

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Master Graphics, L.L.C.  
Attn: Don Vendl  
1100 South Main Street  
Rochelle, Illinois 61068

<u>Application No.:</u> 07110044	<u>I.D. No.:</u> 141050ABH
<u>Applicant's Designation:</u>	<u>Date Received:</u>
<u>Subject:</u> Heatset Web Offset Lithographic Printing	
<u>Date Issued:</u>	<u>Expiration Date:</u>
<u>Location:</u> 1100 South Main Street, Rochelle, Ogle County	

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of 3 heatset web offset lithographic printing presses (Press 1, Press 2 and Press 3) controlled by TEC Quantum catalytic afterburner 1 and catalytic afterburner 2 as described in 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 any single Hazardous Air Pollutant (HAP) and 25 tons/year for 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. Pursuant to 35 Ill. Adm. Code 212.123(a), 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 35 Ill. Adm. Code 212.122.
- b. Pursuant to 35 Ill. Adm. Code 212.123(b), the emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a

305 meter (1000 foot) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period.

- c. 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 35 Ill. Adm. Code 212.321(c).
- 3. 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.
- 4a. 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.
- b. 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.
- c. 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.
- 5a. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Printing and Publishing Industry, 40 CFR 63 Subpart KK because flexographic and rotogravure printing presses are not used at this source.
- b. This permit is issued based on the source not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Paper and Other Web Coating, 40 CFR 63 Subpart JJJJ. Pursuant to 40 CFR 63.3300(c), web coating lines in lithography, screenprinting, letterpress, and narrow-web flexographic printing processes are not part of the affected source of 40 CFR 63 Subpart JJJJ.

6. 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.
- 7a. Pursuant to 35 Ill. Adm. Code 215.106, the operation of any oil fired or natural gas fired after-burner and capture system used to comply with 35 Ill. Adm. Code Part 215 of any section thereof is not required during the period of November 1 of any year to April 1 of the following year provided that:
- i. The operation of such devices is not required for purposes of occupational safety or health, or for the control of toxic substances, odor nuisances or other regulated pollutants; and
  - ii. Such devices are operated for the duration of any period for which an ozone advisory, alert or emergency has been declared pursuant to 35 Ill. Adm. Code 244.
- b. The catalytic afterburners shall be in operation at all times when the presses are in operation and emitting air contaminants, except as provided by 35 Ill. Adm. Code 215.106.
- c. Each catalytic afterburner's combustion chamber shall be preheated to at least the manufacturer's recommended temperature but no less than the temperature at which compliance was demonstrated in the most recent compliance test. These temperatures shall be maintained during operation.
- d. The source shall maintain compliance with all emission limits during periods when the catalytic afterburners are not in operation as provided by 35 Ill. Adm. Code 215.106. These uncontrolled emissions shall not exceed the limits in Condition 8(a).
- e. The Permittee shall follow good operating practices for the catalytic afterburners, including periodic inspection, routine maintenance, and prompt repair of defects. The affected printing lines shall only be operated with natural gas as the fuel in each press dryer and the catalytic afterburner.
- 8a. Emissions and operation of the three heatset web lithographic printing presses (Press 1, Press 2, and Press 3) shall not exceed the following limits:
- i. Total Material Usage and VOM Content:

<u>Material</u>	<u>VOM Content (% by Weight)</u>	<u>Material Usage</u>	
		<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
Blanket Wash	75.0	2.8	28
Fountain Solution	8.0	5.5	55
Ink	40.0	63.8	638
Varnish	50.0	2.8	28
Glue	10.0	3.0	30

ii. VOM Emissions:

<u>Material</u>	Control	VOM Emissions	
	<u>(% Reduction)</u>	<u>(Tons/Month)</u>	<u>(Tons/Year)</u>
Blanket Wash	36.0	1.33	13.26
Fountain Solution	63.0	0.16	1.64
Ink	90.0	2.55	25.50
Varnish	36.0	0.88	8.84
Glue	36.0	0.19	1.92
		Total:	51.16

These limits are based on the maximum material usage, the maximum VOM content of these materials, and the minimum control efficiency of the catalytic burner. Ink VOM retention and afterburner capture efficiency credits are based on those figures allowed by the Alternative Control Techniques Document, Offset Lithographic Printing (EPA 453/R 94-054): 20% ink solvent retention in the web, 70% capture of fountain solution containing no alcohol, 40% capture of the automatic blanket wash with vapor pressure less than 10 mmHg, 50% retention of manual cleaning solution with vapor pressure less than 10 mm of Hg, and 90% destruction of the captured materials by the catalytic afterburner. The control efficiency is the product of the efficiency of the capture system and the destruction efficiency of the catalytic afterburner.

- b. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not exceed 0.79 tons/month and 7.9 tons/year of any single HAP and 1.99 tons/month and 19.9 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 requirements of Section 112(g) of the Clean Air Act.
- c. The emissions of VOM and HAP from the printing lines shall be calculated using the following equation:

$$E = \sum [I_i \times V_{Ii} \times 0.8 \times (1-CE)] + \sum [F_{Sj} \times V_{FSj} \times (1-0.7 \times CE)] + \sum [C_{Sk} \times V_{CSk} \times (1-0.4 \times CE)] + \sum [C_{S1} \times V_{CS1} \times 0.5] + \sum (S_n \times V_{Sn})$$

Where:

E = VOM/HAP emissions (tons);

I<sub>i</sub> = Ink usage (tons);

V<sub>Ii</sub> = VOM/HAP content of the ink (weight fraction);

F<sub>Sj</sub> = Fountain solution containing no alcohol usage (tons);

V<sub>FSj</sub> = VOM/HAP content of fountain solution containing no alcohol (weight fraction);

C<sub>Sk</sub> = Automatic cleaning solution with vapor pressure less than 10 mm of Hg usage (tons);

V<sub>CSk</sub> = VOM/HAP content of automatic cleaning solution with vapor pressure less than 10 mm of Hg (weight fraction);

C<sub>S1</sub> = Manual cleaning solution with vapor pressure less than 10 mm of Hg usage (tons);

V<sub>CS1</sub> = VOM/HAP content of manual cleaning solution with vapor pressure less than 10 mm of Hg (weight fraction);

S<sub>n</sub> = Other materials usage (tons);

V<sub>Sn</sub> = VOM/HAP content of other materials (weight fraction).

CE = Afterburner control efficiency (% reduction). CE with afterburner running equals the values for each material listed in Condition 7(a)(ii). CE = 0 with afterburner not operating.

- c. Emissions and operation of the two catalytic afterburners shall not exceed the following limits:

<u>Fuel</u>	<u>(mmscf/hr)</u>	<u>Pollutant</u>	<u>Emission Factor (lbs/mmscf)</u>	<u>Emissions (lb/hr)</u>	<u>(Tons/Yr)</u>
Natural Gas	0.03	CO	84	2.52	11.04
		NO <sub>x</sub>	100	3.00	13.14
		PM	7.6	0.23	1.01
		SO <sub>2</sub>	0.6	0.02	0.09
		VOM	5.5	0.17	0.75

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

- d. 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).
- 9a. 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. Testing required by Conditions 10 and 11 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
10. 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.
- 11a. 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.
- b. Pursuant to 35 Ill. Adm. Code 215.410(a), 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 35 Ill. Adm. Code 215.102.
  - c. 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 this 35 Ill. Adm. Code 215 Subpart P shall conduct emissions testing, at his own expense, to demonstrate compliance.

12. Each catalytic afterburner shall be equipped with a continuous monitoring device which is installed, calibrated, operated and maintained according to vendor specifications at all times the oxidizer is in use. This monitoring equipment must continuously monitor and record the temperature rise across the catalytic afterburner beds.
13. 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.
14. 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.
- 15a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
  - i. A daily log of operating time for the afterburners, monitoring equipment, and the associated printing lines;
  - ii. Records addressing use of good operating practices for the catalytic afterburners:
    - A. Records for periodic inspection of the catalytic afterburners with date, individual performing the inspection, and nature of inspection;

- B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair; and
  - C. A maintenance log for the catalytic afterburners and monitoring equipment detailing all routine and non-routine maintenance performed, including dates and duration of any outages.
- iii. The name and identification of each batch of fountain solution prepared for use on lithographic printing lines, with calculated VOM content of the as-applied fountain solution.
  - iv. Names and amounts of lithographic inks, fountain solutions, other materials and clean-up solvents used (tons/month, tons/year);
  - v. VOM and HAP content of lithographic inks, fountain solutions, other materials and clean-up solvents used (weight %);
  - vi. Natural gas consumption (mmscf/month and mmscf/year); and
  - vii. Monthly and annual CO, NO<sub>x</sub>, PM, SO<sub>2</sub>, VOM and HAP emissions with supporting calculations (tons/month, 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 the Illinois EPA or USEPA request for records during the course of a source inspection.
16. 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 or 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.
17. 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.
18. 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 35 Ill. Adm. Code 215 Subpart P 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.

19. Two (2) copies of required reports and notifications shall be sent to:

Illinois Environmental Protection Illinois EPA  
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:

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

If you have any questions on this permit, 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: Region 2

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the printing plant 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 below the levels, (e.g., 100 tons per year of VOM, 10 tons per year for a single HAP, and 25 tons per year for any combination of such 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>CO</u>	<u>NO<sub>x</sub></u>	<u>PM</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>			
3 Heatset Web Offset Presses					51.16			
2 Catalytic Afterburners	<u>11.04</u>	<u>13.14</u>	<u>1.01</u>	<u>0.09</u>	<u>0.75</u>			
Plant-Wide Totals	11.04	13.14	1.01	0.09	51.91	<u>7.9</u>	<u>19.9</u>	

DWH:jws