NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: May 27, 2008

Region: Mooresville Regional Office
County: Union
NC Facility ID: 9000052
Inspector's Name: Tonisha Dawson
Date of Last Inspection: 02/18/2008
Compliance Code: 4/In Compliance – Cert.

Facility Data

Applicant (Facility's Name): Bloomsburg Mills, Inc.
3000 Stitt Street
Monroe, NC 28110

SIC: 2269 / Finishing Plants, Nec
NAICS: 313312 / Textile and Fabric Finishing (except Broadwoven Fabric) Mills

Facility Classification: **Before:** Title V **After:** Title V
Fee Classification: **Before:** Title V **After:** Title V

Permit Applicability (this application only)

SIP: 2D .1407 and .1413
NSPS: N/A
NESHAP: N/A
PSD: N/A
PSD Avoidance: N/A
NC Toxics: N/A
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
James Little Plant Engineer (704) 289-2536 3000 Stitt Street Monroe, NC 28110	William Parker Vice President of Mfg. (704) 289-2536 3000 Stitt Street Monroe, NC 28110	John Ward Plant Chemist (704) 289-2536 3000 Stitt Street Monroe, NC 28110

Application Data

Application Number: 9000052.07C
Date Received: 07/31/2007
Application Type: Modification
Application Schedule: TV-Significant

Existing Permit Data
Existing Permit Number: 03001/T14
Existing Permit Issue Date: 2/22/2008
Existing Permit Expiration Date: 01/31/2013

Review Engineer: David Putney

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 03001/T15
Permit Issue Date: May 27, 2008
Permit Expiration Date: January 31, 2013

I Reason for Application:

A. Facility Description: Bloomsburg Mills, Inc. currently operates a fabric finishing and dyeing operation at its Monroe, North Carolina facility under Permit No. 03001T14. The Permittee dyes and finishes woven textile greige goods received from off-site manufacturers.

B. Permit Modification: The Permittee submitted application 9000052.07C in response to the letter, dated 6/29/07, sent by NC DAQ to facilities that may be subject to reasonably available control technology (RACT) requirements found in Sections 15A NCAC 2D .0900 (for volatile organic compounds - VOC) and 15A NCAC 2D .1400 (for nitrogen oxides - NO_X).

In application 9000052.07C the Permittee stated their belief that the fuel use limits associated with PSD avoidance in current Permit No. 03001T14 sufficiently limit emissions of NO_X and VOC to avoid RACT at this facility. However, that PSD avoidance condition does not address the 560 pound of NO_X per day RACT threshold found in 2D .1402(h)(5)(B). In subsequent submittals, the Permittee indicated that they intend to apply RACT as described in 2D .1407 to the boilers at this facility but that RACT for the textile dryers is no controls.

II Regulatory Review for RACT:

A. Applicability: The RACT rules are provided in Sections 2D .0900 (for VOC) and 2D .1400 (for NO_X). Rule 2D .0902(f) requires that RACT be applied to facilities that have the potential to emit 100 tons or more of VOC per year in several counties – one of which is Union County (i.e. the location of the subject facility). Rule 2D .1402(d) and (h) require that RACT be applied to facilities that have potential NO_X emissions of 100 tons or more per year and/or 560 pounds or more per day in several counties – one of which is Union County.

B. Sources of NO_X and VOC:

i. Non-combustion sources:

There are no non-combustion sources of NO_X emissions at this facility. The non-combustion sources of VOC emissions include the finishes and dyes applied to the fabrics at this facility.

ii. Combustion sources:

Equipment ID No.	Equipment Type	Heat input capacity (million Btu/hour)	Permitted Fuel(s)
IES-9	Emergency fire pump	255.0 *	Diesel fuel
	Subtotal:	255.0 *	
MW-1	Textile dryer	4.0	Propane and natural gas
K-2	Textile dryer	4.0	
MW-3	Textile dryer	12.0	
	Subtotal:	20.0	
B-1	Boiler	25.1	No. 6 fuel oil, recycled No. 4 fuel oil and natural gas
B-2	Boiler	29.3	
B-3	Boiler	25.1	
B-4	Boiler	33.5	
	Subtotal:	113.0	

* For source IES-9 this data is provided as a rated power output of 255 horsepower.

C. Relevant emission factors and permit limits:

For the purposes of this RACT applicability determination, the following heat values are used:

Propane: 90,500 Btu per gallon
Natural gas: 1,020 Btu per standard ft^3
No. 4 fuel oil: 150,000 Btu per gallon
No. 6 fuel oil: 150,000 Btu per gallon

Permit No. 03001T14 includes a limit of 1,500,000 gallons of No. 6 and recycled No. 4 fuel oil, total, per consecutive 12-month period.

The relevant NO_X and VOC emission factors for the listed fuels (as provided in the current U.S. EPA AP-42 document and converted to a heat basis using the heat values listed above, when required) are as follows:

NO_X:		VOC:	
Propane:	0.210 lb per million Btu	Propane:	0.0033 lb per million Btu
Natural Gas:	0.098 lb per million Btu	Natural Gas:	0.0054 lb per million Btu
No. 6 oil:	0.367 lb per million Btu	No. 6 oil:	0.0019 lb per million Btu
No. 4 oil:	0.133 lb per million Btu	No. 4 oil:	0.0013 lb per million Btu
Diesel:	0.031 lb per hp-hr	Diesel:	0.0025 lb per hp-hr

D. Potential Annual NO_X and VOC emissions:

Combustion sources:

***Emergency fire pump*:** In accordance with EPA policy, assume 500 annual hours of operation at maximum capacity. This results in potential annual emissions of:

[0.031 lb NO_X/hp-hr][500 hr][255 hp][ton/2,000 lb] = 1.98 ton NO_X

[0.0025 lb VOC/hp-hr][500 hr][255 hp][ton/2,000 lb] = 0.16 ton VOC

***Boilers*:** For NO_X, assume all fuel oil combustion in the boilers (i.e. all of the 1,500,000 gallons) is No. 6 fuel oil (i.e. worst-case fuel for NO_X emissions from boilers). This results in:

[0.367 lb $NO_X/10^6$ Btu][1,500,000 gallons][0.15 x 10^6 Btu/gallon][ton/2,000 lb] = 41.29 ton NO_X

The potential heat input of the boilers "left over" for natural gas combustion is as follows:

[113 x 10^6 Btu/hr][8,760 hr/yr] - [1,500,000 gallons/yr][0.15 x 10^6 Btu/gallon] = 764,880 x 10^6 Btu/yr

Generating this amount of heat input from natural gas combustion in the boilers would result in:

[0.098 lb $NO_X/10^6$ Btu][764,880 x 10^6 Btu/yr][ton/2,000 lb] = 37.48 ton NO_X

For VOC, assume the boilers all operate 8,760 hours per year at maximum capacity and burn only natural gas (i.e. worst-case fuel for VOC emissions for these devices). This results in:

[0.0054 lb VOC/10^6 Btu][113 x 10^6 Btu/hr][8,760 hr/yr][ton/2,000 lb] = 2.67 ton VOC

***Textile dryers*:** For NO_X, assume the all operate 8,760 hours per year at maximum capacity and burn only propane (i.e. worst-case fuel for NO_X emissions for these devices). This results in:

[0.210 lb $NO_X/10^6$ Btu][20 x 10^6 Btu/hr][8,760 hrs/yr][ton/2,000 lb] = 18.40 ton NO_X

For VOC, assume the textile dryers all operate 8,760 hours per year at maximum capacity and burn only natural gas (i.e. worst-case fuel for VOC emissions for these devices). This results in:

[0.0054 lb VOC/10^6 Btu][20 x 10^6 Btu/hr][8,760 hrs/yr][ton/2,000 lb] = 0.47 ton VOC

Non-combustion sources:

Emissions from the non-combustion sources of VOC were calculated by using the highest annual VOC emissions reported in the annual emission inventories for the propane/natural gas-fired dryers (ID Nos. MW-1, K-2 and MW-3) and the steam-heated dryer (ID No. CAN-1) submitted for this facility over the last 5 years as summarized in the table below. Note that, for conservatism, the reported VOC emissions listed in this table include the contributions from combustion in the case of MW-1, K-2 and MW-3. These reported actual VOC emissions were scaled-up to potential VOC emissions by the ratio of potential hours of operation (i.e. 8,760 hours per year) to actual reported hours of operation.

Year	VOC emissions (tons)/Hours of operation [1]						Total dryer VOC emissions	
	MW-1/K-2/MW-3 (natural gas)		MW-1/K-2/ MW-3 (propane)		CAN-1		Actual [2]	Potential [3]
2006	4.52	1,920	3.11	1,344	0.88	1,000	8.51	48.60
2005	17.26	3,200	0.01	320	1.66	800	18.93	65.70
2004	7.73	3,400	0.00	204	0.87	1,000	8.60	27.54
2003	8.80	4,400	0.00	264	0.83	1,200	9.63	23.58
2002	12.81	6,000	0.00	0	0.86	1,250	13.67	24.73

[1] Actual VOC emissions and hours of operation were obtained from the annual emission inventories submitted for this facility.

[2] Actual emissions are the sum of the reported emissions, including combustion (where applicable).

[3] Potential emissions are calculated by multiplying the actual emissions by the scale-up factor (i.e. 8,760 potential hours of operation during a year by the actual hours of operation during that year).

Total annual potential facility-wide NO_X and VOC emissions:

NO_X: 1.98 tons + 41.29 tons + 37.48 tons + 18.40 tons = 99.15 tons NO_X per year

VOC: 0.16 tons + 2.67 tons + 0.47 tons + 65.70 tons = 69.00 tons VOC per year

E. Potential Daily NO_X emissions:

The potential NO_X emissions from this facility during a day would be the result of operation of all four boilers at maximum capacity for 24 hours while burning No. 6 fuel oil; textile dryers MW-1, K-2 and MW-3 at maximum capacity for 24 hours while burning propane; and the emergency fire pump at maximum power output for 24 hours while burning diesel fuel. The resulting potential daily NO_X emissions are calculated as follows:

Boilers: [0.367 lb $NO_X/10^6$ Btu][113 x 10^6 Btu/hr][24 hr/day] = 995.30 lb NO_X per day

Dryers: [0.210 lb $NO_X/10^6$ Btu][20 x 10^6 Btu/hr][24 hr/day] = 100.80 lb NO_X per day

Fire pump: [0.031 lb NO_X/hp-hr][255 hp][24 hr/day] = 189.72 lb NO_X per day

F. Applicability:

This facility does not meet or exceed the annual threshold of 100 tons or more of potential VOC or (after the PSD avoidance limits) NO_X emissions. However, this facility does exceed the daily threshold of 560 pounds per day of potential NO_X emissions, even after the PSD avoidance limit (the PSD avoidance condition limits annual fuel use, not daily fuel use). Therefore, **RACT is required (for NO_X)** for this facility as currently permitted under Permit No. 03001T14.

Permittee is required to either (1) apply for a daily fuel use limit to avoid RACT for NO_X emissions, or (2) apply RACT to the boilers and the textile dryers.

G. RACT Requirements:

Boilers:

In the submittal dated 02/29/08 the Permittee proposed to apply RACT to the boilers at this facility by complying with 2D .1407. Permit No. 03001T15 will include a condition addressing testing in accordance with 2D .1415 and General Condition JJ if/when DAQ requires testing but will not include any additional testing requirements for these devices. The boilers at this facility each have maximum heat input rates of ≤ 50 million Btu per hour. Therefore, in accordance with 2D .1404, 2D .1407 and 2D .1414, the following MRR requirements are added to Permit No. 03001T15 for the boilers:

- Conduct an annual tune-up of each boiler in accordance with a unit specific protocol approved by the Director of NC DAQ; and
- Submit semiannual summary reports of the tune-ups to NC DAQ.

Dryers:

The Permittee contends that RACT for the textile dryers at this facility is no controls due to the high cost of the controls per ton of NO_X removed. According to the information submitted (a quote from the original equipment manufacturer), installing low-NO_X burners on these dryers would cost approximately $85,384 and would reduce NO_X emissions by about 77%. The dryers at this facility have the potential to emit 18.4 tons of NO_X per year (refer to the discussion of the textile dryers in Section II D of this document, above). Therefore, we can estimate the cost per ton of NO_X removed as follows:

$85,384/{[18.4 (ton NO_X/year)][0.77]} = $6,027 per ton of NO_X removed.

NC DAQ agrees that this cost is excessive and agrees further that RACT for the textile dryers at this facility is no controls.

Emergency Fire Pump:

Although Section 2D .1400 requires the Permittee to include NO_X emissions from the emergency fire pump when determining the applicability of RACT, the emergency fire pump is specifically exempted from any RACT requirements under 2D .1402(h)(4).

III Permit Modifications/Changes:

The following table summarizes the changes in Permit No. 03001T15 resulting from Permit Application No. 9000052.07C:

Old Page(s)	New Page(s)	Condition/ Item	Description of Change(s)
Global	Global	N/A	• Change permit revision number to T15 • Change the issuance/effective dates of the permit • Amend the application number and complete date
3	3	Equipment List	Modify Emission Source ID No. column to indicate the applicability of RACT to boilers B-1 through B-4
5	5	2.1 A.3.d.ii	Alter text of monitoring associated with 2D .0521 for the boilers to include the clarifying phrase "(Method 9) for 12 minutes"
N/A	6	2.1 A.4.a-e	Add the MRR requirements associated with RACT for boilers B-1 through B-4 (annual tune-ups)
N/A	8	2.1 B.4.a	Add language to show that the dryers (MW-1, K-2 and MW-3) were evaluated for RACT but that no new requirements are necessary
7	8	2.1 B.3.c.ii	Alter text of monitoring associated with 2D .0521 for the dryers to include the clarifying phrase "(Method 9) for 12 minutes"
19	20	3 MM	Add new general condition

Note: Condition/Item numbers are those as they appear on Permit No. 03001T15

IV Title V Permit History:

The following table provides a very brief summary of Title V permit revisions for this facility:

Permit No.	Issuance	Description of Revision
03001T10	11/10/98	Issuance of initial Title V permit
03001T11	04/11/03	Renewal of Title V permit
03001T12	02/18/05	Modification to include MACT avoidance condition
03001T13	12/06/07	Modification to allow the combustion of recycled No. 4 fuel oil in boilers B-1 through B-4
03001T14	02/20/08	Renewal of Title V permit
03001T15	05/27/08	Addition of RACT requirements for boilers B-1 through B-4

V Application Fee:

Current NC DAQ policy is to not charge a fee for the addition of RACT requirements for existing sources as requested via application 9000052.07C.

VI Compliance Status:

The facility was most recently inspected on 02/18/07 by Tonisha Dawson of MRO and David Putney of RCO and appeared to be operating in compliance with DAQ rules and the permit requirements during that inspection.

VII Zoning Consistency:

No zoning consistency determination is required for the permit modification requested via permit application 9000052.07C since no new equipment or facility expansion is involved.

VIII Miscellaneous:

Public Participation: In accordance with 2Q .0521, NC DAQ must provide the opportunity for public participation prior to issuance of a significant modification to a Title V permit (such as that represented by application 9000052.07C). NC DAQ met this obligation with the public notice posted in The Enquirer – Journal of Union County on 04/07/08.

EPA & Affected States Review: In accordance with 2Q .0522, NC DAQ must provide EPA, SC DHEC and Mecklenburg County LUESA staff and the Catawba Indian Nation the opportunity to review a proposed renewal of this Title V permit. NC DAQ met this obligation by sending those agencies a copy of Proposed Permit No. 03001T15 on 04/07/08.

Certification by Responsible Official: In accordance with 2Q .0520, William Parker (i.e. the responsible official for Bloomsburg Mills, Inc.) provided the required certification on Form E5 of application 9000052.07C.

IX Permit Review:

Draft permit: DAQ-RCO Permits section sent a draft version of Permit No. 03001T15 and the associated review to the Permittee and the MRO for a review and comment period on 03/11/08. No comments were received on DRAFT Permit No. 03001T15. Note that DAQ-RCO made changes to the shell monitoring language associated with 2D .0521 and added general condition MM to the permit shell. These changes are reflected in the proposed version of Permit No. 03001T15 and in the tables of permit modifications found in Section III of this document, above, and attached to Proposed Permit No. 03001T15.

Proposed permit: DAQ-RCO Permits section sent a proposed version of Permit No. 03001T15 and the associated review to the Permittee, the MRO, the EPA, and the Affected States on 04/07/08. As a result of the comments received on these documents, the following changes were made to Proposed Permit No. 03001T15:

List changes here

X Recommendation:

The application for a Title V permit modification for the Bloomsburg Mills, Inc. facility in Monroe, NC has been reviewed by NC DAQ personnel to determine compliance with all applicable procedures and requirements. NC DAQ personnel have determined that this facility is complying or will achieve compliance with all applicable requirements as specified in Permit No. 03001T15.

Issuance of Permit No. 03001T15 is recommended.