**west virginia** department of environmental protection

Division of Air Quality
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Jim Justice, Governor
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# ENGINEERING EVALUATION / FACT SHEET

## BACKGROUND INFORMATION

| | |
|---|---|
| Application No.: | R13-2466A |
| Plant ID No.: | 039-00496 |
| Applicant: | 84 Lumber Company (84) |
| Facility Name: | St. Albans |
| Location: | 400 Winfield Rd., St. Albans, WV 25177 |
| NAICS Code: | 444110 – Home Centers |
| Application Type: | Modification |
| Received Date: | July 17, 2017 |
| Engineer Assigned: | John Legg |
| Fee Amount: | $1,000.00 |
| Date Received: | July 17, 2017 |
| Complete Date: | September 15, 2017 (DAQ receives newspaper affidavit of publication via email from company) |
| Due Date: | December 15, 2017 |
| Applicant Ad Date: | August 25, 2017 |
| Newspaper: | Charleston Gazette-Mail |
| UTM's: | Easting: 425.3749 Northing: 4,250.465 Zone: 17S |
| Description: | Construction and operation of a second spray paint booth for applying finishes to wooden exterior doors. |

## DESCRIPTION OF PROCESS

84 in St. Albans, WV currently coats **interior** wood trim and doors. The facility was first issued a permit (R13-2466) on April 22, 2002 for a spray paint booth (1S; 1E).

This modification application (R13-2466A) is for the construction and operation of a second spray paint booth (3S; 3E) for applying three (3) specific finishes to **exterior** wood trim and doors. Particulate matter (PM) emissions from the new spray booth operation will be controlled by filters.

Noted that in addition to the construction of the second spray paint booth, a 60 x 20 foot paint room is to be constructed/framed in the existing building. All emissions, however, are assumed to be emitted from the new spray paint booth.

| Table 1: Emission Units Table for New Spray Paint Booth. | | | | | |
|---|---|---|---|---|---|
| **Emission Unit ID** | **Emission Point ID** | **Emission Unit Description** | **Year Installed** | **Design Capacity** | **Control Device** |
| 3S | 3E | Spray Paint Booth | 2017 | 50 doors/hr | Spray Booth Filter (3C) |

| Table 2: Emission Units Date Sheet for New Spray Paint Booth (3S; 3E). | |
|---|---|
| **Item of Concern** | **Response** |
| Maximum process material charged per hour. | 50 door |
| Operating Schedule | 8 hr/day; 5 day/wk; 52 wk/yr |
| Monitoring | Use monometer to keep track of when to change filters. |
| Recordkeeping | Daily, weekly, and yearly records of paint sprayed and filter changeouts. |

| Table 3: Air Pollution Control Device Sheet for New Spray Paint Booth (3S; 3E) Filter. | |
|---|---|
| **Item of Concern** | **Response** |
| Manufacturer | Chemco |
| Control Device Name | Paint Filter |
| Monitoring | Use monometer to keep track of when filters need changed. |
| Recordkeeping | Daily, weekly, and yearly records of filter changeouts. |
| Manufacturer's Guaranteed Control Efficiency | 95% |

SITE INSPECTION

The writer did not visit the 84 Lumber Company's plant site for this modification application. Gene Cocarri from the DAQ's small business group visited and took photographs of the facility. He also helped prepare the application.

The facility has been inspected twice by DAQ Enforcement since it was issued permit R13-2466 on April 22, 2002:

- The second and most recent inspection was conducted by Andy Grimm on June 5, 2017. It was a full onsite inspection for VOC. The facility was given the status code of 30.

- The first inspection was also conducted by Andy Grimm on March 25, 2015. It was a full onsite inspection for VOC. The facility was found not to have started keeping VOC, aggregate HAPs, and PM rolling totals, and had stopped doing calculations. Due to the fact that the facility was believed to be a small source of VOC/PM and had not been inspected since the permit was issued in 2002, no violation was issued. The facility was given the status code of 30.

Directions (per entry 12.A., page 2 of 4 in permit application):

> From the Intersection of WV-817 and WV-60, travel north on WV-817 for 1/8 of a mile. 84 Lumber is on the right.

MSDS

In Attachment H to the application, 84 submitted coating specifications and MSDS for three specific coatings they plan to apply in the new spray paint booth (3S; 3E). These coating are very low in VOCs, less than 1.0 lb/gal as packaged.

| | |
|---|---|
| Kem Aqua® BP Enamel - | A one component waterbased acrylic polyurethane dispersion enamel. It can be used on pre-primed metal, PVC, wood, fiberglass pultrusions and SMC fiberglass door skins. VOC as packaged < 1.0 lb/gal.<br>White – M64WL535. VOC as packaged: 0.86 lb/gal. |
| Kem Aqua® Composite Glazing Compound S66CL0505 – | Designed to be tinted with D64 Microlith exterior tint bases or Kem Aqua colorants to make custom waterborne glazes. Apply over a base-coated SMC door or door skin. After glazing compound has dried it can be selectively removed with Kem Aqua Composite Glazing Compound Remover and rags, sponges or other means to achieve a wood grain appearance. From Product Finishes Sheet: VOC as packaged maximum 0.75 lb/gal. From MSDS: VOC as packaged 0.26 lb/gal. |
| Polane®2K Acrylic Waterborne Enamel Monochromatics & Clears - | HAPS free, < 1.0 VOC emitted (catalyzed), two-component high performance polyurethane |

coatings. All specifications are given on force - dried samples. From Product Finishes Sheet: Low VOC at <1.0 lb/gal.

White – F63WL504. VOC as packaged: 0.93 lb/gal.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

VOC Emissions

The writer checked 84 Lumber Company/Gene Cocarri's emission calculations and found them to be mathematically correct:

| Table 4: 84's VOC Emission Calculations for New Spray Paint Booth (3S; 3E). | | | |
|---|---|---|---|
| **Coating Description** | **Coating Usage (gal)** | **VOC Content (lb/gal)** | **VOC Emission Rate (ton/yr)** |
| Kem Aqua BP Enamel | 9,400 | 0.88 | 4.14 |
| Kem Aqua Glazing Compound | 7,000 | 0.26 | 0.91 |
| Polane 2K Waterborne Enamel | 9,400 | 0.93 | 4.37 |
| Total VOC Emissions | | | 9.42 ton/yr |
| Total Average Hourly VOC Emissions (1) | | | 9.06 lb/hr |
| (1) Based on operating 2,080 hr/yr (8 hr/day x 5 day/week x 52 wk/yr). | | | |

PM Emissions

The writer checked 84 Lumber Company/Gene Cocarri's emission calculations and found them to be mathematically correct:

| Table 5: 84's PM Emission Calculations for New Spray Paint Booth (3S; 3E). | | | | |
|---|---|---|---|---|
| **Coating Description** | **Coating Density (lb/gal)** | **Coating Usage (gal)** | **Solid Content (lb/gal)** | **PM Controlled (2) Emission Rate (ton/yr)** |
| Kem Aqua BP Enamel | 10.33 | 9,400 | 9.45 | 0.577 |
| Kem Aqua Glazing Compound | 8.45 | 7,000 | 8.19 | 0.373 |
| Polane 2K Waterborne Enamel | 10.44 | 9,400 | 9.51 | 0.581 |
| Total Controlled PM Emissions (ton/yr) | | | | 1.531 |
| Total Average Hourly PM Emissions (lb/hr) | | | | 1.47 lb/hr |
| (1) Based on operating 2,080 hr/yr (8 hr/day x 5 day/week x 52 wk/yr) and a transfer efficiency of 35% and a settling chamber efficiency of 80% and filter removal efficiency of 90%. For example:<br><br>9.45 lb/gal x 9,400 gal/yr x 2,080 hr/yr / 2,000 lb/ton x (1 - 0.35) x (1 – 0.80) x (1 – 0.90) =<br><br>0.577 ton/yr | | | | |

## REGULATORY APPLICABILITY

The same rules still apply to the modification as did to the construction of the facility under R13-2466.

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

45CSR7 To Prevent and Control Particulate Air Pollution from Manufacturing Process Operations. The particulate matter generated from the bag house vents are subject to the standards under 45CSR7 and the 20% opacity limit set forth in section 3.1.

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

84 submitted a permit application (on July 14, 2017), paid a permitting fee (of $1,000.00), ran a legal advertisement (in the *Charleston Newspapers* on August 25, 2017), and submitted the newspaper's affidavit of publication (on September 15, 2017). The company's application was deemed complete (on September 15, 2017 the date the DAQ received the emailed newspaper's affidavit of publication.

45CSR21 Regulation to Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds. The facility is subject to §45-21-20, Coating of Flat Wood Paneling, because the daily operation of the first spray paint booth was estimated to exceed 15 pounds of VOC per day.

For both spray booths, the facility's VOC emission rate shall not exceed the limit set forth in §45-21-20.3.a.3, which is 10 pounds per 1,000 square feet of surface to which coating is applied.

## TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Paint/finishes more often than not contain Hazardous Air Pollutants (HAPs). This permit limits HAPs emissions to 10 tpy per individual HAP and 25 tpy for total aggregated HAPs emissions.

## AIR QUALITY IMPACT ANALYSIS

After this modification, the facility is still considered to be a minor source. For that reason no air quality impact analysis/study was performed.

MONITORING OF OPERATIONS

## 4.4. Recordkeeping Requirements

4.4.4. To determine compliance with Section 4.1 of this permit, for each spray booth, the permittee shall maintain records of the name and identification number of each surface coating applied, VOC content of surface coating as applied, date used, amount used, and amount disposed of as waste. The mass of VOC per area of surface to which the coating is applied hall be recorded on a daily basis.

## 4.5. Reporting Requirements

4.5.1. Within thirty (30) days of the last day of each calendar half, the permittee shall certify a summary report that contains the following information:

- Monthly and rolling yearly emission rates for VOCs, aggregate HAPs, and PM from each of the spray booths.

Example summary forms are included as Attachments A and B. Said records shall be maintained on-site for a period of five (5) years and shall be made available to the Director of the Division of Air Quality or his/her duly authorized representative upon request.

CHANGES TO PERMIT R13-2466

- Permit put in new TitleV-like format.
- Governor's name, Secretary's name updated. Permit No. updated. Director's name updated. Construction updated to modification.
- Both Spray Paint Booths added to 1.0 Emission Units Table.
- New spray booth hourly and annual VOC limits added to 4.1.1. (Old A.1.) Hourly limit for first spray booth increased from 0.003 lb/hr (too small) to 0.01 lb/hr.
- New spray booth hourly and annual PM limits added to 4.1.2. (Old A.2.)
- Filter changed to filters in 4.1.3. (Old A.3.)
- New requirement: Specific "approved" coatings listed in 4.1.4. for new spray paint booth.
- Old A.6. becomes 4.1.7. HAPs are added to the old HAPs listed based on Andy Grimm's March 25,2015 inspection.
- Old A.7. becomes 4.1.8. Booth become Booths.
- Old A.8. becomes 4.1.9. The words "for each spray paint booth" added.
- Rule 4 quoted. Old B.2. becomes 4.1.10.
- Rule 7 quoted. Old B.3. becomes 4.1.11.
- Rule 13 quoted. Old B.4. becomes 4.1.12.
- Rule 21 quoted. Old B.6. becomes 4.1.13.

- First paragraph in Old B.5. becomes Recordkeeping Requirement 4.4.4.
- Second paragraph in Old B.5. becomes Reporting Requirement 4.5.1.

RECOMMENDATION TO DIRECTOR

84's request to construct and operate a new spray paint booth (3S;3E) at their St. Albans, Kanawha County, WV facility meets the requirements of 45CSR13 (Rule 13) and all other applicable rules, and therefore should be granted a Rule 13 modification permit (R13-2466A).

_____
Permit Writer

_____
Date