New Jersey Department of Environmental Protection
Division of Air Quality, Bureau of Stationary Sources

State of the Art (SOTA) Manual for the Graphic Arts Industry

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Section 3.17 - State of the Art (SOTA)
Manual for the Graphic Arts Industry

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3.17 SOTA MANUAL FOR THE GRAPHIC ARTS INDUSTRY

3.17.0 Definitions

All terms used in this SOTA Manual are defined in N.J.A.C. 7:27-16.1, Title 40 of the Code of Federal Regulations (40 CFR), Part 60, Subparts QQ and FFF, or 40 CFR, Part 63, Subparts KK or OOOO. Additional definitions used in this SOTA Manual are as follows:

"Coating," as used in the paper, film, foil, or pressure sensitive tape / label category, means the application of a continuous layer of material across essentially the entire width or any portion of the width of a substrate to:

(1) provide a covering, finish, or functional or protective layer to a substrate;
(2) saturate a substrate for lamination; or
(3) to provide adhesion between two substrates for lamination.

"Coldset" means a lithographic printing process where the printing inks are set without the use of heat (non-heatset). Traditional coldset inks set and dry by absorption and/or oxidation of the ink oils and subsequent oxidation of the drying oils. Ultraviolet-cured and electron beam-cured inks are considered coldset (non-heatset) even though radiant energy is required to cure these inks.

"Narrow-web Flexographic" means a flexographic press capable of printing substrates less than or equal to 18 inches in width.

"Publication Rotogravure" means any number of rotogravure printing units capable of printing simultaneously on the same continuous web or substrate and includes any associated device for continuously cutting and folding the printed web, where the following saleable paper products are printed:

(1) Catalogues, including mail order and premium;
(2) Direct mail advertisements, including circulars, letters, pamphlets, cards, and printed envelopes;
(3) Display advertisements, including general posters, outdoor advertisements, car cards, window posters; counter and floor displays; point of purchase and other printed display material;
(4) Magazines;
(5) Miscellaneous advertisements, including brochures, pamphlets, catalog sheets, circular folders, announcements, package inserts, book jackets, market circulars, magazine inserts, and shopping news;
(6) Newspapers, magazine and comic supplements for newspapers, and preprinted newspaper inserts, including hi-fi and spectacolor rolls and sections;
(7) Periodicals; and
(8) Telephone and other directories, including business reference services.

"Product and Packaging Rotogravure" means the production, on a rotogravure press, of any printed substrate not otherwise defined as publication rotogravure printing. This includes, but is not limited to, folding cartons, flexible packaging, labels and wrappers, gift wraps, wall and floor coverings, upholstery, decorative laminates, and tissue products.

"Sheet" means an individual page fed into a press, usually paper, in a graphic arts operation.

"Web" means a continuous roll of substrate, including paper or flexible materials, (e.g., vinyl).

"Wide-web Flexographic" means a flexographic press capable of printing substrates greater than 18 inches in width.

3.17.1 Scope

This State-of-the-Art (SOTA) manual establishes emissions performance levels and control technologies for the best performing sources within the U.S. Conformance to the requirements established in this manual by a permit applicant alleviates the need for the applicant to review and establish a case-by-case SOTA for any air contaminant source included in this manual.

These SOTA performance levels apply to all graphic arts operations, including lithographic, rotogravure, flexographic, letterpress, and screen printing and any related coating or laminating operations.

The SOTA thresholds for source operations, which must obtain a Preconstruction Permit pursuant to N.J.A.C. 7:27-8, can be found in:

1. N.J.A.C. 7:27-8, Appendix 1, Table A for criteria pollutants; and
2. N.J.A.C. 7:27-17.9, Tables 3A and 3B for hazardous air pollutants (HAP) and toxic substances (TXS) regulated by the New Jersey Department of Environmental Protection (the Department).

The SOTA thresholds for source operations which must obtain an Operating Permit, pursuant to N.J.A.C. 7:27-22 can be found in:

1. N.J.A.C. 7:27-22, Appendix, Table A; and
2. N.J.A.C. 7:27-17.9, Tables 3A and 3B for HAP and TXS.

If a source operation or process is omitted in this manual, the applicant must represent SOTA technology using a case-by-case approach, if applicable, pursuant to N.J.A.C. 7:27-8.12 and N.J.A.C. 7:27-22.35. For air contaminants that may be emitted from the sources described in this manual, but for which a performance level is not specified, SOTA will be done on a case-by-case basis pursuant to N.J.A.C. 7:27-8 and N.J.A.C. 7:27-22.

This SOTA Manual includes SOTA standards for the application of inks and coatings to a substrate; it does not include standards for the application of a coating to a substrate unless those coatings are applied within a printing press subject to this SOTA Manual. Coatings are applied to the substrate to change its primary decorative or functional appearance. Printing uses inks to apply words, designs, or pictures on a substrate. Both coating and printing are done on similar equipment and a facility may have coating stations prior to printing stations. SOTA standards for the application of a coating to a substrate not co-located with a printing press can be found in the SOTA Manual for the Surface Coating Industry - Section 3.7.

3.17.1.1 Types of Graphic Art Technologies

In graphic arts printing processes, text and/or images on an image carrier such as a plate, cylinder, or screen are applied to a substrate. Substrates will vary based on the product being manufactured and can include paper, paper board, plastic films, rigid plastic, textiles, metal, and other materials. Substrates are

printed upon by either feeding through a press as a continuous roll (web press) or as individual sheets (sheetfed press). Ink is applied to the image carrier and is either directly or indirectly applied to the substrate.

There are multiple printing methods, including:

1. Flexographic: The image to be printed is transferred from a flexible plate with a raised image area to a substrate. The plates are primarily photopolymer but EPDM rubber can also be used and they are attached to a cylinder with a double-sided tape. The plate image is inked from contacting a roller called an anilox roll. The anilox roll cell count and volume is chosen for the image's screen count and substrates ink acceptability. The anilox roller receives fluid inks via an ink pan or enclosed chamber and the surface ink is metered off by a fountain rubber roller or in most cases a doctor blade that shears off the surface ink from the anilox. The inked image transferred directly onto the substrate as the substrate is pressed against the steel polished impression roll. Flexographic inks and coatings can either be water-based, solvent-based, or radiation cured. Solvent-based systems use a dryer to evaporate the ink solvent.

2. Lithographic: The image is planographic which means the image and nonimage areas of the plate are essentially in the same geographic plane. The image area of that plane is hydrophobic and oleophilic, while the non-image area is hydrophilic and chemically repellant to oil-based inks, which are very viscus. The "offset" in offset lithography refers to the use of a rubber blanket to transfer the image from the plate to the substrate that is pressed against a metal impression cylinder. Fountain solution, a mixture of water and other volatile and non-volatile chemicals and additives wets the nonimage area so that the ink is maintained within the image areas. Lithographic inks are non-heatset which dry by penetration and oxidation, heatset which dry by evaporation via a dryer, and radiation cured. Radiation cured inks are considered nonheatset lithographic printing.

3. Letterpress: the image to be printed is transferred from rigid plate with a raised image area to a substrate. Modern plates are typically photopolymer based and can be flat or attached to a cylinder. Viscous ink is applied to the plate and the image is applied directly to the substrate a Letterpress printing image carriers can include wood engravings, photo-etched zinc plates, linoleum blocks, and metal type. The inks are virtually identical to offset inks and are typically nonheatset and dry by penetration and oxidation. Letterpress printing can use a rotary or flat platin press.

4. Rotogravure: the image to be printed is etched or engraved below the surface of a cylinder. The image area is engraved into the surface of a copper cylinder that is protected with a very thin electroplated layer of chromium. A low viscosity ink floods the lower portion of the gravure cylinder that is wiped from the surface of the cylinder with a doctor blade, leaving ink only in the image area. The ink remaining in the recessed cells is then pressed onto the substrate as the substrate is pressed against the gravure cylinder with a rubber-covered impression cylinder. Gravure inks and coatings can either be water-based, solvent-based, or radiation cured. Solvent-based systems use a dryer to evaporate the ink solvent. For indirect or off-set rotogravure printing, the ink is transferred from the rotogravure roller to a transfer roller, then onto the substrate.

5. Screen: the image is transferred directly to a substrate through a porous mesh rather than on an impervious surface. Mesh is stretched across a frame and a stencil applied to the mesh defines the print image. Mesh thread count and diameter control the volume of ink applied to the substrate. A rubber or synthetic blade known as a squeegee applies pressure to the ink, causing the ink to flow through the imaged mesh and onto the substrate. Once the substrate has been printed, it is placed either on drying racks or on a conveyor into a dryer. The inks can be solvent-based, water-based, silicone (plastisol), sublimation, or radiation cured, Due to the flexibility in the screen-printing process, a wide variety of substrates are possible, including, but not limited to, textiles, plastics, metals, electronics, and paper.

3.17.2 SOTA Performance Levels

This SOTA Manual includes operational requirements, emissions limitations, and control efficiency requirements for different air contaminants, depending on the type of printing press.

3.17.2.1 Maximum Achievable Control Technologies for Printing Presses

The U.S. Environmental Protection Agency (EPA) has issued multiple Maximum Achievable Control Technology (MACT) standards for printing. These MACT standards are considered equivalent to SOTA, pursuant to N.J.A.C. 7:27-8.12(e)(3) for preconstruction permits and N.J.A.C. 7:27-22.35(c) for operating permits. Emissions of other pollutant emissions from printing operations not subject to a MACT standard are addressed in other sections of this SOTA manual. The following NESHAP only apply to major sources of Hazardous Air Pollutants (HAP):

1. Title 40 of the Code of Federal Regulations (40 CFR), Part 63, Subpart KK: National Emissions Standards for National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Printing and Publishing Industry; and
2. 40 CFR, Part 63, Subpart OOOO: NESHAP for the Printing, Coating, and Dyeing of Fabrics and Other Textiles.

Additionally, other NESHAP may include specific requirements for application of a coating onto a substrate (including ink via a printing press); only the requirements of the above-referenced MACT standards are included in this SOTA manual. Some additional NESHAP that may include requirements for printing include:

1. Wood Furniture Manufacturing Operations NESHAP (Subpart JJ); and
2. Wood Building Products NESHAP (Subpart QQQQ).

Major Source Printing and Publishing Industry

The Printing and Publishing MACT standard applies to publication rotogravure, product and packaging rotogravure, or wide-web (>18 inches wide) flexographic printing presses. Rotogravure printing presses with flexographic imprinters are considered rotogravure presses. The MACT standard includes emissions limits for organic HAP.

For publication rotogravure printing, organic HAP emissions are limited to no more than 8% of the total volatile matter used per month, to be achieved by limiting organic HAP content in volatile matter, the use of a control device (92% organic HAP capture and control efficiency), or a combination of these options.

For product and packaging rotogravure or wide-web flexographic printing, organic HAP emissions are limited to one of the following:

- no more than 5% of the organic HAP applied for the month; or
- no more than 4% of the total mass of inks, coatings, varnishes, adhesives, primers, solvents, reducers, thinners, and other materials applied for the month; or
- no more than 20% of the mass of solids applied for the month; or
- operate a control device with an overall capture and control efficiency of 95% for organic HAP.

Note: *Since all organic HAP are considered volatile organic compounds (VOC), the control device or material usage limitations specified in Tables 3.17.2-1 and 3.17.2-2 may be more restrictive than the limits specified in this MACT standard.*

Compliance with any of the emissions limits may be achieved through use of a control device that reduces organic HAP emissions to the specified emissions limit or by limiting the organic HAP content in the identified materials (compliant material usage).[1]

Major Source Printing of Fabrics and Other Textiles

The Printing, Coating, and Dyeing of Fabrics and Other Textiles MACT standard applies to any web coating operation that coats or prints onto fabric or other textiles. The MACT standard includes emissions limits for organic HAP, which are defined in Table 6 of the MACT standard. Web coating and printing operations may comply with any of the following:

- 0.08 kilograms (kg) of organic HAP per kg solids, as applied, for new or reconstructed sources or 0.12 kg of organic HAP per kg solids, as applied, for existing sources; or
- operate a control device with an overall capture and control efficiency of 98% for organic HAP from new or reconstructed sources or 97% for organic HAP from existing sources; or
- operate a thermal oxidizer with an outlet organic HAP concentration of 20 parts per million by volume, dry basis (ppmvd) with a 100% capture efficiency.

Note: *Since all organic HAP are considered volatile organic compounds (VOC), the control device or material usage limitations specified in Tables 3.17.2-1 through 3.17.2-5 may be more restrictive than the limits specified in this MACT standard.*

Compliance with any of the emissions limits may be achieved through use of a control device that reduces organic HAP emissions to the specified emissions limit or by limiting the organic HAP content in the identified materials (compliant material usage).[2]

3.17.2.2 New Source Performance Standards for Printing Presses

EPA has developed new source performance standards (NSPS) in 40 CFR, Part 60, Subpart QQ and FFF for publication rotogravure printing presses. Subpart QQ applies to publication rotogravure printing presses that are not proof presses and were constructed, modified, or reconstructed after October 28, 1980.[3] Subpart FFF applies to rotogravure printing lines that print or coat flexible vinyl or urethane products that

[1] Title 40 of the Code of Federal Regulations, Part 63, Subpart KK
[2] Title 40 of the Code of Federal Regulations, Part 63, Subpart OOOO
[3] Title 40 of the Code of Federal Regulations, Part 60, Subpart QQ

were constructed, modified, or reconstructed after January 18, 1983.[4] Both standards include emissions limits for VOC. Since the emissions limits for VOC from publication rotogravure printing are equivalent to or less stringent than the emissions limits determined to be SOTA in Section 3.17.2.3, they are not included in this manual.

For a rotogravure printing line used to print on flexible vinyl or urethane products subject to 40 CFR, Part 60, Subpart FFF, the weighted average VOC for all inks used on the line must be less than 1.0 kilograms of VOC per kilogram of ink solids.[5] Alternatively, VOC emissions may be reduced by use of a control device with a capture and control efficiency specified in Table 3.17.2-3.

3.17.2.3 Other SOTA Performance Levels for Printing Presses

Additional requirements including control equipment and emissions limits for VOC applicable to printing presses are included in Tables 3.17.2-1 through 3.17.2-5. Printing presses may opt to either use materials that satisfy the SOTA performance levels for VOC content as applied or an add-on control device (e.g., solvent recovery or thermal oxidation). If an add-on control device is employed, the limits for VOC content do not apply. If a thermal oxidizer (not including a catalytic oxidizer) is employed, the oxidizer may be assumed to have a reduction efficiency of 99% if operated at a temperature ≥1,500ºF with a residence time of ≥0.5 seconds; lower temperatures or residence times will be considered using the SOTA case-by-case approach, pursuant to N.J.A.C. 7:27-8.12 and N.J.A.C. 7:27-22.35.

The SOTA performance levels within this manual apply to surface coatings (e.g., inks, adhesives, overvarnish), printing materials (e.g., fountain solution, wash), and cleaning materials used by the printing press. Definitions for each material are included in Section 3.17.0 of this SOTA manual. If a surface coating or cleaning material is not included in the referenced definitions, the other surface coating formulation or other cleaning material SOTA performance level would apply.

[4] Title 40 of the Code of Federal Regulations, Part 60, Subpart FFF
[5] Title 40 of the Code of Federal Regulations, §60.582(a)(1)

TABLE 3.17.2-1
VOC SOTA Performance Levels for Flexographic Printing Presses[6]

Printing Process	Material Usage Compliance Option (as applied)	Add-on Control Compliance Option
Publication or Product / Packaging Sheet-fed, Narrow Web-fed, or Wide-Web	• Adhesive: 1.25 lbs./gallon, less water and exempt solvents • Other Surface Coating Formulation: 1.5 lbs./gallon, less water and exempt solvents • Cleaning Material (paper substrate): Composite partial vapor pressure of 21 mm Hg at 68ºF • Cleaning Material (other substate): Composite partial vapor pressure of 25 mm Hg at 68ºF	• Capture Efficiency: 100% (any control)† • Thermal Oxidizer‡ Control Efficiency: 98% reduction or outlet VOC concentration of 20 parts per million by volume, dry basis (ppmvd) as hexane • Other Control Device Control Efficiency: 95% reduction or outlet VOC concentration of 20 ppmvd as hexane at 7% oxygen[7]

† Capture efficiency will be determined by a method approved by the NJ DEP Emissions Measurement Section
‡ Thermal oxidizer does not include catalytic oxidizer

TABLE 3.17.2-2
VOC SOTA Performance Levels for Rotogravure Printing Presses[8]

Printing Process	Material Usage Compliance Option (as applied)	Add-on Control Compliance Option
Publication or Product / Packaging Sheet-fed or Web-fed	• Adhesive: 1.25 lbs./gallon, less water and exempt solvents • Other Surface Coating Formulation: 1.5 lbs./gallon, less water and exempt solvents • Cleaning Material: Composite partial vapor pressure of 25 mm Hg at 68ºF	• Capture Efficiency: 100% (any control)† • Thermal Oxidizer‡ Control Efficiency: 98% reduction or outlet VOC concentration of 20 ppmvd as hexane at 7% oxygen[9] • Other Control Device Control Efficiency: 95% reduction or outlet VOC concentration of 20 ppmvd as hexane at 7% oxygen[10]

† Capture efficiency will be determined by a method approved by the NJ DEP Emissions Measurement Section ‡ Thermal oxidizer does not include catalytic oxidizer

[6] SC&A, Inc. *Analysis of Printing Press Permits Emissions Limits and Control Requirements*, December 2023.
[7] N.J.A.C. 7:27-16
[8] SC&A, Inc. *Analysis of Printing Press Permits Emissions Limits and Control Requirements*, December 2023.
[9] N.J.A.C. 7:27-16
[10] N.J.A.C. 7:27-16

TABLE 3.17.2-3
VOC SOTA Performance Levels for Offset Lithographic Printing Presses[11]

Printing Process	Material Usage Compliance Option (as applied)	Add-on Control Compliance Option
Coldset Sheet-fed	• Fountain Solution: 5.0% VOC by weight (no alcohol); or 8.5% VOC by weight (with alcohol) with a chiller Temperature of 60°F • Gluing Line Adhesive: 1.25 lbs./gallon, less water and exempt solvents • Other Surface Coating Formulation: 2.5 lbs./gallon, less water and exempt solvents • Blanket / Roller Wash: Composite partial vapor pressure of 10 mm Hg at 68ºF or 70% VOC by weight • Other Cleaning Material: Composite partial vapor pressure of 25 mm Hg at 68ºF or 70% VOC by weight	• None
Coldset Web-fed	• Surface Coating Formulation: 2.5 lbs./gallon, less water and exempt solvents • Fountain Solution: 5.0% VOC by weight (no alcohol) • Blanket / Roller Wash: Composite partial vapor pressure of 10 mm Hg at 68ºF • Other Cleaning Material: Composite partial vapor pressure of 25 mm Hg at 68ºF	• None

[11] SC&A, Inc. *Analysis of Printing Press Permits Emissions Limits and Control Requirements*, December 2023.

Printing Process	Material Usage Compliance Option (as applied)	Add-on Control Compliance Option
Heatset Web-fed	• Finishing Materials, including overprint / overvarnish, applied after the dryer: 2.5 lbs./gallon, less water and exempt solvents • Other Surface Coating Formulation:2.5 lbs./gallon, less water and exempt solvents • Fountain Solution: 1.6% VOC by weight (with alcohol); or 3.0% VOC by weight (with alcohol) with a chiller temperature 60°F; or 5.0% VOC by weight (no alcohol) • Blanket / Roller Wash: Composite partial vapor pressure of 10 mm Hg at 68ºF • Other Cleaning Material: Composite partial vapor pressure of 25 mm Hg at 68ºF	• Capture Efficiency: 100% (any control)† • Thermal Oxidizer‡ Control Efficiency: 98% reduction or outlet VOC concentration of 20 ppmvd as hexane at 7% oxygen[12] • Other Control Device Control Efficiency: 95% reduction or outlet VOC concentration of 20 ppmvd as hexane at 7% oxygen[13]

† If no in-line finishing is performed, the use of add-on controls on the dryer exhaust is considered 100% capture. In all other cases, capture efficiency will be determined by a method approved by the NJ DEP Emissions Measurement Section

‡ Thermal oxidizer does not include catalytic oxidizer

TABLE 3.17.2-4
VOC SOTA Performance Levels for Letterpress Printing[14]

Printing Process	Material Usage Compliance Option (as applied)	Add-on Control Compliance Option
Any	• Surface Coating Formulation: 2.5 lbs./gallon, less water and exempt solvents • Cleaning Material: Composite partial vapor pressure of 10 mm Hg at 68ºF or 70% VOC by weight	• None

[12] N.J.A.C. 7:27-16
[13] N.J.A.C. 7:27-16
[14] SC&A, Inc. *Analysis of Printing Press Permits Emissions Limits and Control Requirements*, December 2023.

TABLE 3.17.2-5
VOC SOTA Performance Levels for Screen Printing[15]

Printing Process	Material Usage Compliance Option (as applied)	Add-on Control Compliance Option
Any	• Adhesive: 3.3 lbs./gallon, less water and exempt solvents • Fabric Surface Coating Formulation:2.9 lbs./gallon, less water and exempt solvents • Extreme Performance Surface Coating Formulation:6.7 lbs./gallon, less water and exempt solvents • Other Surface Coating Formulation: 3.3 lbs./gallon, less water and exempt solvents • Cleaning Material: Composite partial vapor pressure of 10 mm Hg at 68ºF or 70% VOC by weight	• None

3.17.3 Control Technologies

Reductions in VOC emissions can be achieved using different add-on control technologies or alternative printing materials.

3.17.3.1 Add-on Control Technologies

Adsorber

An adsorber removes VOC in the exhaust gas stream by capturing the VOC in a solid adsorbent, such as activated carbon, zeolite, or polymers. The VOC in the exhaust gas is selectively held on the surface of the solid adsorbent by an attractive force weaker than a chemical bond, (the VOC only adheres to the adsorbent; there is no chemical reaction between the VOC and the adsorbent). The adsorbent has a limited capacity to collect VOC before it becomes saturated and breakthrough (reduced VOC collection) occurs. The VOC concentration in the adsorber exhaust must be monitored for breakthrough. Adsorbers can be regenerated (desorbed) by increasing the temperature or decreasing the pressure to displace the adsorbed VOC; however, the desorbed VOC must be recovered or destroyed. Adsorbers may be used in conjunction with thermal oxidizers for onsite desorption.

Thermal Oxidizer

A thermal oxidizer is a combustion control technology. VOC collected from the printing press is combusted at a temperature high enough to cause oxidation. VOCs are oxidized into carbon dioxide and water, although incomplete combustion can form carbon monoxide (CO). There are three different types of thermal oxidizers: recuperative, regenerative, and catalytic. A recuperative thermal oxidizer uses a heat exchanger to recover 30-60% of the exhaust combustion heat to preheat the incoming gas stream. A regenerative thermal oxidizer alternates between an even number of ceramic beds. The incoming gas

[15] SC&A, Inc. *Analysis of Printing Press Permits Emissions Limits and Control Requirements*, December 2023.

stream is combusted in the first bed (pre-heat), further combusted in a burner to reach combustion temperature, then exhausted over the second bed (post-heat). The heat of the exhaust gases is transferred to the ceramic media in the post-heat bed, with about 95% of the heat recovered. The gas flow switches, with each bed alternating between pre-heat and post-heat every few minutes, allowing for lower fuel usage. A catalytic thermal oxidizer uses a noble metal or other chemical to assist in the oxidation reaction to lower the combustion temperature for the VOC. As used in this manual, a catalytic oxidizer and regenerative thermal oxidizer is not included in the control efficiencies for any listed thermal oxidizer.

3.17.3.2 Alternate Technologies

Alternative Solvents

Exempt solvents are any compound of carbon that does not participate in photochemical reactions, as defined by U.S. EPA.[16]

Digital Printing

Digital printing is a new and emerging technology that allows for image customization during the run. In digital printing, images are printed directly on the substrate, either by nozzles spraying liquid ink (inkjet) or the use of drums that apply an electrostatic charge in the form of the image to attract ink to the electrostatically charged areas. VOC and HAP emissions from digital printing are very low and may not be present in some applications.

Water-based Inks

In water-based inks, some of the VOCs are replaced with water. The water acts as a solvent and evaporates, leaving the solids within the ink behind. Water-based inks are infeasible for use in several printing applications such as textiles, non-porous substrates, or lithographic printing.

3.17.4 Technical Basis

Information from the following sources were used as the basis for developing this SOTA Manual:

A. Title 40 of the Code of Federal Regulations, Part 60, Subpart QQ, “Standards of Performance for the Graphic Arts Industry: Publication Rotogravure Printing”

B. Title 40 of the Code of Federal Regulations, Part 60, Subpart FFF, “Standards of Performance for Flexible Vinyl and Urethane Coating and Printing”

C. Title 40 of the Code of Federal Regulations, Part 63, Subpart KK, “National Emission Standards for the Printing and Publishing Industry”

D. Title 40 of the Code of Federal Regulations, Part 63, Subpart OOOO, “National Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles”

E. SC&A, Inc. *Analysis of Printing Press Permits Emissions Limits and Control Requirements*, December 6, 2023.

[16] Title 40 of the Code of Federal Regulations, §51.100(s)

3.17.5 Recommended Review Schedule

This SOTA Manual will be reviewed periodically and revised if new collection and control technologies that minimize emissions become available, and any time a new MACT standard or standard of performance for new or existing sources is published.