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

Application #: TV-41844
Date Application Received: July 25, 2016
Permit No: 2273-313-007V-04-0

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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 here in 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)

pka Armstrong World Industries, Inc.

4. Facility Location

2603 Lakeland Road
Dalton, GA 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.

B. Site Determination

Shaw Industries Group, Inc. has several manufacturing plants in the Dalton area which include five 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, Plant 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	Purpose of Issuance
Permit No. 2273-313-0074-V-03-0	February 6, 2012	Title V Renewal

D. Process Description

1. SIC Codes(s)

2273 – Carpets and Rugs

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, continuous dyeing and latex coating operations. The final product is finished broadloom residential carpet. A 36-MMBtu/hr Kemco direct-fired water heater (Emission Unit ID No. QW02) provides hot water for the dyeing process, and burns natural gas, using propane as a backup fuel. All in-line dryers and curing ovens are heated directly by burning natural gas at low fire conditions, using propane as a backup fuel. Two 33-MMBtu/hr boilers installed in 1974 and one 35-MMBtu/hr boiler installed in 1980 provide steam for the continuous dyeing operations. All three steam-generating boilers burn natural gas and use No. 2 fuel oil as a backup fuel.

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

This facility is a major source under PSD regulations because it has potential emissions of SO_2 greater than 250 tons per year (it is not one of the 28 named source categories under PSD regulations). Boilers BL01 and BL02 are limited to less than 250 tpy of SO_2 emissions, and Boiler BL03 has a separate limit of less than 250 tpy of SO_2 emissions. These limits are for PSD avoidance.

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			✓
$PM_{2.5}$	Yes			✓
SO_2	Yes	✓		
VOC	Yes			✓
NO_x	Yes	✓		
CO	Yes			✓
TRS	Yes			✓
H_2S	Yes			✓
Individual HAP	Yes			✓
Total HAPs	Yes			✓

3. MACT Standards

Because Shaw Plant 23 is a minor source of HAP emissions, the facility is not subject to 40 CFR 63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters or 40 CFR 63 Subpart OOOO - National Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles.

The boilers will avoid the requirements of 40 CFR 63 Subpart JJJJJJ - *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* by limiting the fuel fired in the boilers to natural gas.

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

None applicable.

C. Compliance Status

There are no compliance issues noted with this application.

D. Operational Flexibility

None applicable.

E. Permit Conditions

None applicable.

III. Regulated Equipment Requirements

A. Brief Process Description

The first process is tufting, which includes a set of carpet tufting machines that insert pile tufts by the tufting needles into the primary backing. Plant 23 includes a maximum of 26 carpet tufting machines, although the actual number fluctuates according to operational conditions. The second process is a continuous dyeing operation on the Kuster Dye Range (CD01). In this process, the tufted carpet is conditioned, dyed, and dried. The dyed carpet is then sent to the latex coater, Latex Coater #1 (LC01), where a coater applies a compounded latex mixture to adhere a secondary backing to dyed greige goods. The compounded latex mixture consists of base latex, calcium carbonate filler, surfactants, and thickeners, mixed in various proportions according to the type and style of carpet being produced. The latex coating is then dried in a natural gas heated oven. Finally, the products are inspected, wrapped, and shipped. The steam produced by the three boilers, Boilers #1, #2, and #3 (BL01, BL02, BL03), is mainly used to power the continuous dye operation and coating processes. The Kemco direct-fired water heater (QW02) provides hot water for the dyeing process, which is used as dye water makeup.

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 (33 MMBtu)	391-3-1-.02(2)(d)2(ii) 391-3-1-.02(2)(d)3 391-3-1-.02(2)(g)2	3.2.1, 3.4.1, 3.4.4, 3.4.5, 6.1.7, 6.2.1 through 6.2.3, 6.2.4, 6.2.6, 6.2.8	N/A	N/A
BL02	Boiler #2 (33 MMBtu)	391-3-1-.02(2)(d)2(ii) 391-3-1-.02(2)(d)3 391-3-1-.02(2)(g)2	3.2.1, 3.4.1, 3.4.4, 3.4.5, 6.1.7, 6.2.1 through 6.2.3, 6.2.4, 6.2.6, 6.2.8	N/A	N/A
BL03	Boiler #3 (35 MMBtu)	391-3-1-.02(2)(d)2(ii) 391-3-1-.02(2)(d)3 391-3-1-.02(2)(g)2	3.2.2, 3.4.1, 3.4.4, 3.4.5, 6.1.7, 6.2.1 through 6.2.3, 6.2.5, 6.2.7, 6.2.8	N/A	N/A
QW02	Kemco Water Heater (36 MMBtu)	391-3-1-.02(2)(d)2(ii) 391-3-1-.02(2)(d)3 391-3-1-.02(2)(g)2	3.4.1, 3.4.6	N/A	N/A
CD01	Kuster Dye Range	391-3-1-.02(2)(b)1 391-3-1-.02(2)(e)1(i) 391-3-1-.02(2)(g)2	3.4.2, 3.4.3, 3.4.6	N/A	N/A
LC01	Latex Coater #1	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)1(i) 391-3-1-.02(2)(g)2	3.4.2, 3.4.3, 3.4.6	N/A	N/A

C. Equipment & Applicability

Emission and Operating Caps:

The facility has limited SO_2 emissions from Boilers BL01 and BL02 to less than 250 tpy, and has limited SO_2 emissions from Boiler BL03 to less than 250 tpy to avoid PSD review.
Rules and Regulations Assessment:

Boilers

Boilers BL01 and BL02 were constructed in 1974 and fire natural gas and No. 2 fuel oil. Each of these boilers has a heat input capacity of 33 MMBtu/hr. Boiler BL03 was constructed in 1980, fires natural gas and No. 2 fuel oil, and has a heat input capacity of 35 MMBtu/hr.

Boilers BL01, BL02, and BL03 are capable of firing natural gas and No. 2 fuel oil, and are subject to Georgia Rule (g), which limits the fuel sulfur content to 2.5 weight percent, but this sulfur content limit was lowered to 1.8 weight percent in Permit Amendment No. 2273-313-0074-V-01-1 because Shaw Industries, Inc. agreed to Consent Order No. EPD-AQC-1877 for prior PSD violations at other Shaw Plants. In this Consent Order, Shaw agreed to lower the allowable sulfur content of the fuel oil burned in their boilers at several of Shaw's plants from 2.5% to 1.8%, including Plant 23.

Boilers BL01, BL02 and BL03 are also subject to Georgia Rule (d).

Boilers BL01, BL02 and BL03 avoid the requirements of 40 CFR Part 63 Subpart JJJJJJ – *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*, by limiting the fuel used in these boilers to natural gas and fuel oil during periods of gas curtailment, gas supply emergencies, or periods of testing on fuel oil, where testing on fuel oil shall not exceed 48 hours per calendar year.

Water Heater

The direct-fired Kemco Water Heater (QW02) is used to provide hot water for the dyeing process. This hot water is used as dye water makeup. The water heater was constructed in 2004 and fires natural gas and propane. The heat input capacity of water heater QW02 is 36 MMBtu/hr. The water heater is subject to Georgia Rule (d) and Georgia Rule (g).

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. Latex Coater LC01 (installed in 1990) fires natural gas and propane. The coater is treated as a separate process. Continuous Dyeing unit CD01 (installed in 1984) applies heat to the carpet back and fires natural gas and propane. The Latex Coater LC01 and the Continuous Dyeing unit CD01 are subject to Georgia Rule (b) and Georgia Rule (e). These emission units will comply with Georgia Rule (g) by only combusting natural gas and propane.

The facility notified the Division that Rotary Dye Range (CD02) was removed several years ago. Therefore, this emission unit was not included in the permit.

D. Operational Flexibility

None applicable.

E. Permit Conditions

- Condition 3.2.1 limits the SO_2 emissions from Boilers BL01 and BL02 to less than 250 tpy in order to avoid PSD review.
- Condition 3.2.2 limits the SO_2 emissions from Boiler BL03 to less than 250 tpy in order to avoid PSD review.
- Condition 3.4.1 subjects the boilers and the water heater to Georgia Rule (d) and includes the PM and opacity limits.
- Condition 3.4.2 subjects all of the equipment to Georgia Rule (b).
- Condition 3.4.3 subjects the Latex Coater LC01 and the Continuous Dyeing unit CD01 and to Georgia Rule (e).
- Condition 3.4.4 limits the fuel fired in the boilers to natural gas and limits fuel oil usage during specified times in order to avoid the requirements of the Boiler GACT.
- Condition 3.4.5 limits the sulfur content in the fuel oil combusted in the boilers in order to satisfy Georgia Rule (g).
- Condition 3.4.6 limits the fuel combusted in the coater, dye ranges and the water heater to natural gas in order to satisfy Georgia Rule (g).

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 (or sixty (60) days for tests required by 40 CFR Part 63) 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

None applicable.

C. Compliance Assurance Monitoring (CAM)

Not applicable because there are no control devices at the facility.

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.

Template Conditions 6.1.3 and 6.1.4 were updated in September 2011 to allow ~60 days to submit periodic reports. Alternative reporting deadlines are allowed per 40 CFR 70.6, 40 CFR 60.19(f) and 40 CFR 63.10(a).

B. Specific Record Keeping and Reporting Requirements

- Condition 6.2.1 requires fuel oil certification.
- Condition 6.2.2 requires the facility to submit fuel oil certifications with the semiannual reports.
- Condition 6.2.3 requires the facility to maintain records for the fuel oil used.
- Condition 6.2.4 requires the facility to calculate the monthly SO_2 emissions from Boilers BL01 and BL02. The calculation was modified to simplify the equation.
- Condition 6.2.5 requires the facility to calculate the monthly SO_2 emissions from Boiler BL03. The calculation was modified to simplify the equation.
- Conditions 6.2.6 and 6.2.7 require consecutive 12-month rolling totals of SO_2 emissions from Boilers BL01 and BL02 and consecutive 12-month rolling totals of SO_2 emissions from Boiler BL03.
- Condition 6.2.8 requires records of times when fuel oil was fired in the boilers in order to avoid the requirements of the Boiler GACT.

VII. Specific Requirements

A. Operational Flexibility

- None applicable.

B. Alternative Requirements

- None applicable.

C. Insignificant Activities

Refer to http://airpermit.dnr.state.ga.us/GATV/default.asp for the Online Title V Application.

Refer to the following forms in the Title V permit application:
- Form D.1 (Insignificant Activities Checklist)
- Form D.2 (Generic Emissions Groups)
- Form D.3 (Generic Fuel Burning Equipment)
- Form D.6 (Insignificant Activities Based on Emission Levels of the Title V permit application)

D. Temporary Sources

- None applicable.

E. Short-Term Activities

- None applicable.

F. Compliance Schedule/Progress Reports

- Not applicable.

G. Emissions Trading

- Not applicable.

H. Acid Rain Requirements

- Not applicable.

I. Stratospheric Ozone Protection Requirements

- Facility indicated that they have air conditioners or refrigeration equipment that uses CFC's, HFC's, or other stratospheric ozone-depleting substances listed in 40 CFR Part 82, Subpart A, Appendices A and B. They have noted that Title VI is not applicable.

J. Pollution Prevention

- Not applicable.

K. Specific Conditions

- There are no additional facility-specific conditions that are not covered elsewhere.

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.

Template Condition 8.14.1 was updated in September 2011 to change the default submittal deadline for Annual Compliance Certifications to February 28.

Template Condition Section 8.27 was updated in August 2014 to include more detailed, clear requirements for emergency generator engines currently exempt from SIP permitting and considered insignificant sources in the Title V permit.

Template Condition Section 8.28 was updated in August 2014 to more clearly define the applicability of the Boiler MACT or GACT for major or minor sources of HAP.