



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
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Matthew A. Beaton
Secretary

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September 16, 2015

Mr. Scott Rowell
General Manager
Circle Graphics, Inc.
80 Sharp Street
Hingham, MA 02043

RE: Hingham
Transmittal No.: X266592
Application No.: SE-15-017
Class: SM80-7
FMF No.: 568557
AIR QUALITY PLAN APPROVAL

Dear Mr. Rowell:

The Massachusetts Department of Environmental Protection (“MassDEP”), Bureau of Waste Prevention, has reviewed your Limited Plan Application (“Application”) listed above. This Application concerns the proposed operation of grand format digital printing and coating at your printing facility located at 80 Sharp Street in Hingham, Massachusetts (“Facility”).

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 “Air Pollution Control,” regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP’s review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator (“Permittee”) must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

The Permittee operates an existing grand format digital printing facility located in Hingham, Massachusetts and seeks a Limited Plan Approval to allow for growth. Manufacturing operations consist of grand format digital printing and coating (liquid lamination) to produce advertising displays on a variety of substrates (material that captures the ink or coating). Rigid and non-rigid substrate material include vinyl, polyethylene, foamboards, PVC/ plastic, and sometimes paper.

- Emission Unit (EU) 1 consists of 5 grand format digital printers that use ink cured by ultra-violet (UV) light.
- EU2 consists of a grand format digital printer that uses solvent-based ink.
- EU3 consists of the Drytac Coater. Material usage, VOC and HAP content limitations are separately established for the surface preparation operation, and for the UV coating operation.
- EU4 consists includes of cleaning and maintenance activities. Manufacturing aids consisting of solvent-based cleaners and conditioners are used to flush the interior of print heads, and hand-wipe clean the exterior surfaces of the printers, the print heads, and the roll coater.

The Permittee's proposed operations do not meet the criteria for Plan Approval exemption contained in 310 CMR 7.03(19), Flexographic, Gravure, Letterpress and Screen Printing.

The Permittee's proposed operations utilize an ink-jet-type imaging technology which does not meet the definitions of lithographic printing, graphic arts printing, or screen printing. Therefore, MassDEP's Environmental Results Program for Lithographic, Graphic Arts, and Screen Printing contained in 310 CMR 7.26(20) does not apply to the Permittee's non-conforming grand format digital printing on polymeric substrates.

The Permittee has indicated that the Drytac Coater (EU4) may be used to conduct conventional coating of paper and vinyl substrates. Under these conditions, the Permittee is subject to 310 CMR 7.18(14) Paper Surface Coating, and 310 CMR 7.18(16) Vinyl Surface Coating. See Special Term and Condition No. 5 in Table 6 of this Approval. The Permittee has an obligation to maintain appropriate records and perform any necessary reporting to maintain compliance with these regulations.

The Permittee operates external combustion sources, currently consisting of eight natural gas fired HVAC units. Each HVAC unit has a maximum heat input rate of less than 10 million Btu per hour (MMBtu /hr). In accordance with MassDEP Regulations at 310 CMR 7.02(2)(b)15.a.,

combustion sources with a maximum heat input of less than 10 MMBtu/hr per unit are not subject to (i.e. are exempt from) plan application filing and approval requirements.

Best Available Control Technology consists of work practices, VOC and HAP content limitations, and restriction on raw material usage to minimize VOC and HAP emissions. The Permittee has demonstrated the operational flexibility need to use small amounts of material that are exempt from the VOC and HAP content limitations of that particular section.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Nominal Capacity	Pollution Control Device (PCD)
1	<u>UV Printing</u> HP 5300 UV ink printer efi VUTek QS 3200 HP Scitex TJ8550 efi VUTek GS3250LXr Pro efi VUTek GS 5000r Novus Synergia H	1,131 ft ² /hr 900 ft ² /hr 5,166 ft ² /hr 1,000 ft ² /hr 950 ft ² /hr 727 ft ² /hr	none
2	HP Scitex XL1500 Solvent-Based Printer	969 ft ² /hr	none
3	Drytac AGL64i Liquid Laminator/UV Coater	24,800 ft ² /hr	none
4	Cleaning and Maintenance Activities	n/a	none

Table 1 Key:

EU# = Emission Unit Number
PCD = Pollution Control Device
UV = UltraViolet
ft²/hr = square feet per hour
n/a = not applicable

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
1	<ul style="list-style-type: none"> 1. ≤ 3,250 gallons of UV ink per month. 2. ≤ 13,000 gallons of UV ink per consecutive 12-month period. 3. Maximum VOC content of the UV ink utilized by EU 1 shall not exceed 0.005 pounds of VOC per gallon. 4. ≤ 55 gallons of UV ink utilized by EU 1 per consecutive 12-month period are exempt from the maximum VOC content as specified in Proviso 3 above. ¹ 	VOC	0.008 TPM 0.03 TPY
2	<ul style="list-style-type: none"> 5. ≤ 400 gallons of solvent-based ink per month. 6. ≤ 1,600 gallons of solvent-based ink per consecutive 12-month period. 7. Maximum HAPs (total) content of the solvent-based ink utilized by EU 2 shall not exceed 7.25 pounds of VOC per gallon. 8. Maximum HAPs (total) content of the solvent-based ink utilized by EU 2 shall not exceed 7.25 pounds of HAPs (total) per gallon. 9. ≤ 55 gallons of solvent-based ink utilized by EU 2 per consecutive 12-month period are exempt from the maximum VOC and HAP content as specified in Provisos 7 and 8 above. ¹ 	VOC	1.45 TPM 5.80 TPY
		HAPs (total) ²	1.45 TPM 5.80 TPY
3	<ul style="list-style-type: none"> 10. ≤ 60 gallons of surface prep material per month. 11. ≤ 240 gallons of surface prep material per consecutive 12-month period. 12. Maximum VOC content of the surface prep material utilized by EU 3 shall not exceed 6.67 pounds of VOC per gallon. 13. Maximum HAPs (total) content of the surface prep material utilized by EU 3 shall not exceed 0.20 pounds of HAPs (total) per gallon. 14. ≤ 55 gallons of surface prep material utilized by EU 3 per consecutive 12-month period are exempt from the maximum VOC and HAP content as specified in Provisos 12 and 13 above. ¹ 	VOC	0.20 TPM 0.80 TPY
		HAPs (total) ²	0.006 TPM 0.02 TPY

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
	15. ≤ 190 gallons of UV coating per month. 16. ≤ 760 gallons of UV coating per consecutive 12-month period. 17. Maximum VOC content of the UV coating utilized by EU 3 shall not exceed 0.27 pounds of VOC per gallon. 18. ≤ 55 gallons of the UV coating utilized by EU 3 per consecutive 12-month period are exempt from the maximum VOC content as specified in Proviso 17 above. ¹	VOC	0.03 TPM 0.10 TPY
4	19. ≤ 175 gallons of cleaner/conditioner per month. 20. ≤ 700 gallons of cleaner/conditioner per consecutive 12-month period. 21. Maximum VOC content of the cleaner/conditioner utilized by EU 4 shall not exceed 8.35 pounds of VOC per gallon.	VOC	0.74 TPM 2.92 TPY
	22. Maximum HAPs (total) content of cleaner/conditioner utilized by EU 4 shall not exceed 8.35 pounds of HAPs (total) per gallon. 23. ≤ 55 gallons of cleaner/conditioner utilized by EU 4 per consecutive 12-month period are exempt from the maximum VOC and HAP content as specified in Provisos 21 and 22 above. ¹	HAPs (total) ²	0.74 TPM 2.92 TPY

Table 2 Key:

EU# = Emission Unit Number
VOC = Volatile Organic Compounds
HAPs (total) = total Hazardous Air Pollutants
TPM = tons per month
TPY = tons per consecutive 12-month period
UV = Ultraviolet
≤ = Equal to or less than

Notes

1. Any VOC and/or HAP emissions resulting from exercising this Proviso are **not** exempt from the short-term (monthly) and annual Emission limits associated with each Emission Unit.
2. The single largest HAP is glycol ethers.

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
1 thru 4	1. The Permittee shall monitor each month, gallons of ink, surface prep material, coating and cleaner/conditioner usage and associated VOC, and HAPs (total) content
Facility-wide	2. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	3. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13.
	4. At least 30 days prior to emission testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol.
	5. Within 45 days after emission testing, the Permittee shall submit to MassDEP a final stack emission test results report.

Table 3 Key:

- EU# = Emission Unit Number
- VOC = Volatile Organic Compounds
- HAPs (total) = total Hazardous Air Pollutants
- MassDEP = Massachusetts Department of Environmental Protection
- USEPA = United States Environmental Protection Agency

Table 4	
EU#	Record Keeping Requirements
1 thru 4	1. Records of ink, surface prep material, coating and cleaner/conditioner usage and associated VOC, and HAPs (total) content shall be maintained so that the Permittee can document compliance with the monthly and annual emission limitations contained in this Plan Approval.
Facility-wide	2. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report . Records may be kept using an alternate, equivalent format developed by the Permittee.

Table 4	
EU#	Record Keeping Requirements
	3. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	4. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) approved herein on-site.
	5. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	6. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	7. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	8. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	9. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

- EU# = Emission Unit Number
- VOC = Volatile Organic Compounds
- HAPs (total) = total Hazardous Air Pollutants
- SOMP = Standard Operating and Maintenance Procedure
- USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).

Table 5	
EU#	Reporting Requirements
	2. The Permittee shall notify the Southeast Regional Office of MassDEP, BAW Compliance and Enforcement Chief by telephone (508-946-2817), email, (sero.air@state.ma.us) or fax (508-947-6557), as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the Compliance and Enforcement Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP’s request.
	5. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	6. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:
EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
1 thru 4	1. All VOC-and/or HAP-containing materials shall be transported and stored in tightly covered containers, and shall remain closed, except when adding or removing materials.

Table 6	
EU#	Special Terms and Conditions
	2. All cleaning rags, shop towels, and wipes used in conjunction with VOC- and/or HAP-containing materials, shall be stored in tightly covered containers when not in use, and shall be collected for proper recycling or disposal.
	3. The Permittee shall conduct all handling and transferring operations involving VOC- and/or HAP-containing coatings, thinners and solvents in a way that minimizes spills and releases of VOCs and/or HAPs.
	4. The Permittee shall maintain monthly and annual logs of the ink, surface prep material, coating, and cleaners/conditioners used. These logs shall be kept in a complete and accurate fashion at all times and shall be available for Department inspections. The Permittee may reconcile VOC and/or HAP contained in any hazardous waste shipped and unused material that is returned to the manufacturer during the month when determining monthly emissions. The Permittee shall maintain beginning and end of year inventory records, hazardous waste disposal records, return records and purchase records for VOC- and/or HAP-containing material, such that MassDEP may check these for consistency with Facility logs. Such records shall verify the VOC and HAP content, and quantity present, in the waste being shipped and material returned to the manufacturer if reconciling monthly emissions.
3	5. The Permittee shall maintain compliance with all applicable requirements contained in 310 CMR 7.18(14) <u>Paper Surface Coating</u> , and 310 CMR 7.18(16) <u>Vinyl Surface Coating</u> .

Table 6 Key:

EU# = Emission Unit Number
 VOC = Volatile Organic Compounds
 HAP = Hazardous Air Pollutants.

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (inches)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
1 ¹	appx. 22	14	appx. 8	90
2	appx. 22	14	appx. 8	90
3	appx. 22	14	appx. 8	90

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

appx. = approximately

UV = ultraviolet

Note:

1. The Permittee has indicated that due to low levels of VOC and HAP emission associated with UV printing operations in EU1, emissions from one or more UV printers may be exhausted through general building ventilation.

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Dan Kamieniecki by telephone at 508-946-2717, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Thomas Cushing
Permit Chief
Bureau of Waste Prevention

Enclosure

ecc: Hingham Board of Health/Dept of Health
Hingham Fire Department
MassDEP/Boston – Y. Tian
MassDEP/SERO – M. Pinaud
MassDEP/SERO – L. Ramos
Circle Graphics – D. Dising
RPS GaiaTech – C. Blume