

Facility Name: **Carriage Industries, Inc., Colorworks (Dyehouse)**  
 City: Calhoun  
 County: Gordon  
 AIRS #: 04-13-129-00049

Application #: TV- 10797  
 Date Application Received: August 03, 1998  
 Date Application Deemed  
 Administratively Complete: September 19, 1998  
 Date of Draft Permit: July 26, 2000  
 Permit No: 2273-129-0049-V-01-0

Program	Review Engineers	Review Managers
SSPP/ASU	Mansour Alaeddini	James Capp
SSCP/ASU	Travis Harris	James Eason
ISMP	DeAnna Oser	Larry Webber
TOXICS	NA	NA

## 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 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 **Carriage Industries, Inc., Dyehouse** 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:

Colorworks (Dyehouse)

2. Parent/Holding Company Name

Carriage Industries, Inc.  
The Dixie Group

3. Previous and/or Other Name(s)

None

4. Facility Location

341 Beamer Road, Calhoun, Gordon County, Georgia 30703

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 plant is located within 100 km of the Cohutta Class I area.

B. Site Determination

There are no other facilities which could possibly be contiguous and under common control.

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
2272-064-9399	August 27, 1986	x	

**Table 2: Comments on Specific Permits**

Permit Number	Comments
2272-064-9399	Issued to Carriage Industries, Inc., for operation of a carpet finishing facility including one 97 MM Btu/hr natural gas, or No. 6 fuel oil fired boiler.

## D. Process Description

## 1. SIC Code(s)

Major - 2273  
Other - None

## 2. Description of Product(s)

The final product from the facility is finished carpet.

## 3. Overall Facility Process Description

Dry carpet is wetted, guar gum is applied, printed with dyes, heat set, rinsed, anti-static finishes are applied, dried, and then stored on racks. Steam needed for the process equipment is produced by a 97.6 MMBtu/hr boiler.

## 4. Overall Process Flow Diagram (optional)

The overall process flow diagram is included in the facility's TV permit application

## E. Regulatory Status

## 1. PSD/NSR

The 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).

Potential SO<sub>2</sub> emissions for No. 6 fuel oil for BR01

Potential SO<sub>2</sub> emissions for No. 6 fuel oil:

Using AP-42, the uncontrolled SO<sub>2</sub> emission is 157S lb/1000gal and sulfur content for No. 6 fuel oil ≤ 2.5%, [Rule (g), maximum]. Maximum usage of No. 6 fuel oil in is 1,250,000 gal/yr.

Potential SO<sub>2</sub> emissions from Boiler No. BR01 =  $(157 * 2.5) * (1,250,000 / 2 * 10^6) = 246$  tpy.

Potential NO<sub>x</sub> emissions for natural gas for BR01, DR1, DR2

Max. rated input (Btu/hr) =  $(97.6 + 5 + 12 + 2.5 + 18) = 135.1$  MMBtu/hr

Heating value of fuel (Btu/ft<sup>3</sup>), natural gas = 1000 Btu/ ft<sup>3</sup>

Emission factor (lb/10<sup>6</sup> ft<sup>3</sup>) = 100 lb. NO<sub>x</sub>/ MMft<sup>3</sup> natural gas

Maximum operating time (hr/day) = 24 hours

$135.1 \text{ MM Btu/hr} / 1000 \text{ Btu/ft}^3 = 134,100 \text{ ft}^3/\text{hr}$

Maximum natural gas usage

$(134,100 \text{ ft}^3/\text{hr})(8760 \text{ hrs/year}) = 1,183,476,000 \text{ ft}^3/\text{year}$

Potential To Emit (PTE) of NO<sub>x</sub>

(1,183.5 MMCF/year)(100 lb/MMCF) = 118,348 lb/year of NO<sub>x</sub>

(118,348 lb/year)/ 1 ton/2000 lbs = **59.2 tons per year**

2. Title V Major Source Status by Pollutant

The following table defines the major source status of the facility.

**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 <sub>10</sub>	T			T
SO <sub>2</sub>	T	T		
VOC	T			T
NO <sub>x</sub>	T	T		
CO	T			T
TRS	T			T
H <sub>2</sub> S	T			T
Individual HAP	T			T
Total HAPs	T			T

3. MACT Standards

The facility is not subject to an existing proposed or final MACT standard.

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
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

##### ! 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

Dry carpet is wetted, guar gum is applied, printed with dyes, heat set, rinsed, anti-static finishes are applied, dried, and then stored on racks. Steam needed for the process equipment is produced by a 97.6 MMBtu/hr boiler.

##### Line 1 , and Line 2 dryers (DR1, DR2)

The finished carpet is placed in one of two dryers to complete the drying process. DR1 consists of 5 MMBtu/hr natural gas fired burner, and four 3 MMBtu/hr natural gas fired burners, DR2 consists of one 2.5 MMBtu/hr natural gas fired burner, and six 3 MMBtu/hr natural gas fired burners. Air emissions from the dryers are stack emissions to atmosphere. The estimated actual VOC and HAP emissions associated with the fuel burning equipment were calculated separate from the chemical usage and are reported to be 1.73 tpy and 1.62 tpy, respectively.

Boiler

Steam needed for the process equipment is produced by a 97.6 MM Btu/hr natural gas, or No. 6 fuel oil fired boiler (source code BR01 manufactured in 1973 and installed at the facility in 1986).

Chemical mixing

There are separate chemical mixing areas for the dye operations. Air emissions at each area are fugitive in nature. Quantity and type of emission will vary with the type and quantity of chemicals used for the dye mix. The VOC and HAP emissions associated with the chemical usage were calculated assuming 24.9% are emitted to the atmosphere and are reported as an operating group OG01 (approximately eighteen chemicals that are being used on daily bases) estimated actual emissions and are 30.69 tpy and 8.36 tpy, respectively.

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
BR01	Keeler Boiler	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, 3.4.2, 3.4.3	None	None
DR1	Line 1 dryer	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	3.2.2, 3.4.3, 3.4.4, 3.4.5	None	None
DR2	Line 2 dryer	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	3.2.2, 3.4.3, 3.4.4, 3.4.5	None	None

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

C. Equipment & Rule Applicability

DR1<sup>1</sup> was constructed after 1972 and processes 11,526 lbs per hour of carpet. The opacity limit is expressed by Georgia Rule 391-3-1-.02(2)(b) which is 40 percent. Georgia Rule (b) applies because this process is subject to Rule (e). Georgia Rule (g) “Sulfur Dioxide” (fuel sulfur) applies since the burner burns natural gas.

DR1 is an independent process under Georgia Rule 391-3-1-.02(2)(e). The allowable PM emission rate from this group is specified by Georgia Rule 391-3-1-.02(2)(e), which is stated as follows, for process input weight rates up to 30 tons per hour,:

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

Where E equals the allowable PM emission rate in pounds per hour and P equals the maximum process weight input rate in tons per hour.

The maximum process weight input rate is 5.76 ton per hour and the allowable PM emission rate from the DR1 is approximately 13.25 lb/hr. The actual PM emissions is very low from this process and compliance with Rule (e) is expected. VOC emissions associated with the fuel burning are 0.12 tpy. VOC emissions associated with chemical usage are included in operational group OG01.

DR2<sup>2</sup> was constructed after 1972 and processes 11,526 lbs per hour of carpet. The opacity limit is expressed by Georgia Rule 391-3-1-.02(2)(b) which is 40 percent. Georgia Rule (b) applies because this process is subject to Rule (e). Georgia Rule (g) “Sulfur Dioxide” (fuel sulfur) applies since the burner burns natural gas.

---

<sup>1</sup>DR1A and DR1B represent different zones of the same dryer (Dryer 1). Each zone includes several gas-fired burners totalling the amounts shown on the permit application form. The A and B zones are not independent of each other; both operate when the dryer is running. Dryer 1 and Dryer 2 are on separate production lines.

<sup>2</sup>DR2A and DR2B represent different zones of the same dryer (Dryer 2). Each zone includes several gas-fired burners totalling the amounts shown on the permit application form. The A and B zones are not independent of each other; both operate when the dryer is running. Dryer 1 and Dryer 2 are on separate production lines.

DR2 is an independent process under Georgia Rule 391-3-1-.02(2)(e). The allowable PM emission rate from this group is specified by Georgia Rule 391-3-1-.02(2)(e), which is stated as follows, for process input weight rates up to 30 tons per hour,:

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

Where E equals the allowable PM emission rate in pounds per hour and P equals the maximum process weight input rate in tons per hour.

The maximum process weight input rate is 5.76 ton per hour and the allowable PM emission rate from the DR2 is approximately 13.25 lb/hr. The actual PM emissions is very low from this process and compliance with Rule (e) is expected. VOC emissions associated with the fuel burning are 0.06 tpy. VOC emissions associated with chemical usage are included in operational group OG01.

Boiler No. 1, 97.6 MMBtu/hr (source code BR01 manufactured in 1973 and installed at the facility in 1986) is capable of firing on natural gas or No. 6 fuel oil. The BR01 was constructed after January 1, 1972, the allowable PM emission rate is specified by Georgia Rule 391-3-1-.02(2)(d)2(ii) "Fuel Burning Equipment" based on the following equation:

$$E = 0.5 \left( \frac{Q}{R} \right)^{1.1}$$

where E is the allowable PM emission rate in pounds per hour and R is heat input rate in million Btu per hour

BR01 is 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 (d)3 limits the opacity to 20 percent except for one six minute period per hour of not more than 27 percent opacity.

Since the BR01 is capable of firing on natural gas/ No. 6 fuel oil Georgia Rule for Air Quality Control Rule 391-3-1-.02(2)(g) prohibits firing any fuel that contains greater than 2.5 percent sulfur, by weight.

#### 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**

None of the applicable regulations require performance testing, therefore this permit does not contain any conditions requiring specific testing. This permit specifies that a performance test may be required to determine compliance with the emission limits in Part 3.0, and the test methods to be used to determine compliance are listed. A general condition to require notification of any test and for the submission of a test plan is included. Test methods for determining emission rates are listed in Condition 4.1.3.

**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 monitors be operated continuously except during breakdowns and repairs. Any repairs or maintenance should be completed in an expeditious manner so downtime is minimized. All data should be recorded during any calibration activity to help verify that the calibration was performed and completed properly.

**B. Specific Monitoring Requirements**

The boiler (source codes BR01) is subject to Georgia Rules 391-3-1-.02(2)(d), and (g) for opacity, Particulate Matter (PM) and Sulfur Dioxide (fuel sulfur). The boiler is natural gas fired with number 6 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. When the boiler is fired with number 6 fuel oil, daily readings of visible emissions (opacity) are required to reasonably assure compliance with Rule (d) PM limitations. For the boiler BR01, 20 percent opacity was chosen as the trigger level at which corrective action is required to be taken. Occurrences of opacity greater than or equal to the trigger level are designated as excursions and are required to be reported. Compliance with the Rule (g) fuel sulfur limit is determined using fuel supplier certifications for residual oil.

The dryers (source codes DR1, DR2) are subject to Georgia Rules 391-3-1-.02(2)(b) "Visible emission", Georgia Rule for Air Quality 391-3-1-.02(2)(e) "Particulate Emission from Manufacturing Processes" and Rule (g) "Sulfur Dioxide" (fuel sulfur). Since these units are only capable of burning natural gas, there is little probability of any particulate matter or visible emissions. Also, compliance with Rule (g) will not be an issue since natural gas is the only fuel burned in these units. No control equipment is present on any of the units; however, Particulate Matter (PM) emissions from this unit is very low and it is very unlikely that (PM) and opacity limitations will be exceeded. Therefore, compliance with Rule (e) is expected and no monitoring is required.

C. Associated Record Keeping and Reporting

Records of all data collected in accordance with the required monitoring protocols discussed in Section 5.2 shall be maintained by the Permittee and shall be submitted semiannually.

**VI. Other Record Keeping and Reporting Requirements**

General Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

Section 6.1 of the Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and the prompt reporting of all related information to deviations from applicable requirements. The submission of written reports (semiannually) of any failure to meet an applicable emission and/or any failure to comply with or complete any work practice or standard contained in the permit is also required. Condition 6.1.7 requires the Permittee to report any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of monitoring.

B. Specific Record Keeping and Reporting Requirements

BR01 has an additional limitation on Sulfur Dioxide (SO<sub>2</sub>) emissions. The boiler is restricted to the number of gallons of No. 6 fuel oil (1, 250,000 gal. per year), which results in 246 tons of SO<sub>2</sub> that can be emitted over a 12-consecutive month period. Each month, a rolling 12-consecutive month total of fuel oil combusted is required to be calculated for the boiler. Any 12-consecutive month total in which the amount of fuel oil combusted is greater than 1,250,000 gallons is required to be reported as an exceedance.

**VII. Specific Requirements**

A. Operational Flexibility

None applicable

B. Alternative Requirements

None applicable

C. Insignificant Activities

A complete list of insignificant activities is included at the end of the Title V Permit as Attachment B. The insignificant units may also be found in sections 4.10 and 4.50 of the Title V application

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.

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

**SSPP Unit Manager:**

\_\_\_\_\_ Date

SSPP Unit Manager

**SSPP Program Manager:**

\_\_\_\_\_ Date

SSPP Program Manager

**Addendum to Narrative**

The 30 day public comment period for the draft Title V permit for Carriage Industries, Inc., Colorworks (Dyehouse), TV-10797, Calhoun, Gordon County, Georgia ended on February 23, 2001. On December 28, 2000, the Division received comments from the company which are outlined below, along with the Division's response:

Company comment

A review of the permit did not reveal any mention of Hazardous Air Pollutants (HAP), yet we were aware that the facility handles a significant amount of dyes containing Diethylene Glycol Butyl Ether (DGBE). A review of the HAP spreadsheet for emissions group OG01 following Section 7-10 of the application revealed an error in addition of the DGBE and total HAP columns. The bottom of the spreadsheet are incorrect. The amount of DGBE should be 18.75 tons per year (tpy) instead of 6.38 tpy. The amount of total HAP should be 19.11 tpy instead of 6.47 tpy. This affects Section 7-10, the group emissions summary, as well as Section 2-20, the overall facility emissions estimate. The total HAP emitted by the facility should be 20.61 tpy instead of 8.24 tpy as shown in Section 2-20.

Division Comment

The company provided a revised copy of the following Application Sections: Section 2.20 "Facility Wide Emissions Estimates" and Section 7.10 "Unit Group, or Plant Wide Emissions Summary." The TV Application was updated to reflect changes in Section 2.2 and Section 7.10. The facility is classified as a major source for individual HAP. This change in potential HAP emissions does not affect applicability to any proposed or final rules. Therefore, no changes have been made to the permit. A MACT standard for textile industry is due to be proposed this year and this change may affect applicability to that standard.