

217/782-2113

CONSTRUCTION PERMIT -- REVISED

PERMITTEE

R. R. Donnelley & Sons Company
Attn: Vicki Howell
Route 45 North
P.O. Box 1668
Mattoon, Illinois 61938-1668

Application No.: 99070077 I.D. No.: 029803AAA
Applicant's Designation: MM-721 Date Received: June 19, 2000
Subject: Heatset Web Offset Lithographic Press and Dryer
Date Issued:
Location: Route 45 North, Mattoon

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of heatset web offset lithographic printing line (MM-721) controlled by existing regenerative afterburner operating in tandem with thermal afterburner as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

1.0 Unit Specific Conditions

1.1 Unit: Heatset Web Offset Lithographic Printing Line
Control: Regenerative Afterburner
Thermal Afterburner

1.1.1 Description

Heatset web offset lithographic printing involves the use of dryers to dry up the ink applied through the printing units. The ink oil emission is then controlled by an incinerator before being discharged to the atmosphere through the stack.

1.1.2 List of Emission Units and Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
MM-721	Heidelberg Harris Model M-1000BE Heatset Web Offset Lithographic Printing Press with Dryer	Tec Enterprise II, Regenerative Afterburner and Tec/Katec Model 2-174, Thermal Afterburner

1.1.3 Applicability Provisions and Applicable Regulations

- a. An affected printing line for the purpose of these unit-specific conditions, is a heatset web offset lithographic printing line as described in Conditions 1.1.1 and 1.1.2.
- b. The affected printing line is subject to 35 IAC 212.321(a), which provides that the Permittee shall not cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced on or after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in subsection (c) of 35 IAC 212.321 [35 IAC 212.321(a)].
- c. The Permittee shall not cause or allow the emission of sulfur dioxide into the atmosphere from any process emission unit to exceed 2000 ppm [35 IAC 214.301].
- d. The Permittee may not cause or allow the operation of the affected printing line unless the fountain solution contains no more than eight (8) percent, by weight, of volatile organic material [35 IAC 215.408(b)].

1.1.4 Non-Applicability of Regulations of Concern

- a. The affected printing line is not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Printing and Publishing Industry, 40 CFR 9 and 63, Subparts A and KK, because the affected printing lines are not publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses and the source is not a major source of HAPs.
- b. The drying ovens and the afterburners associated with the affected printing lines are not subject to 35 IAC 216.121, Emissions of Carbon Monoxide from Fuel Combustion Emission Units, because the actual heat input of each unit is less than 2.9 MW (10 mmBtu/hr) and the drying ovens and the afterburners are not by definition fuel combustion emission units.

- c. The drying ovens and the afterburners associated with the affected printing line is not subject to 35 IAC 217.121, emissions of nitrogen oxides from new fuel combustion emission sources, because the actual heat input of each unit is less than 73.2 MW (250 mmBtu/hr) and the drying ovens and the afterburners are not by definition fuel combustion emission units.
- d. The affected printing line is not subject to 35 IAC 212.324, Process Emission Units In Certain Areas, because the source is not located in a non-attainment area for PM₁₀, as identified in 35 IAC 212.324(a)(1).
- e. The affected printing line is not subject to 35 IAC 215.204(c), Coating Operations/Paper Coating, as the paper coating limitation does not apply to equipment used for both printing and paper coating [35 IAC 215.204(c)].

1.1.5 Control Requirements

- a. The afterburners= combustion chamber shall be preheated to the manufacturer's recommended temperature but no less than the temperature at which compliance was demonstrated in the most recent compliance test, before the printing process is begun, and this temperature shall be maintained during operation of the affected printing line.
- b. The Permittee shall follow good operating practices for the afterburners, including periodic inspection, routine maintenance and prompt repair of defects.
- c. Each affected printing line shall only be operated with natural gas as the primary fuel in the press dryer and the control system. Propane is maintained as a backup fuel only for the press dryers and control system.
- d. The Permittee shall maintain records adequate to document emissions during periods when the afterburners are not operating. During these periods when the afterburners are not operating, a destruction efficiency of the afterburners (K) of 0% shall be used for the compliance calculations included in Condition 1.1.12(b).
- e. The Permittee shall use measures to minimize uncontrolled emissions including but not limited to use of off-shift labor.

1.1.6 Emission Limitations

The affected printing line is subject to the following:

- a. Emissions from the affected printing line during controlled and uncontrolled operation, together with uncontrolled operation from other presses using the same control device (Presses MM-715, MM-716, MM-717, MM-719 and MM-723) shall not exceed 6.28 tons per month and 37.67 tons per year. These limits are based on the maximum material usage and emission factors and formulas in Condition 1.1.12(b).
- b. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- c. The source has addressed the applicability and compliance of 40 CFR 52.21, Prevention of Significant Deterioration (PSD). These limits continue to ensure that the construction and/or modification addressed in this construction permit does not constitute a new major source or major modification pursuant to these rules.

1.1.7 Testing Requirements

- a. The volatile organic material content of fountain solution, inks and all coatings shall be determined by Method 24, 40 CFR 60, Appendix A, incorporated by reference in Section 215.105. Any alternate test method must be approved by the Illinois EPA, which shall consider data comparing the performance of the proposed alternative to the performance of the approved test method(s). If the Illinois EPA determines that such data demonstrates that the proposed alternative will achieve results equivalent to the approved test method(s), the Illinois EPA shall approve the proposed alternative [35 IAC 215.409].
- b. Any tests of volatile organic material emissions, including tests conducted to determine control equipment efficiency or control device destruction efficiency, shall be conducted in accordance with the methods and procedures specified in Section 215.102 [35 IAC 215.410(a)].
- c. Upon a reasonable request by the Illinois EPA, the owner or operator of a volatile organic material emission source required to comply with the limits of

this Subpart shall conduct emissions testing, at his own expense, to demonstrate compliance [35 IAC 215.410(b)].

- d. A person planning to conduct a volatile organic material emissions test to demonstrate compliance with this Subpart shall notify the Illinois EPA of that intent not less than 30 days before the planned initiation of the tests so the Illinois EPA may observe the test [35 IAC 215.410(c)].

1.1.8 Monitoring Requirements

None

1.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected printing line to demonstrate compliance with Conditions 1.1.3, 1.1.5, and 1.1.6:

- a. Records of weight of ink used (amount purchased minus amount discarded or recycled) (pounds);
- b. Weight percent VOM in ink (wt. %);
- c. Volume of fountain solution additive used (amount purchased minus amount discarded or recycled) (gallons);
- d. Pounds VOM per gallon of fountain solution additive (pounds/gallon);
- e. Volume of manual cleaning solvent used (amount purchased minus amount discarded or recycled) (gallons);
- f. Pounds VOM per gallon of manual cleaning solvent (pounds/gallon);
- g. Volume of automatic cleaning solvent used (amount purchased minus amount discarded or recycled) (gallons);
- h. Pounds VOM per gallon of automatic cleaning solvent (pounds/gallon); and
- i. The aggregate monthly and annual VOM emissions from the affected printing line including controlled and uncontrolled operation emissions, together with uncontrolled operation emissions from other presses using the same control device (Presses MM-715,

MM-716, MM-717, MM-719, MM-723) (tons/month and tons/year).

1.1.10 Reporting Requirements

The Permittee shall promptly notify the Illinois EPA, Compliance Section of noncompliance of an affected printing line with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken:

Emissions of VOM in excess of the limits in Condition 1.1.6(a) based on the current month's records plus the preceding 11 months within 30 days of such an occurrence.

1.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

1.1.12 Compliance Procedures

Compliance with the emission limits shall be based on the recordkeeping requirements in Condition 1.1.9 and the emission factors and formulas listed below:

- a. Compliance with Condition 1.1.3(c) is assumed to be achieved by the work-practices inherent in operation of a natural gas-fired/propane press dryer.
- b. To determine compliance with Condition 1.1.6(a), emissions from the affected printing line shall be calculated based on the following:

Ink VOM Consumption (C_I):

$$C_I = M_I W_I / 100$$

Fountain Solution VOM Consumption (C_F):

$$C_F = V_F P_F$$

Manual Blanket Wash VOM Consumption (C_M):

$$C_M = V_M P_M$$

Automatic Blanket Wash VOM Consumption (C_A):

$$C_A = V_A P_A$$

Ink VOM Emissions (E_I):

$$E_I = C_I (1 - R_I / 100) [1 - (K / 100) (J_I / 100)]$$

Fountain Solution VOM Emissions (E_F):

$$E_F = C_F [1 - (K / 100) (J_F / 100)]$$

Automatic Cleaning Solvent VOM Emissions (E_A):
$$E_A = C_A[1 - (K/100)(J_A/100)]$$

Manual Cleaning Solvent VOM Emissions (E_M):
$$E_M = C_M(1 - R_M/100)$$

Total VOM Emissions (E_T):
$$E_T = E_I + E_F + E_A + E_M$$

Where:

M_I = Weight of ink used (amount purchased minus amount discarded or recycled) (pounds)

W_I = Weight percent VOM in ink (wt. %)

V_F = Volume of fountain solution additive used (amount purchased minus amount discarded or recycled) (gallons)

P_F = Pounds VOM per gallon of fountain solution additive (pounds/gallon)

V_M = Volume of manual cleaning solvent used (amount purchased minus amount discarded or recycled) (gallons)

P_M = Pounds VOM per gallon of manual cleaning solvent (pounds/gallon)

V_A = Volume of automatic cleaning solvent used (amount purchased minus amount discarded or recycled) (gallons)

P_A = Pounds VOM per gallon of automatic cleaning solvent (pounds/gallon)

C_I = Ink VOM Consumption (tons)

C_F = Fountain Solution VOM Consumption (pounds)

C_A = Automatic Cleaning Solvent VOM Consumption (pounds)

C_M = Manual Cleaning Solvent VOM Consumption (pounds)

- R_I = Percent of Ink VOM Retained In Printed Product (20%)
- R_M = Percent of Manual Cleaning Solvent VOM retained in wipers (50%)
- K = Control efficiency of afterburner* (90%)
- J_I = Capture Efficiency Of Dryer and Control System For Ink VOM (100%)
- J_F = Capture Efficiency Of Dryer and Control System For Fountain Solution (70%)
- J_A = Capture Efficiency Of Dryer and Control System For Automatic Cleaning Solvent VOM (40%)

* As specified by manufacturer or vendor of the afterburners or by testing pursuant to Condition 1.1.7.

c. Emissions from the press dryer on the affected printing line shall be calculated based on the following emission factors:

i. Natural Gas Firing:

<u>Pollutant</u>	<u>Emission Factor</u> (lb/mm scf)
CO	84
NO _x	100
PM	7.6
SO ₂	0.6
VOM	5.5

ii. Propane Firing:

<u>Pollutant</u>	<u>Emission Factor</u> (lb/mm scf)
CO	0.021
NO _x	0.15
PM	0.0044
SO ₂	0.001
VOM	0.0055

These are the emission factors for uncontrolled natural gas and propane

combustion, Tables 1.4-1, 1.4-2, and 1.5-1, AP-42, Volume I, Fifth Edition.

Press Dryer Emissions (lb) = (Fuel Consumed or Firing Rate) x (The Appropriate Emission Factor)

- d. For purposes of determining compliance of presses 715, 716, 717, 719 and 723 with the emission limits specified in their respective permits, the sum of the controlled and uncontrolled emissions must not exceed the permitted emission rate (i.e., the individual emission limits include both controlled and uncontrolled emissions).
2. Operation of the equipment being constructed and/or modified is allowed under this permit until final action is taken on the Clean Air Act Permit Program (CAAPP) application for this source, provided that such CAAPP application has been received and been deemed complete by the Illinois EPA. As a result, the Permittee must still update the CAAPP application to include the aforementioned equipment but is not required to submit an application for a state operating permit in the interim.

Please note that this permit is issued for the construction (and operation) of the equipment listed above. The Permittee should update their CAAPP application to include this new equipment submitting form 505-CAAPP - ASupplement to CAAPP Application@ along with all other appropriate information to accomplish this.

It should be noted that this permit has been revised to include propane fuel as a backup and to allow uncontrolled operation from all presses vented to the above mentioned control system.

If you have any questions on this permit, please contact Jason Schnepf at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:JMS:psj

cc: Region 3