist Facility as described within the 45CSR13 sections above the process changes will be classified as a significant modification to the Title V Permit.

40CFR63, Subpart DDDD: National Emission Standards for Hazardous Air Pollutants from Plywood and Composite Wood Products Facilities

The facility is a major source of HAPs and is currently subject to the Plywood and Composite Wood Products (PCWP) MACT. The proposed sealer spray line was evaluated with respect to the requirements defined within this subpart. The spray application is defined within the definition of the "Miscellaneous Coating Operations" as a moisture sealant. As a result, the work practice standards found in Table 3 of Subpart DDDD, specific to "Group 1 Miscellaneous Coating Operations," do not apply.
The moisture sealant proposed by this modification and referred to as W18 is emitted as PM and also classified as an MDI, HAP. Due to the large molecular weight of MDI and its willingness to polymerize when reacted with water, the emissions are expected to be

100% Particulate Matter. Therefore, the exhaust lends itself to a high level of control by utilizing particulate filters as designed for painting booth applications.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

MDI (Methylene Diphenyl Diisocyanate)

The commercial form of 4,4'-methylenediphenyl diisocyanate (MDI) is used to produce polyurethane foams. Acute (short-term) inhalation of high concentrations of MDI may cause sensitization and asthma in humans. Acute dermal contact with MDI has induced dermatitis and eczema in workers. MDI has been observed to irritate the skin and eyes of rabbits. Chronic (long-term) inhalation exposure to MDI has been shown to cause asthma, dyspnea, and other respiratory impairments in workers. Respiratory effects have also been observed in animals. No adequate information is available on the reproductive, developmental, or carcinogenic effects of MDI in humans. EPA has classified MDI as a Group D, not classifiable as to human carcinogenicity.

MONITORING OF OPERATIONS

Weyerhaeuser must follow all applicable monitoring, record keeping, reporting, and test requirements. The following monitoring requirements were taken form the previous permit, R13-1843B, but still apply for this modification and the rest of the facility.

The following information shall be recorded in logs and maintained at the permitted facility for a period of five (5) years, and made available to the Director of the Office of Air Quality, or his/her designated representative, upon request:

a. amount of dried veneer in pounds per hour produced in the dryers on an hourly basis back calculated from calendar monthly dryer throughput,

b. amount of resin in pounds per hour charged to Microllam™ LVL presses on an hourly basis back calculated from calendar monthly production,

c. amount of resin in tons per month charged to Microllam™ LVL presses on a monthly basis back calculated from calendar monthly production,

d. amount of resin in pounds per hour charged to the Parallam® PSL press on an hourly basis back calculated from calendar monthly production,

e. amount of resin in tons per month charged to the Parallam® PSL press on a monthly basis back calculated from calendar monthly production,

Compliance with the particulate matter emission limitations under Provision A.9. and 40CFR60.43b(a) shall be demonstrated in accordance with 40CFR60.8, 40CFR60.46b and WVAPCC TP-2 "Compliance Test Procedures for Regulation II".

Compliance with the particulate matter emission limitation under Provision A.12. Shall be demonstrated in accordance with WVAPCC TP-2 "Compliance Test Procedures for Regulation II".

Compliance with the particulate matter emission limitations under Provision A.11. shall be demonstrated in accordance with WVAPCC TP-4 "Compliance Test Procedures for Regulation VII".

CHANGES TO PERMIT R13-1843B

Due to the formatting that was required with R13-1843B, the current permit evaluation and permit had to be reformatted to fit the new style. The main change is that three (3) vertical stack tanks were added and a sealer line was installed.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates the proposed modification of the facility will meet all the requirements of the applicable rules and regulations when operated in accordance with the permit application. Therefore, the writer recommends granting Weyerhaeuser a Rule 13 modification permit for their wood products manufacturing facility located in Buckhannon, WV.

Caraline Griffith
Permit Engineer

11/25/15
Date