

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

N282957982

FACILITY: Sheridan Publishing Grand Rapids		SRN / ID: N2829
LOCATION: 5100 33RD STREET SE, GRAND RAPIDS		DISTRICT: Grand Rapids
CITY: GRAND RAPIDS		COUNTY: KENT
CONTACT: Jason Nelson , Manufacturing Manager		ACTIVITY DATE: 05/06/2021
STAFF: David Morgan	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT:		
RESOLVED COMPLAINTS:		

At 8:00 A.M. on May 6, 2021, Air Quality Division (AQD) staff Dave Morgan arrived on site to observe stack testing and conduct a compliance inspection of Sheridan Publishing Grand Rapids located at 5100 33rd Street in Grand Rapids. The purpose of the inspection was to determine the facility's compliance with state and federal air pollution regulations as well as Permit to Install (PTI) No. 114-13A. Accompanying AQD staff on the inspection was Jason Nelson, Production Manager. AQD, Technical Program Unit staff on site for the test were Matt Karl and Trevor Drost. Mark Horne of Environmental Partners was taking process parameters. Testing was being conducted by the Stack Test Group Inc. Covid 19 safety protocols were practiced while on site.

FACILITY DESCRIPTION

Sheridan Publishing prints a variety of books and magazines using sheet-fed and web-fed printing. The facility consists of four web-fed offset printing lines, two sheet-fed offset printing lines, two hot melt adhesive lines for binding, and two scrap paper collection system. All lines are either covered by the PTI No. 114-13A or are exempt from permitting. The company also has a regenerative thermal oxidizer (RTO).

The company is considered a minor source of volatile organic compound (VOC) emissions and a synthetic minor source of hazardous air pollutant (HAP) emissions.

The following table is a summary of permitted emission units at the facility.

Emission Unit ID	Emission Unit Description	Installation Date/Modification Date	Controlled by RTO
EU-T11	Timson T-11 UV Web Press	05/01/2019	No
EU-T9	Timson T-9 heatset webfed offset lithographic printing press. Manual blanket wash.	04/01/2019	Yes
EU-47	Timson 47 heatset webfed offset lithographic printing press. Automatic and/or manual blanket wash. Gas-fired drying ovens.	10/1998	Yes
EU-54	Timson 54 heatset webfed offset lithographic printing press. Automatic and/or manual blanket wash.	11/2003	Yes

In web-fed printing, a web of paper is continuously moved between two blanket cylinders. Printing occurs when the paper comes into contact with the printing plate containing ink receptive coatings. The web of paper continues to move through drying ovens where the ink solvent is driven off and the color pigment is left on the paper. Since the inks are considered 'heatset' inks, ovens are necessary for the ink to dry. The ovens operate between 220°F and 300°F. The ink application is vented to the in-plant environment, but the drying ovens are exhausted to the RTO.

STACK TESTING

The company was testing to determine the destruction efficiency (DE) of the RTO which has a minimum DE requirement of 95%. Run 1 started at 8:10 AM. Two of three presses (T-47 and T54) were operating during run 1. For the DE test it was not necessary to operate at maximum load. Testing at less units in operation will generally yield a lower DE with lower process rate and inlet loading. Mark Horne was coordinating the testing and collecting process data and the sample print "signatures" of the jobs run on the presses. The RTO temperature was being recorded on by a circular chart. At the time of the test, the RTO was running at a temperature of about 1,625°F. Run 2 began at 9:25 AM. Presses T-54 and T-9 were operating during this run. No production problems were noted during the test.

It is also noted that staff observed a smoke tube test to demonstrate that airflow was occurring into the ovens meaning that they were operating under negative pressure as required in the permit. Mark Horne conducted a smoke tube test for each run.

According to Matt Karl who was in the trailer, preliminary results indicated 99% DE.

COMPLIANCE EVALUATION

All printing presses were observed by AQD staff. Each unit was labeled in accordance with the permit. All stacks appeared to meet permit requirements and no visible emissions were observed.

RTO:

Emissions from the curing ovens for all heatset web-fed printing lines are vented through the RTO. Manufacturer specifications indicate an expected DE for the RTO. It was last tested in 2014 with a DE of 98%. It is noted that, in the past, the company has used a conservative factor of 95% destruction efficiency in its emissions calculations.

At the time of the inspection the RTO was operating at a temperature of 1,625 °F which is above the minimum temperature requirement of 1,500°F in the permit. In addition, the company monitors and records the RTO temperature on a continuous basis using a circular chart recorder. Records for 2020 and 2021 indicate that the RTO generally operates at or above 1,600°F which is above the temperature limit in the permit of 1,500° F.

Dryers:

The heatset inks on the web press go through dryers to set the ink. Satisfactory operation of these dryers means that each dryer operates with a pressure lower than all adjacent areas so that air flows into the dryer through all natural draft openings. As indicated early, a smoke tube test was performed to demonstrate compliance with this. In addition, the company uses a built-in interlock system that will automatically disable printing if the dryer is not operating with a negative pressure. The company conducts an annual check of the system to ensure that the interlock is performing as intended. Records were reviewed. It is noted that the company also installed pressure gauges on the dryers to verify airflow. However, they primarily rely on the interlock.

Records:

On the day of the inspection, the company had VOC and HAP emission records. Detailed records were sent via email subsequent to the site visit and will be attached. The following table is a summary of emission records for May 2020 through April 2021. There are no compliance issues.

Requirement	Emission Unit	Amount	Limit	Compliance	Comments
VOC Content of Fountain Solution	FGOffsetlitho	Not greater than 1% by weight	5.0% by weight, as applied	YES	Calculated in accordance with Appendix in PTI 114-13A.
VOC composite vapor pressure	For cleaning solvents (blanket and roller washes),	Not greater than 5mm Hg	10mm Hg at 68°F.	YES	highest product was: UGS-9658-K Lo Odor Press Wash (vp < 5)
12-month rolling VOC (in tons)	FGOffsetlitho	4.07 tons	27.3 tons	YES	
Total HAPS	Facility-wide	0.082 tons	22.5 tpy	YES	
Individual HAPS	Facility-wide	0.082 (ethylene glycol)	9.0 tpy	YES	

** In calculating emissions from the coating process, historically only the worst case VOC content ink has been used.

It is noted that the VOC content of inks and washes used in the presses is based on manufacturer formulation data. Material usage amounts are based on material purchased which is a worst case for the facility.

Binding Area:

From previous AQD inspections, the binding area contains several machines used to sort and package sheets of paper which ultimately form the book. The hot melt gluing machine applies adhesive to bind the pages. The books are split apart and trimmed on three sides. All hot melt adhesive is exempt under Rule 287(i). This area was not observed.

Also in this area, are lamination machines used to apply a plastic film to front pages of books and pamphlets. Emissions from this process are nil. In addition, this equipment is exempt from permitting under Rule 286. This area was not observed.

Scrap Paper System:

The company has two separate scrap paper systems that collect paper cuttings from the presses as well as other scraps generated from the binding process. All scraps go through a bagfilter collector which is vented internally. Collected material is sent to a baler where it is bundled for recycling. These processes are exempt from permitting under Rule 285(I)(vi). This equipment was not observed.

SUMMARY

Sheridan Publishing Grand Rapids is in compliance with the requirements evaluated.

NAME David L. Ryan

DATE 5/24/2021

SUPERVISOR HH