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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-3213
Plant ID No.: 079-00184
Applicant: Multicoat Products Inc.
Facility Name: Fraziers Bottom Facility
Location: Putnam County
NAICS Code: 325510
Application Type: Construction
Received Date: September 25, 2014
Engineer Assigned: Steven R. Pursley, PE
Fee Amount: \$1,000.00
Date Received: September 29, 2014
Complete Date: October 23, 2014
Due Date: January 21, 2014
Applicant Ad Date: October 2, 2014
Newspaper: *The Hurricane Breeze*
UTM's: Easting: 414.927 km Northing: 4,268.397 km Zone: 17
Description: Construction of a dry and wet coatings manufacturing facility

DESCRIPTION OF PROCESS

Multicoat Products, Inc. Proposes to construct a coatings manufacturing facility in Fraziers Bottom, Putnam County. The facility will produce a variety of products for concrete, stucco, and other similar applications through both a wet process and a dry process.

Dry Process

Cement and sand will arrive by truck and be pneumatically transferred to silos 1-6. Screw conveyors will transfer the material from each silo except Silo 4 to a transporter. Silo 4 sits on top of the transporter and discharges directly to it. The transporter pneumatically transfers the material to the check scale hopper. Additional material can be added to the check scale hopper from a manual bag dump via second transporter. From

the check scale hopper the material is transferred to a mixer where small amounts of additional materials (micro adds) can be directly added by hand. Once mixed, the material is transferred to the mixed batch hopper and then to the bagger.

The dry process consists of material transfers with the bulk of the material consisting of various cements and sand types. For example, the estimated most frequently produced product will consist of 93% by weight of sand/cement. Materials may be blended or individual materials may be bagged.

Wet Process

Sealants, coatings, stains, etc. are mixed in the wet process. The 550 gallon vessel is manually charged by the operator via an 18 inch diameter port which can utilize a vacuum whenever powdered additions are made. Average batch length is approximately 90 minutes, however, for calculation purposes the applicant conservatively used 2 batches per hour. Once the ingredients are mixed for the specified time, the vessel is emptied through a spigot into product containers (e.g. pails/buckets).

SITE INSPECTION

A site inspection of the facility was performed by the writer on December 12, 2014. The facility is located in a mixed commercial, residential, industrial, and rural area. There are numerous homes and businesses near and adjacent to the facility. To get to the facility take I-64 west to exit 40. Then take US Route 35 north approximately 8.6 miles and turn right on county route 35/29. Go approximately 0.9 miles and the facility is on the right at the intersection of county route 35/29 and State Route 817. Construction of the shell building is already underway. Attached is a copy of a photo taken during the site inspection:



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ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Dry Process

PM emissions from the dry process result from transfer points. The applicant used AP-42 Section 11.12, Table 11-12-2 to estimate PM emissions and conservatively assumed PM to equal PM_{2.5}. A control efficiency of 99.9% was taken where baghouses were used and 80% was taken where full enclosures were used. The applicant also showed calculations for PM HAPs. Those calculations were based on multiplying the maximum percent content of the individual HAP by the total controlled PM emission rate. This is obviously overly conservative since the actual operations will be batch mixtures. However, even using this method, total PM HAP emissions were well below 0.01 pounds per hour. Some of the ingredients used have trace amounts of formaldehyde and vinyl acetate. Calculations were provided for emissions of these HAPs based on a material balance and 100% of off gassing occurring at the facility. Again, even under these extremely conservative assumptions, emissions of VOC HAPs were less than 0.04 tons per year.

Wet Process

PM emissions from the wet process result from the manual addition of powdered material to the wet mixer. The applicant assumed a maximum rate of 4,000 pounds per hour and used AP-42 Section 11.12, Table 11-12-2 to estimate PM emissions and conservatively assumed PM to equal PM_{2.5}. A control efficiency of 70% was taken to account for the use of the vacuum system.

VOC emissions were determined using EPA TANKS 4.09. Since approximately 50% by weight of the material charged to the wet mixer will be water, the applicant selected water to be used in the TANKS program. The TANKS program calculated water emissions and the applicant simply assumed VOC emissions would equal the water emissions. Since the vapor pressure of many VOCs is significantly greater than the vapor pressure of water (although spot checks of some of the HAP containing substances MSDS sheets showed vapor pressures less than water), the writer believes this method may undercount VOC emissions. However, even if actual VOC emissions were 10x higher, they would still be less than 1 pound per hour. Calculations of HAP emissions from the wet process were based on multiplying the maximum HAP (percent) content of the individual HAP by the total VOC emission rate.

Haul Roads

All haul roads will be paved, therefore the paved haul road emission factor from AP-42 section 13.2.1 was used to calculate emissions. No control efficiency was taken.

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Emissions from the facility should be as follows:

	PM		PM ₁₀		PM _{2.5}		VOCs		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Dry Process	0.05	0.01	0.05	0.01	0.05	0.01	0.05	0.04	0.05	0.04
Wet Process	0.01	0.01	0.01	0.01	0.01	0.01	0.08	0.01	0.04	0.01
Haul Roads	0.97	0.12	0.19	0.02	0.01	0.01	--	--	--	--
Total	1.03	0.14	0.25	0.04	0.07	0.03	0.13	0.05	0.09	0.05

REGULATORY APPLICABILITY

The following state regulations apply to the facility (no federal rules i.e. NSPS, MACT/NESHAPs are applicable):

45CSR7 To Prevent and Control Particulate Matter Air Pollution from Manufacturing Process Operations.

The transport, transfer and mixing operations at the facility are subject to the Particulate Matter emission limits of §45-7-4.1. The process weight rate of the facility is 40,000 pounds per hour. Based on a type a source, Table 45-7A limits allowable PM to 28 pounds per hour. Total controlled calculated emissions from the entire facility is only 1.02 pounds per hour.

The baghouses are subject to the 20% opacity limit of section 3.1.

Additionally, the facility is subject to section 5.1 of the rule which requires a system to minimize fugitive particulate emissions. Multicoat will meet this requirement by locating the dry process inside a building and by utilizing dust collectors.

The facility is also subject to Section 5.2 of the rule which requires the permittee to maintain particulate matter control of the plant premises and haul roads and utilize good operating practices relating to stockpiles and material handling.

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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).

The construction of the Fraziers Bottom facility has a potential to emit a regulated pollutant in excess of six (6) lbs/hour and ten (10) TPY and, therefore, pursuant to §45-13-2.24, the facility is defined as a "stationary source" under 45CSR13. Pursuant to §45-13-5.1, "[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct." Therefore, Multicoat Products is required to obtain a permit under 45CSR13 for the construction and operation of the well pad.

As required under §45-13-8.3 ("Notice Level A"), Multicoat Products, Inc. placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on October 2, 2014 in the *Hurricane Breeze* and the affidavit of publication for this legal advertisement was submitted on October 8, 2014.

45CSR22 Air Quality Management Fee Program

The facility is not subject to any NSPS, MACT or NESHAP. Additionally, the facility is defined as a minor source under 45CSR30. Therefore the facility is not subject to 45CSR30 and will pay its annual fees through the Rule 22 program.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Section 112(b) of the Clean Air Act (CAA) identifies 188 compounds as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. Some ingredients used by the facility contain HAPs. However, the potential HAP emissions from the facility are below the levels that define a major HAP source. Therefore, the facility is considered a minor (or area) HAP source, and no source-specific major source NESHAP or MACT standards apply. The applicant has estimated that total HAP emissions from the facility will be less than 0.02 tons per year (0.03 tpy in the above emissions estimate table due to rounding).

AIR QUALITY IMPACT ANALYSIS

Since this application addresses the construction of a minor source as defined in 45CSR14, no modeling was performed.

MONITORING OF OPERATIONS

The permit will require the applicant to monitor and record the following:

- * The amount of cement/sand used on a monthly basis.
- * The type and amount of each Add Mix used in the Dry Process on a monthly basis.
- * The type and amount of each material charged to the wet mixer.
- * Results of the required visible emissions testing.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-3213 for the construction of a coatings manufacturing facility in Fraziers Bottom, Putnam County, be granted to Multicoat Products, Inc.

Steven R. Pursley, PE
Engineer

December 11, 2014

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