

Air Permit Review

Permit Issue Date: February 20, 2008

Region: Mooresville Regional Office
County: Union
NC Facility ID: 9000052
Inspector's Name: Mohammed Madjinasab
Date of Last Inspection: 02/07/2007
Compliance Code: 4/In Compliance – Cert.

Facility Data			Permit Applicability	
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			SIP: 2D .0503, .0515, .0516, .0521 and .0958 NSPS: N/A NESHAP: N/A PSD: N/A PSD Avoidance: 2Q .0317 to avoid 2D .0530 NC Toxics: 2Q .0317 to avoid 2Q .0700 112(r): N/A Other: N/A	
Contact Data			Application Data	
Facility Contact	Authorized Contact	Technical Contact	Application Number: 9000052.07A Date Received: 06/04/2007 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 03001/T13 Existing Permit Issue Date: 12/06/2007 Existing Permit Expiration Date: 03/31/2008	
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		
Review Engineer: David Putney Review Engineer's Signature: _____ Date: _____			Comments / Recommendations:	
			Issue 03001/T14 Permit Issue Date: February 20, 2008 Permit Expiration Date: January 31, 2013	

I Reason for Application:

Facility Description: Bloomsburg Mills, Inc. currently operates a fabric finishing and dyeing operation at its Monroe, North Carolina facility under Permit No. 03001T13. The Permittee dyes and finishes woven textile greige goods received from off-site manufacturers.

Permit Modification: The Permittee submitted application 9000052.07A to renew (without any modifications) Permit No. 03001T13.

II Regulatory Review:

A. Four No. 6 fuel oil/recycled No. 4 fuel oil/natural gas-fired boilers (25.1, 29.3, 25.1 and 33.5 million Btu per hour maximum heat input rating, ID Nos. B-1, B-2, B-3 and B-4, respectively)

These boilers are used to generate steam for use throughout the facility. Boilers B-1, B-2 and B-3 were manufactured 9/11/72, 3/25/68 and 12/17/73, respectively, and permitted in 1979 upon facility startup. Boiler B-4 was manufactured 12/2/77 but not permitted until after 2/1/83 to replace the "original" B-4 (see phone log dated 11/19/07).

i. 2D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"

This rule applies to boilers B-1 through B-4 and limits the allowable PM emissions (E) from these indirect heat exchangers to those described in the following equations:

$$E = \begin{cases} 0.10 & \text{If } Q \geq 10,000, \\ 0.60 & \text{If } Q \leq 10, \text{ and} \\ 1.090(Q)^{-0.2594} & \text{If } Q \text{ is any other value} \end{cases}$$

Where: E = allowable emissions (lb PM/10⁶ Btu), and
Q = maximum heat input (10⁶ Btu/hr)

Therefore, in accordance with 2D .0503(e):

For boilers B-1 through B-3: Q = 79.5 (10⁶ Btu/hr) and
E = 0.35 (lb PM/10⁶ Btu)

For boiler B-4: Q = 113 (10⁶ Btu/hr) and
E = 0.32 (lb PM/10⁶ Btu)

Boilers B-1 through B-4 can each burn natural gas, recycled No. 4 fuel oil and No. 6 fuel oil. Tables 1.3-1 and 1.3-2 of Supplement E to the 5th edition of the AP-42 document predict total PM emissions of 24.0 (lb/10³ gallons) from combustion of No. 6 fuel oil (i.e. the worst-case fuel for these boilers, assuming sulfur content of 2.1%). If we assume a No. 6 fuel oil heat value of 150,000 (Btu/gallon) then we can calculate PM emissions of

$$[24.0 \text{ (lb/10}^3 \text{ gallons)}] / [150 \text{ (10}^6 \text{ Btu/10}^3 \text{ gallons)}] = 0.16 \text{ (lb PM/10}^6 \text{ Btu)}$$

Compliance with this rule is indicated.

For boilers B-1 through B-4, Permit No. 03001T14 will include the standard language for the emission limits of 2D .0503 and the methods of testing for compliance (if required by DAQ) but will not (since the fuels are inherently compliant) require any additional testing or any monitoring, recordkeeping or reporting (MRR) to demonstrate compliance with 2D .0503.

ii. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

This rule applies to boilers B-1 through B-4 and limits the SO₂ emissions from these combustion devices to 2.3 (lb/10⁶ Btu).

Permit No. 03001T13 limits the recycled No. 4 fuel oil burned in these boilers to 2.0 weight percent. Therefore, we expect No. 6 fuel oil (sulfur content of up to 2.1 weight percent) to be the worst-case fuel for SO₂ emissions from these boilers.

Supplement E to the 5th edition of the AP-42 document predicts SO₂ emissions of 157S (lb/10³ gallons) from the combustion of No. 6 fuel oil in a small boiler, where S is the sulfur content of the fuel oil in weight percent. If we assume a heat value of 150,000 (Btu/gallon) and a sulfur content of 2.1 percent by weight for No. 6 fuel oil we can calculate SO₂ emissions of

$$[(157)(2.1) \text{ (lb SO}_2\text{/10}^3 \text{ gallon)}] / [10^3 \text{ (gallon)/150 (10}^6 \text{ Btu)}] = 2.2 \text{ (lb SO}_2\text{/10}^6 \text{ Btu)}$$

Compliance with this rule is indicated.

For 2D .0516 (as applicable to boilers B-1 through B-4), Permit No. 03001T14 will include:

- The standard language for the emission limits of, and the methods of testing (if/when required by DAQ) for compliance with, this rule;
- Monitoring and recordkeeping requirement of sulfur content (via fuel oil supplier certifications) of recycled No. 4 fuel oil and No. 6 fuel oil per shipment received; and
- Semiannual summary reporting of fuel oil sulfur content certifications for recycled No. 4 fuel oil and No. 6 fuel oil.

iii. 2D .0521 “Control of Visible Emissions”

This rule requires that the Permittee “prevent, abate and control emissions generated from fuel burning operations and industrial processes where an emission can reasonably be expected to occur...” Boilers B-1, B-3 and B-4 were manufactured after 7/1/71 whereas boiler B-2 was manufactured before 7/1/71 (see phone log dated 11/19/07). Therefore, except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are regulated under

Rule 2D .0535, paragraphs (c) and (d) of this rule require that the 6-minute average VEs from boilers B-1, B-3 and B-4 be less than or equal to 20% opacity and from boiler B-2 be less than or equal to 40% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 20% (for B-1, B-3 and B-4) or 40% (for B-2) opacity as long as that VE does not also exceed 87% (for B-1, B-3 and B-4) or 90% opacity (for B-2); and
- Up to four six-minute average VEs per 24-hour period may exceed 20% (for B-1, B-3 and B-4) or 40% (for B-2) opacity as long as those VEs do not also exceed 87% (for B-1, B-3 and B-4) or 90% (for B-2) opacity.

For 2D .0521 (as applicable to boilers B-1 through B-4), Permit No. 03001T14 will include:

- The standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with this rule;
- Daily monitoring and recordkeeping requirement of visible emissions (with an allowance to miss up to 3 observations per semiannual period); and
- Semiannual summary reporting of VE observations.

iv. 2D .0524 “New Source Performance Standards”

This rule **does not apply** to boilers B-1 through B-4. Although these boilers’ heat input capacities are within the range covered by 40 CFR Part 60, Subpart Dc, these boilers pre-date that rule (see NSPS discussion in Section III, of this document, below).

v. 2D .1111 “Maximum Achievable Control Technology”

This rule **does not apply** to boilers B-1 through B-4. The MACT that could apply (i.e. 40 CFR Part 63, Subpart DDDDD) has been vacated by the courts. Further, Permit No. 03001T13 has a MACT avoidance condition that is carried over into Permit No. 03001T14 (see the NESHAP discussion in Section III, of this document, below).

vi. 2D .1806 “Control and Prohibition of Odorous Emissions”

Although not specifically exempted from applicability of this rule under 2D .1806(d), by policy this rule is not typically applied to boilers. Therefore, rule 2D .1806 **will not be applied** to boilers B-1 through B-4 in Permit No. 03001T14.

vii. 2Q .0317 “Avoidance Conditions”

PSD: In Permit No. 03001T13 boilers B-1 through B-4 are subject to a PSD avoidance condition that limits No. 6 and recycled No. 4 fuel oil combustion to 1.5 million gallons per year and sulfur content to 2.1% by weight. The Permittee must maintain records of fuel usage and sulfur content and submit semiannual summary reports. This condition will be modified in Permit No. 03001T14 to include emissions from the propane/natural gas-fired textile dryers (limits on propane/natural gas usage are not necessary – see Appendix A to this document).

NC Toxics: Boilers B-1 through B-4 are subject to a NC toxics avoidance condition that allows the Permittee to consider the recycled No. 4 fuel oil as equivalent to unadulterated virgin No. 4 fuel oil by maintaining copies of manifests received from DAQ-approved vendors for each shipment of recycled No. 4 fuel oil received, if those manifests indicate contaminant levels below the specified levels. The Permittee must maintain records of recycled No. 4 fuel oil usage and analytical results (from the manifests) and submit annual summary reports.

MACT: In Permit No. 03001T13 the propane/natural gas-fired textile dryers are subject to a MACT avoidance condition. This condition will be modified in Permit No. 03001T14 to include HAP emissions from boilers B-1 through B-4 (see Appendix C of this document).

- B. Two propane/natural gas-fired textile fabric dryers (4.0 million Btu per hour heat input capacity and 0.8 tons per hour drying capacity, each, ID Nos. MW-1 and K-2) with an associated mist eliminator (703.36 square feet of filter area, ID No. CD-1); and**

One propane/natural gas-fired textile fabric dryer (12 million Btu per hour heat input capacity and 1.6 tons per hour drying capacity, ID No. MW-3) and Steam Can Dryer (ID No. CAN-1) with an associated mist eliminator (602 square feet of filter area, ID No. CD-2)

i. 2D .0503 “Particulates from Fuel Burning Indirect Heat Exchangers”

This rule **does not apply** to the dryers since the can dryer (ID No. CAN-1) does not burn fuel (i.e. it receives steam from the boilers) and the propane/natural gas-fired dryers (ID Nos. K-2, MW-1 and MW-3) are direct-fired heat exchangers (and are therefore subject to 2D .0515).

ii. 2D .0515 “Particulates from Miscellaneous Industrial Processes”

This rule applies to the steam-heated can dryer (ID No. CAN-1) and the propane/natural gas-fired textile dryers (ID Nos. MW-1, K-2 and MW-3) and limits the allowable PM emissions (E) from these sources to those described in the following two equations:

$$E \leq 4.10(P)^{0.67} \quad \text{If } P \leq 30 \text{ (ton/hr), or}$$

$$E \leq 55.0(P)^{0.11} - 40 \quad \text{If } P > 30 \text{ (ton/hr)}$$

where: P = the process weight rate (ton/hr), and
E = allowable emissions (lb PM/hr)

Permit No. 03001T13 cites maximum process weight rates of 0.8 tons per hour, 0.8 tons per hour and 1.6 tons per hour for textile dryers MW-1, K-2 and MW-3, respectively. The Permittee also indicated (refer to the 11/27/07 email) that CAN-1 has a maximum process weight rate of 1.6 tons per hour. Therefore, we calculate that:

$$E \leq 4.1[0.8]^{0.67} = 3.53 \text{ lb PM/hr, each, for MW-1 and K-2; and}$$

$$E \leq 4.1[1.6]^{0.67} = 5.62 \text{ lb PM/hr, each, for MW-3 and CAN-1}$$

According to the Permittee (refer to the 12/04/07 email and the 12/03/07 phone log), the non-combustion emissions from these textile dryers amounts to 0.003% by weight of the fabric processed and the mist eliminators provide 75% control efficiency for PM. Also, according to the current AP-42 document, natural gas is the worst-case fuel for PM emissions from MW-1, K-2 and MW-3 with predicted PM emissions of 0.0075 (lb PM/10⁶ Btu). Therefore, we estimate before-control potential PM emissions from these dryers as follows:

$$\text{MW-1/K-2: } [(0.8)(2,000)(3 \times 10^{-5}) + (0.0075)(4.0)] = 0.078 \text{ (lb PM/hr) before control, each}$$

$$\text{MW-3: } [(1.6)(2,000)(3 \times 10^{-5}) + (0.0075)(12.0)] = 0.186 \text{ (lb PM/hr) before control}$$

$$\text{CAN-1: } [(1.6)(2,000)(3 \times 10^{-5})] = 0.096 \text{ (lb PM/hr) before control}$$

Permit No. 03001T14 will include the standard language for the emission limits of 2D .0515 and (since compliance with this rule by a comfortable margin is expected before control) will not require any testing to demonstrate compliance for CAN-1, MW-1, K-2 and MW-3.

The MRR requirements associated with 2D .0515 in Permit No. 0001T14 for the textile dryers will include use of the mist eliminators (they are required to comply with 2D .0521), maintenance of production records for CAN-1, MW-1, K-2 and MW-3, and monthly external inspections of the mist eliminators. No reporting is required for these sources.

iii. 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

This rule applies to the 3 propane/natural gas-fired textile dryers (ID Nos. MW-1, K-2 and MW-3) and limits the SO₂ emissions from these combustion devices to 2.3 (lb/10⁶ Btu).

Table 1.4-2 of Supplement D to the 5th edition of the AP-42 document predicts SO₂ emissions of 0.6 (lb SO₂/10⁶ ft³) from the combustion of natural gas. Assuming a heat value of 1,020 (Btu/ft³) for natural gas we can calculate

$$[0.6(\text{lb SO}_2/10^6 \text{ ft}^3)]/[1,020(\text{Btu/ft}^3)] = 0.00059 (\text{lb SO}_2/10^6 \text{ Btu})$$

Table 1.5-1 of Supplement B to the 5th edition of the AP-42 document predicts SO₂ emissions of 0.1S (lb SO₂/10³ gall) from the combustion of propane, where S = the sulfur concentration in the gas vapor (grains S/100 ft³). The DAQ spreadsheet for emissions from LPG combustion indicates that a value of 0.1 (grains S/100 ft³) is reasonable. Assuming a heat value of 90,500 (Btu/gall) for propane we can calculate

$$[0.1*0.1(\text{lb SO}_2/10^3 \text{ gallons})][10^3 (\text{gallons})/90.5 (10^6 \text{ Btu})] = 0.00011 (\text{lb SO}_2/10^6 \text{ Btu})$$

Compliance with this rule is indicated.

For 2D .0516 (as applicable to MW-1, MW-3 and K-2), Permit No. 03001T14 will include the standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with, this rule will appear in the permit. But, since compliance with this rule by a large margin is expected, no MRR requirements will appear in the permit.

iv. 2D .0521 “Control of Visible Emissions”

This rule requires that the Permittee “prevent, abate and control emissions generated from fuel burning operations and industrial processes where an emission can reasonably be expected to occur...” Except for those visible emissions (VEs) occurring during startup, shutdown and malfunctions that are regulated under Rule 2D .0535, paragraph (c) of this rule requires that the 6-minute average VEs from textile dryers MW-1, MW-3 and K-2 be less than or equal to 40% opacity with the following exceptions:

- One six-minute average VE per hour may exceed 40% opacity as long as that VE does not also exceed 90%; and
- Up to four six-minute average VEs per 24-hour period may exceed 40% opacity as long as those VEs do not also exceed 90% opacity.

For 2D .0521 (as applicable to MW-1, MW-3 and K-2), Permit No. 03001T14 will include:

- The standard language for the emission limits of, and the methods of testing for compliance (if/when required by DAQ) with, this rule;
- Daily monitoring and recordkeeping requirement of visible emissions (with an allowance to miss up to 3 observations per semiannual period); and
- Semiannual summary reporting of VE observations.

v. 2D .0921 “Fabric and Vinyl Coating”

According to the Permittee (refer to phone log dated 11/19/07) this facility does not engage in fabric coating or vinyl coating activities as defined in this rule. Also, according to 2D .0902(f), this rule only applies to facilities that have the potential to emit 100 tons per year or more of VOCs. Actual and potential emission rates of VOCs for this facility are listed as 8.64 tons per year and 78.6 tons per year, respectively, in IBEAM. Therefore, this rule **does not apply** to the Permittee and is not included in Permit No. 03001T14.

vi. 2D .0949 “Storage of Miscellaneous Volatile Organic Compounds”

According to the Permittee (refer to phone log dated 11/19/07) this facility does not store any volatile organic compounds in containers with capacities greater than 50,000 gallons. Instead, the dyes used in this facility are received and stored in 55-gallon drums. Therefore, this rule **does not apply** to the Permittee and is not included in Permit No. 03001T14.

vii. 2D .0951 “Miscellaneous Volatile Organic Compound Emissions”

According to 2D .0902(f), this rule only applies to facilities that have the potential to emit 100 tons per year or more of VOCs. Actual and potential emission rates of VOCs for this facility are listed as 8.64 tons per year and 78.6 tons per year, respectively, in IBEAM. Therefore, this rule **does not apply** to the Permittee and is not included in Permit No. 03001T14.

viii. 2D .0958 “Work Practices for Sources of Volatile Organic Compounds”

This rule applies to the operations in this facility that use VOCs as solvents, carriers, material processing media, etc. and requires the Permittee to follow certain procedures when using or storing the VOC-containing materials or cleaning or draining the equipment used to apply these materials. Permit No. 03001T14 will include the standard language for work practice standards and MRR associated with this rule for the facility-wide affected sources.

ix. 2D .1806 “Control and Prohibition of Odorous Emissions”

This rule applies to all sources at the facility and requires the Permittee to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility’s boundary. This requirement is added to Permit No. 03001T14.

x. 2Q .0317 “Avoidance Conditions”

PSD: Permit No. 03001T13 includes an avoidance condition associated with boilers B-1 through B-4 for PSD. This condition limits No. 6 and recycled No. 4 fuel oil combustion to 1.5 million gallons per year and sulfur content to 2.1% by weight. This condition will be modified to address the propane/natural gas-fired textile dryers in Permit No. 03001T14. These textile dryers will be listed in the condition (because they contribute to SO₂ emissions) but, to lighten the regulatory “burden,” the Permittee will not track propane/natural gas SO₂ emissions or fuel usage but rather adjust the allowable SO₂ emission limit from fuel oil combustion from 250 tons to 249.72 tons per consecutive 12-month period [i.e. adjust the allowable down by the potential SO₂ emissions from natural gas and propane (250 – 0.23 – 0.5, see Attachment A)].

MACT: Permit No. 03001T13 includes an avoidance condition limiting facility-wide HAP emissions to avoid applicability of MACT. The MRR requirements of this condition will be modified in Permit No. 03001T14 to include the HAP emissions from fuel combustion (i.e. in the boilers and textile dryers) at this facility (see Appendix C of this document).

III NSPS/NESHAP/PSD/Toxics/112(r)/CAM/RACT Applicability:

NSPS: Boilers B-1 through B-4 are not subject to the relevant standard for Small Industrial-Commercial-Institutional Steam Generating Units (i.e. 40 CFR Part 60, Subpart Dc). That rule applies to steam generating units with heat input capacities of 10 million Btu per hour to 100 million Btu per hour, inclusive, for which construction, modification, or re-construction is commenced after 6/9/89. Boilers B-1, B-2, B-3 and B-4 have heat input capacities of 25.1, 29.3, 25.1 and 33.5 million Btu per hour, respectively, and were manufactured in 1972, 1968, 1973 and 1977, respectively. The boilers are within the stated heat input capacities but pre-date the rule and are therefore not subject.

NESHAP: Boilers B-1 through B-4 are not subject to the Industrial/Commercial/Institutional Boilers and Process Heaters category MACT (i.e. 40 CFR Part 63, Subpart DDDDD) since that MACT has been vacated (and due to the MACT avoidance condition, see below).

Also, this facility is not subject to 40 CFR Part 63, Subpart OOOO (i.e. the NESHAP for Printing, Coating and Dyeing of Fabrics and Other Textiles) due to the MACT avoidance condition.

PSD: This facility does not fall into one of the “named” PSD categories but does have uncontrolled potential to emit >250 tons of SO₂ per consecutive 12-month period. To avoid being classified as major for PSD purposes the Permittee has previously accepted PSD avoidance conditions for SO₂.

Application 9000052.07A is a renewal without modification and does not represent a major modification for PSD purposes – therefore a PSD review is not triggered.

Toxics: The Permittee has not yet triggered a review under the NC toxics program. Permit No. 03001T14 includes a toxics avoidance condition for recycled No. 4 fuel oil combustion. Application 9000052.07A is a renewal without modification and does not trigger a toxics review.

112(r): This facility does not use, handle, or store any regulated materials onsite in quantities in excess of the associated thresholds (except for propane which is used as a fuel and therefore exempt) and is therefore not subject to the requirements of this regulation.

CAM: This facility is not subject to CAM requirements. Only the textile dryers utilize control devices, and they do not have the potential to emit any pollutants at rates above the major source thresholds (see discussion of 2D .0515 in Section II.B.ii of this document, above, phone log dated 12/03/07, the emails dated 11/27/07 and 12/04/07, and Appendix B of this document, below).

RACT: This facility appears to be subject to the existing source RACT requirements and, thus, must be in compliance with those requirements by 4/1/09. The Permittee has submitted application 9000052.07C to this Office to address the RACT issues.

IV Permit Modifications/Changes:

The following table summarizes the changes to Permit No. 03001T14 resulting from Permit Application No. 9000052.07A:

Old Page(s)	New Page(s)	Condition/Item	Description of Change(s)
Part I			
Global	Global	N/A	<ul style="list-style-type: none"> • Change permit revision number to T14 • Change the issuance/effective dates of the permit • Amend the application number and complete date
3	3	Equipment List	Remove asterisk language for boilers B-1 through B-4 pursuant to public comment/EPA review
4 - 9	4 - 5	2.1 A	Merge sections 2.1 A, B and C of Permit No. 03001T13 (i.e. the boilers) into one section
10 - 13	6 - 7	2.1 B	Merge sections 2.1 D and E of Permit No. 03001T13 (i.e. the textile dryers) into one section
10 and 12	6	2.1 B	Add 2D .1806 to limits/standards summary table for the three textile dryers
14	8	2.2 A.1	Add MW-1, K-2 and MW-3 to list of sources subject to 2Q .0317 to avoid 2D .0530 (i.e. PSD)
			Reformat the monitoring/recordkeeping requirements and remove the requirements associated with natural gas (its potential emissions are removed from the limit)
16	10	2.2 B.1	Add MW-3 to list of sources subject to 2D .0958
17	11	2.2 C.1	Modify the 2Q .0317 condition to avoid 2D .1111 (i.e. MACT) to account for combustion HAP emissions
N/A	17	2.2 C.2	Add odor requirements of 2D .1806 to permit
Part II			
27 - 28	N/A	N/A	Remove Part II pursuant to application 9000052.07A

Note: Condition/Item numbers are those as they appear on Permit No. 03001T14

V 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

VI Application Fee:

No fee is required for the renewal without modification requested via application 9000052.07A.

VII Compliance Status:

The facility was most recently inspected on 02/07/07 by Mohammad Madjdinasab of MRO and appeared to be operating in compliance with DAQ requirements during that inspection.

VIII Zoning Consistency:

No zoning consistency determination is required for the renewal without modification requested via application 9000052.07A.

IX Miscellaneous:

Public Participation: In accordance with 2Q .0521, NC DAQ must provide the opportunity for public participation during the renewal of a Title V permits (such as that represented by application 9000052.07A). NC DAQ met this obligation with the public notice posted in The Enquirer – Journal of Union County on 1/4/08.

EPA & Affected States Review: In accordance with 2Q .0522, NC DAQ must provide EPA, SC DHEC and Mecklenburg County LUESA staff the opportunity to review a proposed renewal of a Title V permit (such as the renewal requested by application 9000052.07A). NC DAQ met this obligation by sending those agencies a copy of Proposed Permit No. 03001T14 on 1/2/08.

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 AA of application 9000052.07A.

X Permit Review:

A draft version of Permit No. 03001T14 and the associated review were sent to the Permittee and the MRO for a review and comment period on 12/06/07. As of December 31, 2007, no comments have been received on these documents. Therefore, the draft version of Permit No. 03001T14 will be sent to EPA, Affected States and public notice as proposed Permit No. 03001T14.

XI Recommendation:

The Title V Permit renewal application for the Bloomsburg Mills, Inc. facility in Monroe, Union County, 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. 03001T14.

Issuance of Permit No. 03001T14 is recommended.

Appendix A: Potential Facility-Wide SO₂ Emissions

Given: Limit of 1,500,000 gallons of No. 6 and recycled No. 4 fuel oil, total, per consecutive 12-months
 Limit of 2.1%, by weight, of sulfur in No. 6 and recycled No. 4 fuel oil
 Current U.S. EPA AP-42 document SO₂ emission factors (assuming the maximum fuel oil sulfur content of 2.1% by weight) as follows:

Propane: 0.00011 (lb SO₂/10⁶ Btu) [assuming heat value of 90,500 Btu per gallon]
 Natural gas: 0.00059 (lb SO₂/10⁶ Btu) [assuming heat value of 1,020 Btu per standard ft³]
 No. 4 fuel oil: 2.1 (lb SO₂/10⁶ Btu) [assuming heat value of 150,000 Btu per gallon]
 No. 6 fuel oil: 2.198 (lb SO₂/10⁶ Btu) [assuming heat value of 150,000 Btu per gallon]

Sources of SO₂ emissions at the facility:

Equipment ID No.	Equipment Type	Heat input capacity (million Btu/hour)	Permitted Fuel(s)
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	

Find: Are limits on natural gas and/or propane combustion necessary to limit facility-wide potential SO₂ emissions to less than 250 tons per consecutive 12-month period?

Solⁿ:

- Assume all fuel oil combustion (i.e. all of the 1,500,000 gallons allotted for each consecutive 12-month period) is No. 6 fuel oil (i.e. worst-case for SO₂ emissions from fuel oil). This results in:
 $[2.198 \text{ lb SO}_2/10^6 \text{ Btu}][1,500,000 \text{ gallons}][0.15 \times 10^6 \text{ Btu/gallon}][\text{ton}/2,000 \text{ lb}] = 247.28 \text{ ton SO}_2$
- The potential heat input of the boilers “left over” for natural gas combustion is as follows:
 $[113 \times 10^6 \text{ Btu/hr}][8,760 \text{ hr/yr}] - [1,500,000 \text{ gallons}][0.15 \times 10^6 \text{ Btu/gallon}] = 764,880 \times 10^6 \text{ Btu/yr}$
- This natural gas combustion in the boilers results in:
 $[0.00059 \text{ lb SO}_2/10^6 \text{ Btu}][764,880 \times 10^6 \text{ Btu/yr}][\text{ton}/2,000 \text{ lb}] = 0.23 \text{ ton SO}_2$
- Assume the textile dryers all operate 8,760 hours per year at maximum heat input capacity and burn only natural gas (i.e. worst-case for SO₂ emissions for these devices). This results in:
 $[0.00059 \text{ lb SO}_2/10^6 \text{ Btu}][20 \times 10^6 \text{ Btu/hr}][8,760 \text{ hrs/yr}][\text{ton}/2,000 \text{ lb}] = 0.05 \text{ ton SO}_2$
- Therefore, the total potential facility-wide SO₂ emissions are:
 $247.28 \text{ tons} + 0.23 \text{ tons} + 0.05 \text{ tons} = 247.56 \text{ tons ton SO}_2 \text{ per year}$

Limitations on propane and natural gas usage are not necessary. The fuel oil usage and sulfur content limits of the permit are sufficient to limit facility-wide SO₂ emissions to less than 250 tons per consecutive 12-month period.

Appendix B: Applicability of Compliance Assurance Monitoring

The 3 natural gas/propane-fired textile dryers (4.0, 4.0 and 12.0 million Btu per hour maximum heat input rates, ID Nos. MW-1, K-2 and MW-3, respectively) and the steam-heated textile dryer (ID No. CAN-1) are the only sources at this facility that utilize control devices. Therefore, these are the only sources to which CAM could apply and are the only sources evaluated for applicability of CAM in this appendix.

According to the Permittee (refer to the emails dated 11/27/07 and 12/04/07 and the phone log dated 12/03/07) the heaviest fabrics processed by these textile dryers would be about 0.89 pounds per yard and the maximum textile processing speeds of dryers MW-1, K-2, MW-3 and CAN-1 are 30 yards per minute, 30 yards per minute, 60 yards per minute and 60 yards per minute, respectively. Therefore, we can calculate maximum process weight rates as follows:

$$\text{MW-1: } [(30 \text{ yards/minute})(0.89 \text{ lb fabric/yard})(60 \text{ minute/hour})] = 1,602 \text{ lb fabric/hour}$$

$$\text{K-2: } [(30 \text{ yards/minute})(0.89 \text{ lb fabric/yard})(60 \text{ minute/hour})] = 1,602 \text{ lb fabric/hour}$$

$$\text{MW-3: } [(60 \text{ yards/minute})(0.89 \text{ lb fabric/yard})(60 \text{ minute/hour})] = 3,204 \text{ lb fabric/hour}$$

$$\text{CAN-1: } [(60 \text{ yards/minute})(0.89 \text{ lb fabric/yard})(60 \text{ minute/hour})] = 3,204 \text{ lb fabric/hour}$$

The Permittee also indicated that the maximum non-combustion PM emissions from these dryers is approximately 0.003% by weight of the fabric dried (i.e. 0.00003 lb PM/lb fabric). Therefore, for these dryers we predict potential, before-control, non-combustion PM emissions of:

$$\begin{aligned} \text{MW-1/K-2: } \text{PM}_{\text{NC}} &= (1,602 \text{ lb fabric/hr})(3 \times 10^{-5} \text{ lb PM/lb fabric})(8,760 \text{ hrs/yr})(\text{ton}/2,000 \text{ lb}) \\ &= 0.21 \text{ ton PM per year, each, before control} \end{aligned}$$

$$\begin{aligned} \text{MW-3/CAN-1: } \text{PM}_{\text{NC}} &= (3,204 \text{ lb fabric/hr})(3 \times 10^{-5} \text{ lb PM/lb fabric})(8,760 \text{ hrs/yr})(\text{ton}/2,000 \text{ lb}) \\ &= 0.42 \text{ ton PM per year, each, before control} \end{aligned}$$

According to the current AP-42 document, natural gas is the worst-case fuel for combustion PM emissions from MW-1, K-2 and MW-3 with predicted PM emissions of 0.0075 (lb PM/10⁶ Btu). Therefore, for MW-1, K-2 and MW-3 we predict potential, before-control combustion PM emissions of:

$$\begin{aligned} \text{MW-1/K-2: } \text{PM}_{\text{C}} &= (0.0075 \text{ lb PM/million Btu})(4.0 \text{ million Btu/hr})(8,760 \text{ hrs/yr})(\text{ton}/2,000 \text{ lb}) \\ &= 0.13 \text{ ton PM per year, each, before control} \end{aligned}$$

$$\begin{aligned} \text{MW-3: } \text{PM}_{\text{C}} &= (0.0075 \text{ lb PM/million Btu})(12.0 \text{ million Btu/hr})(8,760 \text{ hrs/yr})(\text{ton}/2,000 \text{ lb}) \\ &= 0.39 \text{ ton PM per year, before control} \end{aligned}$$

Finally, we can sum the combustion and non-combustion PM emissions calculated above to estimate the total before control, potential PM emissions from these dryers as follows:

$$\text{MW-1: } \text{PM}_{\text{T}} = \text{PM}_{\text{NC}} + \text{PM}_{\text{C}} = 0.21 + 0.13 = 0.34 \text{ ton PM per year}$$

$$\text{K-2: } \text{PM}_{\text{T}} = \text{PM}_{\text{NC}} + \text{PM}_{\text{C}} = 0.21 + 0.13 = 0.34 \text{ ton PM per year}$$

$$\text{MW-3: } \text{PM}_{\text{T}} = \text{PM}_{\text{NC}} + \text{PM}_{\text{C}} = 0.42 + 0.39 = 0.81 \text{ ton PM per year}$$

$$\text{CAN-1: } \text{PM}_{\text{T}} = \text{PM}_{\text{NC}} + \text{PM}_{\text{C}} = 0.42 + 0.00 = 0.42 \text{ ton PM per year}$$

If we conservatively consider all PM to be PM₁₀ (i.e. the Title V pollutant potentially subject to the CAM requirements) we find that the potential emissions for the 2 PSEUs (i.e. MW-1 and K-2, exhausting to mist eliminator CD-1 and MW-3 and CAN-1, exhausting to mist eliminator CD-2) are below the major source threshold of 100 tons of PM₁₀ per year. **Therefore, CAM does not apply.**

Appendix C: MACT Avoidance Condition

Given: Current Permit No. 03001T13 includes a MACT avoidance condition (carried over from Permit No. 03001T12) that requires the Permittee to track HAP emissions from the dyes and finishes applied to textile materials in the dryers.

Req'd: The MACT avoidance condition must be modified in Permit No. 03001T14 to account for the HAP emissions from natural gas, propane, No. 4 fuel oil and No. 6 fuel oil in the three natural gas/propane-fired textile dryers (ID Nos. MW-1, K-2 and MW-3) and the four natural gas, No. 4 fuel oil and No. 6 fuel oil-fired boilers (ID Nos. B-1, B-2, B-3 and B-4).

Solⁿ: According to the current NC DAQ combustion spreadsheets, No. 4 fuel oil combustion and No. 6 fuel oil combustion results in equal HAP emissions (on a per-gallon or a per-Btu basis). HAP emission factors are not provided for propane combustion. Therefore, the Permittee will be required to track only natural gas, No. 4 fuel oil and No. 6 fuel oil combustion in the textile dryers and in the boilers. Those spreadsheets further indicate that:

- The single largest HAP emitted as a result of natural gas combustion is n-hexane at a rate of 1.80 pounds per million standard cubic feet;
- Total HAP emissions resulting from natural gas combustion is 1.88 pounds per million standard cubic feet;
- The single largest HAP emitted as a result of No. 4 fuel oil or No. 6 fuel oil combustion is nickel (and compounds) at a rate of 0.085 pounds per thousand gallon;
- Total HAP emissions resulting from No. 4 fuel oil or No. 6 fuel oil combustion is 0.16 pounds per thousand gallon.

Therefore, the following two equations will be added to Permit No. 03001T14:

$$\text{HAP}_{T,C} = (A \times 1.88) + (B \times 0.160)$$

$$\text{HAP}_{S,C} = (A \times 1.80) + (B \times 0.085)$$

Where: $\text{HAP}_{T,C}$ = Total HAP emissions from combustion

$\text{HAP}_{S,C}$ = Single largest HAP emissions from combustion

A = Amount of natural gas combusted in units of million standard cubic feet

B = Amount of No. 4 and No. 6 fuel oil combusted in units of thousand gallons