Facility Name: Shaw Industries, Inc., Plant No. 7
City: Calhoun, Georgia
County: Gordon
AIRS #: 04-13-129-00035 Application #: TV- 9250

Date Application Received: October 22, 1996
Date Application Deemed Administratively Complete: March 20, 1997
Date of Draft Permit: June 29, 2000
Permit No: 2281-129-0035-V-01-0

Program	Review Engineers	Review Managers
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Introduction

This narrative is being provided to assist the reader in understanding the content of the attached draft Title V operating permit. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being proposed pursuant to: (1) Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The primary purpose of this permit is to consolidate and identify existing state and federal air requirements applicable to Shaw Industries, Inc., Plant No. 7 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, then the applicable requirements and their significance, and finally the methods for determining compliance with those applicable requirements. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public participation process will be described in an addendum to this narrative.

I. Facility Description

A. Facility Identification

1. Facility Name

   Shaw Industries, Inc., Plant No. 7

2. Parent/Holding Company Name

   Shaw Industries, Inc.

3. Previous and/or Other Name(s)

   New Found Yarns, Division of Shaw Industries Inc.

4. Facility Location

   355 South Industrial Blvd., Calhoun, Georgia

5. Attainment or Non-attainment Area Location

   This facility is located in Gordon County, is in 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 , Inc., has two (2) manufacturing plants in Gordon County, Calhoun. The closest Shaw facility is WF Plant (formerly owned by Queen Carpet Corporation) which is approximately three miles away from Plant No. 7. Plant 7 is a carpet yarn manufacturing facility and WF Plant is a carpet dyeing facility. These plants are not contiguous or adjacent and there are no unique circumstances that would cause us to consider adjacency to extend to a distance of three miles. Therefore, these two plants are not one Title V site. Based on available information, Plant 7 has been determined to be a separate Title V site.

C. Existing Permits

Table 1: List of Current Permits, as Amended

Permit Number and/or Purpose of Issuance	Date of Issuance and Date of Amendments (if any)	Comments	
		Yes	No
2281-064-6424-0	September 25, 1978, and Amended on October 30, 1996	x	

Table 2: Comments on Specific Permits

Permit Number	Comments
2281-064-6424-0	Issued to New Found Yarns, Division of Shaw Industries, Inc., for operation of a 12.5 MMBtu/hr boiler, and Amended on October 30, 1996 for Shaw Industries, Inc., Plant No. 7 for operation of 16.7 MMBtu/hr boiler.

D. Process Description

1. SIC Code(s)

Major - 2281
Other - None

2. Description of Product(s)

The final product of Plant 7 is carpet yarn.

3. Overall Facility Process Description

Shaw Plant 7 is a typical carpet yarn manufacturing site, with yarn spinning operation (source code YS01), regular Suessen heat setting[1] (source codes SU01 through SU06), and Super[2] Suessen heat setting (source codes SS01 through SS06). Nylon fiber is blended, spun, twisted and heat set. The heat setting process entails injection steam into a closed chamber, then exhausting most of the steam through a stack. The process of heat setting gives the yarn memory and texture. The final product is carpet yarn used to supply other Shaw carpet manufacturing facilities. Steam for the continuous dyeing operation is provided by two boilers: a 17 MMBtu/hr installed in 1987 (source code BL02), and a 12.4 MMBtu/hr installed in 1972 (source code BL03). All boilers are capable of firing on natural gas as a primary fuel and No. 2 fuel oil as a back up fuel.

4. Overall Process Flow Diagram (optional)

There is one attached to the application.

[1]Heat setting Suessen is not a fuel burning equipment. It is electrically started and then uses steam from boilers to heat set carpet yarn. Suessens are used for continuous processing of yarn, with chamber dwell times on the order of one minute.

[2]Super Suessen heat setting units have a higher process capacity per hour than regular Suessen Heat setting units.

E. Regulatory Status

1. PSD/NSR

This facility is a minor source under PSD because it has potential to emit (PTE) of PSD regulated pollutants less than 250 tpy (it is not one of the 28 named source categories under PSD).

2. Title V Major Source Status by Pollutant

Table 3: 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	T	T		
PM_{10}	T			T
SO_2	T			T
VOC	T	T[3]		
NO_x	T			T
CO	T			T
TRS	T			T
H_2S	T			T
Individual HAP	T			T
Total HAPs	T			T

3. MACT Standards

None applicable

4. Program Applicability

Program Code	Applicable (Yes/No)
Program Code 6 - PSD	No
Program Code 8 - Part 61 NESHAP	No
Program Code 9 - NSPS	No
Program Code M - Part 63 NESHAP	No

[3]In 1996, stack testing for VOC from the Suesseen heat setting exceeded 100 tons, making this facility a major source. The facility no longer processes the products that were in service during the testing period, reducing its current PTE to below 100 tons. However, the facility requested to maintain its flexibility to run other products as market conditions change. With this in mind, the Shaw Industries, Inc., requested that the plant 7 be permitted as a major source for TV.

Program Code	Applicable (Yes/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

  Georgia Rule 391-3-1-.02(2)(a)1 applies to the entire facility.

- Emission and Operating Standards

  None applicable

C. Compliance Status

According to the Title V application, this facility is in compliance.

D. Operational Flexibility

None

E. Permit Conditions

None

III. Regulated Equipment Requirements

A. Brief Process Description

Plant 7 is a carpet yarn spinning facility, capable of producing continuous length carpet yarn from short length staple fibers such as nylon 6, and nylon 6,6. The equipment and processes used at this facility include bale blending, carding, drafting, spinning, twisting, and heat setting. With the exception of heat setting, all of these intermediate processing steps are purely mechanical in nature, with almost no emissions (these processes are well below the particulate matter emissions rate allowed by Rule (fff). The final product from Plant 7 is carpet yarn. Steam for the operation is provided by two boilers: a 17 MMBtu/hr installed in 1987 (source code BL02), and a 12.4 MMBtu/hr installed in 1972 (source code BL03). All boilers are capable of firing on natural gas as a primary fuel and No. 2 fuel oil as a back up fuel.

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
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, 3.2.2, 3.4.1, 3.4.2	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	3.2.1, 3.2.2, 3.4.1, 3.4.2	none	none
YS01	Yarn Spinning Operation	Rule 391-3-1-.02(2)(b)1 Rule 391-3-1-.02(2)(e)	3.4.3, 3.4.5	none	none
SU01 through SU09	Regular Suessen Heat setting	Rule 391-3-1-.02(2)(b)1 Rule 391-3-1-.02(2)(e)	3.4.3, 3.4.4	none	none
SS01 through SS06	Super Suessen Heat Setting	Rule 391-3-1-.02(2)(b)1 Rule 391-3-1-.02(2)(e)	3.4.3, 3.4.4	none	none

* Generally Applicable Requirements contained in this permit may apply also to emission units listed above.

C. Equipment & Rule Applicability

! Emission and Operating Caps

Boiler BL02, and BL03 are capable of firing on natural gas or No. 2 fuel oil with sulfur content of fuel oil not to exceed 0.5 weight percent.

! Applicable Rules and Regulations

Boilers

Boiler No. 2 (source code BL02, installed in 1987), and Boiler No. 3 (source code BL03, installed in 1972), are fired with natural gas and or No. 2 fuel oil. Since these units were constructed after January 1, 1972, the allowable PM emission rate from each boiler is specified by Georgia Rule 391-3-1-.02(2)(d)2 (ii), which is stated as follows:

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

Where P equals the allowable PM emission rate in pounds per million Btu and R equals the heat input in million Btus per hour.

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

Boilers BL02, and BL03 are capable of firing on natural gas, and or No. 2 fuel oil, Georgia Rule 391-3-1-.02(2)(g)2 limits the fuel sulfur content to 2.5 weight percent. The applicant indicated in TV application that fuel oil with a maximum sulfur content of 0.5 percent will be burned in the boilers.

Regular Suessen heat setting

Currently, there are nine regular Suessen heat setting units in operation. SU01 through SU04 constructed in 1985, SU05 constructed in 1988, SU06, SU07, SU08, and SU09 constructed in 1988. These units applies heat to carpet yarns.

Note I: TV Application indicated the facility processes approximately 403 lbs per hour (0.21 tph) nylon fiber through each regular Suessen heat setting units.

$E = 4.1P^{0.67} = (4.1)(0.21)^{0.67} = 1.45$ lbs per hour allowable PM emission

Each unit is treated as a separate process, and the allowable PM emission rate from this range is expressed by Georgia Rule 391-3-1-.02(2)(e)1. which is stated as follows:

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

$E = 4.1P^{0.67}$, Where E equals the allowable PM emission rate in pounds per hour and P equals the maximum process input weight rate in tons per hour.

Note II: Applicant estimated in Section 7.10 of application that maximum anticipated actual emissions for each unit is approximately 0.51 lbs/hr. Since the maximum anticipated actual emissions is less than allowable emissions, compliance with Rule (e) is expected.

Regular Suessen heat setting units (source codes SU01 through SU07) are subject to Georgia Rule 391-3-1-.02(2)(b)1. Georgia Rule 391-3-1-.02(2)(b)1 limits the opacity to forty percent.

Super Suessen Heat Setting units (source codes SS01 through SS06)

Currently, there are six Super Suessen heat setting units in operation. SS01 through SU06 constructed in 1987. These units applies heat to carpet yarns. Each unit is treated as a separate process, and the allowable PM emission rate from this range is expressed by Georgia Rule 391-3-1-.02(2)(e)1. which is stated as follows:

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

$E = 4.1P^{0.67}$, Where E equals the allowable PM emission rate in pounds per hour and P equals the maximum process input weight rate in tons per hour.

Note I: TV Application indicated the facility processes approximately 576 lbs per hour (0.29 tph) nylon fiber through each regular Suessen heat setting units.

$E = 4.1P^{0.67} = (4.1)(0.28)^{0.67} = 1.75$ lbs per hour allowable PM emission

Note II: Applicant estimated in Section 7.10 of application that maximum anticipated actual emissions for each unit is approximately 0.69 lbs/hr. Since the maximum anticipated actual emissions is less than allowable emissions, compliance with Rule (e) is expected.

Super Suessen heat setting units (source codes SS01 through SS06) are subject to Georgia Rule 391-3-1-.02(2)(b)1. Georgia Rule 391-3-1-.02(2)(b)1 limits the opacity to forty percent.

Yarn Spinning Operation (source code YS01)

Georgia Rules for Air Quality Control, Rule (fff) prohibits the facility to discharge, or cause the discharge, into the atmosphere from "Yarn Spinning Operations[4] (source code YS01)" particulate emissions in excess of the rate derived from the expression $E = 4.1 \times P^{0.67}$, where E is the emission rate in pounds per hour and P is the process input weight rate in tons per hour. The YS01 processes approximately 7,100 lbs/hr of nylon fibers. For purpose of compliance with Rule (fff), all spinning activities at the facility are viewed as one proces

$E=4.1*(P^{0.67})$, where E is allowable emission rate in pounds per hour & P is process input weight rate in tons per hour.

$E=4.1*(P^{0.67})$, $E= 4.1\ (3.56)^{0.67} = 9.59$ lbs/hr allowable PM emissions.

[4] Includes opening, blending, carding, spinning, winding, and twisting.

Note I: The fibers are spun together into either spun yarns or filament yarns. Filament yarns are made from continuous fine strands or manmade fiber. These units generates PM as part of processing. PM emissions from the Yarn Spinning Operations are very low levels, and the machines are housed within the building. PM emissions are vented to the atmosphere via building ventilation equipment. The potential emissions are estimated to be less than allowable emissions under Georgia Rule(fff).

Yarn Spinning Operation (source code YS01), is subject to Georgia Rule 391-3-1-.02(2)(b). Georgia Rule 391-3-1-.02(2)(b)1 limits the opacity to forty percent.

D. Compliance Status

None applicable

E. Operational Flexibility

None applicable

F. Permit Conditions

The permit conditions are described above in the Equipment & Rule Applicability section. There are no unusual conditions that need to be highlighted in this section.

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

A. General Testing Requirements

A requirement for performance testing on any specified emissions unit, when directed by the Division, is included. Requirements for a 30 day notification of testing and the submission of a test plan are also included. Test methods and procedures to be used are specified.

B. Specific Testing Requirements

The current Air Quality Rules and other applicable regulations for this facility do not contain any initial or periodic testing requirements. This permit, therefore, does not contain any conditions to require specific testing for any source.

V. **Monitoring Requirements** (with Associated Record Keeping and Reporting)

A. General Monitoring Requirements

Condition 5.1.1 requires that all monitoring devices/systems be operated continuously except during breakdowns, repairs, and quality assurance activities. Any repairs or maintenance should be completed in an expeditious manner so downtime is minimized. All data should also be recorded during any calibration activity to help verify that the calibration was performed and completed properly.

B. Specific Monitoring Requirements

The two boilers (source codes BL02, and BL03) are subject to Georgia Rules 391-3-1-.02(2)(d) for opacity, Particulate Matter (PM) and 391-3-1-.02(2)(g) "Sulphur Dioxide" The boilers are natural gas fired with number 2 fuel oil as the backup fuel. No monitoring is required when the boilers are fired with natural gas because it is very unlikely that emissions would exceed opacity and PM limitations. However, for each shipment of distillate fuel oil (Numbers 1 or 2) received for combustion, the facility shall obtain from the fuel supplier a statement that the fuel oil complies with the specifications for No. 2 fuel oil, as defined in ASTM D396 - Standard Specifications for Fuel Oil to ensure compliance with the 0.5 weight percent fuel sulfur content limit. The fuel supplier certifications serves as the monitoring to assure compliance with the fuel sulfur limit. Compliance with the Rule (g) fuel sulfur limit is determined using fuel supplier certifications for distillate fuel oil (Numbers 1 or 2).

Regular heat setting units (source codes SU01 through SU07), and Super Suessen heat setting (source codes SS01 through SS06) are subject to Georgia Rules 391-3-1-.02(2)(b) "Visible emission", and (e) "Particulate Emission from Manufacturing Processes". No control equipment is present on any of the units; however, Particulate Matter (PM) emissions from these units are very low and it is very unlikely that (PM) and opacity limitations will be exceeded. Therefore, no monitoring is required.

Yarn Spinning Operation (source code YS01) are subject to Georgia Rule 391-3-1-.02(2)(fff). "Particulate Matter Emissions from Yarn Spinning Operations". Because of the materials and process operations utilized by these sources, compliance with allowable PM and Opacity limitations can be reasonbly assured without requiring monitoring.

VI. Other Record Keeping and Reporting Requirements

Record Keeping and Reporting Requirements:

Records, including identification of excess emissions, exceedances, and excursions from applicable monitoring triggers, the cause of such occurrence, and the corrective action taken are required to be kept and reported semiannually.

General 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 related information to deviations from 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.

B. Specific Record Keeping and Reporting Requirements

Condition Nos. 6.2.1 and 6.2.2 define the content of the fuel oil certifications as well as the reporting requirements for these certifications.

VII. Specific Requirements

A. Operational Flexibility

None applicable

B. Alternative Requirements

None applicable

C. Insignificant Activities

None applicable

D. Temporary Sources

None applicable

E. Short-Term Activities

None applicable

F. Compliance Schedule/Progress Reports

None applicable

G. Emissions Trading

None applicable

H. Acid Rain Requirements

None applicable

I. Prevention of Accidental Releases

This facility is not subject to 40 CFR 68.

J. 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.

K. Pollution Prevention

None applicable

L. 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.

Draft Permit Review		
Reviewing Program	**Comments Received? (y/n)**	**Comments Taken Into Consideration In Draft Permit? (y/n)**
ISMP	Y	Y
SSCP	Y	Y

SSPP Unit Manager: _____ _____

SSPP Unit Manager — Date

SSPP Program Manager: _____ _____

SSPP Program Manager — Date

Addendum to Narrative

The 30 day public comment period for the draft Title V permit for Shaw Industries Inc., Plant #7, Gordon County, Dalton, Georgia ended on November 10, 2000 with no comments received.