

Facility Name: **Shaw Industries, Inc. - Plant 23**
City: Dalton, Georgia
County: Whitfield
AIRS #: 04-13-313-00074

Application #: TV-15705
Date Application Received: October 15, 2004
Permit No: 2273-313-0074-V-02-0

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Introduction

This narrative is being provided to assist the reader in understanding the content of the attached draft Part 70 operating permit. Complex issues and unusual items are explained herein simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1, and (3) Title V of the Clean Air Act. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The primary purpose of this permit is to consolidate and identify existing state and federal air requirements applicable to **Shaw Industries, Inc. – Plant 23** and to provide practical methods for determining compliance with these requirements. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. It initially describes the facility receiving the permit, the applicable requirements and their significance, and the methods for determining compliance with those applicable requirements. This narrative is intended as an adjunct for the reviewer and to provide information only. It has no legal standing. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

I. Facility Description

A. Facility Identification

1. Facility Name: Shaw Industries, Inc. – Plant 23
2. Parent/Holding Company Name: Shaw Industries Group, Inc.
3. Previous and/or Other Name(s): Armstrong World Industries, Inc.
4. Facility Location: 2603 Lakeland Road, Dalton, Georgia 30721 (Whitfield County)
5. Attainment, Non-attainment Area Location, or Contributing Area

This facility is located in Whitfield County, which is an attainment area for all criteria pollutants.

6. Class I Area Impacts

This facility is located within 100 Km of the Cohutta Class I area.

B. Site Determination

Shaw Industries Group, Inc. has fifteen manufacturing plants in Whitfield County. Nine of them are classified as Title V major sources. Shaw Plant 23 in Dalton, GA is approximately one mile away from Shaw Plant 4. In addition, Plant 23 uses dye materials from the blending unit at Plant 4. Although there is product sharing between the two facilities, they are under separate daily operational management. Plant 23 is not totally dependent on Plant 4 for dye materials, as it has other potential suppliers of these chemicals. Thus, Plants 23 and Plant 4 are separate facilities and do not combine as one Title V site. Based on this information, Plant 23 has been determined to be a separate Title V site.

C. Existing Permits

Table 1 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a comparative review of form A.6, Current Permits, of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office.

Table 1: List of Current Permits, Amendments, and Off-Permit Changes

Permit Number and/or Off-Permit Change	Date of Issuance/Effectiveness	
2273-313-0074-V-01-0	April 27, 2000	Initial Title V Permit
2273-313-0074-V-01-1	October 17, 2002	Part 70 Operating Permit Amendment for the reduction in the maximum allowable sulfur content of residual fuel oil burned in Boilers BL01, BL02, and BL03.
2273-313-0074-V-01-2	December 17, 2003	Part 70 Operating Permit Amendment for the conversion of the dryer portion of the Kuster Dye Range from indirect steam to direct firing
2273-313-0074-V-01-3	October 27, 2004	502(b)(10) Permit for Part 70 Source for the construction and operation of a Kemco direct contact water heating system
2273-313-0074-V-01-4	January 17, 2006	Part 70 Operating Permit Amendment for the addition of propane as an allowable fuel for the Kemco direct contact water heater.

D. Process Description

1. SIC Codes(s)

Major - 2273
Other - None

2. Description of Product(s)

The final product at Plant 23 is finished, broadloom residential carpet.

3. Overall Facility Process Description

Shaw Plant 23 is a carpet-manufacturing site that consists of tufting (Source Code CD01), continuous dyeing (Source Code CD02), and latex coating operations (Source Code LC01). A 36-MMBtu/hr Kemco direct-contact water heating system (Source Code QW02) provides hot water for the dyeing process. The final product is finished, broadloom residential carpet. All in-line dryers and curing ovens are heated directly by burning natural gas at low fire conditions. Two 33-MMBtu/hr boilers (Source Codes BL01 and BL02) installed in 1974 and one 35-MMBtu/hr boiler (Source Code BL03) installed in 1980 provide steam for the continuous dyeing operations. All three steam-generating boilers are permitted to burn up to No. 6 fuel oil.

Synthetic carpet yarn fibers are tufted into greige goods and then dyed in a continuous process. Once the greige goods have been dyed, a secondary backing material is adhered with a latex emulsion coating to add stability to the fibers. After this process, the yarn fibers are sheared for consistent length and the finished carpet is inspected, rolled, and cut for shipping to distribution centers.

4. Overall Process Flow Diagram

The facility provided a process flow diagram in their Title V permit application.

E. Regulatory Status

1. PSD/NSR

The facility is a major source under PSD because it has potential-to-emit (PTE) of PSD regulated pollutants greater than 250 tpy. It is not one of the 28 named source categories under PSD. The facility will avoid PSD applicability by taking a permit limit of less than 250 tpy of sulfur dioxide emissions for Boilers BL01, BL02, and BL03.

2. Title V Major Source Status by Pollutant

Table 2: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Yes			✓
PM ₁₀	Yes			✓
SO ₂	Yes	✓		
VOC	Yes			✓
NO _x	Yes	✓		
CO	Yes			✓
TRS	Yes			✓
H ₂ S	Yes			✓
Individual HAP	Yes			✓
Total HAPs	Yes			✓

3. MACT Standards

Plants 23 is minor for HAPs, therefore the facility is not subject to Boiler MACT (DDDDD) or Textile MACT (OOOO).

4. Program Applicability (AIRS Program Codes)

Program Code	Applicable (y/n)
Program Code 6 - PSD	No
Program Code 8 – Part 61 NESHAP	No
Program Code 9 - NSPS	No
Program Code M – Part 63 NESHAP	No
Program Code V – Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps:

None Applicable.

B. Applicable Rules and Regulations

- Rules and Regulations Assessment - None Applicable.
- Emissions and Operating Standards - None Applicable.

C. Compliance Status

The facility is operating in compliance with their air quality permit.

D. Operational Flexibility

There is no request for operational flexibility associated with this application.

E. Permit Conditions

Condition No. 2.3.1, in regards to general provisions, is now Condition No. 8.17.2 in Section 8.17 Operational Practices.

III. Regulated Equipment Requirements

A. Brief Process Description

The first process is tufting that includes a set of tufting machines which insert pile tufts by the tufting needles into the primary backing. Plant 23 includes 26 tufting machines. The second process is a dyeing process, which includes continuous dyeing operations. In this process, the tufted carpet is conditioned, dyed, and dried. The dyed carpet is then sent to the latex coater. Finally, the products are inspected, wrapped, and shipped. The steam produced by the three boilers is mainly used to power the continuous dye operation and coating processes.

B. Equipment List for the Process

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
BL01	Boiler #1	Rule 391-3-1-.02(2)(d)2(ii) Rule 391-3-1-.02(2)(d)3 Rule 391-3-1-.02(2)(g)2	3.2.1, 3.4.1, 3.4.3, 3.4.6, 3.4.7, 5.2.1, 6.1.7, 6.2.4, 6.2.5	none	none
BL02	Boiler #2	Rule 391-3-1-.02(2)(d)2(ii) Rule 391-3-1-.02(2)(d)3 Rule 391-3-1-.02(2)(g)2	3.2.1, 3.4.1, 3.4.3, 3.4.6, 3.4.7, 5.2.1, 6.1.7, 6.2.4, 6.2.5	none	none
BL03	Boiler #3	Rule 391-3-1-.02(2)(d)2(ii) Rule 391-3-1-.02(2)(d)3 Rule 391-3-1-.02(2)(g)2	3.2.2, 3.4.1, 3.4.3, 3.4.6, 3.4.7, 5.2.1, 6.1.7, 6.2.4, 6.2.6	none	none
LC01	Latex Coater #1	Rule 391-3-1-.02(2)(b) Rule 391-3-1-.02(2)(e)1(ii) Rule 391-3-1-.02(2)(g)2	3.4.2, 3.4.4, 3.4.5, 3.4.9	none	none
CD01	Kuster Dye Range	Rule 391-3-1-.02(2)(b)1 Rule 391-3-1-.02(2)(e)1(ii) Rule 391-3-1-.02(2)(g)2	3.4.2, 3.4.4, 3.4.5, 3.4.9	none	none
CD02	Rotary Dye Range	Rule 391-3-1-.02(2)(b)1 Rule 391-3-1-.02(2)(e)1(ii) Rule 391-3-1-.02(2)(g)2	3.4.2, 3.4.4, 3.4.5, 3.4.9	none	none
QW02	Kemco Water Heater	Rule 391-3-1-.02(2)(b)1 Rule 391-3-1-.02(2)(g)2	3.2.3, 3.4.8, 3.4.9	none	none

* Generally applicable requirements contained in this permit may also apply to emission units listed above.

C. Equipment & Rule Applicability

Equipment and Rule Applicability specified in Permit No. 2273-313-0074-V-01-0 is discussed in the initial Title V permit narrative for this permit. Please refer to this narrative.

The facility has added a Kemco Water Heater authorized by a subsequent Title V permit amendment.

Emission and Operating Caps:

The Kemco water heater is designed to burn natural gas and propane.

Rules and Regulations Assessment:

Boilers

Boilers BL01 and BL02 were constructed in 1974 and fire natural gas and No. 6 fuel oil. Boiler BL03 was constructed in 1980 and fires natural gas and No. 6 fuel oil. Since these units were constructed after January 1, 1972, the allowable particulate matter rate from each boiler is specified by the following equation in Georgia Rule for Air Quality Control 391-3-1-.02(2)(d)2(ii):

$$P = 0.5 * (10/R)^{0.5}$$

Where P is the allowable particulate matter emission rate in pounds per million Btu and R is the heat input in million Btus per hour.

Boilers BL01, BL02, and BL03 are subject to Georgia Rule for Air Quality Control 391-3-1-.02(2)(g)2, which limits fuel sulfur content to 2.5 percent, by weight.

Because Boilers BL01, BL02, and BL03 were constructed after January 1, 1972, they are also subject to Georgia Rule for Air Quality Control 391-3-1-.02(2)(d)3, which limits opacity to 20 percent except for one six minute period per hour of not more than 27 percent opacity.

Coating and Dyeing Units

Latex Coater LC01 is used to apply latex to the carpet back. The coater is also used to cure the latex once it is applied to the carpet back. Installed in 1990, Latex Coater LC01 fires natural gas and propane. The coater is treated as a separate process. Continuous Dyeing units CD01 and CD02 apply heat to the carpet back. Installed in 1984 and 1978, respectively, Continuous Dyeing units CD01 and CD02 fire natural gas and propane. Each dye range is treated as a separate process. The allowable particulate emission rate from Latex Coater LC01 and Continuous Dyeing units CD01 and CD02 is specified by the following equation in Georgia Rule for Air Quality Control 391-3-1-.02(2)(e)1:

For process weight input rates up to 30 tons per hour:

$$E = 4.1 * P^{0.67}$$

Where E is the allowable particulate matter emission rate in pounds per hour and P is the maximum process input weight rate in tons per hour.

Georgia Rule for Air Quality Control 391-3-1-.02(2)(b)1 limits opacity in LC01, CD01, and CD02 to forty percent.

Georgia Rule for Air Quality Control 391-3-1-.02(2)(g)2 limits sulfur content in LC01, CD01, and CD02 to 2.5 percent.

Water Heater

Direct-fired Kemco Water Heater (QW02) is used to provide hot water for the dyeing process. Installed in 2004, the natural gas hot water heater does not meet the definition of fuel-burning equipment because it is a direct-fired unit. Thus, the water heater is not subject to Georgia Rule (d). The hot water heater is subject to Georgia Rule for Air Quality Control 391-3-1-.02(2)(b)1 for visible emission and 391-3-1-.02(2)(g)2 regarding the sulfur content of fuel.

D. Compliance Status

The facility is operating in compliance with their air quality permit.

E. Operational Flexibility

There is no request for operational flexibility associated with this application.

F. Permit Conditions

Permit Conditions specified in Permit No. 2273-313-0074-V-01-0 is discussed in the initial Title V permit narrative for this permit. Please refer to this narrative.

Condition No. 3.2.3 restricts the water heater to burning natural gas or propane.

Condition No. 3.4.1 is modified to reflect current template language.

Condition No. 3.4.7 is modified to add the flexibility to burn fuel oil numbers 1 through 6.

IV. Testing Requirements (with Associated Record Keeping and Reporting)

A. General Testing Requirements

The permit includes a requirement that the Permittee conduct performance testing on any specified emission unit when directed by the Division. Additionally, a written notification of any performance test(s) is required 30 days prior to the date of the test(s) and a test plan is required to be submitted with the test notification. Test methods and procedures for determining compliance with applicable emission limitations are listed and test results are required to be submitted to the Division within 60 days of completion of the testing.

B. Specific Testing Requirements: None Applicable.

V. Monitoring Requirements

A. General Monitoring Requirements

Condition 5.1.1 requires that all continuous monitoring systems required by the Division be operated continuously except during monitoring system breakdowns and repairs. Monitoring system response during quality assurance activities is required to be measured and recorded. Maintenance or repair is required to be conducted in an expeditious manner.

B. Specific Monitoring Requirements

Boilers BL01, BL02, and BL03 are subject to Georgia Rules 391-3-1-.02(2)(b), (d), and (g) for opacity, particulate matter, and sulfur dioxide, respectively. The boilers fire natural gas and fuel oil as a backup. Because it is highly unlikely that emissions would exceed opacity and particulate matter limitations when firing natural gas, no monitoring is required for the boilers. When the boilers fire residual fuel oil, daily readings of visible emissions are required to reasonably assure compliance with Georgia Rule (d). For Boilers BL01, BL02, and BL03, 20 percent opacity is the trigger level at which corrective action is required to be taken. Occurrences of opacity greater than the trigger level are designated as excursions and are required to be reported. Compliance with the fuel sulfur limit in Georgia Rule (g) is determined using fuel supplier certifications for residual oil.

Latex Coater LC01 and Continuous Dyeing units CD01 and CD02 are subject to Georgia Rule (b) and (e) for opacity and particulate matter emissions, respectively. No control equipment is present on any of the units. Because it is highly unlikely that emissions would exceed opacity and particulate matter limitations for these units, no monitoring is required for the boilers.

Latex Coater LC01, Continuous Dyeing units CD01 and CD02, and Kemco Water Heater QW02 are subject to Georgia Rule (g) for sulfur dioxide. Again, no control equipment is present on any of the units. Because it is highly unlikely that emissions would exceed sulfur limitations when firing natural gas or propane, no monitoring is required for the boilers.

The permit contains specific requirements in regard to reporting excess emissions, exceedances, and excursions, keeping records of fuel supplier certifications, and the submittal of these documents. These requirements are now in Section 6 consistent with the current permit template.

Condition No. 5.2.2 in regard to specific monitoring requirements is now Condition No. 6.2.2.

Condition No. 5.2.3 in regard to specific monitoring requirements is now Condition No. 6.2.3.

Condition No. 5.2.4 in regard to specific monitoring requirements is now Condition No. 6.2.4.

Condition No. 5.2.9 in regard to specific monitoring requirements is now Condition No. 6.1.7.

The permit contains specific requirements in regard to reporting excess emissions, exceedances, and excursions. These requirements are now in Section 6 consistent with the current permit template.

Condition No. 5.3.1 is now Condition No. 6.1.4.

Condition No. 5.3.2 is now Condition No. 6.1.5.

Condition No. 5.3.3 is now Condition No. 6.1.6.

The permit contains specific requirements in regard to keeping records of fuel supplier certifications and the submittal of the certifications. These requirements are now in Section 6 consistent with the current permit template.

Condition No. 5.3.4 is now Condition No. 6.1.8.

Additional specific monitoring requirements are specified in the narrative for Title V Permit No. 2273-313-0074-V-01-0. Please refer to this narrative.

C. Compliance Assurance Monitoring (CAM): None Applicable.

VI. Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all information related to deviations from the applicable requirements. Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a semiannual basis.

The permit contains specific requirements in regard to reporting excess emissions, exceedances, and excursions. As described above in Section V.B. of the narrative, these requirements are now in Section 6 consistent with the current permit template.

B. Specific Record Keeping and Reporting Requirements

Boilers BL01, BL02, and BL03 have an additional limitation on sulfur dioxide emissions. The boilers are restricted by tonnage of sulfur dioxide that can be emitted over a 12-consecutive month period. To assure compliance with the additional limitation, the permit specifies record keeping for calculating sulfur dioxide emissions. Each month, a rolling 12-consecutive month total calculation is required for Boilers BL01, BL02, and BL03. Any 12-consecutive month total in which the sulfur dioxide emissions are greater than the allowable is required to be reported as an exceedance.

All references in this section of the permit to “residual oil” have been replaced with “fuel oil”.

VII. Specific Requirements

A. Operational Flexibility

The permit includes the standard conditions allowing section 502(b)(10) changes and off-permit changes. Additional operational flexibility provisions do not need to be incorporated into this Title V Permit as their permit already provides sufficient flexibility for the facility. The applicant did not include any alternative operating scenarios in their Title V application.

B. Alternative Requirements

There are no alternative requirements that need to be incorporated into the Title V Permit.

C. Insignificant Activities

Insignificant activities specified in Permit No. 2273-313-0074-V-01-0 are discussed in the initial Title V permit narrative for this permit. Please refer to this narrative.

D. Temporary Sources

This section is not applicable to this facility. 40 CFR 70.6(e) requires Georgia EPD to provide for the permitting of certain types of temporary sources. This facility currently has no such sources and is unlikely to have such sources in the future. However, they may add temporary sources provided that the facility follows any necessary regulatory procedures for the operation of such sources. This may include amending the Title V permit, if necessary.

E. Short-Term Activities: None Applicable.

F. Compliance Schedule/Progress Reports

The facility is in compliance with all Air Quality Regulations. Therefore, no compliance schedule or progress reports are necessary.

G. Emissions Trading

The facility is not involved in any emissions trading programs.

H. Acid Rain Requirements

The facility is not subject to any requirements in Title IV of the Clean Air Act.

I. Stratospheric Ozone Protection Requirements

The standard permit condition pursuant to 40 CFR 82 Subpart F has been included in the Title V Permit. The facility operates equipment that is subject to Title VI of the 1990 Clean Air Act Amendments.

J. Pollution Prevention

There are no pollution prevention provisions incorporated into this Title V Permit.

K. Specific Conditions: None Applicable.

VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Addendum to Narrative

The 30-day public review started on July 21, 2006 and ended on August 21, 2006. There were no comments received from the public. Comments were received from Shaw Industries per the e-mail received at 10:26 AM on August 1st, 2006 (see attached). The facility recommended the following changes that were incorporated:

Shaw Industries Comment 1:

A request to delete the final draft paragraph on Page 9 of 34 as part of Condition 5.2.1; a requirement to install oxygen meters on each boiler if there is 10 days of inclement weather in a six month period.

Georgia EPD Air Protection Division's Response to Shaw Industries Comment 1:

This paragraph has been deleted in its entirety.

Shaw Industries Comment 2:

A suggestion of the revision to Paragraph 3 of Condition 5.2.1, beginning at Sentence 3 to emphasize that it is only those visible emissions at or above the action level that require actions to be taken by the Permittee, vs. the current Sentence 3 that could be construed to require investigation for all visible emissions, regardless of amount.

Georgia EPD Air Protection Division's Response to Shaw Industries Comment 2:

Condition 5.2.1 is revised as follows;

- 5.2.1 The Permittee shall, for each day or portion of a day that Boilers BL01, BL02, or BL03 is fired with residual oil, conduct a check of visible emissions from the boiler. For the purposes of this permit, residual oil means any fuel oil which does not comply with the specifications of fuel oils numbers 1 and 2 and all fuel oil numbers 4, 5, and 6 as defined by ASTM D396 (Standard Specification for Fuel Oils). The Permittee shall retain a record of the visible emissions check in a daily visible emissions (VE) log suitable for inspection or submittal to the Division. The check shall be conducted using the following procedure:
[391-3-1-.02(6)(b)1 and 40 CFR 70.6(a)(3)(i)]

The trained observer shall stand at a distance of at least 15 feet, which is sufficient to provide a clear view of the plume against a contrasting background, with the sun in the 140° sector at his/her back. Consistent with this requirement, the determination shall be made from a position such that the line of vision is approximately perpendicular to the plume direction. Make the determination at the point of greatest opacity in the portion of the plume where condensed water vapor is not present. Only one plume shall be in the line of sight at any time when multiple stacks are in the proximity to each other.

The person performing the determination shall have received training acceptable to the Division to recognize the appropriate opacity action level and the determination shall cover a period of three minutes. The opacity action level shall be any occurrence of visible emissions that is equal to or greater than 20 percent.

For any boiler that exhibits visible emissions equal to or greater than the applicable opacity action level, the Permittee shall record the occurrence and shall determine the cause of the visible emissions and correct any operational problem in the most expedient manner possible. The Permittee shall maintain a written log defining the cause of any occurrence of visible emissions equal to or greater than the opacity action level and corrections made.