

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

R. R. Donnelley & Sons Company
Attn: Bruce Mustread
1600 North Main Street
Pontiac, Illinois 61764

Application No.: 01040009

I.D. No.: 105060AAP

Applicant's Designation:

Date Received: October 15, 2006

Subject: Printing Presses

Date Issued:

Expiration Date:

Location: 1600 North Main Street, Pontiac, Livingston County

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of 8 heatset web offset lithographic printing presses (422, 524, 624, 822, 823, 824, 922 and 923), TEC/KATEC recuperative thermal oxidizer, MMT recuperative thermal oxidizer, L & E Regenerative thermal oxidizer, heatset web offset lithographic printing press 825 with integrated dryer/oxidizer (3003), bindery paper rougher collection system, bindery trimmer/scrap paper shredder collection system, baghouses #1 and #2 (control collection systems), natural gas fired boiler, natural gas fired heating units, natural gas fired emergency generator, portable kerosene heater, 158 hp diesel fire pump, cleaning solvent storage tank, diesel fuel tank, 2 inkjet printing systems and hot melt glue bindery application systems pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for volatile organic material (VOM) and 10 tons/year for a single HAP and 25 tons/year of any combination of such HAPs). As a result the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permits issued for this location.
- 2a. No person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 Ill. Adm. Code 212.122, pursuant to 35 Ill. Adm. Code 212.123(a), except as allowed by 35 Ill. Adm. Code 212.123(b) and 212.124.

- b. Pursuant to 35 Ill. Adm. Code 212.321(a), no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, 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 Ill. Adm. Code 212.321.
- 3a. Pursuant to 35 Ill. Adm. Code 215.204(c), the limitations of 35 Ill. Adm. Code 215.204(c) shall not apply to equipment used for both printing and paper coating.
- b. Pursuant to 35 Ill. Adm. Code 215.301, no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission source, except as provided in 35 Ill. Adm. Code 215.302, 215.303, 215.304 and the following exception: If no odor nuisance exists the limitation of 35 Ill. Adm. Code 215 Subpart K shall apply only to photochemically reactive material.
- c. Pursuant to 35 Ill. Adm. Code 215.403, upon achieving compliance with 35 Ill. Adm. Code 215 Subpart P (Printing and Publishing), the emission source is not required to meet 35 Ill. Adm. Code 215 Subpart K (Use of Organic Material). Emission sources exempted from 35 Ill. Adm. Code 215 Subpart P are subject to 35 Ill. Adm. Code 215 Subpart K. Roto-gravure or flexographic equipment used for both roll printing and paper coating are subject to 35 Ill. Adm. Code 215 Subpart P.
- d. Pursuant to 35 Ill. Adm. Code 215.408(b), no owner or operator of a heatset web offset lithographic printing facility, located in a county other than Cook, DuPage, Kane, Lake, Macoupin, Madison, McHenry, Monroe, St. Clair or Will County, emitting over 100 tons/year of organic material, in the absence of pollution control equipment, may cause or allow the operation of a heatset web offset press unless the fountain solution contains no more than eight (8) percent, by weight, of volatile organic material.
- 4. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emission of sulfur dioxide into the atmosphere from any process emission source to excess 2000 ppm.
- 5. This permit is issued based on the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Printing and Publishing Industry, 40 CFR 63 Subpart KK not being applicable because flexographic and rotogravure printing presses are not used at this source.
- 6a. Each thermal oxidizer shall be in operation whenever any associated printing press is in operation and emit air contaminants, except as described in Condition 6(b).

- b. The source shall maintain compliance with all emissions limits during periods when the thermal oxidizer is not operating. These emissions together with the controlled emissions shall not exceed the limits in Condition 7(a).
- c. The thermal oxidizers combustion chambers shall be preheated to at least the manufacturer's recommended temperature(s) but not less than 1400°F, or the temperature(s) at which the destruction efficiency was demonstrated during the most recent performance test and these temperature(s) shall be maintained during operation of the affected printing presses.
- d. The Permittee shall follow good operating practices for the thermal oxidizers, including periodic inspection, routine maintenance, and prompt repair of defects.
- e. Each printing line shall be operated with natural gas as the only fuel used in the press dryers and thermal oxidizers.
- f. Used cleaning towels shall be stored in closed containers.
- 7a. Total emissions of VOM from all the heatset web offset printing lines shall not exceed 9.4 tons per month and 94.0 tons per year.
- b. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not exceed 0.9 tons/month and 9.0 tons/year of any single HAP and 2.25 tons/month and 22.5 tons/year of any combination of such HAPs. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
- c. VOM and HAP emissions shall be calculated as follows:

Ink VOM or HAP Emissions (E_I):

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

Fountain Solution VOM or HAP Emissions (E_F):

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

Automatic Blanket Wash VOM or HAP Emissions (E_A):

$$E_A = C_A [1-(K)(J_A)]$$

Manual Blanket Wash VOM or HAP Emissions (E_M)

$$E_M = C_M (1-R_M)$$

UV Coating VOM or HAP Emissions (E_U):

$$E_U = \text{Coating Usage} \times \text{VOM Content or HAP Content}$$

Press 825 VOM or HAP Emissions:

$$E_{825} = 0.94 \text{ lb/hr}^* \times 1 \text{ ton}/2000 \text{ lb} \times T + E_{F825} + E_{A825} + E_{M825}$$

Note: E_{F825} , E_{A825} and E_{M825} in this equation are the emissions only from Press 825

Press 825 Fountain Solution VOM or HAP Emissions (E_{F825}):

$$E_{F825} = C_{F825} [1 - (K)(J_F)]$$

Press 825 Automatic Blanket Wash VOM or HAP Emissions (E_{A825}):

$$E_{A825} = C_{A825} [1 - (K)(J_A)]$$

Press 825 Manual Blanket Wash VOM or HAP Emissions (E_{M825}):

$$E_{M825} = C_{M825} [1 - R_M]$$

Total VOM or HAP Emissions (E_T):

$$E_T = E_I + E_F + E_A + E_M + E_{825} + E_U$$

Where:

C_I = Ink VOM or HAP consumption (tons)

C_F = Fountain solution VOM or HAP consumption (tons)

C_A = Automatic blanket wash VOM or HAP consumption (tons)

C_M = Manual blanket wash VOM or HAP consumption (tons)

R_M = Retention factor for manual blanket wash

= 50%, for manual blanket wash with a VOM or HAP composite partial vapor pressure less than 10 mmHg at 20°C and the used cleaning towels are kept in closed containers.

= 0% for other manual blanket wash

R_I = Percent of ink VOM or HAP retained in printed product (heatset = 20%)

K = Control efficiency of thermal oxidizer

J_I = Capture efficiency of dryer and control system (heatset = 100% for ink VOM not retained)

J_F = Capture efficiency of dryer and control system for fountain solution (heatset = 70%)

J_A = Capture efficiency of dryer and control system for automatic blanket wash VOM or HAP (heatset = 40% when a blanket wash with a VOM or HAP composite partial vapor pressure less than 10 mmHg at 20°C is used, otherwise capture efficiency = 0%).

T = Operating hours for the affected printing press (hours/month)

* Worst case emission rate for Press 825 demonstrated in most recent performance test.

- 8a. Emissions of particulate matter from the paper collection systems shall not exceed emission rates of 6.43 pounds/hour and 28.2 tons/year. These limits are based on the allowable emissions from 35 Ill. Adm. Code 212.321 and the maximum process weight rate.
- b. VOM emissions from the hot melt glue bindery application systems shall not exceed 300 pounds per month and 1.0 tons per year.
- c. This permit is issued based on negligible emissions of volatile organic material from the inkjet printing system #2, inkjet printing system #3, diesel fuel tank, and cleaning solvent storage tank. For this purpose emissions from each emission unit shall not exceed nominal emissions rates of 0.44 tons/year.
- d. Emissions and operation of the natural gas-fired combustion equipment, including thermal oxidizers, shall not exceed the following limits:
 - i. Natural Gas Usage: 83.0 mmscf/month and 500 mmscf/year
 - ii. Emissions from combustion of natural gas:

<u>Pollutant</u>	<u>Emission</u>	<u>Emissions</u>	
	<u>Factor</u> <u>(Lbs/mmscf)</u>	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
Carbon Monoxide (CO)	84	3.49	21.0
Nitrogen Oxides (NO _x)	100	4.15	25.0
Particulate Matter (PM)	7.6	0.32	1.9
Sulfur Dioxide (SO ₂)	0.6	0.03	0.15
Volatile Organic Material (VOM)	5.5	0.23	1.38

These limits are based on the maximum equipment operations and standard emission factors (Tables 1.4-1 and 1.4-2 of AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- e. Emissions and operation of the diesel fired fire pump and kerosene heater shall not exceed the following limits:

Diesel Usage		Pollutant	Emission Factor	Emissions	
(Gal/Mo)	(Gal/Yr)		(Lbs/mmBtu)	(Tons/Mo)	(Tons/Yr)
2,500	5,000	NO _x	4.41	0.77	1.55
		SO ₂	0.29	0.05	0.10
		CO	0.95	0.17	0.34
		VOM	0.36	0.07	0.13
		PM	0.31	0.06	0.11

These limits are based on diesel fuel having a heat content of 140,000 Btu's per gallon and standard emission factors (Table 3.3-1, AP-42, Fifth Edition, Volume I. Supplement B, October 1996). To determine compliance with diesel usage limits the kerosene usage should be added together with the diesel usage. The diesel emission factors may be used for kerosene.

9. 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).
- 10a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
- i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
 - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including

scaffolding, but excluding instruments and sensing devices, as may be necessary.

- b. Pursuant to 35 Ill. Adm. Code 212.107, for both fugitive and nonfugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR part 60, Appendix A, incorporated by reference in 35 Ill. Adm. Code 212.113, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. This Condition shall not apply to 35 Ill. Adm. Code 212.301, pursuant to 35 Ill. Adm. Code 212.107.
- c. Pursuant to 35 Ill. Adm. Code 212.109, except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, incorporated by reference in 35 Ill. Adm. Code 212.113, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged, pursuant to 35 Ill. Adm. Code 212.109.
- d. Pursuant to 35 Ill. Adm. Code 212.110(a), measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR part 60, Appendix A, Methods 5, 5A, 5D, or 5E, pursuant to 35 Ill. Adm. Code 212.110(a).
- e. Pursuant to 35 Ill. Adm. Code 212.110(b), the volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4, pursuant to 35 Ill. Adm. Code 212.110(b).
- f. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA, pursuant to 35 Ill. Adm. Code 212.110(c).
- g. Pursuant to 35 Ill. Adm. Code 215.409, the volatile organic material content of fountain solution and all coatings shall be determined by Method 24, 40 CFR 60, Appendix A. The volatile organic material content of printing inks shall be determined by Method 24A, 40 CFR Part

60, Appendix A. 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.

- h. Pursuant to 35 Ill. Adm. Code 215.410(a), any test of volatile organic material emissions, including test conducted to determine control equipment efficiency or control device destruction efficiency, shall be conducted in accordance with the methods and procedures specified in 35 Ill. Adm. Code 215.102.
 - i. Pursuant to 35 Ill. Adm. Code 215.410(b), 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 35 Ill. Adm. Code 215 Subpart P shall conduct emissions testing, at his own expense, to demonstrate compliance.
 - j. Testing required by Condition 9 shall be performed by a qualified independent testing service.
11. The oxidizer shall be equipped with a continuous temperature indicator and strip chart recorder or disk storage for the oxidizer operating temperature. During periods when the strip chart recorder or disk storage devices are inoperable, the Permittee shall manually record the oxidizer operating temperature at least one time per operating day.
12. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA

guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.

13. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 14a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the Conditions of this permit:
 - i. Records addressing use of good operating practices for the thermal oxidizers:
 - A. Records for periodic inspection of the thermal oxidizers with date, individual performing the inspection, and nature of inspection; and
 - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair.
 - ii. Ink usage (tons/month and tons/year);
 - iii. Fountain solution usage (tons/month and tons/year);
 - iv. Manual cleaning solvent usage (tons/month and tons/year);
 - v. Automatic cleaning solvent usage (tons/month and tons/year);
 - vi. UV coating usage (tons/month and tons/year);
 - vii. VOM and HAP content of ink (percent by weight);
 - viii. VOM and HAP content of fountain solution as-applied (percent by weight);
 - ix. VOM and HAP content of manual cleaning solvent (percent by weight);
 - x. VOM and HAP content of automatic cleaning solvent (percent by weight);
 - xi. VOM and HAP content of UV coating (percent by weight);
 - xii. VOM and HAP emissions when the thermal oxidizer is not operating including supporting calculations (tons/incident);

- xiii. Oxidizer monitoring data;
 - xiv. Monthly and annual fuel usages; and
 - xv. Monthly and annual emissions of CO, NO_x, PM, SO₂, VOM and HAPs with supporting calculations (tons/month and tons/year).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.
15. If there is an exceedance of or deviation from the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance/deviation. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or deviation and efforts to reduce emissions and future occurrences.
16. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.
17. Pursuant to 35 Ill. Adm. Code 215.410(c), 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.
18. Two (2) copies of required reports and notifications shall be sent to:
- Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

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Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

If you have any questions on this, please call David Hulskotter at
217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:DWH:jws

cc: Illinois EPA, FOS Region 2
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the hospital equipment operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are well below the levels, (e.g., 100 tons per year of volatile organic material, 10 tons per year for a single HAP, and 25 tons per year for totaled HAP, 10 tons per year for a single HAP, and 25 tons per year for totaled HAP) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled, and control measures are more effective than required in this permit.

<u>Emission Unit</u>	E M I S S I O N S (Tons/Year)						<u>Single HAP</u>	<u>Total HAPs</u>
	<u>VOM</u>	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>SO₂</u>			
Heatset Web Offset Presses	94.00							
Paper Collection Systems				28.20				
Glue Bindery Application	1.00							
2 Inkjet Printing Systems	0.88							
Diesel Fuel Tank	0.44							
Cleaning Solvent Storage Tank	0.44							
Natural Gas-Fired Combustion Equip	1.38	21.00	25.00	1.90	0.15			
Portable Kerosene Heater & Diesel Fired Fire Pump	<u>0.13</u>	<u>0.34</u>	<u>1.55</u>	<u>0.11</u>	<u>0.10</u>			
Plant-Wide Totals	98.27	21.34	26.55	30.21	0.25	9.0	22.5	

DWH:jws