

Fact Sheet



*For Final Renewal Permitting Action Under 45CSR30 and
Title V of the Clean Air Act*

Permit Number: **R30-00300018-2006**
Application Received: **February 15, 2006**
Plant Identification Number: **03-054-003-00018**
Permittee: **Quebecor World Martinsburg**
Mailing Address: **871 Baker Road, Martinsburg, WV 25401**

Physical Location: Martinsburg, Berkeley County, West Virginia
UTM Coordinates: 250.0 km Easting • 4,366.5 km Northing • Zone 18
Directions: From Route 9, turn at the light towards the VA hospital. Take first right
and go ½ mile and the facility is on the left.

Facility Description

Printing and assembly of hard and soft cover books utilizing web offset heatset lithographic technology. Web offset heatset lithography uses a planographic method for image creation. The image and non-image areas are essentially on the same plane of a thin metal plate and the distinction between them is maintained chemically. Quebecor uses solvents to periodically clean the press blankets and press rollers. The facility is characterized by SIC codes 2731, 2732, and 2752.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Criteria Pollutants	Potential Emissions	2004 Actual Emissions
Carbon Monoxide (CO)	10.55	2.32
Nitrogen Oxides (NO _x)	16.00	2.39
Lead (Pb)	Not applicable	0
Particulate Matter (PM ₁₀) ¹	Not applicable	0
Total Particulate Matter (TSP)	2.49	0.49
Sulfur Dioxide (SO ₂)	1.10	0.01
Volatile Organic Compounds (VOC) ²	242.67	45.83

¹PM₁₀ is a component of TSP.

²VOC actual emissions include 1.55 TPY of HAPs.

Hazardous Air Pollutants	Potential Emissions	2004 Actual Emissions
Glycol Ether (2-butoxyethanol)	Not included w/ application	0.11
Vinyl Acetate (CAS No. 108054)	9.4	1.44
Total HAPs	24.4	1.55

Some of the above HAPs may be counted as PM or VOCs.

2004 Actual Emissions taken from 2005 CES.

Title V Program Applicability Basis

This facility has the potential to emit 242.67 tons/year of volatile organic compounds. Due to this facility's potential to emit over 100 tons per year of criteria pollutant, Quebecor World Martinsburg is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

This facility has been found to be subject to the following applicable rules:

Federal and State:	45CSR6	Open burning prohibited.
	45CSR7	Particulate Matter from manufacturing
	45CSR11	Standby plans for emergency episodes.
	45CSR13	Permits for construction/modification
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.

	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
State Only:	45CSR4	No objectionable odors.

Each State and Federally-enforceable condition of the draft Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the draft Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the draft Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR15, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (<i>if any</i>)
R13-1156D	May 19, 2003	
R30-00300018-1996	July 25, 2001	

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B", which may be downloaded from DAQ's website.

Determinations and Justifications

- Press Dryers (Emission Unit IDs: 1S, 2S, 3S, 4S, 5S, 6S, 7S, 13S)**
 The source identification numbers P1, P2, P3, P4, P5, P6, P7 and P8, in the table in R13-1156D, condition A.4., do not correspond with either the Emission Unit IDs or the Emission Point IDs for the press dryers. Therefore, the sources listed in the table were replaced with corresponding Emission Unit IDs. The revised condition is set forth in 4.1.3. of the permit.
- Gather-Bind-Trim Machines (Emission Unit IDs: 8S, 9S, 10S, 11S)**
 During the course of research for the Title V permit renewal, and a facility inspection by Mr. John Money Penny of the DAQ, it was found that only GBT machines 8S, 9S, and 10S use water-based glue. All four (4) GBT machines use hot-melt adhesive. Therefore, adhesive/glue usage rates and emissions associated with each adhesive/glue are summarized and discussed in this fact sheet.

Equipment Process Rate and Hot Melt Adhesive Usage and Potential Emissions

The permittee's facility was constructed in 1989, at which time three (3) Gather-Bind-Trim (GBT) machines (Emission Unit IDs 8S, 9S, 10S) were installed at the facility. These three (3) units vent to atmosphere outside of the facility building. The three (3) machines are capable of producing 15,000 books per hour each. The hot melt adhesive usage is calculated at 0.00639 pounds of glue per book multiplied by the aggregate rate of 45,000 books per hour, equaling 287.55 lb/hr maximum possible usage rate of hot melt adhesive. The preceding data was documented in a letter dated September 27, 1989, from Louis Tomayko (Plant Engineer, Arcata Graphics Martinsburg) to Mark Fleming (WV Air

Pollution Control Commission). Based upon 8,760 hr/yr operation, the usage rate of 287.55 lb/hr is used to compute the current annual hot melt adhesive usage limitation of 2,518,938 lb/yr, which is consistent with the limit set forth in permit R13-1156, dated November 1, 1989. The hot melt adhesive usage limitation can be converted to 1,259.5 tons per year, and this annual limit remains unchanged in subsequent permits R13-1156A, R13-1156B, R13-1156C, and R13-1156D, as well as in all versions of the Title V permit R30-00300018-1996.

According to the Title V renewal application equipment table, a fourth GBT machine was installed at the facility in the year 2000. This fourth GBT machine is also capable of processing 15,000 books/hr, since the permittee has stated in the renewal application that the aggregate process rate of the four (4) GBT machines is 60,000 books/hr. The engineering evaluation for permit R13-1156D incorrectly states in Table 10 that the individual process rate for each GBT machine is 11,250 books/hr, and this error is validated in the permittee's renewal application. The mistake was due to the assumption that four GBT machines still operate at an aggregate process rate of 45,000 books/hr, rather than at 60,000 books/hr. There are no records on file with the WV DAQ indicating any permit determinations or permitting action with regard to the installation of the fourth GBT machine, and the associated increase in hot melt adhesive usage, and associated emissions derived from hot melt adhesive. Perhaps since the GBT 4 originally vented inside the plant building, no permitting action was requested or taken. When the Title V permit was issued (July 25, 2001, after the installation of GBT 4), GBT 4 was accurately described as a fugitive source since it vents to surrounding air inside the building. However, the permittee's application preparer has stated in a letter dated April 4, 2006 (received at DAQ on April 12, 2006) that the emissions from the Gather Bind Trim 4 machine are now vented through a stack to the atmosphere, as are the original three GBT machines. The increase in hot melt adhesive usage rate, and associated emissions of PM, CO, and VOC must now be accounted for in this Title V renewal.

To account for the GBT 4 machine the permittee has proposed in the Title V permit renewal application to increase the allowable usage rate of hot melt adhesive by 33-1/3 percent. The increase in hot melt adhesive usage would increase the allowable usage rate from 105 tons/month to 139.9 tons/month, and from 1,259.5 tons/year to 1,679.3 tons/year. The citation for the permittee-proposed usage of hot-melt adhesive will be 45CSR§30-12.7. The potential emissions of PM, CO, and VOC set forth in Table 10 of the engineering evaluation for permit R13-1156D are based upon, and directly proportional to, the original three (3) GBT machines venting to atmosphere outside the building while operating at an aggregate usage rate of 287.55 lb/hr. By including the fourth GBT venting to atmosphere outside the building, the usage rate and associated potential emissions must increase by 33-1/3 percent. Based upon data in the engineering evaluation for R13-1156D, the following table describes the increase potential emissions from GBT 4. The increased potential emissions have been increased in permit condition 5.1.1. for the hot melt glue.

Table 1

Aggregate Usage Rates and Potential Emissions from Hot Melt Adhesive								
No. of GBT Units	Usage Rate (lb/hr)	Usage Rate (tons/yr)	PM		CO		VOC	
			lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Three (3)	287.55	1,259.3	0.29	1.26	0.29	1.26	0.29	1.26
Four (4)	383.40	1,679.3	0.39	1.68	0.39	1.68	0.39	1.68

Water Based Glue Usage and Potential Emissions

In Table 9 of the engineering evaluation for permit R13-1156D, there is given four (4) GBT machines using the water based glue at an aggregate rate of 28.52 gal/hr, or the equivalent of 261.81 lb/hr. However, in R13-1156A, essentially the same aggregate rate of 28.54 gal/hr is given for three (3) GBT machines. The discrepancy of the number of machines operating at an aggregate rate of 28.52 gal/hr must be resolved. The fact sheet for the initial Title V permit gives a water based glue usage rate for each GBT machine as 87.16 lb/hr. The individual rate 87.16 lb/hr can be converted to volumetric rate with the specific weight of the water based glue (9.177 lb/gal, computed below) to obtain 9.498 gal/hr. This individual volumetric rate can be used to determine the aggregate rate for three (3) GBT machines, which is 28.49 gal/hr. This aggregate rate is essentially the same as the aggregate glue usage in Table 9 of the engineering evaluation for R13-1156D. Therefore, the correct individual machine process rate is 87.16 lb/hr, and the correct aggregate rate for three (3) machines is 28.52 gal/hr.

The specific weight of the water based glue can be computed from equivalent aggregate process rates, (261.81 lb/hr) ÷ (28.53 gal/hr) = 9.177 lb/gal.

The permittee stated in the renewal application an aggregate VOC potential to emit of 2.217 lb/hr and 9.71 ton/yr from the four (4) GBT machines, which must account for both hot melt adhesive and water based glue. The permittee has calculated these aggregate potential VOC emissions as follows:

$$\begin{aligned} \text{PTE}_{\text{lb/hr}} &= \text{VOC}_{\text{W.B.}} + \text{VOC}_{\text{H.M.}} \\ &1.83 \text{ lb/hr} + (4/3) \times (0.29 \text{ lb/hr}) = 2.217 \text{ lb/hr} \end{aligned}$$

$$\begin{aligned} \text{PTE}_{\text{tons/yr}} &= \text{VOC}_{\text{W.B.}} + \text{VOC}_{\text{H.M.}} \\ &8.03 \text{ tons/yr} + (4/3) \times (1.26 \text{ tons/yr}) = 9.71 \text{ tons/yr} \end{aligned}$$

Where $\text{VOC}_{\text{W.B.}}$ are the potential VOC emissions derived from water-based glue used in GBT machines 1, 2, and 3. And, $\text{VOC}_{\text{H.M.}}$ are the potential VOC emissions derived from the hot melt adhesive used in GBT machines 1, 2, 3, and 4.

Usage and Emissions Summary

The usage rate for hot-melt adhesive should be increased from the current permitted limit of 105 tons/month and 1,259.5 tons/year to 139.9 tons/month and 1,679.3 tons/year (a 33-1/3 percent increase). There is no increase in usage of water-based glue since only GBT machines 1, 2, and 3 use water-based glue. There will be a proportional increase in potential emissions of PM, CO, and VOC derived from the hot-melt adhesive. The increased potential emissions are given Table 1 above.

3. Balers (Emission Unit IDs: Baler A, Baler B, Baler C)

The Balers A, B, and C vent to Cyclones A, B, and C, respectively. Under normal operating conditions the Cyclone A vents to Filter A, which subsequently vents to the internal plant air handling system. Also the Cyclones B and C vent to Filter C, which under normal operating conditions vents to the internal plant air handling system. Therefore, the Balers effectively vent, under normal conditions, to the plant internal air handling system. The only time there is a direct discharge from the balers, through the cyclones, and into the atmosphere is during emergency/upset situations when equipment malfunctions and the abort systems are operational. Such situations shall be permitted according to permit condition 2.17.

The reason for stating the above is that it appeared that during the transition from Title V permit actions MM01 to SM01, that the 45CSR7 limits for the balers were inadvertently not included in the SM01 version. Therefore it was necessary to make clarification concerning the reason there are no applicable requirements for the balers.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

1. **45CSR2 - To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.** The combustion units (i.e., dryers) utilized at this facility are considered direct heat transfer devices and their individual maximum design heat inputs are less than 10 MM Btu/hr, thus, 45CSR2 does not apply.
2. **45CSR10 - To Prevent and Control Air Pollution from the Emission of Sulfur Oxides.** Each of the combustion units utilized at this facility each have a maximum design heat input under ten (10) million BTU's per hour and thus, are exempted from the requirements of sections three (3) through eight (8) as specified in section nine (9) of 45CSR10. Additionally, the dryers use direct heat transfer for the purpose of drying the ink to the substrate.
3. **45CSR21 - To Prevent and Control Air Pollution from the Emission of Volatile Organic Compounds.** Quebecor World Martinsburg is located in Berkeley County, which is not one of the counties listed for which this regulation is applicable.
4. **45CSR27 - To Prevent and Control the Emissions of Toxic Air Pollutants.** The facility is not subject to this rule. Vinyl Acetate is a VOC-HAP component of the water based glue used in the book binding operations, however is not listed as a toxic air pollutant under 45CSR27.
5. **40 C.F.R. 60, Subpart QQ - Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing.** Quebecor World Martinsburg does not utilize rotogravure printing presses as defined in this subpart. The regulation states in §60.430(a) that this subpart only applies to each publication rotogravure printing press. Therefore, this subpart does not apply to the permittee's facility.
6. **40 C.F.R. 60, Subpart FFF - Standards of Performance for Flexible Vinyl and Urethane Coating and Printing.** Quebecor World Martinsburg is not involved in the printing or coating of vinyl or urethane products via rotogravure printing lines for which this subpart is applicable. Quebecor World Martinsburg is not a major source of HAPs and utilizes lithographic printing operations, in which the printing image is created and maintained chemically by creating different ink and water receptive areas on the roller. Note that in previous Title V permit documents this subpart was incorrectly stated as subpart EEE. Subpart EEE is currently reserved, and subpart FFF is the correct designation for this NSPS, which is not applicable to the facility.
7. **40 C.F.R. 63, Subpart KK - National Emission Standards for the Printing and Publishing Industry.** Quebecor World Martinsburg does not utilize rotogravure (printing image is engraved below surface of cylinder) or flexographic (printing image is raised above the surface of cylinder) printing operations for which this subpart is applicable. Quebecor World Martinsburg is not a major source of HAPs and utilizes lithographic printing operations, in which the printing image is created and maintained chemically by creating different ink and water receptive areas on the roller.
8. **40 C.F.R. 64 – Compliance Assurance Monitoring.** The facility does not have a pollutant specific emissions unit with a control device in order to achieve compliance with an applicable standard or limit. Therefore, the facility is not subject to the Compliance Assurance Monitoring (CAM) rule.
9. **CAA, Section 129 – Solid Waste Combustion.** The facility does not combust solid waste; therefore, this section is not applicable to the facility.
10. **CAA, Section 183(e) – Federal Ozone Measures (Control of Emissions from Certain Sources).** The facility is not a regulated entity as defined in Section 183(e)(1)(C).
11. **CAA, Section 183(f) – Federal Ozone Measures (Tank Vessel Standards).** The facility does not utilize tank vessels as defined in this section.

12. **CAA, Title IV – Acid Deposition Control** – The facility is not an electric generating utility; therefore, title IV does not apply to the facility.
13. **CAA, Title VI – Stratospheric Ozone Protection** – The facility does not emit any of the pollutants listed in Section 602; therefore, title VI does not apply to the facility.

Request for Variances or Alternatives

None.

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: July 19, 2006
Ending Date: August 18, 2006

All written comments should be addressed to the following individual and office:

Denton B. McDerment
Title V Permit Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Point of Contact

Denton B. McDerment
Title V Permit Engineer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1221 • Fax: 304/926-0478

Response to Comments (Statement of Basis)

1. In an August 16, 2006 e-mail sent by the permittee's consultant (ERSG) to the permit writer, the permittee requested that the weekly monitoring of visible emissions sources subject to an opacity limit be relaxed to a monthly monitoring frequency. Said relaxation was granted since the Press Dryers 1 through 8 combust only natural gas or propane, which are relatively clean with respect to particulate matter emissions. Other requirements concerning this relaxation were added to the permit to specify observation timing during each calendar month. The previous permit language stated, "*At least weekly, visual emission checks of each emission point...*" The revised requirements are set forth in permit condition 3.2.2.

2. In an August 14, 2006 e-mail sent by the permittee's consultant, Environmental Regulatory Service Group (ERSG), to the permit writer, the consultant noted several corrections for the draft permit.
 - a. ERSG stated that the dates entered in the equipment table in Section 1.0. of the draft permit were modifications dates. All of the dates were revised to be installation dates.
 - b. ERSG stated that the VOC emissions limit for roller cleaner (permit condition 3.1.12.) should be 5.45 ton/yr, rather than 5.43 ton/yr. ERSG stated that all calculations and data they have used and submitted in past permitting actions specified 5.45 ton/yr. The permit writer found the difference to be the result of rounding the average usage rate of roller cleaner. The average usage rate is approximately 0.1957 gal/hr, and the VOC content is 6.36 lb/gal. Multiplication yields the permitted hourly rate of 1.24 lb/hr. And the annual emission rate is $(0.1957 \text{ gal/hr}) \times (8,760 \text{ hr/yr}) \times (6.36 \text{ lb/gal}) \div (2,000 \text{ lb/ton}) = 5.45 \text{ ton/yr}$. The permit writer determined the change to be justified based upon calculations using values not rounded; thus, the permitted value will be changed to 5.45 ton/yr.
 - c. ERSG stated that several of the emission limits in permit conditions 4.1.1. and 4.1.2. did not match data they submitted in the renewal application. The permit writer essentially doubled the limits for all criteria pollutant, except VOC, for Press 7 Dryer since in previous permits the limits were based upon a MDHI of 1.2 MMBtu/hr, when in fact, the dryer has two (2) burners each operating at 1.2 MMBtu/hr, which yields a correct MDHI of 2.4 MMBtu/hr. The VOC limit was not doubled since the VOC limits in conditions 4.1.1. and 4.1.2. are not entirely derived from products of combustion, but are also derived from ink and fountain solution used in the unit. This is documented in permit R13-1156D, Appendix A (referenced by condition A.1.). The consultant also requested changes to the following limits in permit conditions 4.1.1. and 4.1.2.:

Hourly PM for Press Dryer 6 (Em. Pt. ID 6E)

Hourly VOC for Press Dryers 3, 5, and 6 (Em. Pt. IDs 3E, 5E, and 6E)

Annual NO_x for Press Dryers 4 and 5 (Em. Pt. IDs 4E and 5E)

Annual VOC for Press Dryers 3, 4, 5, 6, and 8 (Em. Pt. IDs 3E, 4E, 5E, 6E, and 13E)

These proposed changes are typically increases ranging from 0.01 to 0.02 lb/hr, and even an 1/1000th increase from 0.019 to 0.020 lb/hr for hourly PM for Press Dryer 6. For the annual emission limits, increases requested ranged from 0.01 to 0.06 tons/yr. The differences are caused by calculation method, and rounding. For example, in permit condition 4.1.2., the annual NO_x limit for Em. Pt. ID 4E is 2.67 tons/yr, which was calculated using the hourly limit of 0.61 lb/hr (multiply by 8,760 hr/yr and divide by 2,000 lb/ton). The consultant calculated the annual limit based upon propane fuel consumption of 382,950 gal/yr and the EPA emission factor (14 lb/1000 gal). Thus, $(382,950 \text{ gal/yr}) \times (14 \text{ lb/1,000 gal}) \div (2,000 \text{ lb/ton}) = 2.68 \text{ tons/yr}$. Since the proposed changes are minimal, and can be justified by rounding or another legitimate calculation approach, the limits listed above will be changed.

- d. ERSG stated that there were discrepancies in the natural gas usage in permit condition 4.1.3. Since the actual MDHI of Press Dryer 7 is 2.4 MMBtu/hr (not 1.2 MMBtu/hr), the usage rates for this press double, thus the change from 9.99 MM ft³/yr to 19.98 MM ft³/yr. The monthly and hourly rates are computed by dividing 19.98 MM ft³/yr by 12 months/yr and 8,760 hr/yr, respectively. The other discrepancies came about because previous permits used a heating value of 1,000 Btu/ft³ for all of the presses except press 8 (Em. Unit ID 13S). The site-specific heating value is 1,052 Btu/ft³. Thus the volumetric flow rate of gas will decrease since the heating value of the natural gas fuel is actually larger than the assumed value used in previous calculations. The flow rates and total heat input have been changed accordingly in permit condition 4.1.3.