

NARRATIVE

TO: Jeng-Hon Su
FROM: Susan Jenkins
DATE: February 2, 2024

Facility Name: **Shaw Industries, Inc. – Plant RP**
AIRS No.: 047-00029
Location: Ringgold, GA (Catoosa County)
Application #: 29117
Date of Application: November 13, 2023 (Updated January 23, 2024)

Background Information

Shaw Industries, Inc. – Plant RP (hereinafter “facility”) manufactures luxury vinyl tile (LVT) by means of extrusion, calendaring, and laminating processes. The facility operates under Permit No. 3996-047-0029-S-03-0 issued January 19, 2023.

The facility consists of dry blending mixing, extrusion, and calendaring which form the base layers of the vinyl flooring. Raw materials include suspension polyvinyl chloride (PVC) resin, stabilizers, pigments, and filler. The materials are delivered by truck and loaded into silos, or, for the other materials, delivered in totes or supersacks. The raw materials are blended in the dry blending mixers and the blended material is then sent to extruders. The extruded rope-shaped material is fed to a calendaring roller system that is heated using hot oil circuits. The sheet leaving the calendaring roller system has the proper width and texture for the specific flooring desired for the product. Once the base flooring layer is manufactured, various wear and printed layers are laminated together with the base layer in one of the two laminators followed by a top-side embossing system. The final step is the application of a UV cure coating. The vinyl flooring is then cooled, trimmed, profiled, packaged, and stored.

Purpose of Application

The facility submitted a confidential and public SIP Permit Application (assigned Application No. 29117) for the following.

- Construction and operation of a wear layer regrind system (ID No. WRGD1);
- Construction and operation of a twin calendar system (ID No. CAL3);
- Construction and operation of material handling silos (ID Nos. SILO17-SILO20);
- Upgrade grinder systems #1 & #2 and associated baghouses (ID Nos. GR1BH & GR2BH);
- Remove SPC Extrusion 3-6 (SPC3-6, Equipment removed in 2023);
- Remove hot oil heater BH02 (Equipment removed in 2023);
- Remove hot oil heater BH03 as it was never installed;
- Remove Cooling Tower CTW4 as it was never installed;

- Truck loadout systems 3 & 4 as they were never installed; and
- Update to facility equipment list.

The facility requested that the following application material be classified as “Confidential Business Information”:

Application Location	Information
Appendix A	Process Flow Diagram
Appendix B – Table 3	(1) SDS Name; (2) Coat rate (wt%); (3) material usage (lb/hr); (4) % of VOC (wt%); and (5) % of HAP (wt%).

Site Determination

This Shaw plant is located on contiguous/adjacent property and under common control with the facilities summarized in the following table:

Facility Name	Address	Permit No.	Note(s)
Shaw Industries Inc. Plant RP	952 Industrial Blvd Ringgold, GA 30736 Catoosa County	3396-047-0009-S-03-0 1/19/2023	LVT Manufacturing Located on contiguous property and under common control with Plant 47, Plant L2, and Plant 5R..
Shaw Industries Inc. Plant 47	952 Industrial Blvd Ringgold, GA 30736 Catoosa County	N/A	Warehousing and Storage Located on contiguous property and under common control with Plant RP, Plant L2, and Plant 5R.
Shaw Industries Inc. Plant L2	952 Industrial Blvd Ringgold, GA 30736 Catoosa County	N/A	Warehousing and Storage Located on contiguous property and under common control with Plant RP, Plant 47, and Plant 5R.
Shaw Industries Inc. Plant 5R	716 Industrial Blvd Ringgold, GA 30736	N/A	Warehousing and Storage Located on contiguous/adjacent property and under common control with Plant RP, Plant L2, and Plant 47.

Although the four facilities above are considered as one single site under Title V of 1990 CAAA, only Plant RP emits air emissions that would require a permit.

Updated Equipment List

The table row highlighted in “blue” shading denotes additions per this application. The table row highlighted “yellow” represents revisions per the facility on January 23 & 31, 2024.

Emission Units			Associated Control Devices	
ID No.	Description	Installation Date	Source Code	Description
SILO1	Material Handling Silo 1	2014	BVF01	Bin Vent Filter 1
SILO2	Material Handling Silo 2	2014	BVF02	Bin Vent Filter 2

Emission Units			Associated Control Devices	
ID No.	Description	Installation Date	Source Code	Description
SILO3	Material Handling Silo 3	2014	BVF03	Bin Vent Filter 3
SILO4	Material Handling Silo 4	2014	BVF04	Bin Vent Filter 4
SILO5	Material Handling Silo 5	2014	BVF05	Bin Vent Filter 5
SILO6	Material Handling Silo 6	2014	BVF06	Bin Vent Filter 6
SILO7	Material Handling Silo 7	2014	BVF07	Bin Vent Filter 7
SILO8	Material Handling Silo 8	2017	BVF08	Bin Vent Filter
SILO9	Material Handling Silo 9	2017	BVF09	Bin Vent Filter
SILO10	Material Handling Silo 10	2017	BVF10	Bin Vent Filter
SILO11	Material Handling Silo 11	2017	BVF11	Bin Vent Filter
SILO12	Regrind Silo 12 Material Handling Silo	2019	BVF12	Bin Vent Filter
SILO13	Regrind Silo 13 Material Handling Silo	2019	BVF13	Bin Vent Filter
SILO14	Pulverizer Silo 14 Material Handling Silo	2020	BVF14	Bin Vent Filter
SILO15	Material Handling Silo 15	2022	BVF15	Bin Vent Filter
SILO16	Material Handling Silo 16	2022	BVF16	Bin Vent Filter
SILO17*	Material Handling Silo 17	TBD	BVF17	Bin Vent Filter
SILO18*	Material Handling Silo 18	TBD	BVF18	Bin Vent Filter
SILO19*	Material Handling Silo 19	TBD	BVF19	Bin Vent Filter
SILO20*	Material Handling Silo 20	TBD	BVF20	Bin Vent Filter
LVT1 CAL1	Extruding/Calendaring Line 1	2014	--	Fume Exhaust (Indoors)
LVT2 CAL2	Extruding/Calendaring Line 2	2014	--	Fume Exhaust (Indoors)
CAL3*	Twin Calendar	TBD	--	Fume Exhaust (Indoors)
CTR1	Calendar Edge Trim System	2016	CTR1	Baghouse
LTR1	Laminate Edge Trim System	2016	LTR1	Baghouse
SPC1	SPC Extrusion 1	2020	--	--
SPC2	SPC Extrusion 2	2020	--	--
SPC3	SPC Extrusion 3	2020	--	--
SPC4	SPC Extrusion 4	2020	--	--
SPC5	SPC Extrusion 5	2020	--	--

Emission Units			Associated Control Devices	
ID No.	Description	Installation Date	Source Code	Description
SPC6	SPC Extrusion 6	2020	—	—
SPC7	SPC Extrusion 7	2020	--	Fume Exhaust (Indoors)
SPC8	SPC Extrusion 8	2020	--	Fume Exhaust (Indoors)
PP01	Punch and Pack 1	existing	--	--
PP02	Punch and Pack 2	existing	--	--
PFL2	Board Trim/Edge Profiling System 2	2020	PFL2	Baghouse
PFL3	Board Trim/Edge Profiling System 3	2016	PFL3	Baghouse
GRND1 LRGD1	Grinder System 1 (Big Bag Loading Dust Collection) <i>To Be Modified</i>	2016	GR1BH	Baghouse <i>Upgraded</i>
GRND1 LRGD2	Grinder System 2 (Big Bag Loading Dust Collection) <i>To Be Modified</i>	2016	GR2BH	Baghouse <i>Upgraded</i>
GRND3 SRGD1	Regrind System	2020	GR3BH	Baghouse
SRGD1	SPC Grinder & Granulator	TBD	BH11	Baghouse
BB01	Big Bag Loading Dust Collection System 1 (Grinder System 1)	Existing	BB01	Bin Vent VENT INDOORS
BB02	Big Bag Loading Dust Collection System 2 (Grinder System 2)	Existing	BB02	Bin Vent VENT INDOORS
TRK1	Truck Loadout System 1	2020	BVF21	Bin Vent Filters
TRK2	Truck Loadout System 2	2020	BVF22	Bin Vent Filters
TRK3	Truck Loadout System 3	Never Installed	BVF10	Bin Vent Filters
TRK4	Truck Loadout System 4	Never Installed	BVF11	Bin Vent Filters
PL01	Pilot Line Extruder	2020	--	Fume Exhaust (Vents Indoors)
BAR1	Barberran Pilot Line	Existing	--	Fume Exhaust (Vents Indoors)
GRAN1	SPC Granulator	2022	GRAN1	Baghouse
TRN1	Transient Dust Collection System	2022	TRN1	Baghouse Filter Receivers
PLV1	SPC Pulverizer	2022	PLV1	Baghouse
PLV2	SPC Grinder	2022	PLV2	Baghouse
PLV3	Profiler Pulverizer	2022	PLV3	Baghouse

Emission Units			Associated Control Devices	
ID No.	Description	Installation Date	Source Code	Description
PLV4	Profiler Pulverizer	2022	PLV3	Baghouse
TTL1-6	Tank Truck Loading	2022	TTL1-6	Filter Receivers
ENG	Emergency Generator	1995	None	None
CTW1	Cooling Tower	2014	--	--
CTW2	Cooling Tower	2014	--	--
CTW3	Cooling Tower	2014	--	--
CTW4	Cooling Tower	Never Installed	--	--
PLM1*	Pallman Pulverizer	TBD	PLM1	Baghouse
WRGD1*	Wear Layer Re grind	TBD	BH12	Baghouse
LAM1	Laminating	Existing	--	--
UVCOAT	UV Coating and Annealing	Existing	--	--
MIX1	Dry Blending Mixers	Existing	BVFMIX	Bin Vent Filters
PFL1	Punch and Pack 3	existing	BH13	Baghouse Exhaust Indoors

Fuel Burning Equipment

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
BH01	25	Hot Oil Heater 1	2014	2014
BH02	21	Hot Oil Heater 2	2014	2014
BH03	25	Hot Oil Heater 3	2014	2014

Emissions Summary

Emissions of carbon monoxide (CO), nitrogen oxides (NO_x), and sulfur dioxide (SO₂) come from combustion devices. The facility utilized AP-42 for natural gas combustion as the combustion emissions factors and the Division concurs with the facility's conclusion.

Particulate matter (PM/PM₁₀/PM_{2.5}) originates from natural gas combustion and from the manufacturing operation. The facility utilized AP-42 for natural gas as the origin of the combustion emission factor, and they utilized a PM controlled emission factor of 0.01 grains per standard cubic feet per minute (gr/scfm) for PM emissions from each bin vent and each baghouse. This grain loading emission factor is based on the manufacturer's guaranteed outlet PM concentration value.

Volatile organic compounds (VOC) emissions originate from natural gas combustion and from the manufacturing operation. The facility utilized AP-42 for natural gas as the origin of the combustion emission factor, and they utilized a mass balance approach (i.e., the VOC content of each material used and material usage) to compute VOC emissions from the manufacturing operation.

Individual hazardous air pollutant (HAP) emissions originate from natural gas combustion and from the manufacturing operation. The facility utilized AP-42 for natural gas as the origin of the combustion emissions factors, and they utilized a mass balance approach (i.e., the individual HAP content of each material used and material usage) to compute HAP emissions from the manufacturing operation.

Facility-Wide Emissions
(in tons per year)

Pollutant	Potential Emissions (Uncontrolled Basis)			Potential Emissions (Controlled Basis)		
	Before Mod.	After Mod.	Emissions Change	Before Mod.	After Mod.	Emissions Change
PM/PM ₁₀ /PM _{2.5}	>100	>100	>100	58.13	61.51	3.38
NO _x	48.70	15.75	(32.95)	48.70	15.75	(32.95)
SO ₂	0.25	0.060	(0.19)	0.25	0.060	(0.19)
CO	26.69	9.10	(17.59)	26.69	9.10	(17.59)
VOC	37.65	32.25	(5.40)	37.65	32.25	(5.40)
Max. Individual HAP	0.55	0.19	(0.36)	0.55	0.19	(0.36)
Total HAP	0.79	0.32	(0.47)	0.79	0.32	(0.47)
Total GHG (if applicable)	<100,000	<100,000	N/A	<100,000	<100,000	N/A

The facility requested in Application No. 29117 that a true minor source “B” permit be issued to Shaw Industries, Inc. – Plant RP. As shown in the table above, the after-control PM/PM₁₀/PM_{2.5} potential emissions are 61.51 tons per year (tpy); without the baghouses and bin vent filters, uncontrolled PM/PM₁₀/PM_{2.5} potential emissions are expected to be greater than 100 tpy. Therefore, the facility could not be a true minor source under Title V of 1990 CAAA. It relies on the baghouses and bin filters to keep PM/PM₁₀/PM_{2.5} emissions below 100 tpy. The facility will continue to be a synthetic minor (SM) source, and the requirement to operate the baghouses and bin vent filters (in existing Condition 4.2) is the SM limit.

Regulatory Applicability

The proposed equipment additions are subject to Georgia Rules (e) and (b).

Permit Conditions

Existing Conditions 2.1, 2.3, 2.5, & 7.1 are modified to **remove** references to hot oil heaters with ID Nos. BH02 and BH03.

Existing Conditions 2.2 & 2.4 apply to the proposed equipment and **no** revision to this existing condition is necessary.

Existing Condition 5.2 is modified to **remove** reference to baghouses PFL3, GR3BH, GRAN1, and PLV3 and **add** reference to baghouses BH11, BH12, and PLM1.

Toxic Impact Assessment

The facility submitted a table which summarized the PTE of toxic air pollutants (TAPs) emitted by the facility with a comparison to the applicable minimum emission rates (MERs) per the Georgia Air Toxics Guideline (hereinafter “Guideline”) on January 23, 2024. The PTE of each applicable TAP is less than the applicable MER and therefore no modeling is required per the Guideline.

Note: The facility labeled the January 23, 2024 application update (i.e., PTE of each TAP) as *confidential*. The Division has determined that this application update material cannot be classified as *confidential* since it only includes the PTE of each applicable TAP. (Emissions data cannot be held *confidential*).

Summary & Recommendations

I recommend that Permit No. 3996-047-0029-S-03-1 be issued to the facility for the following: (1) C/O of wear layer regrind (WRGD); twin calendar (CAL3); and material handling silos (SILO17-20); and (2) removal of SPC extrusion 3-6 (SPC3-6); hot oil heaters BH02 & BH03; cooling tower CTW4; and truck loadout systems (TRK3-4). The facility will remain a synthetic minor source after this permit amendment. A public advisory was issued for this project (PA1223-3) which expired January 19, 2024. No comments were received.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//