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Regulatory Analysis Form

(Completed by Promulgating Agency)

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(1) Agency:

Environmental Protection

(2) Agency Number: None

Identification Number: # 7-469

IRRC Number: 2930

(3) PA Code Cite: 25 Pa. Code Chapters 121, 129 and 130.

(4) Short Title: Flexible Packaging, Offset Lithographic and Letterpress Printing Presses; Adhesives, Sealants, Primers and Solvents.

(5) Agency Contacts (List Telephone Number and Email Address):

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(6) Type of Rulemaking (check applicable box):

- Proposed Regulation
- Final Regulation
- Final Omitted Regulation

Emergency Certification Regulation:

- Certification by the Governor
- Certification by the Attorney General

(7) Briefly explain the regulation in clear and nontechnical language. (100 words or less)

The final-form rulemaking amends Chapters 121, 129 and 130 (relating to general provisions; standards for sources; and standards for products) to limit emissions of volatile organic compounds (VOC) from inks (including varnishes), coatings, adhesives, fountain solutions and cleaning materials used or applied on or with flexible packaging printing presses, offset lithographic printing presses or letterpress printing presses or a combination of these press types. The final-form rulemaking does the following: amends § 121.1 (relating to definitions) to add 18 new terms and definitions, revises the definition of five existing terms, and deletes two proposed new terms that are not needed to support the amendments set forth at final; amends § 129.51(a) (relating to general) to extend its applicability to the owner and operator of a flexible packaging printing press, offset lithographic printing press or letterpress printing press, or a combination of these press types, covered by this final-form rulemaking; amends § 129.67 (relating to graphic arts systems) to account for the final-form rulemaking requirements that will apply to the owners and operators of flexible packaging printing presses under § 129.67a; adds §§ 129.67a and 129.67b (relating to control of VOC emissions from flexible packaging printing presses; and control of VOC emissions from offset lithographic printing presses and letterpress printing presses) to establish as requirements the recommendations of the United States Environmental Protection Agency's (EPA) 2006 Control Techniques Guidelines (CTG) for flexible packaging printing (FPP) and for offset lithographic printing and letterpress printing (LLP) for these sources in this Commonwealth as required under the Federal Clean Air Act (CAA) (42 U.S.C.A. §§ 7401-7671q); and amends the adhesives, sealants, primers and solvents regulations under Chapters 129 and 130 to clarify the applicability of the adhesive, sealant, primer and solvent requirements to the adhesives used or applied on or with the printing presses to be regulated under this rulemaking. This final-form rulemaking is reasonably required to attain and maintain the health- and

welfare-based 8-hour ozone National Ambient Air Quality Standards (NAAQS) in this Commonwealth and to satisfy related CAA requirements. The final-form rulemaking, once published as a final-form regulation in the *Pennsylvania Bulletin*, will be submitted to the EPA as a revision to the State Implementation Plan (SIP).

(8) State the statutory authority for the regulation. Include specific statutory citation.

The final-form rulemaking is authorized under section 5(a)(1) of the Air Pollution Control Act (APCA) (35 P.S. § 4005(a)(1)), which grants the Board the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth and section 5(a)(8) of the APCA (35 P.S. § 4005(a)(8)), which grants the Board the authority to adopt rules and regulations designed to implement the provisions of the CAA.

(9) Is the regulation mandated by any federal or state law or court order, or federal regulation? Are there any relevant state or federal court decisions? If yes, cite the specific law, case or regulation as well as, any deadlines for action.

Yes. The final-form rulemaking is mandated by Federal law. Section 172(c)(1) of the CAA (42 U.S.C.A. § 7502(c)(1)) provides that SIPs for nonattainment areas must include “reasonably available control measures,” including “reasonably available control technology” or “RACT,” for sources of emissions. Section 182(b)(2) of the CAA (42 U.S.C.A. § 7511a(b)(2)) provides that for moderate ozone nonattainment areas, states must revise their SIPs to include RACT for sources of VOC emissions covered by a CTG document issued by the EPA prior to the area’s date of attainment. More importantly, section 184(b)(1)(B) of the CAA (42 U.S.C.A. § 7511c(b)(1)(B)) requires that states in the Ozone Transport Region (OTR), including Pennsylvania, submit a SIP revision requiring implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG and not just for those sources that are located in designated nonattainment areas of the state. Consequently, the Commonwealth’s SIP must include regulations applicable statewide to control VOC emissions from flexible packaging printing materials, offset lithographic printing materials and letterpress printing materials, which are covered by CTGs issued under the following notice: *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747 (October 5, 2006). The EPA determined that issuing control recommendations in the form of a CTG for flexible packaging printing materials and for offset lithographic printing materials and letterpress printing materials would be as effective as issuing National regulations for these materials. 71 FR at p. 58751.

The Department reviewed the recommendations included in the 2006 CTGs for flexible package printing and offset lithographic printing and letterpress printing for their applicability to the ozone reduction measures necessary for this Commonwealth. The Bureau of Air Quality has determined that the VOC reduction measures provided in the final-form rulemaking for flexible packaging printing materials and for offset lithographic printing materials and letterpress printing materials are appropriate to be implemented statewide in this Commonwealth as RACT for these source categories.

Section 182(b)(2) of the CAA (42 U.S.C.A. § 7511a(b)(2)) requires that a CTG issued by the EPA after November 15, 1990, include the date by which states subject to section 182(b) must submit SIP revisions in response to the CTG. The EPA issued the flexible package printing and the offset lithographic printing and letterpress printing CTGs on September 29, 2006. The EPA provided a 1-year period for the required SIP submittal, making SIP revisions for implementation of the flexible package printing and offset lithographic printing and letterpress printing CTG recommendations due by September 29, 2007.

If the EPA Administrator finds that a state has failed to submit an acceptable implementation plan or has failed to implement the requirements of an approved plan, sanctions will be imposed, though sanctions cannot be imposed until 18 months after the Administrator makes the determination, and sanctions cannot be imposed if a deficiency has been corrected within the 18-month period. The EPA has not yet made such a finding for this rulemaking.

Section 179 of the CAA (42 U.S.C.A. § 7509) authorizes the EPA to use two types of sanctions: 1) withholding of certain Federal highway funds; and 2) imposing what are called “2:1 offsets” on new or modified sources of emissions. Under section 179 and its implementing regulations, the Administrator first imposes offsets, and then, if the deficiency has not been corrected within 6 months, also applies highway funding sanctions. See 40 CFR 52.31. The Commonwealth receives approximately \$1.6 billion in Federal transportation funding annually.

(10) State why the regulation is needed. Explain the compelling public interest that justifies the regulation. Describe who will benefit from the regulation. Quantify the benefits as completely as possible and approximate the number of people who will benefit.

Implementation of the VOC control measures in the final-form rulemaking for flexible package printing press, offset lithographic printing press and letterpress printing press sources will benefit the health and welfare of the approximately 12 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of VOCs, which are precursors to the formation of ground-level ozone air pollution. Exposure to ground-level ozone is a serious human and animal health and welfare threat, causing respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species, and damage to forests, ecosystems and infrastructure.

This final-form rulemaking is designed to adopt the standards and recommendations in the 2006 CTGs for flexible package printing and for offset lithographic printing and letterpress printing, in order to meet the requirements of CAA sections 172(c)(1), 182(b)(2) and 184(b)(1)(B) (42 U.S.C.A. §§ 7502(c)(1), 7511a(b)(2) and 7511c(b)(1)(B)), described above in response to Question 9. The final-form rulemaking will apply the CTG standards and recommendations across this entire Commonwealth, as required by CAA section 184(b)(1)(B) (42 U.S.C.A. § 7511c(b)(1)(B)). The measures in the final-form rulemaking are reasonably necessary to attain and maintain the health-and welfare-based 8-hour ozone NAAQS in this Commonwealth.

The statewide implementation of the final-form rulemaking requirements, as required under the CAA for states in the OTR, will assist the Department in reducing VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses locally and reducing the resultant local formation of ground-level ozone and transport of VOC emissions and ground-level ozone to downwind states. Statewide implementation will also facilitate enforcement of the final-form rulemaking requirements within this Commonwealth. The estimated maximum amount of additional VOC emission reductions to be achieved from implementation of the flexible packaging printing press requirements in the final-form rulemaking through the use of add-on air pollution control devices or complying printing materials or a combination of these compliance options is approximately 93 tons per year (tpy) to 114 tpy. The estimated maximum amount of additional VOC emission reductions to be achieved from implementation of the offset lithographic printing press and letterpress printing press requirements in the final-form rulemaking through the use of add-on air pollution control devices or complying printing materials or a combination of these compliance options is approximately 553 tpy to 583 tpy. VOC emission reductions from the implementation of work practices for cleaning activities would be in addition to these amounts. The actual amounts of additional VOC emission reductions achieved will be lower if the owners and operators of the affected facilities already comply with all or portions of the final-form

rulemaking. Please see the information in the response to Question 13 for an explanation of how these numbers were calculated.

Although the final-form rulemaking is designed primarily to reduce ozone precursor emissions, the reformulation of noncomplying inks (including varnishes), coatings, adhesives and other printing materials or substitution of complying inks (including varnishes), coatings, adhesives and other printing materials to meet the VOC content limits applicable to users may also result in reduction of indoor and outdoor hazardous air pollutant (HAP) emissions, which are also a serious health threat. The final-form rulemaking provides, as one compliance option, that inks, coatings and adhesives used or applied on or with flexible packaging printing presses and inks (including varnishes), coatings, adhesives and cleaning solutions used or applied on or with offset lithographic printing presses or letterpress printing presses, or a combination of these press types, in this Commonwealth meet specified limits for VOC content, usually through substitution of low VOC-content solvents or water for the high VOC-content solvents. The reduced levels of high VOC-content solvents will also benefit water quality through reduced loading on water treatment plants and in reduced quantities of high VOC-content solvents leaching into the ground. The owner and operator of an affected flexible packaging printing press, offset lithographic printing press or letterpress printing press may also reduce VOC emissions with add-on air pollution control devices, or a combination of complying inks (including varnishes), coatings and adhesives and add-on air pollution control devices.

In July 1997, the EPA promulgated primary and secondary ozone standards at a level of 0.08 part per million (ppm) averaged over 8 hours. See 62 FR 38855 (July 18, 1997). In 2004, the EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS. Based on preliminary data for the 2013 ozone season, all monitored areas of the Commonwealth are attaining the 1997 8-hour ozone NAAQS. The Department must ensure that the 1997 ozone standard is attained and maintained by implementing permanent and enforceable control measures to ensure violations of the standard do not occur for the next decade.

In March 2008, the EPA lowered the standard to 0.075 ppm averaged over 8 hours to provide even greater protection for children, other at-risk populations and the environment against the array of ozone-induced adverse health and welfare effects. See 73 FR 16436 (March 27, 2008). The EPA made designations for the 2008 8-hour ozone standards on April 30, 2012, with an effective date of July 20, 2012. See 77 FR 30160 (May 21, 2012). The EPA designated all or portions of Allegheny, Armstrong, Beaver, Berks, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland counties as nonattainment for the 2008 8-hour ozone NAAQS. See 77 FR 30088, 30143 (May 21, 2012). The Commonwealth must ensure that these areas attain the 2008 ozone standard by 2015 and that they continue to maintain the standard thereafter.

Furthermore, 5 monitors in areas of the Commonwealth that the EPA considered “unclassifiable/attainment” when it designated nonattainment areas on April 30, 2012, violated the 2008 standard in 2012. The Commonwealth must also ensure that these areas attain and maintain the standard.

The response to Question 9, above, explains that the final-form rulemaking is mandated by Federal law as a RACT measure to reduce ozone pollution across the Commonwealth.

Please see response to Question 13, below, for quantification of benefits.

(11) If data is the basis for this regulation, please provide a description of the data, explain in detail how the data was obtained, and how it meets the acceptability standard for empirical, replicable and testable data that is supported by documentation, statistics, reports, studies or research. Please submit data or supporting materials with the regulatory package. If the material exceeds 50 pages, please provide it in a searchable electronic format or provide a list of citations and internet links that, where possible, can be accessed in a searchable format in lieu of the actual material. If other data was considered but not used, please explain why that data was determined not to be acceptable.

As explained above in the responses to Questions 9 and 10, the Commonwealth's SIP must include regulations to control VOC emissions from flexible packaging printing materials, offset lithographic printing materials and letterpress printing materials. Section 183(e) of the CAA directed the EPA to conduct a study of VOC emissions from the use of consumer and commercial products to assess their potential to contribute to violations of the NAAQS for ozone and to list for regulation those categories of products that account for at least 80% of the VOC emissions, on a reactivity-adjusted basis, from consumer and commercial products in areas that violate the NAAQS for ozone (namely, ozone nonattainment areas). The EPA published the initial list at 60 FR 15264 (March 23, 1995). The EPA included flexible package printing, lithographic printing and letterpress printing materials in this initial list.

Recommended controls for VOC emissions from these materials are covered by CTGs issued by the EPA pursuant to the following notice, which lists the EPA's determination of product categories for which the EPA would produce CTGs instead of National regulations and which indicates that the EPA is simultaneously issuing final CTGs for these product categories: *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747 (October 5, 2006). The two CTGs applicable to this final-form rulemaking are:

- 1) EPA 453/R-06-003, Control Techniques Guidelines for Flexible Package Printing.
- 2) EPA 453/R-06-002, Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing. Although offset lithographic printing and letterpress printing are two distinct product categories on the section 183(e) list, these two categories have many similarities in the types of inks and cleaning materials used, the sources of VOC emissions, and the controls available to address those emissions. The EPA, therefore, addressed both categories in this CTG.

According to the EPA, the information that the agency used for determining RACT for the control of VOC emissions from flexible packaging printing materials includes source VOC emission data; a comprehensive review of current state and local VOC emission reduction approaches for flexible package printing, including the costs of the control approaches; the 1978 CTG for graphic arts (rotogravure printing and flexographic printing), which included flexible package printing (EPA-450/2-78-033); the background information document used in the quantification of VOC and HAP emissions from the flexible packaging printing source category for the 1996 National Emission Standard for Hazardous Air Pollutants (NESHAP) (EPA-453/R-95-002a); and information obtained since promulgation of the NESHAP. The background information document the EPA used to support the 1996 NESHAP included an analysis of the industry based on surveys completed by flexible package printers.

The information that the EPA used for the determination of RACT for the control of VOC emissions from offset lithographic printing materials and letterpress printing materials includes source VOC emission data; a comprehensive review of existing state and local control approaches for offset lithographic printing materials, including the costs of the control approaches; the 1993 draft CTG for offset lithographic printing materials (EPA-453/D-95-001); the 1994 Alternative Control Techniques (ACT) document for offset lithographic printing

(EPA 453/R-94-054); and information obtained since issuance of the 1994 ACT.

The Department reviewed the information provided by the EPA in the CTGs for establishing RACT for these sources and believes that the data used by the EPA to develop the RACT recommendations meet the acceptability standard for empirical, replicable and testable data. Additionally, according to the EPA's website, at <http://www.rlch.org/open-for-comment/epas-scientific-integrity-policy-available-comment>, the agency adheres to the 2002 Office of Management and Budget (OMB) Information Quality Guidelines, the 2005 OMB Information Quality Bulletin for Peer Review, the EPA's Quality Policy (CIO 2106) for assuring the collection and use of sound, scientific data and information, the EPA's Peer Review Handbook for internal and external review of scientific products, and the EPA's Information Quality Guidelines for maximizing the transparency, integrity and utility of information published on the agency's websites.

The following list provides more complete citations for certain of the data sources identified above:

Control Techniques Guidelines for Flexible Package Printing, EPA 453/R-06-003, September 2006. U.S. Environmental Protection Agency, Sector Policies and Programs Division, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/200609_voc_epa453_r-06-003_flexible_package_printing.pdf

Reasonably Available Control Technology (RACT) for Cleaning in Flexible Package Printing, Peter Tsirigotis, Director, Sector Policies and Programs Division (D205-01), EPA, February 9, 2009, 1-page memo.

Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing, EPA 453/R-06-002, September 2006. U.S. Environmental Protection Agency, Sector Policies and Programs Division, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/200609_voc_epa453_r-06-002_litho_letterpress_printing.pdf

Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings, EPA notice of final determination and availability of final control techniques guidelines, 71 FR 58745 (October 5, 2006).

Alternative Control Techniques Document: Offset Lithographic Printing, EPA 453/R-94-054, June 1994. U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/199406_voc_epa453_r-94-054_offset_lithography_act.pdf

Control of Volatile Organic Compound Emissions from Offset Lithographic Printing, Draft, EPA-453/D-95-001, September 1993, U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/199309_voc_epa453_d-95-001_offset_lithography_draft.pdf

Control of Volatile Organic Emissions from Existing Stationary Sources - Volume VIII: Graphic Arts - Rotogravure and Flexography, EPA-450/2-78-033, December 1978, U.S. Environmental Protection

Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

National Emission Standards for Hazardous Air Pollutants: Printing and Publishing Industry Background Information for Proposed Standards, EPA-453/R-95-002a, February 1995, U.S. Environmental Protection Agency, Office of Air and Radiation, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

Technical Support Document (TSD) for Title V Permitting of Printing Facilities, June 2007, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

- (12) Describe who and how many people will be adversely affected by the regulation. How are they affected?

Flexible Packaging Printing Press Operations

The final-form rulemaking will affect the owner and operator of a flexible packaging printing press if an individual flexible packaging printing press has potential emissions from the dryer of at least 25 tpy of VOC from inks, coatings or adhesives or a combination of these materials, before consideration of add-on controls. The final-form rulemaking requires an overall VOC control efficiency of 65% to 80% for each affected flexible packaging printing press, depending on date of first installation of the press and of the control device. This level of control may be met through the use of add-on controls, the use and application of low VOC-content or VOC-free inks, coatings and adhesives, or a combination of these methods. Users of inks, coatings and adhesives that meet the VOC emission limits in the final-form rulemaking will benefit by not needing to use add-on controls to reduce VOC emissions.

The final-form rulemaking includes requirements for work practice standards for cleaning activities that will apply to the owner and operator of an individual flexible packaging printing press with potential emissions of VOC equal to or greater than 25 tpy, before consideration of add-on controls, as well as the owner and operator of a facility where the total actual VOC emissions from all flexible packaging printing operations, and all emissions from related cleaning activities, are equal to or exceed 450 pounds per month or 2.7 tons per 12-month rolling period, before consideration of add-on controls. For purposes of determining whether a facility meets the 450 pounds per month or 2.7 tons per 12-month rolling period threshold, or both, for VOC emissions, aggregate VOC emissions from all flexible packaging printing operations and related cleaning activities at the facility, prior to add-on controls, are included.

The final-form rulemaking will also require recordkeeping by owners and operators of flexible packaging printing presses claiming an exemption from a VOC control provision of this section based on potential or actual VOC emissions, prior to add-on controls, below the 450 pounds per month or 2.7 tons per 12-month rolling period applicability thresholds. The Department made several changes at final to streamline the recordkeeping requirements. For instance, the Department added language to the recordkeeping subsection that states: "Records maintained for compliance demonstrations may include purchase, use, production and other records." Further, the Department has added flexibility by allowing actual emissions to be estimated by using the highest VOC content in any material in a class to represent that class of materials. The final-form rulemaking does not prescribe the records to be kept, but allows the owner or operator of the facility to calculate VOC emissions by whatever means are appropriate to demonstrate that the amount of emissions is below the level of actual or potential VOC emissions necessary to be exempted from the control provisions of the regulation.

Offset Lithographic Printing Press and Letterpress Printing Press Operations

The final-form rulemaking affects the owner and operator of an individual heatset web offset lithographic printing press or an individual heatset web letterpress printing press if the potential emissions from the dryer, before consideration of add-on controls, are at least 25 tpy of VOC emissions from heatset inks, coatings and adhesives. The final-form rulemaking requires add-on VOC emission control, with a minimum level of VOC control efficiency of 90% to 95%, for the heatset dryer. The required minimum applicability level of VOC control efficiency for the control of VOC emissions from a heatset dryer is tied to the first installation date of the air pollution control device. The dryer pressure must be maintained lower than the press room area pressure so that air flows into the dryer at all times when the press is operating.

The final-form rulemaking includes requirements for cleaning solutions and fountain solutions, and work practice requirements for cleaning activities for owners and operators of offset lithographic printing press and letterpress printing press operations with VOC emission above the 450 pounds per month or 2.7 tons per 12-month rolling period threshold.

The final-form rulemaking will also require recordkeeping by owners and operators of offset lithographic printing press and letterpress printing press operations claiming an exemption from a VOC control provision of this section based on potential or actual VOC emissions, prior to add-on controls, below the 450 pounds per month or 2.7 tons per 12-month rolling period applicability thresholds. The Department made several changes at final to streamline the recordkeeping requirements. For instance, the Department added language to the recordkeeping subsection that states: "Records maintained for compliance demonstrations may include purchase, use, production and other records." Further, the Department has added flexibility by allowing actual emissions to be estimated by using the highest VOC content in any material in a class to represent that class of materials. The final-form rulemaking does not prescribe the records to be kept, but allows the owner or operator of the facility to calculate VOC emissions by whatever means are appropriate to demonstrate that the amount of emissions is below the level of actual or potential VOC emissions necessary to be exempted from the control provisions of the regulation.

Numbers Applicable to All Operations Covered by the Final-Form Rulemaking

The Department worked with information provided by the Graphic Arts Association (GAA) and information in a Department database to estimate the number of facilities that will be covered by the final-form rulemaking. According to Stephen Stankavage of the GAA¹, there are about 1800 printing facilities in this Commonwealth that offer a printing service potentially covered by this final-form rulemaking, including 114 flexographic and gravure facilities and 1758 lithographic and letterpress facilities. However, these numbers are overestimations because they double count facilities that offer multiple printing services. Furthermore, due to the applicability thresholds in the final-form rulemaking, not all of these printing facilities will be subject to the VOC content limits, control provisions or work practice standards for cleaning activities of the final-form rulemaking. The GAA information does not list emission estimates; therefore, determining the number of facilities actually subject to the emission thresholds of the final-form rulemaking from this source of information alone is impossible.

A search of the Department's "Environmental Facility Application Compliance Tracking System" (eFACTS) database and Air Information Management System (AIMS) database generated a list of over 100 printing facilities that could potentially be subject to the final-form rulemaking based on NAICS (North America

¹Email containing estimations of printing facilities, from Stephen Stankavage, Environmental Health and Safety Manager, Graphic Arts Association, to Susan Hoyle, Air Quality Program Specialist, PA DEP, December 29, 2010.

Industry Classification System) codes related to printing. These are two Department databases that share data and interface with each other. Facility contact information is inputted into eFACTS; the database contains records of permitted and some previously inspected facilities for which permits are not required. Site specific sources and emissions are inputted into AIMS to maintain the emission inventory. However, eFACTS and AIMS do not provide an exhaustive list of all printing facilities in this Commonwealth, but only those that the Department has had contact with and a reason to input their data; these are usually the largest emitters. The Department recognizes the large discrepancy between total number of printing facilities in this Commonwealth compiled by the GAA and the number of printing facilities currently in the Department's eFACTS and AIMS databases. Therefore, the Department is continuing to work with the GAA, the National Federation of Independent Businesses (NFIB) and the Department's Small Business Compliance Advisory Committee (SBCAC) to reach out to printing facilities that might be affected by this final-form rulemaking.

The Department has shared information at SBCAC meetings concerning this rulemaking, which resulted in some outreach efforts. The Pennsylvania Small Business Development Center's Environmental Management Assistance Program (EMAP) sent post cards in June 2012 detailing the air quality services it provides. These were sent to the approximate 2000+ printing facilities in Pennsylvania that EMAP found by searching the *Harris Selectory*. (The *Harris Selectory* is a National database of company and industry information.) There was also an article in the May 2013 EMAP newsletter, which was sent to EMAP clients, SBDC staff, state legislators and others who have signed up for their mailing list, concerning the regulation development. The NFIB also sent a notice in May 2013 to its printing members in this Commonwealth to create awareness of this pending rulemaking prior to its final publication. The GAA plans on creating a compliance toolkit to provide to their member facilities once the final-form rulemaking is published and has asked the Department for concurrence that the toolkit information would be in compliance with the regulation. The Department plans to continue to work with these organizations, as needed, and to develop a Frequently Asked Questions document and Fact Sheet to assist the regional office staff with implementing the final-form rulemaking.

- (13) List the persons, groups or entities that will be required to comply with the regulation. Approximate the number of people who will be required to comply.

Number of facilities potentially subject to the flexible packaging printing press requirements:

The Department converted the facility information on page 5 of the flexible packaging printing CTG into percentages in order to estimate the number of flexible packaging printing facilities subject to this final-form rulemaking. The result is that approximately 45.6% of flexible packaging printing facilities in this Commonwealth are likely to meet the equal to or greater than (\geq) 450 pounds per month or 2.7 tons per 12-month rolling period threshold of actual VOC emissions. Further, the CTG assumes that only 25%² of the facilities that meet the threshold of 450 pounds per month or 2.7 tons per 12-month rolling period are likely to also meet the threshold of potential VOC emissions \geq 25 tpy for a single press, before consideration of add-on controls.

Using the information provided by the GAA, the Department assumed that the 114 flexographic and rotogravure printing establishments identified by the GAA in this Commonwealth all do flexible package printing (which is not likely). Accordingly, 52 facilities (45.6% of the 114 facilities) could be subject to the final-form rulemaking at the \geq 450 pounds per month or 2.7 tons per 12-month rolling period threshold and required to implement work practice standards and recordkeeping; and 13 (25% x 52) of these 52 facilities could also be subject at the threshold of potential VOC emissions \geq 25 tpy from a single press, before consideration of add-on controls,

²EPA flexible packaging printing CTG, September 2006, page 23, last sentence.

thereby requiring VOC emission limitations or add-on control, work practice standards for cleaning activities and recordkeeping. The remaining 62 facilities (114 – 52 facilities), namely those with VOC emissions below the 450 pounds per month or 2.7 tons per 12-month rolling period threshold, would be subject only to the recordkeeping requirements and, if requested by the Department, reporting requirements of the final-form rulemaking.

Estimated maximum amount of VOC emission reductions to be achieved from flexible packaging printing press operations:

The Department used VOC emission information from eFACTS and AIMS to estimate the maximum amount of VOC emission reductions to be achieved from flexible packaging printing press operations through implementation of the final-form rulemaking control measures. The Department identified 33 facilities in eFACTS that will potentially be subject to the final-form requirements for flexible packaging printing presses. Some of these facilities are already subject to the VOC content limits and add-on control requirements in § 129.67. The 33 facilities are listed in the following table along with their reported 2011 VOC emissions, which total 363.05 tons. The estimated maximum anticipated additional annual VOC reductions as a result of this final-form rulemaking depend on whether a facility is already in compliance with the final-form rulemaking provisions. Only one facility was evaluated to this extent, Bemis Co. Inc., by far the largest emitter listed. A permit review indicates that this facility already complies with the recommended control requirements of the final-form rulemaking; therefore, no additional reductions of VOC emissions for this source category are expected from this facility.

By proportioning the known emissions of these 33 facilities to the unknown emissions of the potentially affected 52 facilities estimated using the GAA and CTG information, the Department estimated that the emissions from the 52 facilities could be as much as 572.07 tpy (363.05 tons / 33 facilities = X tons / 52 facilities). Calculating further using the assumption on page 23 of the CTG that 25% of affected facilities meet the threshold of potential VOC emissions \geq 25 tpy from a single flexible packaging printing press, before consideration of add-on controls, 143 tons of VOC emissions could require add-on controls that meet the required 65% to 80% efficiency ($572 \text{ tpy} \times 25\% = 143 \text{ tpy}$ possibly requiring add-on control). The estimated maximum amount of additional VOC emission reductions to be achieved from applying add-on control to individual flexible packaging printing presses with a threshold of potential VOC emissions \geq 25 tpy, before consideration of add-on controls, is 93 tpy to 114 tpy ($143 \text{ tons} \times 65\% = 93 \text{ ton reduction}$; $143 \text{ tons} \times 80\% = 114 \text{ ton reduction}$).

The estimated maximum amount of additional VOC emission reductions to be achieved from implementation of the flexible packaging printing press requirements in the final-form rulemaking through the use of add-on air pollution control devices, use of complying printing materials or a combination of these compliance options is approximately 93 tpy to 114 tpy. Emission reductions from the implementation of work practices for cleaning activities would be in addition to these amounts. The actual amount of additional VOC emission reductions will be lower if the owners and operators of the affected facilities already comply with all or portions of the final-form rulemaking.

Flexible Packaging Printing Press Facilities in eFACTS/AIMS	2011 VOC emissions, in tons
BERWICK OFFRAY LLC/BERWICK	5.7241
GRAPHIC PKG INTL INC/PHOENIXVILLE	25.62
BEMIS PERFORMANCE PKG INC/LEBANON	30.56
CORE LABEL LLC/TYRONE	n/a
CP CONVERTERS INC/MANCHESTER	27.5
HUHTAMAKI FILMS INC/MALVERN	n/a
OLIVER-TOLAS HEALTHCARE PKG/FEASTERVILLE	14.49
BEMIS CO INC/HAZLETON*	188.6
CMS GILBRETH PACKAGING/BRISTOL	4.598
CONSTANTIA COLMAR/HATFIELD TWP	12.72
FRES CO SYS USA INC/TELFORD PLT	126.31
GLOBAL PKG/OAKS	13.08
MRI FLEXIBLE PKG/NEWTOWN	5.97
SUPERPAC INC/SOUTHAMPTON	24.92
TAVO PKG INC/FAIRLESS HILLS	3.78
TRINITY PKG/LEWISTOWN DIV	8.14
PACTIV PKG INC/DOWNTOWN	5.22
AVERY DENNISON CORP/QUAKERTOWN	16
BEDFORD MATERIALS CO/BEDFORD	n/a
EXOPACK LLC/HAZLETON	n/a
FILMTECH CORP/ALLENTOWN	n/a
HANDELOK BAG CO/LANSDALE	n/a
HILEX POLY CO/MILESBURG PLT	n/a
PKG CORP OF AMER/LANCASTER	n/a
RJM MFG INC/FAIRLESS HILLS	1.96
AESYS TECH LLC/YORK	n/a
CCL LABEL INC/BOOTHWYN	n/a
MULTI COLOR CORP/WILLOW SPRINGS PLT	12
SHARP CORP/CONSHOHOCKEN	n/a
TOPFLIGHT CORP/GLEN ROCK	16.95
PERFECSEAL	7.51
GENERAL PRESS CORPORATION	n/a
CATALENTA PHARMA SOLUTIONS, LLC	n/a
2011 TOTAL EMISSIONS, TONS	551.65
Total emissions available for reduction (551.65-188.6 for Bemis Co., Inc. = 363.05)	363.05

*No anticipated additional reductions of VOC emissions for this source category from this facility.

Number of presses potentially subject to the offset lithographic printing press and letterpress printing press requirements:

The Department converted the facility information on page 5 of the CTG for offset lithographic printing and letterpress printing into percentages in order to estimate the number of offset lithographic printing and letterpress printing press facilities subject to this final-form rulemaking. The result is that approximately 22% of the potentially affected web and sheet-fed offset lithographic printing presses and letterpress printing presses located in this Commonwealth are likely to meet the ≥ 450 pounds per month or 2.7 tons per 12-month rolling period threshold for actual VOC emissions. Additional information on page 5 of the CTG indicates that only 10% of those facilities meeting the threshold for actual VOC emissions are likely to meet the threshold of potential VOC emissions ≥ 25 tpy for a single press.

The Department applied the percentages to the numbers provided by the GAA. The numbers provided by the GAA of facilities offering each type of printing service assume that these are all individual facilities, when in reality a single facility can have one or more of these three printing press categories: web offset lithographic, sheet-fed lithographic and letterpress. Consequently, the number of actual affected facilities may be much lower. Nevertheless, of the 1,758 web or sheet-fed lithographic printing press and letterpress printing press facilities in this Commonwealth identified by the GAA, the Department estimates that 387 ($22\% \times 1,758$) could be subject to the final-form rulemaking at the ≥ 450 pounds per month or 2.7 tons per 12-month rolling period threshold of actual VOC emissions, thereby requiring VOC content emission limits for the fountain solutions for each offset lithographic printing press, and control of the VOC content of cleaning solutions and work practice standards for the cleaning activities and recordkeeping for each affected offset lithographic printing press or letterpress printing press at the facility. Further, the Department estimates that 39 ($10\% \times 387$) of these facilities could be subject at the threshold of potential VOC emissions ≥ 25 tpy, before consideration of add-on controls, from the dryer of a single heatset web offset lithographic printing press or heatset web letterpress printing press, thereby requiring VOC content emission limits for the fountain solutions or add-on control, work practice standards for the cleaning activities and recordkeeping. The remaining 1,371 facilities ($1758 - 387$ facilities), namely those with actual VOC emissions below the 450 pounds per month or 2.7 tons per 12-month rolling period threshold, would be subject only to the recordkeeping requirements and, if requested by the Department, reporting requirements of the final-form rulemaking.

Estimated maximum amount of additional VOC emission reductions to be achieved from offset lithographic printing presses and letterpress printing press operations:

The Department used VOC emission information from eFACTS and AIMS to estimate the maximum amount of VOC emission reductions to be achieved from offset lithographic printing and letterpress printing press operations through implementation of the final-form rulemaking control measures. The Department identified 73 facilities in eFACTS that will potentially be subject to the final-form requirements for offset lithographic printing presses or letterpress printing presses, or both. The facilities are listed in the following table along with their reported 2011 VOC emissions, which total 1,159.2 tons. Some of these facilities may already be in compliance with the VOC content emission limits or add-on control requirements, or both, in the final-form rulemaking. The estimated maximum anticipated additional annual VOC reductions as a result of this rulemaking depend on whether a facility is already in compliance with the final-form rulemaking provisions.

By proportioning the known emissions of these 73 facilities to the unknown emissions of the potentially affected 387 facilities estimated using the GAA and CTG information, the Department estimates that the emissions from the 387 facilities could be 6,145.3 tpy ($1,159.2$ tons / 73 facilities = X tons / 387 facilities). Calculating further using the assumption on page 5 of the CTG that 10% of the affected facilities meet the threshold of potential VOC emissions ≥ 25 tpy from the dryer, before consideration of add-on controls, of a single heatset web offset printing press or heatset letterpress printing press, 614.5 tons could require add-on controls that meet the 90% to 95% efficiency ($6,145.3$ tpy $\times 10\% = 614.5$ tons possibly requiring add-on control). The estimated maximum amount of VOC emission reductions from add-on controls for individual heatset offset lithographic printing presses and heatset letterpress printing presses with potential VOC emissions ≥ 25 tpy from the dryer, before consideration of add-on controls, could be 545.6 tpy to 575.89 tpy ($614.5 \times 90\% = 553$ ton reduction; $614.5 \times 95\% = 583$ ton reduction).

The estimated maximum amount of additional VOC emission reductions to be achieved from implementation of the offset lithographic printing press and letterpress printing press requirements in the final-form rulemaking through the use of add-on air pollution control devices, use of complying printing materials or a combination of

these compliance options is approximately 553 tpy to 583 tpy. Emission reductions from the implementation of work practices for cleaning activities would be in addition to these amounts. The actual amount of additional VOC emission reductions will be lower if the owners and operators of the affected facilities already comply with all or portions of the final-form rulemaking.

Offset Lithographic Printing Press or Letterpress Printing Press, or combination of these two press types, Facilities	2011 VOC emissions, in tons
DEE PAPER CO/CHESTER	5.41
GRAPHIC PKG INTL INC/PHOENIXVILLE	25.62
ALCOM PRINTING GROUP/BROOMALL	n/a
ALCOM PRINTING/HARLEYSVILLE PLT	5.81
BROUDY PRINTING INC/PGH	8.19
BROWN PRINTING CO/EAST GREENVILLE	29.46
BUCKS CNTY COURIER TIMES/FALLS PLT	n/a
BUTLER COLOR PRESS/BUTLER	24.35
CENVEO PUBLISHER SVC/LANCASTER	11.45
CREPS UNITED PUBLICATIONS/INDIANA	44.17
DONALD BLYLER OFFSET/LEBANON	n/a
EAGLE GRAPHICS INC/ANNVILLE	n/a
FRY COMMUNICATIONS INC/BLDG 1 & 2	15.25
FRY COMMUNICATIONS INC/BLDG 3	14.41
FRY COMMUNICATIONS INC/BLDG 4	16.45
HOECHSTETTER PRINTING/COMMERCIAL LITHO PRINTING	13.92
INNOVATION PRINTING & COMM/PHILA	11.34
INTELLIGENCER PRINTING/INTELL PRINTING LANCASTER CNTY	10.68
INTL BUSINESS SYS INC/KING OF PRUSSIA	2.6
KALILS PRINTING INC/ROYERSFORD	n/a
KAPPA GRAPHICS/HUGHESTOWN	5.11
KUTZTOWN PUB CO INC/KUTZTOWN PUBLISHING PLT	n/a
NATL LABEL CO/LAFAYETTE HILL	14.39
NPC INC/CLAYSBURG	4.6057
OBERTHUR TECHNOLOGIES/EXTON	16.69
PANEL PRINTS INC/OLD FORGE	33.7
PEMCOR INC/LANCASTER	15.42
PYRAMID GRAPHICS INC/CROYDON	n/a
QUAD / GRAPHICS ATGLE	369.3
QUAD GRAPHICS MARKETING LLC/BRISTOL	7.55
QUAD GRAPHICS MARKETING LLC/CHALFONT	20.81
REGENCY THERMOGRAPHERS/WAYNESBORO	n/a
RR DONNELLEY & SONS /NE DIV LANCASTER WEST	83.43
RR DONNELLEY & SONS CO/NE DIV LANCASTER EAST	194.24
RR DONNELLEY / QUAKERTOWN	12.5
RR DONNELLEY FINANCIAL INC/LANCASTER FINANCIAL PRINTING DIV	26.546
RR DONNELLEY/BAUM PLT	13.76
RR DONNELLEY/LEWISBURG PLT	6.32
SHARED MAIL ACQ LLC DBA DOODAD/LEOLA PRINT PLT	10
SHARP CORP/CONSHOHOCKEN	n/a
SMITH EDWARDS DUNLAP CO/ALLEGHENY AVE	5.19
SPECIALTY PRINTING INC/CHARLEROI	n/a
TAVO PKG INC/FAIRLESS HILLS	3.78
THE YGS GROUP/YORK	n/a
TURSACK PRINTING INC/CAERNARVON TWP	9.45
WEBB COMMUNICATIONS/WILLIAMSPORT PLT	n/a
WS PACKAGING GROUP/FRANKLIN	23.74

UNION PKG LLC/YEADON	n/a
FIBERMARK NORTH AMERICA INC/QUAKERTOWN	12.353
DATATEL RESOURCES CO/DATATEL	n/a
DEININGER PRINTING/ERIE	n/a
IWC DIRECT TWIN LLC/HAMBURG	n/a
MCCARTY PRINTING CORP/ERIE	n/a
NEWS PRINTING CO INC/CLAYSBURG	n/a
PAXAR AMER INC/WILCOX ST PLT	n/a
SELECT INDUSTRIES INC/NEW CASTLE	n/a
USA DIRECT LLC DBA VERTIS COMMUNICATIONS/YORK	n/a
WEST SHORE PRINTING /MECHANICSBURG	n/a
WORLD COLOR USA LLC/HAZLETON PLT	n/a
CLOVERLEAF GROUP INC/IDL WORLDWIDE	n/a
CONNER PRINTING INC/ASTON	n/a
GPS PRINTING/ASTON	n/a
GRAFIKA COMMERCIAL PRINTING/SINKING SPRING	20.06
EAGLE PRINTING CO/PROD CTR	11.14
CHOICE MARKETING INC/ASTON	n/a
BART ASH PUBLICATIONS	n/a
ICS CORPORATION	n/a
GENERAL PRESS CORPORATION	n/a
GEYER PRINTING COMPANY - 38TH STREET	n/a
CHAMP PRINTING	n/a
JB KREIDER COMPANY	n/a
HERRMANN PRINTING & LITHO	n/a
KNEPPER PRESS INCORPORATED	n/a
2011 TOTAL EMISSIONS, TONS	1159.2

(14) Provide a specific estimate of the costs and/or savings to the **regulated community** associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

The cost of complying with the requirements in the final-form rulemaking includes the cost of using low VOC-content or VOC-free inks, fountain solutions, coatings, adhesives and cleaning materials; add-on control systems; or a combination of these two approaches.

Based on information provided by the EPA in the flexible packaging printing CTG, the cost effectiveness of reducing VOC emissions from flexible packaging printing press operations is dependent on the flow rate, hourly solvent usage and operating hours. Using \$5,700³ per ton of VOC reduced from a catalytic oxidizer (in 2005 dollars), because the emission reductions of that scenario fit the scale of current emission estimates, the estimated maximum anticipated annual costs to the flexible packaging printing industry could range from \$530,100 to \$649,800 (93 tons VOC emissions reduced x \$5,700/ton reduced; 114 tons VOC emissions reduced x \$5,700/ton reduced).

Based on information provided by the EPA in the offset lithographic printing and letterpress printing CTG, the cost effectiveness of reducing VOC emissions from heatset offset lithographic and heatset letterpress printing operations is estimated to range from \$855 to \$2,010 per ton of VOC reduced for control of VOC emissions from cleaning materials and heatset inks, respectively. Using the \$2,010⁴ per ton of VOC removed for heatset

³EPA flexible packaging printing CTG, September 2006, page 21, Table 2, Scenario 1.

⁴EPA offset lithographic printing and letterpress printing CTG, September 2006, page 18, Table 1.

inks, the estimated maximum anticipated annual costs to the offset lithographic printing and letterpress printing industry could range from \$1,111,530 to \$1,171,830 (553 tons VOC emissions reduced x \$2,010/ton reduced; 583 tons VOC emissions reduced x \$2,010/ton reduced).

The estimated total maximum anticipated annual costs to the regulated printing industry as a whole could range from \$1,641,630 to \$1,821,630.

The owner and operator of a facility that already complies with the requirements of the 1996 NESHAP for the printing and publishing industry or other Best Available Technology permitting requirements through the use of add-on controls, including thermal oxidizers, may already satisfy the requirements of this final-form rulemaking and, if so, might have no additional annual costs.

The implementation of the work practices for the use and application of cleaning solutions is expected to result in a net cost savings. The recommended work practices for cleaning activities should reduce the amounts of cleaning solutions used by reducing the amounts that are lost to evaporation, spillage and waste.

The recordkeeping and reporting requirements for owners and operators above and below the threshold for control measures should be minimal because the records required by the final-form rulemaking are more in line with what the industry currently tracks for inventory purposes or in current permits. The owner or operator of a printing press subject to the final-form rulemaking is required to maintain records sufficient to demonstrate compliance with the applicable requirements. Records maintained for compliance demonstrations may include purchase, use, production and other records.

(15) Provide a specific estimate of the costs and/or savings to **local governments** associated with compliance, including any legal, accounting or consulting procedures which may be required. Explain how the dollar estimates were derived.

The final-form rulemaking is expected to impose no additional direct regulatory costs or savings on local governments.

If a local government purchases affected flexible packaging printing products, offset lithographic printing products or letterpress printing products, however, additional costs or savings commensurate with those for the private sector may be experienced.

(16) Provide a specific estimate of the costs and/or savings to **state government** associated with the implementation of the regulation, including any legal, accounting, or consulting procedures which may be required. Explain how the dollar estimates were derived.

The final-form rulemaking is expected to impose no additional direct regulatory costs or savings on state governments, except those nominal costs the Commonwealth will incur to provide training, outreach and technical assistance to the regulated community. No new staff resources are anticipated to be necessary.

To the extent that state government purchases affected flexible packaging printing products, offset lithographic printing products or letterpress printing products, however, additional costs or savings commensurate with those for the private sector may be experienced.

(17) In the table below, provide an estimate of the fiscal savings and costs associated with implementation and compliance for the regulated community, local government, and state government for the current year and five

subsequent years.

The estimated total maximum anticipated annual costs to the regulated printing industry as a whole could range from \$1,641,630 to \$1,821,630. Please see the information in the response to Question 14 for an explanation of how these numbers were calculated.

	Current Year 13/14	FY +1 Year 14/15	FY +2 Year 15/16	FY +3 Year 16/17	FY +4 Year 17/18	FY +5 Year 18/19
SAVINGS:	\$	\$	\$	\$	\$	\$
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Savings	0.00	0.00	0.00	0.00	0.00	0.00
COSTS:	0.00	0.00	0.00	0.00	0.00	0.00
Regulated Community	0.00	910,815	1,821,630	1,821,630	1,821,630	1,821,630
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Costs	0.00	910,815	1,821,630	1,821,630	1,821,630	1,821,630
REVENUE LOSSES:	0.00	0.00	0.00	0.00	0.00	0.00
Regulated Community	0.00	0.00	0.00	0.00	0.00	0.00
Local Government	0.00	0.00	0.00	0.00	0.00	0.00
State Government	0.00	0.00	0.00	0.00	0.00	0.00
Total Revenue Losses	0.00	0.00	0.00	0.00	0.00	0.00

(17a) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3 10/11	FY-2 11/12	FY-1 12/13	Current FY 13/14
Environmental Program Management (161-10382)	\$28,881,000	\$27,755,000	\$23,663,000	\$26,297,000
Clean Air Fund Major Emission Facilities (215-20077)	\$20,565,000	\$20,055,000	\$17,545,000	\$21,330,000
Clean Air Fund Mobile and Area Facilities (233-20084)	\$5,620,000	\$2,710,000	\$7,420,000	\$8,610,000

(18) Explain how the benefits of the regulation outweigh any cost and adverse effects.

Promulgation of this final-form rulemaking will meet a requirement of the CAA that this Commonwealth adopt

reasonably available control technology requirements for sources of VOC covered by CTGs – in this case, flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. Implementation of these VOC emission reduction measures in this Commonwealth is also reasonably required to attain and maintain the health- and welfare-based 8-hour ozone NAAQS. Implementation of the final-form rulemaking will benefit the health and welfare of the approximately 12 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of VOCs, which are precursors to the formation of ground-level ozone air pollution.

Exposure to ground-level ozone is a serious human and animal health and welfare threat, causing respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species, and damage to forests, ecosystems and infrastructure. Although the final-form rulemaking is designed primarily to improve air quality by reducing VOC emissions, the reformulation or substitution of printing materials to meet the VOC content limits applicable to users may also result in reduction of ambient indoor and outdoor concentrations of HAPs, which are also a serious health threat.

The estimated maximum amount of additional VOC emission reductions to be achieved from implementation of the flexible packaging printing press requirements in the final-form rulemaking through the use of add-on air pollution control devices is approximately 93 tpy to 114 tpy. The estimated maximum amount of additional VOC emission reductions to be achieved from implementation of the offset lithographic printing press and letterpress printing press requirements in the final-form rulemaking through the use of add-on air pollution control devices is approximately 553 tpy to 583 tpy. Emission reductions from the implementation of work practices for cleaning activities would be in addition to these amounts. The actual amount of additional VOC emission reductions will be lower if the owners and operators of the affected facilities already comply with all or portions of the final-form rulemaking. Please see the information in the response to Question 13 for an explanation of how these numbers were calculated.

The estimated maximum total annual costs to the regulated industry of \$1,821,630 for reducing emissions of VOC from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses are negligible compared to the improved health and environmental benefits that will be gained from this final-form rulemaking. (Maximum cost for reducing VOC emissions from all affected flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses combined: \$649,800 + \$1,171,830 = \$1,821,630.)

(19) Describe the communications with and input from the public and any advisory council/group in the development and drafting of the regulation. List the specific persons and/or groups who were involved.

The Department discussed the final-form rulemaking with the Air Quality Technical Advisory Committee (AQTAC) at its August 1, 2013, meeting. The AQTAC voted 11-1-1 to concur with the Department's recommendation to present the final-form rulemaking, with consideration of the issues discussed by the Committee and identified in the minutes, to the Board for consideration for publication as a final-form rulemaking. The issues discussed were as follows: the change from the 15 pounds per day applicability threshold to the 450 pounds per month applicability threshold for actual VOC emissions and the associated change from daily recordkeeping to monthly recordkeeping; the change from 30% to 70% VOC content for cleaning solutions; the change from 55 gallons to 110 gallons maximum for noncomplying cleaning solutions used at the facility each year; and the use of the VOC content of the highest VOC-containing ink as a surrogate for the VOC content of all inks used on the press to ease the recordkeeping burden.

The Department received some additional input after the August 1, 2013 AQTAC meeting which resulted in further discussions with the regulated industry regarding development of the final-form rulemaking. Namely,

Printing Industries of America, the Graphic Arts Association, the Flexographic Technical Association and Bemis Company, Inc. submitted letters of comment to AQTAC or the Department concerning the draft final-form rulemaking presented at the August 1, 2013, AQTAC meeting. The Department presented as an informational item the additional input and the Department's response to it at the December 12, 2013 AQTAC meeting.

The Department consulted with the SBCAC on July 24, 2013. The SBCAC concurred with the Department's recommendation to forward the final-form rulemaking to the Board for consideration as a final-form rulemaking. The Department also consulted with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight Committee (Committee) on August 28, 2013. The Committee reported on the final-form rulemaking to the CAC at its meeting of September 17, 2013. The CAC, on the recommendation of the Committee, concurred with presenting the final-form rulemaking to the Board. The Department also provided to the SBCAC and CAC for review the final-form Annex A as revised in response to the additional input described in the previous paragraph, above.

- (20) Include a description of any alternative regulatory provisions which have been considered and rejected and a statement that the least burdensome acceptable alternative has been selected.

Two commentators recommended that conservative material use estimates should be followed that would allow owners and operators of subject facilities to determine applicability by tracking material use volumes rather than by completing complex and time-consuming calculations. The Department consulted with the EPA on this matter and has decided not to create a separate applicability criterion based on material use limits since the lower applicability limits are based on actual emissions of 450 pounds per month and 2.7 tons per 12-month rolling total. The Department plans to include material use information in a Frequently Asked Questions document or Fact Sheet to assist owners and operators in making a preliminary determination of whether they might be subject to the regulation.

There are no alternative regulatory provisions available that will achieve the needed level of emission reductions from the affected flexible packaging printing presses and offset lithographic and letterpress printing presses.

- (21) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulations.

There are no Federal statutory or regulatory limits for VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. State regulations to control VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses are required under Federal law, however, and will be reviewed by the EPA to determine if the provisions meet the RACT requirements of the CAA and its implementing regulations. See *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747 (October 5, 2006).

Some of the work practice requirements for cleaning solutions in §§ 129.67a(g) and 129.67b(i) of the final-form rulemaking are more stringent than those recommended in the CTGs, but are not more stringent than Federal law because these requirements are already in the Commonwealth's Federally approved SIP. The CTGs recommend that the work practices for cleaning activities apply to parts washers or cold cleaners used for cleaning press parts. In Pennsylvania, however, the use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations). The requirements of § 129.63 are more stringent than the recommendations of the

CTG, but must be maintained to satisfy the anti-backsliding provisions of sections 110 and 193 of the CAA (42 U.S.C.A. §§ 7410 and 7515).

The applicability threshold for a single heatset web offset lithographic printing press or a single heatset web letterpress printing press in § 129.67b(a)(1)(i) of the final-form rulemaking is slightly more stringent than the threshold recommended in the offset lithographic printing and letterpress printing CTG. The recommended CTG applicability threshold is potential emissions from the dryer, before consideration of add-on controls, of at least 25 tons of VOC emissions from ink oils, whereas the final-form rulemaking has an applicability threshold of potential emissions from the dryer, before consideration of add-on controls, of at least 25 tons of VOC emissions from all inks (including varnishes), *coatings* and *adhesives* combined. The EPA provides in the CTGs that the recommendations are guidance and states may promulgate applicability criteria that differ from those recommended in the CTG. Even though the LLP CTG recommends basing the “potential to emit” applicability threshold on potential emissions from the dryer, prior to controls, of VOCs from ink oils, basing the threshold on potential emissions, prior to controls, of all VOC emissions from the dryer is also reasonable. The Department had detailed discussions with EPA Region 3 concerning this issue. The Department understands that small to no amounts of coatings and adhesives go through lithographic printing presses and letterpress printing presses; therefore, the majority of potential VOC emissions will be from ink oil and the applicability will effectively be only to potential VOC emissions from heatset inks. Implementation of the add-on air pollution control measure requirements will continue to be cost-effective even if the small amounts of potential VOC emissions from coatings and adhesives are included.

The applicability threshold for offset lithographic printing presses and letterpress printing presses that is based on actual emissions of VOCs from inks, coatings, adhesives, fountain solutions and related cleaning activities at a facility, in § 129.67b(a)(1)(iv) of the final-form rulemaking, is more stringent than the threshold recommended in the CTG, in that it requires emissions relating to both types of presses at one facility to be combined. The CTG recommends that the emission limitations for the fountain solutions and cleaning solvents be applicable to any offset lithographic printing operation where the emissions associated with all aspects of that operation equal or exceed the threshold for actual emissions of VOC. Similarly, the CTG recommends that the control approaches for cleaning materials discussed in this CTG apply to any letterpress printing operation where the emissions associated with all aspects of that operation equal or exceed the stated threshold of actual emissions of VOC. In drafting the final-form rulemaking, the Department realized that often printers have various types of printing equipment under one roof and by combining the emissions from these two press types in the final-form rulemaking applicability, the rulemaking now offers the same environmental protection from the combined emissions under one roof as the emissions from each press type. Since the applicability in the proposed rulemaking was based on meeting one or a combination of the applicability thresholds, the Department is exercising the flexibility provided in the CTGs for states to promulgate applicability criteria that differ from those recommended in the CTG, in order to achieve the same amount of environmental protection.

The requirements in the final-form rulemaking are otherwise consistent with the recommendations of the EPA in the 2006 CTGs for flexible packaging printing presses and offset lithographic and letterpress printing presses.

(22) How does this regulation compare with those of other states? How will this affect Pennsylvania’s ability to compete with other states?

As discussed in the response to Question 12, section 184(b)(1)(B) of the CAA requires that states in the OTR submit a SIP revision requiring implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG. 42 U.S.C.A. § 7511c(b)(1)(B). All states in the OTR that have flexible packaging printing presses, offset lithographic printing presses or letterpress printing presses, or a combination of these press types,

are required to implement RACT or equivalent control measures. Further, the Department researched the regulations for several nearby states to determine if the “potential emissions” applicability threshold in those states is based on the VOC emissions from inks only, or from inks, coatings and adhesives, as the Commonwealth’s final-form rulemaking does. The Department determined that several nearby states similarly base the “potential emissions” applicability threshold on the VOC emissions from more than just inks. For instance, New York’s regulation is based on the VOC emissions from inks, coatings and adhesives used on the press (see, N.Y. COMP. CODES R. & REGS. Tit. 6, § 234.3(b)(1); Maryland’s regulation is based on all VOC emissions from the press (see, MD. CODE REGS. 26.11.19.11(e)); and Connecticut’s regulation is based on all VOC emissions from the dryers prior to control (see, CONN. AGENCIES REGS. § 22a-174-20(gg)(4)). The Commonwealth will not be at a disadvantage with the other states in the OTR.

(23) Will the regulation affect any other regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The applicability of § 129.67a in the final-form rulemaking to sources already subject to § 129.67 is described in § 129.67a(a)(2), which establishes that an owner or operator of a flexographic or rotogravure printing press subject to §§ 129.67a(a)(1)(ii) and 129.67 that prints flexible packaging materials, who was required to install a control device under § 129.67 prior to the effective date of § 129.67a, shall continue the operation of that control device and also meet the requirements of § 129.67a. Operation of the previously installed control device must continue in order to satisfy the CAA provisions in sections 110 and 193 of the CAA (42 U.S.C.A. §§ 7410 and 7515) against backsliding from existing SIP-approved emission control requirements.

Section 129.67a(a)(3) in the final-form rulemaking clarifies that VOCs from adhesives used at the facility that are not used or applied on or with the flexible packaging printing press are not subject to § 129.67a and may be regulated under § 129.52b, § 129.77 or Chapter 130, Subchapter D (relating to adhesives, sealants, primers and solvents).

Section 129.67b(a)(2) clarifies that VOCs from adhesives used at the facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to § 129.67b and may be regulated under § 129.77 or Chapter 130, Subchapter D.

The final-form rulemaking also amends the adhesives, sealants, primers and solvents regulations under Chapters 129 and 130 published at 40 Pa. B. 7340 (December 25, 2010) to clarify the applicability of the adhesive, sealant, primer and solvent requirements to the adhesives used or applied on or with the printing presses. The final-form rulemaking amends § 129.77(k)(2) to clarify that § 129.77 does not apply to the use or application of adhesives, sealants, adhesive primers and sealant primers that are subject to other regulations in Chapter 129 or 130. The final-form rulemaking amends § 130.703(a)(2) to clarify that Chapter 130, Subchapter D does not apply to the use, application, sale, supply, offer for sale or manufacture for sale for use in this Commonwealth of adhesives, sealants, adhesive primers and sealant primers that are subject to other regulations in Chapter 129 or 130.

The final-form rulemaking amends the definition of the term “paper, film or foil coating or paper, film or foil surface coating” in § 121.1 to clarify that a coating applied to a flexible packaging substrate is considered surface coating and not printing, if the coating is not applied on or in-line with a flexible packaging printing press. These coating processes would be regulated under § 129.52b. Printing of self-adhesive labels will also not be considered flexible packaging. Adhesives used on or applied to self-adhesive labels will be regulated under the paper, film or foil surface coating process category “pressure sensitive tapes and labels” found in § 129.52b.

(24) Submit a statement of legal, accounting or consulting procedures and additional reporting, recordkeeping or other paperwork, including copies of forms or reports, which will be required for implementation of the regulation and an explanation of measures which have been taken to minimize these requirements.

The owner and operator of an affected flexible packaging printing press or offset lithographic or letterpress printing press will be required to keep records of information for inks (including varnishes, if applicable), coatings, adhesives, fountain solutions and cleaning solvents, as applicable, sufficient to demonstrate compliance. The records may include identification of materials, VOC content and volumes used. Records maintained for compliance demonstrations may include purchase, use, production and other records. The final-form rulemaking does not require daily records, as the proposed rulemaking would have. The final-form rulemaking also requires that owners and operators of facilities that fall below the threshold for implementing control measures based on actual or potential VOC emissions, before consideration of add-on controls, keep records that demonstrate to the Department that the press or facility is exempt. The records required in the final-form rulemaking must be maintained for 2 years unless a longer period is required by a plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). Persons seeking to comply through the use of add-on controls are required to keep certain operational records and to meet the applicable reporting requirements specified in Chapter 139 (relating to sampling and testing).

(25) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

The Department took special care to address the concerns of small businesses in developing the final-form rulemaking. While there are no provisions in the final-form rulemaking specific to small businesses, the Department understands, based on public comments received, that many printing operations are small businesses. Members and representatives of the printing industry expressed concern that the proposed daily recordkeeping requirements would be burdensome on small businesses. Accordingly, the Department revised the recordkeeping provisions in the final-form rulemaking to a monthly, not a daily, requirement. This and other changes made in the final-form rulemaking based on comments received should satisfy most or all of the concerns raised by commentators regarding small businesses.

The Department has shared information at SBCAC meetings concerning this final-form rulemaking, which resulted in some outreach efforts. The Pennsylvania Small Business Development Center's Environmental Management Assistance Program (EMAP) sent post cards in June 2012 detailing the air quality services it provides. These were sent to the approximate 2000+ printing facilities in Pennsylvania that EMAP found by searching the *Harris Selectory*. (The *Harris Selectory* is a national database of company and industry information.) There was also an article in the May 2013 EMAP newsletter, which was sent to EMAP clients, SBDC staff, state legislators and others who have signed up for their mailing list, concerning the regulation development. The NFIB also sent a notice in May of 2013 to its printing members in the Commonwealth to create awareness of this pending rule prior to its final publication. The GAA plans on creating a compliance tool kit to provide to their member facilities once the final-form rulemaking is approved and has asked the Department for concurrence that the tool-kit information would be in compliance with the regulation. The Department plans to continue to work with these organizations, as needed.

The final-form rulemaking is not subject to the additional small business-related analyses required by Act 76 of 2012, because the proposed rulemaking stage was completed prior to August 28, 2012 (the public comment period closed in April 2012).

(26) Include a schedule for review of the regulation including:

- A. The date by which the agency must receive public comments: April 16, 2012
- B. The date or dates on which public meetings or hearings will be held: March 14, 15, 16, 2012
- C. The expected date of promulgation of the proposed regulation as a final-form regulation: 1st Quarter 2014
- D. The expected effective date of the final-form regulation: 1st Quarter 2014
- E. The date by which compliance with the final-form regulation will be required: January 1, 2015
(as currently indicated in Annex A)
- F. The date by which required permits, licenses or other approvals must be obtained: N/A

(27) Provide the schedule for continual review of the regulation.

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

**FACE SHEET
FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE
BUREAU**

(Pursuant to Commonwealth Documents Law)

Copy below is hereby approved as to form and legality.
Attorney General

By: (Deputy Attorney General)

DATE OF APPROVAL

Check if applicable
Copy not approved. Objections attached.

Copy below is hereby certified to be true and correct copy of a document issued, prescribed or promulgated by:

**DEPARTMENT OF ENVIRONMENTAL
PROTECTION
ENVIRONMENTAL QUALITY BOARD**

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-469

DATE OF ADOPTION FEBRUARY 18, 2014

BY

E. Christopher Abruzzo

TITLE E. CHRISTOPHER ABRUZZO
CHAIRMAN

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

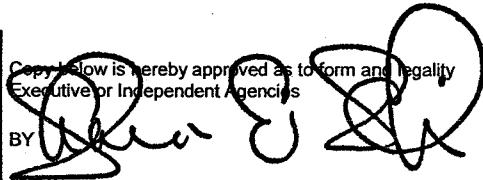
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MAR 11 2014

DATE OF APPROVAL

(Deputy General Counsel)
~~(Chief Counsel - Independent Agency)~~
(Strike inapplicable title)

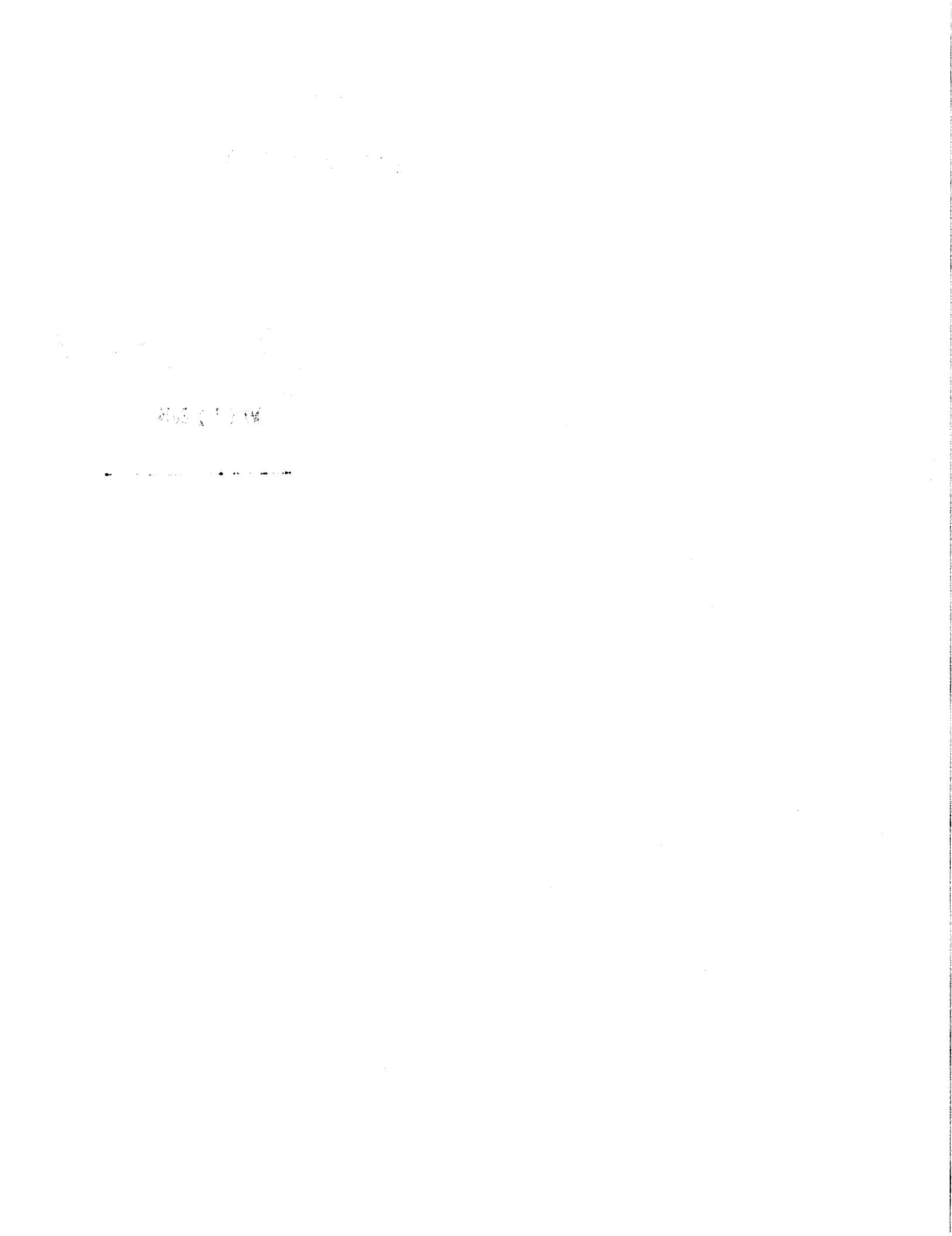
Check if applicable. No Attorney General Approval or objection within 30 days after submission.

NOTICE OF FINAL RULEMAKING

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD**

**CONTROL OF VOC EMISSIONS FROM FLEXIBLE PACKAGING PRINTING PRESSES,
OFFSET LITHOGRAPHIC PRINTING PRESSES AND LETTERPRESS PRINTING PRESSES;
AND ADHESIVES, SEALANTS, PRIMERS AND SOLVENTS**

25 Pa. Code, Chapters 121, 129 and 130



**Title 25—ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
[25 PA. CODE CHS. 121, 129 AND 130]**

**Flexible Packaging Printing Presses, Offset Lithographic Printing Presses and Letterpress
Printing Presses; Adhesives, Sealants, Primers and Solvents**

The Environmental Quality Board (Board) amends Chapters 121, 129 and 130 (relating to general provisions; standards for sources; and standards for products) to read as set forth in Annex A. This final-form rulemaking amends Chapter 121 to add terms and definitions in § 121.1 (relating to definitions) and amends Chapter 129 to limit emissions of volatile organic compounds (VOC) from inks, varnishes, coatings, adhesives, fountain solutions and cleaning solutions used or applied on or with flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. The final-form rulemaking amends §§ 129.51 and 129.67 (relating to general; and graphic arts systems) and adds §§ 129.67a and 129.67b (relating to control of VOC emissions from flexible packaging printing presses; and control of VOC emissions from offset lithographic printing presses and letterpress printing presses).

The final-form rulemaking also amends the adhesives, sealants, primers and solvents regulations in Chapters 129 and 130 to clarify the applicability of the adhesive, sealant, adhesive primer and sealant primer requirements of §§ 129.77 and 130.703 (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and exemptions and exceptions) to the adhesives used or applied on or with the printing presses regulated under this final-form rulemaking.

This order was adopted by the Board at its meeting of February 18, 2014.

A. Effective Date

This final-form rulemaking will be effective upon publication in the *Pennsylvania Bulletin*.

This final-form rulemaking will be submitted to the United States Environmental Protection Agency (EPA) for approval as a revision to the Pennsylvania State Implementation Plan (SIP) upon publication.

B. Contact Persons

For further information, contact Kirit Dalal, Chief, Division of Air Resource Management, Bureau of Air Quality, 12th Floor, Rachel Carson State Office Building, P. O. Box 8468, Harrisburg, PA 17105-8468, (717) 772-3436; or Kristen Furlan, Assistant Counsel, Bureau of Regulatory Counsel, 9th Floor, Rachel Carson State Office Building, P. O. Box 8464, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the Pennsylvania AT&T Relay Service by calling (800) 654-5984 (TDD users) or (800) 654-5988 (voice users). This final-form rulemaking is available electronically through the Department of Environmental Protection's (Department) web site at www.depweb.state.pa.us.

C. Statutory Authority

This final-form rulemaking is authorized under section 5 of the Air Pollution Control Act (35 P. S. § 4005), which in subsection (a)(1) grants the Board the authority to adopt rules and regulations for the prevention, control, reduction and abatement of air pollution in this Commonwealth, and which in subsection (a)(8) grants the Board the authority to adopt rules and regulations designed to implement the Clean Air Act (CAA) (42 U.S.C.A. §§ 7401—7671q).

D. Background and Summary

The purpose of this final-form rulemaking is to implement control measures to reduce VOC emissions from inks, varnishes, coatings, adhesives, fountain solutions and cleaning solutions used or applied on or with flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. VOCs are precursors for ground-level ozone formation. Ground-level ozone, a public health and welfare hazard, is not emitted directly by inks, coatings and other materials to the atmosphere, but is formed by a photochemical reaction between VOCs and nitrogen oxides (NOx) in the presence of sunlight. In accordance with sections 172(c)(1), 182(b)(2)(A) and 184(b)(1)(B) of the CAA (42 U.S.C.A. §§ 7502(c)(1), 7511a(b)(2)(A) and 7511c(b)(1)(B)), the final-form rulemaking establishes the VOC emission limits and other requirements of the EPA 2006 Control Techniques Guidelines (CTG) for flexible packaging printing and for offset lithographic printing and letterpress printing for these sources in this Commonwealth. See *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747 (October 5, 2006).

The EPA is responsible for establishing National Ambient Air Quality Standards (NAAQS) for six criteria pollutants considered harmful to public health and the environment: ozone, particulate matter, NOx, carbon monoxide, sulfur dioxide and lead. The CAA established two types of NAAQS: primary standards, limits set to protect public health; and secondary standards, limits set to protect public welfare, including protection against visibility impairment and from damage to animals, crops, vegetation and buildings. The EPA established primary and secondary ozone NAAQS to protect public health and welfare.

When ground-level ozone is present in concentrations in excess of the Federal health-based 8-hour NAAQS for ozone, public health and welfare are adversely affected. Ozone exposure correlates to increased respiratory disease and higher mortality rates. Ozone can inflame and damage the lining of the lungs. Within a few days, the damaged cells are shed and replaced. Over a long time period, lung tissue may become permanently scarred, resulting in permanent loss of lung function and a lower quality of life. When ambient ozone levels are high, more people with asthma have attacks that require a doctor's attention or use of medication. Ozone also makes people more sensitive to allergens including pet dander, pollen and dust mites, all of which can trigger asthma attacks.

The EPA concluded that there is an association between high levels of ambient ozone and increased hospital admissions for respiratory ailments, including asthma. While children, the

elderly and those with respiratory problems are most at risk, even healthy individuals may experience increased respiratory ailments and other symptoms when they are exposed to high levels of ambient ozone while engaged in activities that involve physical exertion. High levels of ozone also affect animals in ways similar to humans. In addition to causing adverse human and animal health effects, the EPA concluded that ozone affects vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields by destroying chlorophyll; reduced growth and survivability of tree seedlings; and increased plant susceptibility to disease, pests and other environmental stresses, including harsh weather. In long-lived species, these effects may become evident only after several years or even decades and have the potential for long-term adverse impacts on forest ecosystems. Ozone damage to the foliage of trees and other plants can decrease the aesthetic value of ornamental species used in residential landscaping, as well as the natural beauty of parks and recreation areas. Through deposition, ground-level ozone also contributes to pollution in the Chesapeake Bay. The economic value of some welfare losses due to ozone can be calculated, such as crop yield loss from both reduced seed production and visible injury to some leaf crops, including lettuce, spinach and tobacco, as well as visible injury to ornamental plants, including grass, flowers and shrubs. Other types of welfare loss may not be quantifiable, such as the reduced aesthetic value of trees growing in heavily visited parks.

High levels of ground-level ozone can also cause damage to buildings and synthetic fibers, including nylon, and reduced visibility on roadways and in natural areas. The implementation of additional measures to address ozone air quality nonattainment in this Commonwealth is necessary to protect the public health and welfare, animal and plant health and welfare and the environment.

In July 1997, the EPA promulgated primary and secondary ozone standards at a level of 0.08 part per million (ppm) averaged over 8 hours. See 62 FR 38855 (July 18, 1997). In 2004, the EPA designated 37 counties in this Commonwealth as 8-hour ozone nonattainment areas for the 1997 8-hour ozone NAAQS. Based on preliminary data for the 2013 ozone season, all monitored areas of the Commonwealth are attaining the 1997 8-hour ozone NAAQS. The Department must ensure that the 1997 ozone standard is attained and maintained by implementing permanent and enforceable control measures to ensure violations of the standard do not occur for the next decade.

In March 2008, the EPA lowered the standard to 0.075 ppm averaged over 8 hours to provide even greater protection for children, other at-risk populations and the environment against the array of ozone-induced adverse health and welfare effects. See 73 FR 16436 (March 27, 2008). In April 2012, the EPA designated five areas in Pennsylvania as nonattainment for the 2008 ozone NAAQS. See 77 FR 30088, 30143 (May 21, 2012). These areas include all or a portion of the following counties: Allegheny, Armstrong, Berks, Beaver, Bucks, Butler, Carbon, Chester, Delaware, Fayette, Lancaster, Lehigh, Montgomery, Northampton, Philadelphia, Washington and Westmoreland. The Commonwealth must ensure that these areas attain the 2008 ozone standard by 2015 and that they continue to maintain the standard thereafter. Furthermore, five monitors in areas of the Commonwealth that the EPA considered “unclassifiable/attainment” when it designated nonattainment areas in April 2012 violated the 2008 standard in 2012. The Commonwealth must also ensure that these “unclassifiable/attainment” areas attain and maintain the standard to avoid having them designated as nonattainment areas. Implementing control measures for reducing the emissions of VOCs, such as the recommendations included in the

CTGs, is a strategy that the Commonwealth can use to attain and maintain the 2008 standard in all of these areas.

There are no Federal statutory or regulatory limits for VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. State regulations to control VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses are required under Federal law, however, and will be reviewed by the EPA to determine if the provisions meet the "reasonably available control technology" (RACT) requirements of the CAA and its implementing regulations. See *Consumer and Commercial Products, Group II: Control Techniques Guidelines in Lieu of Regulations for Flexible Packaging Printing Materials, Lithographic Printing Materials, Letterpress Printing Materials, Industrial Cleaning Solvents, and Flat Wood Paneling Coatings*, 71 FR 58745, 58747. The EPA defines RACT as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility." See *State Implementation Plans; General Preamble for Proposed Rulemaking on Approval of Plan Revisions for Nonattainment Areas—Supplement (on Control Techniques Guidelines)*, 44 FR 53761 (September 17, 1979).

Section 172(c)(1) of the CAA provides that SIPs for nonattainment areas must include "reasonably available control measures," including RACT, for sources of emissions. Section 182(b)(2) of the CAA provides that, for moderate ozone nonattainment areas, states must revise their SIPs to include RACT for sources of VOC emissions covered by a CTG document issued by the EPA prior to the area's date of attainment. More importantly, section 184(b)(1)(B) of the CAA requires that states in the Ozone Transport Region (OTR), including the Commonwealth, submit a SIP revision requiring implementation of RACT for all sources of VOC emissions in the state covered by a specific CTG.

Section 183(e) of the CAA (42 U.S.C.A. § 7511b(e)) directs the EPA to list for regulation those categories of products that account for at least 80% of the VOC emissions from consumer and commercial products in ozone nonattainment areas. Section 183(e)(3)(C) of the CAA further provides that the EPA may issue a CTG in place of a National regulation for a product category when the EPA determines that the CTG will be "substantially as effective as regulations" in reducing emissions of VOC in ozone nonattainment areas. In 1995, the EPA listed flexible packaging printing materials, lithographic printing materials and letterpress printing materials on its section 183(e) list and, in 2006, issued CTGs for flexible packaging printing materials and for offset lithographic printing and letterpress printing materials. See 60 FR 15264 (March 23, 1995) and 71 FR 58745; *Control Techniques Guidelines for Flexible Package Printing*, EPA 453/R-06-003, Office of Air Quality Planning and Standards, EPA, September 2006 (FPP CTG); and *Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing*, EPA 453/R-06-002, Office of Air Quality Planning and Standards, EPA, September 2006 (LLP CTG). The CTGs are available on the EPA website at:
www.epa.gov/airquality/ozonepollution/SIPToolkit/ctgs.html.

In the 2006 notice, the EPA determined that the CTGs would be substantially as effective as a National regulation in reducing VOC emissions from these printing material product categories in ozone nonattainment areas. See 71 FR 58745. The CTGs provide states with the EPA's

recommendation of what constitutes RACT for the covered category. States can use the recommendations provided in the CTGs to inform their own determination as to what constitutes RACT for VOC emissions from the covered category. State air pollution control agencies are free to implement other technically sound approaches that are consistent with the CAA requirements and the EPA's implementing regulations or guidelines.

When developing the RACT measures included in its Flexible Package Printing CTG, the EPA took into account the National Emission Standards for Hazardous Air Pollutants (NESHAP) for the printing and publishing industry promulgated in May 1996 and codified at 40 CFR Part 63, Subpart KK (relating to National emission standards for the printing and publishing industry). Many hazardous air pollutants (HAP) are VOCs, but not all VOCs are HAPs. The requirements of the 1996 NESHAP apply to "major sources" of HAP from printing and publishing operations, including flexible package printing operations. For the purpose of regulating HAP, a "major source" is considered to be a stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year (tpy) of any single listed HAP or 25 tpy of any combination of HAPs. See section 112(a)(1) of the CAA (42 U.S.C.A. § 7412(a)(1)); see also 61 FR 27133 (May 30, 1996).

The Department reviewed the recommendations included in the 2006 CTGs for flexible packaging printing presses and for offset lithographic printing presses and letterpress printing presses for their applicability to the ozone reduction measures necessary for this Commonwealth. The Bureau of Air Quality has determined that the measures provided in the final-form rulemaking are appropriate to be implemented in this Commonwealth as RACT for these source categories.

Implementation of the control measures included in the final-form rulemaking will achieve VOC emission reductions locally and will also reduce the transport of VOC emissions and ground-level ozone to downwind states. Adoption of VOC emission requirements for flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses is part of the Commonwealth's strategy, in concert with other OTR jurisdictions, to further reduce transport of VOC ozone precursors and ground-level ozone throughout the OTR to attain and maintain the 8-hour ozone NAAQS. The final-form rulemaking is required under the CAA and is reasonably required to attain and maintain the health-based 8-hour ozone NAAQS and to satisfy related CAA requirements in this Commonwealth. Upon publication in the *Pennsylvania Bulletin*, the final-form rulemaking will be submitted to the EPA as a revision to the SIP.

The final-form rulemaking was discussed with the Air Quality Technical Advisory Committee (AQTAC) on August 1, 2013. During the AQTAC's consideration of the final-form rulemaking, the following issues were discussed: the change from the proposed 15 pounds per day applicability threshold to the 450 pounds per month applicability threshold and the associated change from daily recordkeeping to monthly recordkeeping; the change from 30% to 70% VOC content for cleaning solutions; the change from the 55-gallon limit to the 110-gallon limit for non-complying cleaning solutions used at the facility each year; and the use of the VOC content of the highest VOC-containing ink as a surrogate for the VOC content of all inks used on the press to ease the recordkeeping burden. Following its discussion on August 1, 2013, the

AQTAC voted 11-1-1 to concur with the Department's recommendation to present the final-form rulemaking to the Board for approval for publication as a final-form rulemaking with consideration of the changes discussed at the meeting.

The Department consulted with the Small Business Compliance Advisory Committee (SBCAC) on July 24, 2013. The SBCAC concurred with the Department's recommendation to forward the final-form rulemaking to the Board for consideration for publication as final-form rulemaking. The Department also consulted with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight Committee (Committee) on August 28, 2013. The Committee reported on the final-form rulemaking to the CAC at its meeting of September 17, 2013. The CAC, on the recommendation of the Committee, concurred with presenting the final-form rulemaking to the Board. The Department anticipates assisting the Graphic Arts Association, the National Federation of Independent Businesses (NFIB), and the SBCAC in reaching out to their membership concerning this final-form rulemaking.

E. Summary of Final-Form Rulemaking and Changes from Proposed to Final-Form Rulemaking

§ 121.1. Definitions

The final-form rulemaking adds 18 new terms and definitions to § 121.1 and revises the definitions of five existing terms to support §§ 129.67a and 129.67b. The final-form rulemaking deletes two proposed new terms that are not needed to support the amendments set forth at final.

The following nine new terms and definitions are identical to the amendments set forth in the proposed rulemaking: “alcohol substitute,” “flexible packaging,” “flexible packaging printing press,” “fountain solution,” “heatset ink,” “letterpress printing,” “printing press,” “sheet-fed printing” and “web printing.”

A member of AQTAC commented at AQTAC’s August 1, 2013, meeting on the definition of “alcohol substitute,” suggesting that the second sentence of the definition should be deleted as extraneous information. The Board has considered this suggestion and has retained the definition as proposed because the second sentence provides helpful information.

A member of AQTAC commented at AQTAC’s August 1, 2013, meeting on the definition of “fountain solution,” suggesting that the phrase “specifically isopropyl alcohol” was restrictive and should be revised to include all alcohols. The Board has considered this suggestion and has retained the definition as proposed because “isopropyl alcohol” is specified in the LLP CTG as one of the most common VOC components, in addition to alcohol substitutes, to be added to fountain solutions.

The following five new terms and definitions contain changes made to the proposed language in response to public comments. The Board revised the proposed definition of “batch” to reflect that it applies to both fountain solutions and cleaning solutions. The Board revised the proposed definitions of “lithographic plate,” “lithographic printing” and “offset lithographic printing” to remove the words “thin metal.” The Board clarified the proposed definition of “varnish.”

The following new term and definition contains changes to the proposed language in response to concerns expressed by members of AQTAC at AQTAC's August 1, 2013, meeting. The Board revised the proposed definition of "alcohol" to correct the subscript for the hydrogen atom in the general formula that represents alcohols.

The following three terms and definitions are new in the final-form rulemaking and are intended to add clarity to other definitions and to § 129.67b: "cleaning solution," "heatset" and "non-heatset."

The final-form rulemaking makes no changes to the proposed amendments of two existing terms. The definition of the existing term "paper, film or foil coating or paper, film or foil surface coating" is identical to the amendments set forth in the proposed rulemaking, which clarify that a coating applied to a flexible packaging substrate is considered surface coating and not printing, if the coating is not applied on or in-line with a flexible packaging printing press. These coating processes are regulated under § 129.52b (relating to control of VOC emissions from paper, film and foil surface coating processes). The final-form definition of the existing term "rotogravure printing" is identical to the amendment set forth in the proposed rulemaking to insert a missing word for clarity.

The final-form rulemaking amends definitions of the existing terms "as applied," "as supplied," and "CPDS—Certified Product Data Sheet," for clarity. Additionally, a member of AQTAC asked at the August 1, 2013, meeting if there was an approving authority for the option of using an equivalent or alternative method included in the revised definition of "CPDS—Certified Product Data Sheet." The Board considered this question and clarified the definition to specify that the equivalent or alternative method must be approved by the Department. The Board thanks the AQTAC for providing this comment.

The final-form rulemaking removes the proposed term "first installation date" and its definition and moves the definition into Table 1 in § 129.67a, and into § 129.67b(d)(1), where the term is used in § 129.67b(d)(1)(i) and the definition fits comfortably in § 129.67b(d)(1)(ii). The final-form rulemaking removes the proposed definition of "heatset dryer" because it is no longer needed.

§ 129.51. General

The final-form rulemaking amends § 129.51(a) to extend its coverage to the owner and operator of a flexible packaging printing press, offset lithographic printing press or letterpress printing press, or a combination of these press types, covered by this final-form rulemaking. Section 129.51(a) provides an alternative method for the owner and operator of an affected facility to achieve compliance with air emission limits. Paragraph 129.51(a)(3) is amended to clarify the materials included in the requirement.

The final-form rulemaking amends § 129.51(c) to clarify that the test methods in Chapter 139 (relating to sampling and testing) should be followed to monitor compliance with the emission requirements of § 129.51, unless otherwise set forth in Chapter 129.

The final-form rulemaking amends § 129.51(d) to clarify the records that are generally applicable under Chapter 129 to demonstrate emission limitations or control requirements and the amount of time the records must be kept.

The final-form rulemaking redesignates § 129.51(d)(3) as § 129.51(e) to clarify that the owner or operator of a facility or source claiming that the facility or source is exempt from the VOC control provisions of Chapter 129 shall maintain records that clearly demonstrate to the Department that the facility or source is not subject to the VOC emission limitations or control requirements of Chapter 129.

§ 129.67. Graphic arts systems

The final-form rulemaking amends § 129.67 to account for the new requirements that will apply to the owner and operator of a flexible packaging printing press under § 129.67a. The revisions to this section read the same as in the proposed rulemaking.

Section 129.67 applies more broadly than § 129.67a, in two ways. Firstly, § 129.67 applies to rotogravure and flexographic printing presses beyond those used for flexible packaging printing. Secondly, § 129.67 requires VOC emissions from surface coating operations to count toward the total VOC emissions that trigger applicability of the section to the owner and operator of a facility that has emissions from a rotogravure or flexographic printing press. The VOC emission applicability threshold is higher, however, than under final-form § 129.67a.

The amendments to § 129.67 clarify that an owner or operator of a flexible packaging printing press, who was required to install a control device under § 129.67 prior to the effective date of this final-form rulemaking and who is also subject to the recordkeeping, reporting and work practice requirements of § 129.67a by virtue of meeting the 450 pounds per month or 2.7 tons per 12-month rolling period, or both, VOC emission threshold in § 129.67a(a)(1)(ii), is subject both to the existing control device requirement of § 129.67 and the new recordkeeping, reporting and work practice requirements of § 129.67a.

The amendments to § 129.67 also clarify, however, that an owner or operator of a flexible packaging printing press who is subject to the control requirements of § 129.67a by virtue of meeting the threshold of 25 tpy of potential emissions of VOC, before consideration of add-on controls, for an individual flexible packaging printing press dryer under § 129.67a(a)(1)(i) is not subject to § 129.67 because they are subject to more stringent control requirements under § 129.67a. This owner and operator will also be subject to the recordkeeping, reporting, work practice and other requirements of § 129.67a.

§ 129.67a. Control of VOC emissions from flexible packaging printing presses

The final-form rulemaking adds § 129.67a to regulate VOC emissions from flexible packaging printing presses. As explained in subsection (b), § 129.67a supersedes the requirements of a RACT permit already issued under §§ 129.91—129.95 (relating to stationary sources of NO_x)

and VOCs) to the owner or operator for VOC emissions from a flexible packaging printing press subject to § 129.67a, except to the extent the RACT permit contains more stringent requirements.

The applicability of § 129.67a is described in subsection (a), which establishes a threshold with broad applicability in subsection (a)(1)(ii) and a threshold for control requirements on higher VOC-emitting presses, based on their potential emissions from the dryer, before consideration of add-on controls, in subsection (a)(1)(i).

The broadly applicable threshold in subsection (a)(1)(ii) is as follows: 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period of actual VOC emissions, before consideration of add-on controls, from all flexible packaging printing operations, and all VOC emissions from related cleaning activities, at the facility. An owner and operator of a facility that meets or exceeds either of these thresholds shall comply with the recordkeeping and reporting requirements of subsection (e), the work practice requirements for cleaning activities of subsection (g) and the sampling and testing requirements in subsection (f), as applicable.

The final-form rulemaking contains a new subsection (a)(1)(iii) that was not in the proposed rulemaking. This amendment provides that the owner and operator of a flexible packaging printing press that emits actual VOC emissions below the 450 pounds per month or 2.7 tons per 12-month rolling period threshold are subject to the final-form rulemaking. The owner and operator are subject only to the recordkeeping requirements found in subsection (e)(3) and (4) to demonstrate that they are exempt from the VOC control provisions of this section, and they are subject to the reporting requirements, when requested by the Department, found in subsection (e)(5).

In the final-form rulemaking, the Department replaced the proposed “per day” applicability threshold in § 129.67a(a)(1)(ii) with the 450 pounds per month applicability threshold, in consideration of comments received from commentators. The “per day” applicability threshold would have necessitated keeping daily records. The “per month” threshold allows monthly records, which is more appropriate for the flexible packaging printing industry than the daily records set forth in the proposed rulemaking, due to the industry practice of tracking material usage on a monthly basis. Furthermore, the “per month” applicability threshold considers the recordkeeping and reporting burden of the population of small business-sized printers that are subject to subsection (a)(1)(iii) that need to keep minimum records to demonstrate that they are not subject to any other compliance requirements.

The threshold for control requirements on higher VOC-emitting presses in subsection (a)(1)(i) is 25 tpy potential emissions from the dryer of an individual flexible packaging printing press of VOC from inks, coatings and adhesives combined, before consideration of add-on controls. An owner and operator of a press that meets or exceeds this threshold shall comply with the emission limits in subsection (c) and the compliance and monitoring requirements in subsection (d) if an add-on air pollution control device is used, as well as the sampling and testing requirements in subsection (f) and the recordkeeping, reporting and work practice requirements for cleaning activities of subsections (e) and (g).

The applicability of § 129.67a is further described in subsection (a)(2), which establishes that an owner or operator of a flexographic or rotogravure printing press subject to subsection (a)(1)(ii) and § 129.67 that prints flexible packaging materials, who was required to install a control device under § 129.67 prior to the effective date of this section, shall continue the operation of that control device and also meet the requirements of § 129.67a.

Subsection (a)(3) clarifies that VOCs from adhesives used at the facility that are not used or applied on or with the flexible packaging printing press are not subject to § 129.67a and may be regulated under § 129.52b, § 129.77 or Chapter 130, Subchapter D (relating to adhesives, sealants, primers and solvents). Subsection (a)(4) directs the owner or operator of a surface coating process for flexible packaging substrates that is not done with a flexible packaging printing press to the appropriate regulation in the *Pennsylvania Code*.

Subsection (b) explains that the requirements of § 129.67a supersede the requirements of a RACT permit issued under §§ 129.91—129.95 prior to January 1, 2015, to the owner or operator of a source subject to § 129.67a, except to the extent the RACT permit contains more stringent requirements. The date of January 1, 2015, is the compliance date for this final-form rulemaking, and appears throughout the final-form rulemaking. It is 2 years later than the January 1, 2013, compliance date in the proposed rulemaking, to account for the anticipated publication date of this final-form rulemaking.

Subsection (c) establishes VOC emission limitation options beginning January 1, 2015, for a person subject to § 129.67a by virtue of meeting or exceeding the 25 tpy threshold in subsection (a)(1)(i). Beginning January 1, 2015, a person subject to subsection (a)(1)(i) may not cause or permit the emission into the outdoor atmosphere of VOCs from a flexible packaging printing press, unless one or more of the VOC content limits for inks, coatings and adhesives in subsection (c) is met; one or more of the VOC vapor recovery, oxidation or other control system requirements in subsection (c) is met; or the Department has issued a plan approval, operating permit or Title V permit to the owner or operator prior to January 1, 2015, establishing a Federally-enforceable limitation to limit potential emissions of VOC from the flexible packaging printing press below 25 tpy before consideration of add-on controls. The dates in Table I reflect the date of the proposed 1996 NESHAP for the printing and publishing industry, namely March 14, 1995, and the compliance date of this rulemaking, namely January 1, 2015. The EPA used these events for suggested cut-off dates in the Flexible Package Printing CTG.

To improve clarity and provide greater specificity in subsection (c), the final-form rulemaking contains revisions not included in the proposed rulemaking. These revisions include: an equation for calculating VOC content that was proposed in subsection (d)(1) of the proposed rulemaking and fits more comfortably under subsection (c); an equation for calculating daily weighted average VOC content; amendments to reflect the January 1, 2015, compliance date and to include the definition of “first installation date;” and removal of proposed subsection (c)(4) because the paragraph was redundant.

Subsection (d) identifies the compliance and monitoring procedures to demonstrate compliance with § 129.67a for the owner or operator of a flexible packaging printing press subject to subsection (a)(1)(i) that uses an add-on air pollution control device in accordance with

subsection (c)(3). This subsection has been revised in the final-form rulemaking to provide specificity of the requirements for use of an add-on air pollution control device and to make subsection (d) consistent with the add-on air pollution control device provisions of § 129.67b(e). Subsection (d)(1) describes requirements for monitoring equipment and describes operational records supporting the compliance monitoring system, though most of the recordkeeping requirements are moved to subsection (e). Subsection (d)(1) has been revised to clarify that the temperature must be continuously monitored and the temperature reading must be recorded at least once every 15 minutes, rather than daily as proposed. Subsection (d)(2) specifies the minimum temperature at which the add-on air pollution control device can operate and provides for temperature fluctuations. Subsection (d)(3) specifies that the add-on air pollution control device must be in operation at all times that the source is operating. Subsection (d)(4) requires that the air pollution control device be approved, in writing, by the Department in a plan approval, operating permit or Title V permit prior to use.

Subsection (e) establishes recordkeeping and reporting requirements beginning January 1, 2015. This subsection has been revised in the final-form rulemaking in response to comments received during the public comment period. Subsection (e) requires the owner and operator to maintain records sufficient to demonstrate compliance with § 129.67a. The records may include purchase, use, production and other records. The recordkeeping requirements in the final-form rulemaking correspond to applicability thresholds and substantive requirements of this section. Specifically, subsection (e)(1) requires a person subject to § 129.67a(a)(1)(i) using an add-on air pollution control device to maintain records sufficient to demonstrate compliance with subsection (d), which contains the compliance and monitoring requirements for add-on air pollution control devices. These records include the temperature reading of the add-on air pollution control device, the maintenance performed on the add-on air pollution control device and monitoring equipment, including the date and type of maintenance, and the catalyst activity test performed, if applicable. Subsection (e)(2) requires a person subject to § 129.67a(a)(1)(i) not using an add-on air pollution control device to maintain records of the as applied VOC content of inks, coatings and adhesives sufficient to demonstrate compliance with the limitations in subsection (c)(1) or (c)(2); subsections (c)(1) and (c)(2) set forth the individual and weighted average VOC content limit requirements of inks, coatings and adhesives.

Subsection (e)(3) requires owners and operators claiming an exemption from a VOC control provision of this section based on potential or actual VOC emissions to keep records that demonstrate to the Department that the press or facility is exempt. This includes owners and operators with actual VOC emissions below the threshold established in § 129.67a(a)(1)(iii). Subsection (e)(4) allows the owner or operator to group materials into classes using the highest VOC content in any material in a class to represent that class of material. The Board removed the express reference to the specific parameters of each ink, coating, thinners and components from these requirements to allow owners and operators greater flexibility in developing the records. Subsection (e)(5) specifies that records required under this subsection be maintained on site for 2 years unless a longer period is required by a plan approval or operating permit issued under Chapter 127 (relating to construction, modification, reactivation and operation of sources). The records must be submitted to the Department in an acceptable format upon receipt of a written request. Subsection (e)(6) requires that a person subject to subsection (a)(1)(i) using an add-on air pollution control device that is required to demonstrate overall control efficiency in

accordance with subsections (c)(3) and (d) shall submit reports to the Department in accordance with Chapter 139.

Subsection (f) specifies sampling and testing methods. This subsection has been expanded in the final-form rulemaking. Subsection (f)(1) requires that sampling of an ink or coating and testing for the VOC content of the sampled ink or coating be performed in accordance with the procedures and test methods specified in Chapter 139. Subsection (f)(1) also requires that sampling and testing of an add-on air pollution control device be performed in accordance with the procedures and test methods specified in Chapter 139 and be performed no later than 180 days after the compliance date of the press or have been performed and previously approved by the Department within 5 years prior to January 1, 2015. The Department may waive retesting of the capture efficiency for capture systems that are not permanent total enclosures if the operating parameters indicate that a fundamental change has not taken place in the operation or design of the equipment, unless retesting is required by Article III or a plan approval, operating permit or an order issued by the Department. Fundamental changes include the following: adding print stations to a press, increasing or decreasing the volumetric flow rate from the dryer (for example, by changing the size of press fans or motors, or removal or derating of dryers), or by changing the static duct pressure.

Subsection (f)(2) addresses the test methods and procedures to determine the overall control efficiency of the add-on air pollution control devices subject to prior written approval by the Department. Subsection (f)(2) requires that capture efficiency testing be performed in accordance with either the procedures and test methods specified in 40 CFR Part 51, Appendix M, Methods 204—204F or in 40 CFR Part 63, Subpart KK, Appendix A. Subsection (f)(2) further requires that the control efficiency must be determined using one or more of three EPA Reference methods: Method 25, Method 25A or Method 18. EPA Reference Method 25A may not be used if the total gaseous nonmethane organic compound concentration at the outlet of the add-on air pollution control device is equal to or greater than 50 parts per million by volume, measured as carbon. EPA Reference Methods 18 and 25 may be used if the total gaseous nonmethane organic compound concentration at the outlet of the add-on air pollution control device is equal to or greater than 50 parts per million by volume, measured as carbon. EPA Reference Method 18 may be used in conjunction with EPA Reference Method 25A to subtract emissions of exempt VOCs. The method used to measure the inlet concentration of VOC may be the same method used to determine the outlet concentration of VOC unless use of the same method is determined to be technically infeasible. Subsection (f)(3) authorizes the use of other test methods demonstrated to provide results that are acceptable for purposes of determining compliance with § 129.67a if prior approval is obtained in writing from the Department and the EPA.

Subsection (g) establishes work practice requirements for cleaning activities beginning January 1, 2015. This subsection applies only to the owner and operator of a flexible packaging printing press subject to subsection (a)(1)(i), (a)(1)(ii) or (a)(2). It does not apply to the owner and operator of a press with emissions below the applicability threshold in subsection (a)(1)(iii). Subsection (g)(1) establishes work practices. Subsections (g)(2) and (3) specify the cleaning activities to which the work practices apply and do not apply. Consistent with a one-page internal EPA memorandum clarifying this aspect of the CTG, the final-form rulemaking does not

specify work practices for cleaning activities addressed by the EPA 2006 Industrial Cleaning Solvents CTG. See *Reasonably Available Control Technology (RACT) for Cleaning in Flexible Package Printing*, Peter Tsirigotis, Director, Sector Policies and Programs Division (D205-01), EPA, February 9, 2009. Subsection (g)(3)(v) is more stringent than what is recommended in the CTG for flexible packaging printing presses. The CTG recommends that the work practices for cleaning materials apply to parts washers or cold cleaners used for cleaning press parts. In this Commonwealth, however, the use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations). The requirements of § 129.63 are more stringent than the recommendation in the CTG, but must be maintained to satisfy the anti-backsliding provisions of sections 110 and 193 of the CAA (42 U.S.C.A. §§ 7410 and 7515).

§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses

The final-form rulemaking adds § 129.67b to regulate VOC emissions from offset lithographic printing presses and letterpress printing presses. As explained in subsection (b), § 129.67b supersedes the requirements of a RACT permit already issued under §§ 129.91—129.95 to the owner or operator for VOC emissions from an offset lithographic printing press or a letterpress printing press, or both, subject to § 129.67b, except to the extent the RACT permit contains more stringent requirements.

The applicability of § 129.67b is described in subsection (a), which establishes a threshold with broad applicability in subsection (a)(1)(ii), (iii) and (iv), and a threshold for control requirements on higher VOC-emitting presses, based on their potential emissions from the dryer, before consideration of add-on controls, in subsection (a)(1)(i).

The broadly applicable threshold in subsection (a)(1)(ii), (iii) and (iv) is as follows: 450 pounds (204.1 kilograms) per month or 2.7 tons (2,455 kilograms) per 12-month rolling period of actual VOC emissions, before consideration of add-on controls, from all letterpress printing press operations, offset lithographic printing press operations, or a combination of letterpress and offset lithographic printing press operations, and all emissions from related cleaning activities, at the facility. An owner and operator of a facility that meets or exceeds this threshold shall comply with the compliance and monitoring, recordkeeping and reporting requirements of subsections (e), (f) and (g), the sampling and testing requirements in subsection (h) and the work practice requirements for cleaning activities in subsection (i). Subsection (a)(1)(iv), relating to the combination of presses, is new in the final-form rulemaking.

The final-form rulemaking contains a new subsection (a)(1)(v) that was not in the proposed rulemaking. This new provision establishes that the owner and operator of an offset lithographic printing press or letterpress printing press that emits below the 450 pounds per month or 2.7 tons per 12-month rolling period threshold are subject to the final-form rulemaking. These owners and operators are subject only to the recordkeeping requirements found in subsection (f)(3) and (4) to demonstrate that they are exempt from the VOC control provisions of this section and to the reporting requirements of subsection (g), when requested by the Department.

In the final-form rulemaking, the Department replaced the proposed “per day” applicability threshold in § 129.67b(a)(1)(ii) and (iii) with the 450 pounds per month applicability threshold, in consideration of comments received from commentators. The “per day” applicability threshold would have necessitated keeping daily records. The “per month” threshold allows monthly records, which is more appropriate for the letterpress and offset lithographic printing press industry than the daily records set forth in the proposed rulemaking, due to the industry practice of tracking material usage on a monthly basis. Furthermore, the “per month” applicability threshold considers the recordkeeping and reporting burden for the population of small business-sized printers that are subject to subsection (a)(1)(v) that need to keep minimum records to demonstrate that they are not subject to any other compliance requirements.

Each of the applicability provisions in subsection (a)(1) has been revised to clarify that “inks” include varnishes. The definition of “varnish” in § 121.1 explains, consistent with the LLP CTG, that varnish is an unpigmented ink.

The threshold for control requirements on higher VOC-emitting presses in subsection (a)(1)(i) is 25 tpy of potential VOC emissions from the dryer of a single heatset web offset lithographic printing press or heatset web letterpress printing press from all heatset inks, coatings and adhesives combined, before consideration of add-on controls. An owner and operator of a press that meets or exceeds this threshold must comply with the emission limits in subsections (c) and (d), the compliance and monitoring requirements in subsection (e), as well as the sampling and testing requirements in subsection (h) and the recordkeeping and reporting requirements and the work practice requirements for cleaning activities of subsections (f), (g) and (i).

In response to comments received on the proposed rulemaking, the Department added a new subsection (a)(2), which specifies that the owner or operator of an offset lithographic printing press subject to paragraph (1) may use the VOC emission retention factors and capture efficiency factors specified in new subsection (l) to determine the amount of potential or actual VOC emissions that is available for capture and control from the inks (including varnishes), fountain solutions and cleaning solutions used on the offset lithographic printing press.

Subsection (a)(3) clarifies that VOCs from adhesives used at the facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to § 129.67b and may be regulated under § 129.77 or Chapter 130, Subchapter D.

Subsection (b) explains that the requirements of § 129.67b supersede the requirements of a RACT permit issued under §§ 129.91—129.95 prior to January 1, 2015, to the owner or operator of a source subject to § 129.67b, except to the extent the RACT permit contains more stringent requirements. The date of January 1, 2015, is the compliance date for this final-form rulemaking, and appears throughout the final-form rulemaking. It is 2 years later than the January 1, 2013, compliance date in the proposed rulemaking, to account for the anticipated publication date of this final-form rulemaking.

Subsection (c) establishes VOC emission limitations for cleaning solutions and fountain solutions used in or on printing presses subject to this section. Beginning January 1, 2015, subsection (c)(1) prohibits a person subject to subsection (a)(1)(i)—(iv) from causing or

permitting the emission of VOCs into the outdoor atmosphere from cleaning solution used in or on an offset lithographic printing press or a letterpress printing press, unless specified conditions are met. This paragraph requires a VOC composite partial vapor pressure less than 10 millimeters of mercury at 68°F (20°C) or a VOC content less than 70% by weight. This paragraph allows a total gallon exemption for up to 110 gallons of noncomplying cleaning solutions. The 70% and 110-gallon restrictions are revised from the 30% and 55-gallon restrictions included in the proposed rulemaking in response to public comment specifically sought by the Department in the preamble to the proposed rulemaking and are consistent with the LLP CTG. Subsection (c)(2) prohibits a person subject to subsection (a)(1)(i), (iii) or (iv) from causing or permitting the emissions of VOC into the outdoor atmosphere from a fountain solution used in an offset lithographic printing press unless the fountain solution meets a specified VOC limit. This paragraph has been revised in the final-form rulemaking in response to public comments received to specify VOC content limits rather than alcohol content or alcohol substitute limits. Subsection (c)(3) provides two exemptions from subsection (c)(2).

Subsection (d) establishes VOC emission limitations for heatset web offset lithographic printing presses and heatset web letterpress printing presses. This subsection has been reorganized in the final-form rulemaking and now contains the definition of “first installation date,” which is used in this subsection and was defined in § 121.1 in the proposed rulemaking. Subsection (d)(1) applies to a person subject to § 129.67b by virtue of meeting or exceeding the threshold established in subsection (a)(1)(i) of 25 tpy of potential VOC emissions from the dryer of a single heatset press before consideration of add-on controls. Beginning January 1, 2015, subsection (d)(1) prohibits the emission into the outdoor atmosphere of VOCs from a single heatset web offset lithographic printing press or a single heatset web letterpress printing press, or both, unless the overall weight of VOCs emitted to the atmosphere from the heatset press dryer is reduced through the use of vapor recovery or oxidation or another method that is authorized under § 129.51(a). Subsection (d)(1) addresses heatset dryer pressure and overall control efficiency of an add-on air pollution control device for a heatset dryer and provides for an alternative limitation. The heatset dryer pressure must be maintained lower than the press room area pressure so that air flows into the heatset dryer at all times when the press is operating. The final-form rulemaking provides greater specificity on the conditions for Department approval of an alternative limitation for the overall control efficiency of an add-on air pollution control device for a heatset dryer. Subsection (d)(2) lists exceptions to the requirement for an add-on air pollution control device. Subsection (d)(3) specifies that subsection (d) does not apply if the Department has issued a plan approval, operating permit or Title V permit prior to January 1, 2015, to the owner or operator establishing a Federally-enforceable limitation to limit potential emissions below 25 tpy before consideration of add-on controls.

Subsection (e) specifies compliance and monitoring requirements to demonstrate compliance with the requirements of § 129.67b. Subsection (e)(1) sets forth compliance and monitoring requirements applicable to the owner or operator of a heatset printing press using an add-on air pollution control device in accordance with subsection (d) as a result of meeting or exceeding the 25 tpy potential VOC emissions threshold for a single heatset press in subsection (a)(1)(i). Subsection (e)(1) has been revised in the final-form rulemaking to be consistent with the compliance and monitoring requirements in § 129.67a(d) described above, in response to comments received during the public comment period. Subsection (e)(2) indicates how an owner

or operator of an offset lithographic printing press who is subject to the fountain solution VOC limits of subsection (c)(2) may demonstrate compliance. Subsection (e)(2) is revised in the final-form rulemaking in response to public comments received to clarify that the VOC content of a fountain solution shall be determined one time for each recipe of fountain solution. Subsection (e)(3) indicates the acceptable methods by which the owner or operator of an offset lithographic printing press or letterpress printing press may demonstrate compliance with the VOC content limit or VOC composite partial vapor pressure limit specified in subsection (c)(1) for a cleaning solution used in or on the press. Subsection (e)(3) is also revised in the final-form rulemaking in response to public comments received to clarify that the VOC content of a cleaning solution shall be determined one time for each recipe of cleaning solution.

Subsection (f) identifies records required to demonstrate compliance for persons subject to § 129.67b beginning January 1, 2015. This subsection has been revised in the final-form rulemaking in response to comments received during the public comment period. Subsection (f) requires the owner and operator to maintain records sufficient to demonstrate compliance with § 129.67b. The records may include purchase, use, production and other records. The recordkeeping requirements in the final-form rulemaking correspond to applicability thresholds and substantive requirements of this section. Specifically, subsection (f)(1) requires a person using an add-on air pollution control device to maintain records sufficient to demonstrate compliance with subsection (e), which contains the compliance and monitoring requirements for add-on air pollution control devices. These records include the temperature reading of the add-on air pollution control device, the maintenance performed on the add-on air pollution control device and monitoring equipment, including the date and type of maintenance, and the catalyst activity test performed, if applicable. Subsection (f)(2) requires persons subject to the applicability requirements of subsection (a)(1)(i)—(iv) to maintain records of cleaning solutions and fountain solutions used at the facility.

Subsection (f)(3) requires owners and operators claiming an exemption from a VOC control provision of this section based on potential or actual VOC emissions to keep records that demonstrate to the Department that the press or facility is exempt. This includes owners and operators with actual VOC emissions below the threshold established in § 129.67b(a)(1)(v). Subsection (f)(4) allows the owner or operator to group materials into classes using the highest VOC content in any material in a class to represent that class of material. The Board removed the express reference to the specific parameters of each ink, coating, thinners and components from these requirements to allow greater flexibility in developing the records.

Subsection (g) establishes reporting requirements beginning January 1, 2015. This subsection applies to persons subject to § 129.67b. Subsection (g)(1) requires that records be maintained on site for 2 years unless a longer period is required under by a plan approval or operating permit issued under Chapter 127. The records shall be submitted to the Department in an acceptable format upon receipt of a written request. Subsection (g)(2) specifies that the owner or operator of an offset lithographic printing press or letterpress printing press required to demonstrate overall control efficiency in accordance with subsection (d) shall submit reports to the Department in accordance with Chapter 139.

Subsection (h) specifies sampling and testing methods. This subsection has been expanded in the final-form rulemaking and is consistent, except for one difference, with § 129.67a(f). The difference is that there is not a requirement for capture efficiency testing for the lithographic and letterpress printing presses due to the option to use the retention factors in subsection (l)(2)(i), which assume 100% capture by the press dryer if constant negative pressure into the dryer is demonstrated.

Subsection (i) establishes work practice requirements for cleaning activities. This subsection requires the owner and operator of an offset lithographic printing press or letterpress printing press subject to subsection (a)(1)(i), (ii), (iii) or (iv) to comply with specified work practice standards for cleaning activities at the facility. Subsection (i) does not apply to the owner and operator of a press with emissions below the applicability threshold set forth in subsection (a)(1)(v). Subsection (i)(1) specifies the work practices. Subsection (i)(2) and (3) specify the cleaning activities to which the work practices apply and do not apply. Subsection (i) is more stringent than what is recommended in the CTG. The CTG recommends that the work practices for cleaning materials apply to parts washers or cold cleaners used for cleaning press parts. In this Commonwealth, however, the use of parts washers and cold cleaners is regulated under § 129.63. The requirements of § 129.63 are more stringent than the recommendation in the CTG, but must be maintained to satisfy the anti-backsliding provisions of sections 110 and 193 of the CAA.

Subsection (j) sets forth the procedure for determining the composite partial vapor pressure of organic compounds in cleaning solutions. Subsection (j)(1) addresses quantifying the amount of each compound in the blend using gas chromatographic analysis, and is amended in the final-form rulemaking to allow flexibility in choice of ASTM method. Subsection (j)(2) provides the equation for calculating composite partial vapor pressure.

Subsection (k) lists acceptable methods for determining vapor pressure of each single component compound in cleaning solutions. This subsection is amended in the final-form rulemaking to allow flexibility in choice of ASTM method.

Subsection (l) is new in the final-form rulemaking. It establishes retention factors and capture efficiency factors for calculating the amount of VOCs retained in the printed web substrate or the shop towels or captured by the press dryer for control by the add-on air pollution control device for specified offset lithographic printing and letterpress printing processes.

§ 129.77(k)(2). Control of emissions from the use or application of adhesives, sealants, primers and solvents

The final-form rulemaking amends § 129.77(k)(2) to clarify that § 129.77 does not apply to the use or application of adhesives, sealants, adhesive primers and sealant primers that are subject to other regulations in Chapter 129 or 130. No changes have been made to this section since the proposed rulemaking.

§ 130.703(a)(2). Exemptions and exceptions

The final-form rulemaking amends § 130.703(a)(2) to clarify that § 130.703 does not apply to the use or application of adhesives, sealants, adhesive primers and sealant primers that are subject to other regulations in Chapter 129 or 130. No changes have been made to this section since the proposed rulemaking.

F. Summary of Major Comments and Responses

The Board approved publication of the proposed rulemaking at its meeting of September 20, 2011. The proposed rulemaking was published at 42 Pa.B. 779 (February 11, 2012). The public comment period opened February 11, 2012. Three public hearings were held on March 14, 15 and 16, 2012, in Pittsburgh, Norristown and Harrisburg, PA, respectively. The public comment period closed on April 16, 2012, for a 66-day public comment period. Public comments were received from four commentators. The Independent Regulatory Review Commission (IRRC) also provided comments.

General Support of Proposed Rulemaking

Several commentators supported the Department overall in its use of the CTGs.

Effect of printing industry emissions on the environment

One commentator asserted that an overall negative effect of small printers to the environment did not seem to be clearly shown. The Board disagrees. Each CTG provides emission estimates and impacts of the emissions from the covered printing industry. Each CTG also reflects the EPA's listing of flexible packaging printing materials, lithographic printing materials and letterpress printing materials on its CAA section 183(e) list of categories of products that account for at least 80% of the VOC emissions from consumer and commercial products in ozone nonattainment areas. The EPA states on page 3 of the Flexible Package Printing CTG: "In section 183(e), Congress directed EPA to assist States in achieving VOC emission reductions from consumer and commercial products. These products individually may result in relatively small amounts of VOC emissions, but, in the aggregate, they contribute significantly to ozone formation in nonattainment areas."

Definitions

A commentator wrote that several definitions need to be revised or added to provide clarity and consistency with the CTG. "Batch" should be revised to reflect that it applies to both fountain solutions and "cleaning solution" and definitions should be added for "cleaning solution," "heatset" and "non-heatset." IRRC suggested the clarity of the rulemaking would be improved by defining the term "heatset." In response, the Board revised the definition of "batch," which already applies to "fountain solution," to also apply to "cleaning solution." The Board added a definition of "cleaning solution" using wording similar to that provided by the commentator. The Board added definitions for "heatset" and "non-heatset" using some of the commentator's suggested language and also using information available in the CTG. The definition of "non-

heatset” includes the polymerization curing processes of infrared drying, ultraviolet curing and electron beam curing.

One commentator and IRRC recommended that “thin metal” be deleted from the definitions of “lithographic plate” and “lithographic printing,” because plates can also be made from paper or plastic. IRRC further noted that this language also appears in the definition of “offset lithographic printing.” The Board agrees and has removed the words “thin metal” from the definitions of “lithographic plate,” “lithographic printing” and “offset lithographic printing.”

One commentator and IRRC requested that the acronyms MSDS and CPDS be explained or defined for clarity in the subsection in which they first appear, namely § 129.67b(e)(2)(ii). The commentator suggested wording. The Board agrees that the acronyms MSDS and CPDS should be defined. Both terms are already defined in § 121.1, as they are used in other portions of Chapters 121—145. Since both terms are already defined in § 121.1, the Board did not move the definitions into § 129.67b(e)(2)(ii). Instead, the Board revised the definition of “CPDS” in § 121.1 to make it applicable to § 129.67b and left the generally-applicable definition of “MSDS” as is.

IRRC commented that under § 121.1, relating to definitions, the new definition of “batch” begins with the phrase “For purposes of § 129.67b . . .”, the new definition of “first installation date” begins with the phrase “For purposes of § 129.67a . . . and 129.67b . . .” and the new definition of “varnish” begins with the phrase “For purposes of § 129.67b . . .” Since these definitions are specific to the sections referenced in each definition, IRRC suggested that the definitions be moved to those particular sections. The Board agrees with the suggestion to move the definition of “first installation date.” The Board moved the definition into Table 1 in § 129.67a, and into § 129.67b(d)(1), where the term is used in § 129.67b(d)(1)(i) and the definition fits comfortably in § 129.67b(d)(1)(ii). The Board considered the recommendation to move the definition of the term “batch” to § 129.67b, but has left it in § 121.1, along with the rest of the definitions for this final-form rulemaking. The term’s definition is lengthy and does not fit well into § 129.67b, where the term appears in paragraphs (e)(2) and (e)(3). The wording “For purposes of § 129.67b” is necessary in § 121.1 because the term “batch” appears in unrelated definitions in § 121.1 and also in unrelated §§ 129.17, 129.63 and 123.22 (relating to Kraft pulp mills; degreasing operations; and combustion units). Similarly, the Board left the term “varnish” in § 121.1, as its definition also does not fit well into § 129.67b, where the term appears in subsections (a), (d), (f), (h) and (l). Further, the term “varnish” is used in the definition of the term “non-heatset” newly added to § 121.1. The wording “For purposes of § 129.67b” is necessary in § 121.1 because the term “varnish” also appears in unrelated § 129.102 (relating to emission standards) and in three unrelated sections in Chapter 130, Subchapter C (relating to architectural and industrial maintenance coatings).

IRRC commented that the last sentence of the definition of “first installation date” found in § 121.1 is substantive and should be moved to the appropriate section or sections of the rulemaking. The Board agrees and moved the definition of the term “first installation date” into Table 1 of § 129.67a and into § 129.67b(d)(1)(ii).

Applicability

Two commentators wrote that conservative material use estimates should be followed that would allow facilities to determine applicability by tracking material use volumes rather than completing complex and time-consuming calculations. The Board disagrees. The Department consulted with the EPA on this matter and has decided not to create a separate applicability criterion based on material use limits since the lower applicability limits are based on actual emissions of 450 pounds per month and 2.7 tons per 12-month rolling total. The Department plans to include material use information in a Frequently Asked Questions document or Fact Sheet to assist owners and operators in making a preliminary determination of whether they might be subject to the regulation. In addition, the Department has added flexibility by removing the “per day” applicability threshold and by allowing actual emissions to be estimated by using the highest VOC content in any material in a class to represent that class of materials. Furthermore, the Department and staff of the Environmental Management Assistance Program (EMAP) are willing to work with the GAA on its toolkit for GAA members to provide assistance with the emission calculations when necessary. EMAP fulfills the technical assistance part of the small business compliance assistance program required under the CAA by providing free and confidential environmental regulation compliance assistance to Pennsylvania small businesses on a non-discriminatory basis. EMAP, associated with the Pennsylvania Small Business Development Centers, is a partnership funded, in part, through the Departments of Community and Economic Development and Environmental Protection, the U.S. Small Business Administration and the participating colleges and universities.

One commentator noted that the material use approach makes it much easier for facilities to determine their applicability and was approved by the EPA in its *Potential to Emit (PTE) Guidance for Specific Source Categories* released on April 14, 1998. The commentator suggested specific numeric edits and language to revise the section in accordance with the comment. The Board does not agree that it is technically advisable to use PTE guidance to determine actual emissions. The Board believes that, since the EPA did not reference the PTE guidance document in the LLP CTG when it referenced other documents, the EPA did not intend the PTE guidance to be used to determine applicability for the offset lithographic printing and letterpress printing source categories. Furthermore, the levels suggested by the commentator seem not to take into account the “50% of the major source threshold margin of safety factor” suggested by the PTE guidance document. Therefore, the Board is not including material use thresholds as an applicability criterion in the final-form rulemaking.

A commentator stated that proposed § 129.67b(a)(1)(i) is not consistent with the LLP CTG because in the CTG the exemption threshold of a potential to emit, prior to controls, of at least 25 tpy of VOC emissions applies only to the emissions of VOC from petroleum ink oil and not to total VOC emissions from the press dryer as was proposed. IRRC acknowledged comments regarding certain sections of the rulemaking being inconsistent with the CTG. IRRC referenced proposed § 129.67b(a)(1)(i)–(iii) and asked the Board to explain the need to deviate from the CTG.

The Board disagrees that the final-form rulemaking should be revised to account for only some, but not all, of the potential VOC emissions from the dryers, prior to controls, of heatset web

offset lithographic printing and letterpress printing operations in determining applicability. Even though the LLP CTG recommends basing the “potential to emit” applicability threshold on potential emissions from the dryer, prior to controls, of VOCs from ink oils, basing the threshold on potential emissions, prior to controls, of all VOC emissions from the dryer is also reasonable. The Department had detailed discussions with EPA Region 3 concerning this issue. The Department understands that small to no amounts of coatings and adhesives go through lithographic printing presses and letterpress printing presses; therefore, the majority of potential VOC emissions will be from ink oils and the applicability will effectively be only to potential VOC emissions from heatset inks. Implementation of the add-on air pollution control measure requirements will continue to be cost-effective even if the small amounts of potential VOC emissions from coatings and adhesives are included. Several nearby states similarly base this potential emissions applicability threshold on the VOC emissions from more than just inks. For instance, New York’s regulation is based on the VOC emissions from inks, coatings and adhesives used on the press (see, N.Y. COMP. CODES R. & REGS. Tit. 6, § 234.3(b)(1); Maryland’s regulation is based on all VOC emissions from the press (see, MD. CODE REGS. 26.11.19.11(e)); and Connecticut’s regulation is based on all VOC emissions from the dryers prior to control (see, CONN. AGENCIES REGS. § 22a-174-20(gg)(4)). The EPA provides in the CTGs that the recommendations are guidance and that states may promulgate applicability criteria that differ from those recommended in the CTG. After considering this comment and the other information described in this response, the Board determined that no changes to this provision are being made in the final-form rulemaking.

A commentator suggested that the applicability threshold expressed in proposed § 129.67b(a)(1)(ii) and (iii) as 15 pounds per day or 2.7 tons per year should be revised to reflect a single annual limit of 3 tons per year over a 12-month rolling period, which the EPA has defined as one of several options for an acceptable applicability threshold. IRRC acknowledged comments regarding certain sections of the rulemaking being inconsistent with the CTG, referencing proposed §§ 129.67a(a)(1)(ii) and 129.67b(a)(1)(i)-(iii), and asked the Board to explain the need to deviate from the CTG.

The Board has considered the comments but disagrees with using only an annual limit for the applicability threshold for actual VOC emissions, and with that limit being 3 tpy over a 12-month rolling period. The Board has established the applicability threshold for actual VOC emissions in the final-form rulemaking as a per-month or as a per-12-month rolling period threshold. The Board has removed the proposed 15 pounds per day threshold. The monthly threshold provides the basis for evaluating the 12-month rolling period threshold. With regard to whether the 12-month rolling period threshold should be 3 tpy, the Board has historically used 2.7 tpy or 2.7 tons per 12-month rolling period as the equivalent to 15 pounds per day for surface coating and other VOC emission-control regulations. See, for instance, §§ 129.52, 129.52a and 129.52b (relating to surface coating processes; control of VOC emissions from large appliance and metal furniture surface coating processes; and control of VOC emissions from paper, film and foil surface coating processes). The Board derives 2.7 tpy as follows:

$$15 \text{ pounds per day} \times 365 \text{ days per year} = 5475 \text{ pounds per year}$$

$$5475 \text{ pounds per year} / 2000 \text{ pounds per ton} = 2.7375 \text{ tpy}$$

The Board keeps one decimal place for more accuracy; the EPA rounds 2.7 to 3.

Using 3 tpy in the printing rulemakings would be inconsistent with other air quality regulations in Article III of Title 25 of the *Pennsylvania Code*. The EPA provides in the CTGs that the recommendations are guidance and states may promulgate applicability criteria that differ from those recommended in the CTG.

One commentator stated that the “per day” applicability threshold imposes daily recordkeeping, which is not acceptable or technically feasible, given the nature of the printing industry and how it uses inks, fountain solutions, coatings and other input materials. The Board, in consideration of this comment and the recordkeeping comments received from other commentators, replaced the proposed “per day” applicability threshold with a 450 pounds per month applicability threshold in the final-form rulemaking. The monthly applicability threshold allows the owners or operators of all flexible packaging, lithographic printing and letterpress printing facilities to keep monthly records using purchase, use or production records.

A monthly applicability threshold for actual VOC emissions is consistent with the CTGs. The LLP CTG states on page 4: “In developing their RACT rules, State and local agencies should consider carefully the facts and circumstances of the affected sources in their States. As noted above, States can adopt the above recommended 15 lb/day actual emissions of VOC applicability criterion before consideration of controls, or an equivalent applicability level expressed on a monthly basis (e.g., 450 lb/month) or 12-month rolling basis (e.g., 3 tons per 12-month rolling period), or they can develop other applicability criteria that they determine are appropriate considering the facts and circumstances of the sources in their particular nonattainment areas.” Page 3 of the FPP CTG has a similar sentence. Therefore, considering the number of small businesses that would be required to keep daily records to demonstrate applicability only, the Board decided instead to use the alternative monthly basis applicability level. In addition, the EPA provides in the CTGs that the recommendations are guidance and states may promulgate applicability criteria that differ from those recommended in the CTG. Note that for certain other VOC regulations applying to other industry sectors, the Board has found daily recordkeeping to be acceptable and technically feasible. The Board agrees that a “per day” applicability threshold imposes daily recordkeeping.

One commentator believes that the exclusion in proposed § 129.67b(a)(2) of only the VOCs from adhesives that are applied via the printing presses needs to be expanded to cover all adhesive application in a graphic arts operation, primarily because of the types of adhesives used. The commentator stated that adhesives are not commonly applied by the press, but for those that are, they are the same adhesives that are applied via other pieces of equipment in the facility. The commentator further requested that adhesives used in graphic arts operations be excluded from the requirements of § 129.77, as well. The commentator suggested revisions to §§ 129.67b(a)(2) and 129.77(l), saying the revisions are necessary in order to avoid the confusion that would be caused by requiring owners and operators of graphic arts facilities to comply with two separate regulations governing VOC emissions: the lithographic and letterpress regulation or the flexographic printing regulation and the miscellaneous industrial adhesives regulation.

The Board disagrees that all VOC emissions from adhesive application facility-wide should be excluded from regulation under both §§ 129.67b and 129.77. Further, the commentator is mistaken in asserting that the proposed rulemaking would have excluded VOC emissions from adhesives used or applied on or with an offset lithographic printing press or letterpress printing press from being regulated under § 129.67b. Section 129.67b(a)(2) excludes emissions of VOCs from adhesives that are *not* used or applied on or with the printing press from regulation under § 129.67b. Emissions of VOC from adhesives that *are* used or applied on or with an offset lithographic printing press or letterpress printing press are subject to regulation under § 129.67b. The Department consulted with EPA Region 3 about applicability to VOC emissions from adhesives when drafting § 129.67b(a)(2) and revising § 129.77.

The Board explains further that the meaning of “printing press” is integral to understanding these provisions, as only adhesives used or applied on or with the printing press are subject to § 129.67b. The Department crafted the definition of “printing press” in consultation with the EPA to address the situations described in the commentator’s comments about how the adhesives used on the press versus the adhesives used elsewhere in the facility were to be regulated. The proposed rulemaking specifically included the following language in § 129.67b(a)(2) to direct the regulated community to other potentially applicable requirements:

“(2) VOCs from adhesives used at a facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to this section and may be regulated under § 129.77 or Chapter 130, Subchapter D (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).”

The Board has retained this wording in the final-form rulemaking, as the Board believes it is reasonable and that the regulated parties have the technical capability to implement the different regulations. The Board notes further that proposed § 129.67b(a)(2) is redesignated as § 129.67b(a)(3) in the final-form rulemaking. Please also see the response to the next comment. Additionally, as explained above, free and confidential assistance is available to the owners and operators of small businesses to explain how to comply with the requirements.

IRRC noted that a commentator suggested that the exemption under § 129.67b(a)(2) for VOCs from adhesives used at facilities that are not used or applied with an offset lithographic printing press or a letterpress printing press needs to be expanded to cover all adhesives applied in graphic art operations. IRRC further noted that § 129.67a(a)(3) contains a similar provision relating to flexible packaging printing presses. IRRC asked whether the Board considered expanding the exemption as suggested by the commentator. The Board responds that it considered the comments and decided not to modify the final-form rulemaking in this area, as explained in the preceding response.

One commentator indicated that the printing industry submitted comments on September 26, 2011, to EPA Region III requesting that a modification of the applicability requirements for § 129.77 be made that would specifically exclude adhesives used in graphic arts from the requirements of § 129.77. The Board explains that the September 26, 2011, comments to the EPA were submitted with reference to the EPA’s proposed approval of the Pennsylvania SIP

revision submittal to incorporate the adhesive and sealant rulemaking into the SIP. The EPA addressed the printing industry comments in its final action approving the SIP revision, stating that:

“Pennsylvania’s regulation for adhesives and sealants clearly addresses the adhesives and adhesive application activities regulated....Thus, we believe the Pennsylvania regulations are clear that the adhesives used in printing operations were considered and that the state intended to cover those adhesives.”

The EPA approved the SIP revision on September 26, 2012, at 77 FR 59090. See page 59091 for the quoted material.

Recordkeeping

Several commentators commented that they believe the daily recordkeeping requirements in the proposed rulemaking would be burdensome to printers without any benefit. The Board, in consideration of the recordkeeping comments received from these commentators, replaced the “per day” applicability threshold -- which necessitated keeping daily material use records – with a 450 pounds per month applicability threshold. In addition, the Board has made several changes to streamline the recordkeeping requirements. For instance, the Board added language to the recordkeeping subsections that states: “Records maintained for compliance demonstrations may include purchase, use, production and other records.” Further, the Board removed the requirement commented on, which specified records of particular parameters of each ink used. The Board added flexibility by including a paragraph that states: “An owner or operator claiming exemption from a VOC control provision of this section based on potential or actual VOC emissions, as applicable, shall maintain records that demonstrate to the Department that the press or facility is exempt.” The final-form rulemaking does not prescribe the records to be kept, but allows the owner or operator of the facility to calculate VOC emissions by whatever means are appropriate to demonstrate that the amount of emissions is below the level of actual or potential VOC emissions necessary to be exempted from the control provisions of the regulation, before consideration of add-on controls. In addition, the Board added flexibility by allowing VOC content records to be based upon the highest VOC content in any material in a class rather than on each individual material in the class.

One commentator suggested that the minimum recordkeeping requirements as set out under § 129.67a(e)(1) should be narrowed to only apply to companies using a “compliant ink” approach to comply with the rulemaking (under § 129.67a(c)(1), (2) or possibly (4)). The Board agrees. The Board revised the recordkeeping requirements to correspond to the per month-based applicability threshold and narrowed some of the parameters which were required in the proposed recordkeeping section. The recordkeeping requirements set forth under final-form § 129.67a(e)(1) for an owner or operator subject to § 129.67a(a)(1)(i) using an add-on air pollution control device are specific to the add-on air pollution control device and not to the inks used. Final-form § 129.67a(e)(2) requires the owner or operator subject to § 129.67a(a)(1)(i) that is NOT using an add-on air pollution control device (in other words, using the “compliant ink” approach) to maintain records of the as applied VOC content of inks, coatings and adhesives sufficient to demonstrate compliance with the limitations set forth under § 129.67a(c)(1) or (2).

Proposed § 129.67a(c)(4), referenced in the comment, has been deleted at final because it was redundant. See provisions added to § 129.67a(e) and please see the preceding response and other recordkeeping-related responses.

A commentator noted that the compliance demonstration for sites choosing to meet the requirements of the rulemaking through the use of an add-on control device is to meet a minimum overall control efficiency. The commentator stated that the compliance demonstration under this option is completely independent of the composition or quantity of the ink being used. Since the material specific records are not needed to demonstrate compliance with the provisions of the rulemaking, the commentator asserted that there is no environmental or compliance benefit to maintain them. The commentator suggested the rulemaking set separate recordkeeping requirements specifically addressing appropriate records for the control device for sites meeting the rulemaking through § 129.67a(c)(3). The Board agrees and the records required of an owner or operator subject to § 129.67a(a)(1)(i) using an add-on air pollution control device in accordance with § 129.67a(c)(3) are set forth under final-form § 129.67a(e)(1) and are specific to the add-on air pollution control device. Similar revisions were made to § 129.67b(f). See provisions added to §§ 129.67a(e) and 129.67b(f) and the two preceding responses in this preamble. In addition, the Board revised the final-form rulemaking to move the recordkeeping requirements relating to control devices from the compliance and monitoring portions of the final-form rulemaking (§§ 129.67a(d) and 129.67b(e)) to the recordkeeping sections (§§ 129.67a(e) and 129.67b(f)) of the rulemaking.

A commentator wrote that proposed § 129.67b(f) requires daily recordkeeping for a variety of parameters and that this entire subsection should be deleted and replaced with the recordkeeping requirements that are necessary to demonstrate compliance with the actual limits in the rulemaking (documentation of the composition of fountain solutions and cleaning solvents). The commentator wrote that recordkeeping of the composition of materials such as ink, varnish or coating, or the quantities of materials consumed are not relevant to demonstrating compliance. The commentator wrote that this type of recordkeeping is associated with determining VOC emissions and is contained in all plan approvals and operating permits issued to printing operations.

The Board disagrees that the entire subsection (f) of § 129.67b should be deleted. The Board agrees that the recordkeeping of fountain solution and cleaning solvent composition requirements is necessary to demonstrate compliance with the requirements set forth under § 129.67b(c)(1) and (2) and for determining applicability under § 129.67b(a). The Board has made several changes to streamline the recordkeeping requirements. For instance, the Board added language to the recordkeeping subsections that states: "Records maintained for compliance demonstrations may include purchase, use, production and other records." The Board has revised § 129.67b(f) to set forth recordkeeping requirements under final-form § 129.67b(f)(1) specific to the add-on air pollution control device for those owners or operators subject to § 129.67b(a)(1)(i) and further revised § 129.67b(f) to specify under final-form § 129.67b(f)(2) the cleaning solution and fountain solution records required. The Board has also revised § 129.67b(f) to specify under final-form § 129.67b(f)(3) that "An owner or operator claiming exemption from a VOC control provision of this section based on potential or actual VOC emissions, as applicable, shall maintain records that demonstrate to the Department that the

press or facility is exempt.” In addition, the Board added flexibility to final-form § 129.67b(f) by allowing an owner or operator to group materials into classes using the highest VOC content in any material in a class to represent that class of material, rather than requiring the actual VOC content of each individual material in the class be used for records. Please also see the preceding responses regarding daily records and the following response.

A commentator wrote that, in many instances, daily recordkeeping is in direct conflict with the recordkeeping requirements that are included in plan approvals and operating permits issued to printing operations, and that the most common recordkeeping requirements are monthly. In response, the Board recognizes the commentator’s concern. The Board has both revised the recordkeeping requirements in the final-form rulemaking and provided additional flexibility, as described in several responses above.

A commentator wrote that, since the applicability threshold for permitting presses is 2.7 tons per year, which is equivalent to the proposed threshold for this regulation, there is no reason to deviate from the current approach which is to allow monthly recordkeeping of input materials and to allow for the grouping of such materials into classes using the highest VOC content in any material in that class to represent that class of material. The commentator suggested language to revise the section. The Board responds that the proposed rulemaking had an applicability threshold of 15 pounds per day or 2.7 tons per 12-month rolling basis of VOC emissions. As discussed in responses above, the “per day” applicability threshold would have required daily recordkeeping. However, in consideration of the recordkeeping comments received from commentators, the Board has replaced the “per day” applicability threshold with a 450 pounds per month applicability threshold. The Board revised the recordkeeping requirements so as not to prescribe the records to be kept, but rather to enable the owner or operator of the facility to calculate VOC emissions by whatever means are appropriate to demonstrate that the amount of emissions is below the level of actual or potential VOC emissions necessary to be exempted from the control provisions of the regulation. Further, the Board agrees that facilities can group like materials into classes to determine applicability, as explained above.

Emission limit options

A commentator noted that the compliance option of § 129.67a(c)(4) would appear to provide an equivalency approach where a site could meet the RACT rule by means of an averaging approach which would allow for use of non-complying materials using control efficiencies below those specified under § 129.67a(c)(3). The commentator questioned whether it would meet the intent of RACT as suggested in the CTG. IRRC acknowledged comments regarding certain sections of the proposed rulemaking being inconsistent with the CTG. IRRC referenced proposed § 129.67a(c)(3) and (4), and asked the Board to explain the need to deviate from the CTG. In response, the Board explains that in considering this comment, the Board determined that proposed § 129.67a(c)(4) was redundant; therefore, the Board deleted the provision in the final-form rulemaking.

A commentator stated that proposed § 129.67b(c)(1)(i)(B) sets a VOC content limit of 30% VOC by weight. The commentator wrote that, while this limit was included in the 1993 draft CTG for

offset lithography, it is superseded by the 70% VOC by weight content limit issued in the 2006 LLP CTG. The commentator submitted an excerpt from the CTG as support for its request that the proposed limit of 30% be revised to 70%. IRRC acknowledged this comment and asked the Board to explain the need to deviate from the CTG. IRRC also stated that this section is more stringent than the EPA requirements, and asked the Board to explain the need for the proposed language.

In response, the Board refers the commentators to the preamble to the proposed rulemaking, which explained that the Board proposed the 30% VOC by weight content limit for cleaning materials in part because a 30% VOC by weight content limit has been implemented in the Bureau of Air Quality-General Plan Approval/General Permit-7 (BAQ-GPA/GP-7) and BAQ-GPA/GP-10, which have been approved for use by permitted facilities since July 2, 1998, and July 3, 1999, respectively. These are the Department's general permits for sheet-fed offset lithographic printing presses and for non-heatset web offset lithographic printing presses, respectively. The limit of 30% VOC by weight content limit for cleaning materials is considered Best Available Technology (BAT) in the GPs; this limit has also been used in plan approvals and state-only operating permits. The Board specifically sought comment on this proposed provision in the preamble. In considering comments received on the proposed 30% VOC by weight content limit for cleaning materials, the Board evaluated different options, including options to retain the 30% VOC by weight content limit while allowing flexibility, but the Board concluded that the most reasonable solution, on balance, is that suggested by the commentators. Consequently, the Board selected the CTG limit of 70% VOC by weight content limit for cleaning materials for the final-form rulemaking. Adopting the 70% VOC by weight content limit will not result in more VOC emissions from cleaning materials used at facilities subject to the final-form rulemaking than anticipated, since the emission reductions discussed in the proposed rulemaking were based on EPA calculations that used the CTG-recommended limit of 70%. Permits that already have the more stringent BAT limit of 30% VOC by weight content from cleaning materials will keep that limit to prevent backsliding. The Board notes further that the term cleaning materials in the proposed rulemaking has been revised to cleaning solutions in the final-form rulemaking.

A commentator noted that proposed § 129.67b(c)(1)(ii) allows a 55 gallon cleaning material allowance for those materials that do not meet the VOC limits in § 129.67b(c)(1)(i). The commentator believes that due to the nature of the equipment being cleaned, 55 gallons per year is not adequate to allow a facility to achieve the amount of cleaning required to be done with cleaning materials that do not meet the limit, and suggests an exclusion of 110 gallons per year as suggested in the LLP CTG. IRRC acknowledged this comment and asked the Board to explain the need to deviate from the CTG. IRRC also stated that this section is more stringent than EPA requirements, and asked the Board to explain the need for the proposed language.

In response, the Board refers the commentators to the preamble to the proposed rulemaking, in which the Board explained that it proposed the 55 gallon limit because this limit has been implemented in BAQ-GPA/GP-7 and BAQ-GPA/GP-10, which have been approved for use by facilities since July 2, 1998, and July 3, 1999, respectively. These are the Department's GPs for sheet-fed offset lithographic printing presses and for non-heatset web offset lithographic printing presses. The limit of 55 gallons for non-compliant VOC solvent is considered BAT in the GPs;

this limit has also been used in plan approvals and state-only operating permits. The Board specifically sought comment on this proposed provision in the preamble. In considering the comments received on the 55 gallon limit, the Board evaluated different options, including options to retain the 55 gallon limit while allowing flexibility, but the Board concluded that the most reasonable solution, on balance, is that suggested by the commentators. Consequently, the Board selected the CTG limit of 110 gallons of non-compliant VOC solvent for the final-form rulemaking. Adopting the 110 gallon limit will not result in more VOC emissions than anticipated from cleaning activities performed by facilities subject to the final-form rulemaking, since the emission reductions discussed in the proposed rulemaking were based on EPA calculations that used the CTG limit of non-compliant VOC solvent usage of 110 gallons. Permits that already have the more stringent BAT limit of 55 gallons will keep that limit to prevent backsliding.

A commentator wrote that proposed § 129.67b(c)(2)(i) was very confusing as written because it seemed to be setting a single limit for alcohol content in all fountain solutions and the limit was the same one that is specified in § 129.67b(c)(2)(i)(A). The same comment applies to §§ 129.67b(c)(2)(ii) and 129.67b(c)(2)(ii)(A) as well. The Board agrees that §§ 129.67b(c)(2)(i) and 129.67b(c)(2)(i)(A) are duplicative, as are §§ 129.67b(c)(2)(ii) and 129.67b(c)(2)(ii)(A). The Board revised the language in the final-form rulemaking to remove the repetitive language.

A commentator wrote that proposed § 129.67b(c)(2)(i)(A) is not consistent with § 129.67b(c)(2)(i)(B) or (C). The commentator suggested that the words “Reducing the” in § 129.67b(c)(2)(i)(A) be deleted and replaced with the word “Using,” and added that the same comment applies for § 129.67b(c)(2)(ii)(A). The Board agrees with this approach. The Board revised the provision in the final-form rulemaking to remove the word “reducing” and to base the provision on use.

A commentator wrote that proposed §§ 129.67b(c)(2)(i), 129.67b(c)(2)(ii) and 129.67b(c)(2)(iii) should express the fountain solution content limit as “VOC content” and not as a specific material such as “alcohol” or “alcohol substitute,” as some printing operations are still using a combination of alcohol and alcohol substitutes in their fountain solution. Using “VOC content” will allow for this situation. The commentator suggested language to revise the section in accordance with the comment. The Board agrees that using “VOC content” in place of “alcohol” or “alcohol substitute” is an acceptable change and has replaced the “alcohol” or “alcohol substitute” limits with VOC content limits.

A commentator wrote that proposed §§ 129.67b(d)(1) and (2) and 129.67b(d)(2)(iii) are confusing because of the exclusions contained in each, and that the applicability language of § 129.67b(d)(1) duplicates that of § 129.67b(a)(1)(i). The commentator suggested language to revise the section in accordance with the comment, and suggested that proposed §§ 129.67b(d)(3) and (d)(4) be renumbered to reflect these changes. In response, the Board revised § 129.67b(d)(1) through (4) to remove the duplicative language found in subsection (d)(1), changed the order of the remaining paragraphs to clarify what is excluded, and renumbered paragraphs as necessary.

Control Options

A commentator suggested that proposed § 129.67b(d)(4)(i) be revised by deleting the word “overall” and replacing it with “destruction” so that it is consistent with the LLP CTG and does not introduce an unnecessary compliance demonstration for capture testing. The term “overall” is used to describe a requirement that is the product of both the capture of VOC emissions and their subsequent destruction by the use of a capture/control system. IRRC acknowledged comments regarding certain sections of the rulemaking being inconsistent with the CTG. IRRC referenced proposed § 129.67b(d)(4)(i) and asked the Board to explain the need to deviate from the CTG.

The Board agrees that the description of “overall” efficiency refers to the “capture” efficiency multiplied by the “destruction” efficiency. The final-form rulemaking means to limit the control (destruction) efficiency of any type of add-on air pollution control device including a thermal oxidizer or other approved device. The Board has revised § 129.67b(d)(1)(i) in the final-form rulemaking to replace the word “overall” with “control.” The Board believes this change is warranted due to the following other changes in the final-form rulemaking. Section 129.67b(d)(1) requires that the heatset dryer pressure must be maintained lower than the press room area pressure so that air flows into the heatset dryer at all times when the press is operating. This is operating at negative pressure. Since the unit is required to operate at negative pressure, the owner or operator of the facility may use the capture efficiency factor of 100% added under final-form § 129.67b(l)(2)(i) in the calculation of overall efficiency for control (destruction) of volatilized ink oils from oil-based heatset paste inks and varnishes. The use of 100% is equivalent to 1 (that is, 100/100), which would mean that control (destruction) efficiency and overall efficiency would be equal.

The commentator noted that the EPA has stated in both the LLP CTG and the Technical Support Document for Title V Permitting of Printing Operations that capture testing is not required and that only a one time demonstration is necessary to demonstrate that the air flow is into the dryer. In response, the Board explains that it has removed the capture efficiency testing requirement from § 129.67b(h) and added § 129.67b(e)(1)(iv), which states: “The negative dryer pressure shall be established during the initial test using an air flow direction indicator, such as a smoke stick or aluminum ribbons, or a differential pressure gauge. Capture efficiency retesting and continuous dryer air flow monitoring are not required.”

The commentator suggested that proposed § 129.67b(d)(4)(ii) be revised to reflect that in addition to presses with a low inlet concentration, a press with a combination dryer/oxidizer unit does not have an inlet that meets the requirement for testing. The commentator suggested language to revise the section. IRRC acknowledged this comment and requested that if the concern can be addressed while meeting the required EPA standards, the Board please do so. The Board agrees and has revised the final-form rulemaking to allow the owner or operator of a press with a combination dryer and oxidizer, or other control equipment configuration without an identifiable, measurable inlet, to apply for an alternative limit. The Board further notes that proposed § 129.67b(d)(4)(ii) is redesignated as § 129.67b(d)(1)(iii) in the final-form rulemaking.

The commentator suggested that proposed § 129.67b(d)(4)(ii) be revised to eliminate the requirement to seek an alternative limit in writing since that issue would be addressed at the time of permitting a press, thus making the requirement redundant as it imposes an unnecessary administrative burden. The commentator suggested language to revise the section. IRRC acknowledged this comment and requested that if the concern can be addressed while meeting the required EPA standards, that the Board please do so.

The Board disagrees that the alternative limit issue will always be resolved at the time of permitting a press and that the proposed regulatory requirement is therefore redundant and imposes an unnecessary administrative burden. The January 1, 2015, compliance date for existing permitted presses subject to the final-form rulemaking will be after the issuance of the original plan approval or permit and will not supersede existing plan approval or permit requirements unless the plan approval or permit requirements are less stringent than the requirements in the final-form rulemaking. For a new press subject to the final-form rulemaking and installed after final-form publication of the requirements in the *Pennsylvania Bulletin*, that uses a combination dryer and oxidizer, the alternative limit may be requested at the time of plan approval, but BAT may require a more stringent limit than the default limit in the final-form rulemaking. Whether an alternative limit is obtained through a plan approval, permit or other written approval from the Department, as appropriate, it is important from an environmental standpoint that the Department consider and approve (or disapprove) the request in writing, as an alternative limit could be less stringent than the 90% or 95% required efficiency. The final-form rulemaking continues to require a written request and specifies the information required for the Department to make the appropriate determination. The Board further notes that the language of proposed § 129.67b(d)(4)(ii) is revised as set forth in § 129.67b(d)(1)(iii) and (iv) in the final-form rulemaking.

Compliance and Monitoring

A commentator wrote that proposed § 129.67b(e) contains both monitoring and recordkeeping requirements, but that the recordkeeping requirements should be removed and placed into § 129.67b(f) which is dedicated to recordkeeping. The Board agrees and has moved the recordkeeping requirements to subsection (f) in the final-form rulemaking.

A commentator requests that the term “incinerator” in § 129.67b(e)(1)(i)(A) and (B) be deleted and replaced with the term “oxidizer” as “oxidizer” is a more accurate term to use when describing add-on control devices used to control emissions from printing presses. The Board agrees and has replaced the term “incinerator” with the term “oxidizer” in the final-form rulemaking. Corresponding changes were made in final-form § 129.67a.

A commentator wrote that proposed § 129.67b(e)(1)(i)(A) and (B) should qualify the term “continuously” to indicate that the temperature is to be recorded at least every 15 minutes to be consistent with the guidance found in the *EPA TSD for Title V permitting of Printing Operations* document. IRRC acknowledged this comment and asked if the Board has considered requiring gauges be checked every 15 minutes. In response, the Board has revised § 129.67b(e)(1) of the final-form rulemaking to require that the temperature be continuously monitored; the

temperature reading must be recorded at least once every 15 minutes while the oxidizer is operating. The Board made similar revisions in final-form § 129.67a(d)(1).

IRRC commented that proposed § 129.67a(d)(3)(i)(A) and (B) require certain temperatures to be “continuously monitored and recorded daily.” IRRC asked how a printing facility would “continuously” monitor a temperature gauge. IRRC noted that another commentator commented on a similar provision found under § 129.67b(e), and IRRC asked if the Board has considered requiring gauges to be checked every 15 minutes. In response, the Board asks the reader to see the preceding response. Please note that proposed § 129.67a(d)(3)(i)(A) and (B) are redesignated at final as § 129.67a(d)(1)(i) and (ii).

A commentator noted that proposed § 129.67b(e)(1)(i)(B) requires daily monitoring of the inlet and exhaust gas temperatures of a catalytic unit. The commentator wrote that monitoring the outlet temperature of a catalytic unit is not necessary as it provides meaningless data due to the variations in coverage on a per job or per day basis. The commentator included language from the EPA *TSD for Title V Permitting of Printing Operations* to provide several examples of catalytic oxidizer temperature monitoring that clearly state only the inlet temperature is to be monitored. In response, the Board agrees that monitoring of only the inlet temperature should occur. The requirement to monitor outlet temperature on the catalytic unit has been removed from the final-form rulemaking in § 129.67a(d)(1)(i)(A) for flexible package printing and § 129.67b(e)(1)(i)(B)(I) for lithographic printing and letterpress printing.

A commentator wrote that the Department needs to provide guidance to address temperature monitoring for regenerative thermal oxidizers. Since the temperature that is measured during the compliance test becomes the minimum temperature at which the unit can operate, a provision needs to be added specifying that the temperature to be monitored must equal the lower of the minimum operating temperature or “set point” at which the unit is required to run or the temperature that was measured during the compliance test. The Board agrees that the temperature that is measured during the compliance stack test becomes the minimum temperature at which the unit can operate; however, once compliance is demonstrated at that particular temperature, the “set point” may no longer guarantee compliance with the required VOC control efficiency. The Board has revised final-form §§ 129.67a(d)(1)(i) and 129.67b(e)(1)(i)(A) to read that the “minimum combustion or operating temperature must be continuously monitored” to address this concern.

A commentator wrote that a new condition needs to be added that recognizes that temperature fluctuations can and do occur with properly operating oxidizers. The EPA recognized this situation in the *TSD for Title V Permitting of Printing Operations* and allows for a 50°F temperature fluctuation over a 3-hour average. The Board agrees and has revised the final-form rulemaking to address this concern. Please see final-form §§ 129.67a(d)(2) and 129.67b(e)(1)(ii).

A commentator wrote that proposed § 129.67b(e)(1)(ii)(A) should be revised to clarify that records of the oxidizer temperature must be retained rather than the hours of operation. The temperature monitoring and recording requirements of § 129.67b(e)(1)(i) provide the necessary documentation that the unit was operating. The commentator suggested language to revise the

section. The Board agrees. The final-form rulemaking requires records of only the oxidizer temperature because the clarification to recording the temperature from daily as proposed to once every 15 minutes in the final-form rulemaking provides enough data about when the oxidizer is operating. Please see final-form § 129.67b(f)(1) for the records required.

A commentator suggested that proposed § 129.67b(e)(2)(iii)(B) be revised to indicate that the calculation only needs to be performed once for each batch of fountain solution being used, not for each use of a batch of fountain solution. The commentator wrote that since more than one fountain solution can be used on different presses in one operation, the calculation needs to be performed for each fountain solution. The commentator added that this is important as once the printing operation determines the proper mix ratio for its fountain solution, the mix ratio is not altered. The commentator suggested language to revise the section. The Board agrees with the comment and has revised the final-form rulemaking to require that the calculation be performed once for each recipe of fountain solution.

A commentator and IRRC questioned the necessity of permanently installing a temperature monitoring device for the fountain solution recirculating reservoir when a hand held thermometer is sufficient to accomplish the temperature monitoring requirement. The commentator suggested language to revise the section. IRRC further noted that § 129.67a(d)(3)(i) has a similar temperature monitoring requirement. The Board agrees that it is not necessary to permanently install a temperature monitoring device for the fountain solution recirculating reservoir; therefore, the Board has revised § 129.67b(e)(2)(iv) in the final-form rulemaking to delete proposed § 129.67b(e)(2)(iv)(A). The Board believes a hand-held thermometer could be used for monitoring the temperature of the fountain solution recirculating reservoir with the recording of the temperature reading being at least once per operating day. The Board further notes that proposed § 129.67b(e)(2)(iv)(B) has been revised in the final-form rulemaking to be part of § 129.67b(2)(iv). The Board disagrees, however, that § 129.67a(d)(3)(i) could be modified in the same way as § 129.67b(e)(2)(iv) because § 129.67a(d)(3)(i) discusses the temperature of the control device, for which use of a hand held thermometer is not sufficient. Therefore no changes to that section were made. The Board notes that proposed § 129.67a(d)(3)(i) has been redesignated in the final-form rulemaking as § 129.67a(d)(1).

A commentator stated that it is not necessary to require permission to use a conductivity meter to monitor the alcohol concentration in fountain solution. This is an unnecessary and burdensome requirement that is not warranted. The commentator suggested language to revise proposed § 129.67b(e)(2)(v)(C) accordingly. The Board agrees with the comment and has revised § 129.67b(e)(2)(v)(C) to remove the written request to the Department. Further, the Board notes that proposed § 129.67b(e)(2)(v)(C) is redesignated as § 129.67b(e)(2)(v)(B) in the final-form rulemaking.

A commentator stated that proposed § 129.67b(e)(3)(v)(B) should be revised to indicate that the calculation only needs to be performed once for each batch of cleaning solution being used, not for each use of a batch of cleaning solution. This is important as once the printing operation determines the proper mix ratio for its cleaning solution, the mix ratio is not altered. The commentator suggested language to revise the section in accordance with the comment. The

Board agrees with the comment and has revised the final-form rulemaking to require that the calculation be performed once for each recipe of cleaning solution.

Sampling and Testing

A commentator wrote that proposed § 129.67b(h) needs to be revised to reflect the testing requirements necessary for a successful destruction efficiency determination for an oxidizer used to control emissions from a heatset web offset lithographic press. The nature of the emissions from a heatset web offset lithographic press is such that simply following EPA protocols will result in failure forcing either re-testing or enforcement action. The commentator wrote that the EPA has recommended in the *TSD for Title V Printing Operations* that compliance testing of the emissions from an add-on air pollution control device should be conducted at operating conditions representative of a typical production schedule. The commentator suggested language to revise the section. The Board agrees that the proposed language for emissions testing could be clearer and has revised § 129.67b(h) in the final-form rulemaking using *some* of the suggested language. The Board did not incorporate all of the suggested language relating to stack testing of an add-on air pollution control device. Stack testing of source emissions from an add-on air pollution control device must undergo a stack test protocol review by the Department prior to conducting the stack test. Certain operating conditions, such as temperatures, duration, frequency and loading, are based on the actual source and control device to be tested and should be specified in the stack test protocol submitted to the Department for review and approval in accordance with the procedures and test methods of Chapter 139.

A commentator suggested language for proposed § 129.67b(h) which specified an acceptable time frame for stack testing relative to the compliance date. The Board agrees that the final-form rulemaking should specify the acceptable time frame for performance of the stack test and has added § 129.67b(h)(1)(ii).

A commentator suggested that continuous dryer air flow or pressure monitoring is *not* required to demonstrate constant negative pressure into the dryer, only an initial stack test. The Board agrees. Final-form § 129.67b(d)(1) requires that negative pressure be maintained at all times the press is operating; otherwise, the owner and operator of the press cannot assume 100% capture of emissions from volatilized ink oils from oil-based heatset paste inks and varnishes into the dryer. The proposed § 129.67b(h)(2) testing requirement for dryer constant negative pressure was deleted at final and replaced with requirements in § 129.67b(e)(1)(iv) for compliance and monitoring. Please also see the response to the second comment under *Control Options*, above.

A commentator suggested modifying proposed § 129.67b(j) by inserting the phrase “one of” between “by” and “the” so that it is clear that any of the identified methods are acceptable. The Board agrees with the comment and revised the final-form rulemaking accordingly.

Fiscal Impact

IRRC agreed with other commentators that daily recordkeeping requirements could be costly to printing facilities, many of which are small businesses. IRRC asked the Board to quantify the costs of the daily recordkeeping requirements of the proposed rulemaking and explain the need

for those requirements. In response, the Board has reconsidered the need for daily records and has revised the proposed applicability criterion of 15 pounds per day of actual VOC emissions to the equivalent threshold of 450 pounds per month at final. The Board also added language that allows the use of “purchase, use, production and other records” to demonstrate compliance, thereby providing additional flexibility. These revisions minimize the recordkeeping costs to printing facilities. The Board, therefore, did not quantify the costs required to comply with the proposed daily recordkeeping requirements.

IRRC wrote that the Board has acknowledged the large discrepancy between the number of potentially affected printing facilities identified by a trade association compared to the number of facilities identified by the Department’s Air Information Management System. IRRC wrote that the Commission appreciates the Board’s efforts to work with the regulated community and the Department’s Small Business Compliance Advisory Committee to gain a better understanding of the number of printing facilities that might be affected by this rulemaking. IRRC asked the Board to incorporate its finding into any new fiscal impact calculations it prepares as it develops the final-form regulation. IRRC noted that this should include costs associated with the VOC emissions reductions equipment and record-keeping requirements.

In response, the Board explains that in developing the final-form rulemaking, the Department made some inquiries of small business-sized printers, including certain print shops operated by the Commonwealth, to determine the applicability of this rulemaking to them. The Board did not gain a significantly different understanding of the number of printing facilities that might be affected by this rulemaking. Based on the findings, the Board still believes that the majority of small business-sized printing operations, those 73% of Commonwealth printers who employ fewer than 20 employees that were a concern for the trade association, will not emit enough VOC emissions to meet the applicability threshold for control requirements in the final-form rulemaking. The owners and operators of these printing operations will, therefore, have no increased cost other than the minimal cost of maintaining records to demonstrate that the amount of VOC emissions from their operation is below the applicability threshold of actual or potential VOC emissions that trigger the control provisions of the regulation. The Board has, however, revised the data presented for the final-form rulemaking cost analysis from the data presented for the proposed rulemaking cost analysis. The data were revised at final based on the slight changes in amounts of annual emissions and number of potentially subject operating facilities in 2011 versus the 2009 data that were used for the proposed rulemaking. Please also see the responses to the preceding comment and the first two responses under *Miscellaneous*, below.

Miscellaneous

A commentator noted that in Pennsylvania, there are approximately 1,812 companies employing about 60,000 workers engaged in the printing industry. As reported in the 2010 Print Market Atlas, reporting 2009 data, the value of goods shipped for the industry in Pennsylvania is approximately \$9.4 billion. Over 73% of printers in Pennsylvania employ fewer than 20 employees. The Board thanks the commentator for the information.

Two commentators noted that, since the majority of the printers in the Commonwealth employ 20 persons or less, the proposed rules are too complicated and burdensome with which to

comply. In response, the Board explains that it revised the rulemaking from proposed to final in ways that reduce the complexity and burden. For example, the Board revised the applicability provisions in the final-form rulemaking from daily to monthly emission thresholds and made revisions to recordkeeping requirements applicable to the owners and operators of smaller printing facilities. Furthermore, the addition of the ability to use the highest VOC content in any material in a class to represent that class of material offers an option which reduces the calculation and paperwork burden for the facilities in the flexographic, lithographic or letterpress printing industry. Under the final-form rulemaking, the owners and operators of a large portion of small business-sized printing operations will only need to keep minimal records to establish that they are not subject to the remaining control or compliance portions of the final-form rulemaking and report these records to the Department if requested.

In further response to this comment, and as referred to in the last response under *Fiscal Impact*, above, the Board made some inquiries of owners or operators of small business-sized printing operations with less than 20 employees – the size that the printing industry trade association references for considering a printer to be a small business – about amounts of VOC emissions. The Department evaluated the Pennsylvania Department of Transportation's (PennDOT) graphic arts operation, which is staffed with 18 employees and consists of two sheet-fed offset lithographic presses and four (offset) duplicating presses, and the associated annual material throughput of inks, fountain solutions, cleaning materials and adhesives, as an example. The evaluation determined that the print shop would not meet the minimum VOC emission threshold to be subject to the material VOC content limits or control requirements included in the final-form rulemaking. The Board believes that the PennDOT print shop is similar in size and throughput to the majority of Commonwealth printers that employ 20 persons or less and that are of concern to the printing industry trade association. The Board therefore further believes that few of the smaller printing operations will be subject to the control portions of the final-form rulemaking. Please also see responses to comments above in which the Board explains its revisions to proposed provisions commentators identified as burdensome.

A commentator suggested that printers should be given credit for efficiencies captured on heatset presses. The Board agrees and included the VOC emission retention factors and capture efficiency factors in the final-form rulemaking. Please see newly added subsection (l) in § 129.67b.

A commentator noted that the draft rulemaking does not address key emission and retention factors that are specific to the lithographic printing industry and are necessary to perform accurate emission determinations. In order to ensure that the proper emission and retention factors are applied for purposes of determining applicability and compliance, the appropriate factors need to be included in the revisions to the rulemaking. The recommended section clarifies the methodology for estimating actual emissions in the lithographic printing industry, saving administrative time and costs for both the Department and the printing industry. The inclusion of the emission and retention factors are supported by the EPA in the CTG on Pages 18-20. The commentator suggested language to revise the section. The Board agrees with the comment and included the VOC emission retention factors and capture efficiency factors in the final-form rulemaking. Please see newly added subsection (l) in § 129.67b.

G. Benefits, Costs and Compliance

Benefits

Implementation of the VOC emission control measures in the final-form rulemaking for flexible package printing press, offset lithographic printing press and letterpress printing press sources will benefit the health and welfare of the approximately 12 million residents and the numerous animals, crops, vegetation and natural areas of this Commonwealth by reducing emissions of VOCs, which are precursors to the formation of ground-level ozone air pollution. Exposure to ground-level ozone is a serious human and animal health and welfare threat, causing respiratory illnesses and decreased lung function, agricultural crop loss, visible foliar injury to sensitive plant species, and damage to forests, ecosystems and infrastructure.

This final-form rulemaking is designed to adopt the standards and recommendations in the 2006 CTGs for flexible package printing and for offset lithographic printing and letterpress printing, in order to meet the requirements of CAA sections 172(c)(1), 182(b)(2) and 184(b)(1)(B) (42 U.S.C.A. §§ 7502(c)(1), 7511a(b)(2) and 7511c(b)(1)(B)). The final-form rulemaking will apply the CTGs' standards and recommendations across this entire Commonwealth, as required by CAA section 184(b)(1)(B) (42 U.S.C.A. § 7511c(b)(1)(B)). The measures in the final-form rulemaking are reasonably necessary to attain and maintain the health-and welfare-based 8-hour ozone NAAQS in this Commonwealth.

The statewide implementation of the final-form rulemaking control measures will assist the Department in reducing VOC emissions from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses locally and reducing the resultant local formation of ground-level ozone and transport of VOC emissions and ground-level ozone to downwind states, and will facilitate implementation and enforcement of the final-form rulemaking within this Commonwealth.

The GAA has identified approximately 1800 printing facilities in this Commonwealth as potentially subject to this final-form rulemaking, including 114 flexographic and gravure printing and 1758 lithographic and letterpress printing facilities. However, the Department believes that these numbers are an overestimation because they appear to double-count facilities that offer multiple types of printing services. Furthermore, due to the applicability thresholds in the final-form rulemaking, not all of these printing facilities will be subject to the VOC content limits, control provisions or work practice standards for cleaning activities of the final-form rulemaking. The Department used these GAA-provided numbers and certain assumptions provided by the EPA in the CTGs for these source categories to estimate the worst-case scenario of numbers of facilities subject to the final-form rulemaking and the associated emission reductions and costs.

The Department estimates that of the 114 flexographic and gravure printing facilities, there may be as many as 52 flexible packaging printing facilities subject to the final-form rulemaking at the equal to or greater than 450 pounds per month or 2.7 tons per 12-month rolling period threshold of actual VOC emissions and required to implement recordkeeping and reporting requirements and work practice standards for cleaning activities. Thirteen of these 52 facilities could also be subject at the threshold of potential VOC emissions equal to or greater than 25 tpy, before

consideration of add-on controls, from the dryer of an individual press, thereby requiring VOC emission limitations or add-on air pollution control devices and implementation of recordkeeping and reporting requirements and work practice standards for cleaning activities. The remaining 62 facilities, namely those with actual VOC emissions below the 450 pounds per month or 2.7 tons per 12-month rolling period threshold, would be subject only to the recordkeeping requirements and, if requested by the Department, reporting requirements of the final-form rulemaking.

The Department estimates that as many as 387 of the 1758 offset lithographic printing and letterpress printing facilities may be subject to the final-form rulemaking at the equal to or greater than 450 pounds per month or 2.7 tons per 12-month rolling period threshold of actual VOC emissions, thereby requiring implementation of VOC content emission limits for the fountain solutions for each offset lithographic printing press and control of the VOC content of cleaning solutions and work practice standards for cleaning activities and recordkeeping and reporting requirements for each affected offset lithographic printing press or letterpress printing press at the facility. The Department further estimates that 39 of these 387 facilities could be subject at the threshold of potential VOC emissions equal to or greater than 25 tpy, before consideration of add-on controls, from the dryer of a single heatset web offset lithographic printing press or heatset web letterpress printing press, thereby requiring VOC content emission limits or add-on control for the fountain solutions, and implementation of recordkeeping and reporting requirements and work practice standards for cleaning activities. The remaining 1,371 facilities, namely those with actual VOC emissions below the 450 pounds per month or 2.7 tons per 12-month rolling period threshold, would be subject only to the recordkeeping requirements and, if requested by the Department, reporting requirements of the final-form rulemaking.

The estimated maximum anticipated additional VOC emission reductions from implementation of the flexible packaging printing press portion of the final-form rulemaking range from 93 tpy to 114 tpy. The estimated maximum anticipated additional VOC emission reductions from implementation of the offset lithographic printing press and letterpress printing press portion of the final-form rulemaking range from 553 tpy to 583 tpy. The actual amount of additional VOC emission reductions will be lower if the owners and operators of the affected facilities already comply with all or portions of the final-form rulemaking.

Although the final-form rulemaking is designed primarily to reduce ozone precursor emissions, the reformulation of noncomplying inks, coatings, adhesives and other printing materials or substitution of complying inks, coatings, adhesives and other printing materials to meet the VOC content limits applicable to users may also result in reduction of indoor and outdoor HAP emissions, which are also a serious health threat.

Compliance Costs

Flexible Packaging Printing Press Operations

The final-form rulemaking will affect the owner and operator of a flexible packaging printing press if an individual flexible packaging printing press has potential emissions from the dryer of at least 25 tpy of VOC from inks, coatings or adhesives or a combination of these materials,

before consideration of add-on controls. The final-form rulemaking requires an overall VOC control efficiency of 65% to 80% for each affected flexible packaging printing press, depending on date of first installation of the press and of the control device. This level of control may be met through the use of add-on controls, the use and application of low VOC-content or VOC-free inks, coatings and adhesives, or a combination of these methods. Users of inks, coatings and adhesives that meet the VOC emission limits in the final-form rulemaking will benefit by not needing to use add-on controls to reduce VOC emissions.

The final-form rulemaking includes requirements for work practice standards for cleaning activities that will apply to the owner and operator of an individual flexible packaging printing press with potential emissions of VOC equal to or greater than 25 tpy, before consideration of add-on controls, as well as the owner and operator of a facility where the total actual VOC emissions from all flexible packaging printing operations, and all emissions from related cleaning activities, are equal to or exceed 450 pounds per month or 2.7 tons per 12-month rolling period, before consideration of add-on controls.

The final-form rulemaking requires recordkeeping by owners and operators of flexible packaging printing presses with potential VOC emissions equal to or above the 25 tpy threshold, before consideration of add-on controls, and those with actual VOC emissions equal to and above, as well as those with actual VOC emissions below, the 450 pounds per month threshold.

Offset Lithographic Printing Press and Letterpress Printing Press Operations

The final-form rulemaking affects the owner and operator of an individual heatset web offset lithographic printing press or an individual heatset web letterpress printing press if the potential emissions from the dryer, before consideration of add-on controls, are at least 25 tpy of VOC emissions from heatset inks, coatings and adhesives. The final-form rulemaking requires add-on VOC emission control, with a minimum level of VOC control efficiency of 90% to 95%, for the heatset dryer. The required minimum applicability level of VOC control efficiency for the control of VOC emissions from a heatset dryer is tied to the first installation date of the air pollution control device. The dryer pressure must be maintained lower than the press room area pressure so that air flows into the dryer at all times when the press is operating.

The final-form rulemaking includes requirements for cleaning solutions and fountain solutions, and work practice requirements for cleaning solutions for owners and operators of offset lithographic printing press and letterpress printing press operations with VOC emissions equal to or above the 450 pounds per month or 2.7 tons per 12-month rolling period threshold.

The final-form rulemaking requires recordkeeping by owners and operators of offset lithographic printing press and letterpress printing press operations with potential VOC emissions equal to or above the 25 tpy threshold, before consideration of add-on controls, and those with actual VOC emissions equal to and above, as well as those with actual VOC emissions below, the 450 pounds per month or 2.7 tons per 12-month rolling period threshold.

Numbers Applicable to All Operations Covered by the Final-Form Rulemaking

The Department worked with information provided by the GAA and information in a Department database to estimate the number of facilities that will be covered by the final-form rulemaking. According to a representative of the GAA, there are about 1800 printing facilities in this Commonwealth that offer a printing service potentially covered by this final-form rulemaking, including 114 flexographic and gravure facilities and 1758 lithographic and letterpress facilities. However, these numbers are overestimations because they double count facilities that offer multiple printing services. Furthermore, due to the applicability thresholds in the final-form rulemaking, not all of these printing facilities will be subject to the VOC content limits, control provisions or work practice standards for cleaning activities of the final-form rulemaking. The GAA information does not list emission estimates; therefore, determining the number of facilities actually subject to the emission thresholds of the final-form rulemaking from this source of information alone is impossible.

A search of the Department's "Environmental Facility Application Compliance Tracking System" (eFACTS) database and Air Information Management System (AIMS) database generated a list of over 100 printing facilities that could potentially be subject to the final-form rulemaking based on North America Industry Classification System (NAICS) codes related to printing. These are two Department databases that share data and interface with each other. Facility contact information is inputted into eFACTS; the database contains records of permitted and some previously inspected facilities for which permits are not required. Site specific sources and emissions are inputted into AIMS to maintain the emission inventory. However, eFACTS and AIMS do not provide an exhaustive list of all printing facilities in this Commonwealth, but only those that the Department has had contact with and a reason to input their data; these are usually the largest emitters. The Department recognizes the large discrepancy between total number of printing facilities in this Commonwealth compiled by the GAA and the number of printing facilities currently in the Department's eFACTS and AIMS databases. Therefore, the Department is continuing to work with the GAA, the NFIB and the Department's SBCAC to reach out to printing facilities that might be affected by this final-form rulemaking.

The cost of complying with the requirements in the final-form rulemaking includes the cost of using low VOC-content or VOC-free inks, fountain solutions, coatings, adhesives and cleaning materials; add-on control systems; or a combination of these two approaches.

Based on information provided by the EPA in the flexible packaging printing CTG, the cost effectiveness of reducing VOC emissions from flexible packaging printing press operations is dependent on the flow rate, hourly solvent usage and operating hours. Using \$5,700 per ton of VOC reduced from a catalytic oxidizer (in 2005 dollars), because the emission reductions of that scenario fit the scale of current emission estimates, the estimated maximum anticipated annual costs to the flexible packaging printing industry could range from \$530,100 to \$649,800 (93 tons VOC emissions reduced x \$5,700/ton reduced; 114 tons VOC emissions reduced x \$5,700/ton reduced).

Based on information provided by the EPA in the offset lithographic printing and letterpress printing CTG, the cost effectiveness of reducing VOC emissions from heatset offset lithographic and heatset letterpress printing operations is estimated to range from \$855 to \$2,010 per ton of VOC reduced for control of VOC emissions from cleaning materials and heatset inks, respectively. Using the \$2,010 per ton of VOC removed for heatset inks, the estimated

maximum anticipated annual costs to the offset lithographic printing and letterpress printing industry could range from \$1,111,530 to \$1,171,830 (553 tons VOC emissions reduced x \$2,010/ton reduced; 583 tons VOC emissions reduced x \$2,010/ton reduced). The estimated total maximum anticipated annual costs to the regulated printing industry as a whole could range from \$1,641,630 to \$1,821,630.

The owner and operator of a facility that already complies with the requirements of the 1996 NESHPAP for the printing and publishing industry or other Best Available Technology permitting requirements through the use of add-on controls, including thermal oxidizers, may already satisfy the requirements of this final-form rulemaking and, if so, might have no additional annual costs.

The implementation of the work practices for the use and application of cleaning solutions is expected to result in a net cost savings. The recommended work practices should reduce the amounts of cleaning solutions used by reducing the amounts that are lost to evaporation, spillage and waste.

The recordkeeping and reporting requirements for owners and operators equal to, above and below the thresholds for control measures should be minimal because the records required by the final-form rulemaking are more in line with what the industry currently tracks for inventory purposes or in current permits. The owner or operator of a printing press subject to the final-form rulemaking shall maintain records sufficient to demonstrate compliance with the applicable requirements. Records maintained for compliance demonstrations may include purchase, use, production and other records. Additionally, the Board has added flexibility by removing the "per day" applicability level and by allowing actual emissions to be estimated by using the highest VOC content in any material in a class to represent that class of materials.

Compliance Assistance Plan

The Department plans to educate and assist the public and regulated community in understanding the newly revised requirements and how to comply with them. This will be accomplished through the Department's ongoing compliance assistance program. The Department anticipates assisting the GAA and the NFIB with outreach information these organizations intend to send to their membership in relation to this final-form rulemaking.

Paperwork Requirements

The Board has made several changes to streamline the recordkeeping requirements. For instance, the Board added language to the recordkeeping subsections that states: "Records maintained for compliance demonstrations may include purchase, use, production and other records." In addition, the Board added flexibility by allowing VOC content records to be based upon the highest VOC content in any material in a class rather than on each individual material in the class. The owner and operator of an affected flexible packaging printing press or offset lithographic printing press or letterpress printing press will be required to keep records of information for inks, coatings, adhesives, fountain solutions and cleaning solvents, as applicable, sufficient to demonstrate compliance. The final-form rulemaking does not require daily records, as the proposed rulemaking would have. The final-form rulemaking requires owners and

operators claiming an exemption from a VOC control provision based on potential or actual VOC emissions before consideration of controls to keep records sufficient to demonstrate that the press or facility is exempt. The records required in the final-form rulemaking must be maintained for 2 years unless a longer period is specified by a plan approval or operating permit issued under Chapter 127 and submitted to the Department in an acceptable format upon receipt of a written request. Persons seeking to comply through the use of add-on controls are required to keep certain operational records and to meet the applicable reporting requirements specified in Chapter 139.

H. Pollution Prevention

The Pollution Prevention Act of 1990 (42 U.S.C.A. §§ 13101—13109) established a National policy that promotes pollution prevention as the preferred means for achieving state environmental protection goals. The Department encourages pollution prevention, which is the reduction or elimination of pollution at its source, through the substitution of environmentally friendly materials, more efficient use of raw materials and the incorporation of energy efficiency strategies. Pollution prevention practices can provide greater environmental protection with greater efficiency because they can result in significant cost savings to facilities that permanently achieve or move beyond compliance.

This final-form rulemaking will help ensure that the citizens and the environment of this Commonwealth experience the benefits of reduced emissions of VOCs and HAPs from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. Although the final-form rulemaking is designed primarily to address ozone air quality, the reformulation or substitution of inks, coatings, adhesives, fountain solutions and cleaning materials to meet the VOC content limits applicable to users may also result in reduction of HAP emissions, which are also a serious health threat. The final-form rulemaking provides as one compliance option that inks, coatings, adhesives, fountain solutions and cleaning materials applied on or with flexible packaging printing presses, offset lithographic printing presses or letterpress printing presses in this Commonwealth meet specified limits for VOC content, usually through substitution of low VOC-content solvents or water for the high VOC-content solvents. The reduced levels of high VOC- and HAP-content solvents will also benefit water quality through reduced loading on water treatment plants and in reduced quantities of high VOC- and HAP-content solvents leaching into the ground.

I. Sunset Review

This final-form rulemaking will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

J. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P. S. § 745.5(a)), on January 31, 2012, the Department submitted a copy of the notice of proposed rulemaking published at 42 Pa.B. 779

to IRRC and to the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing the final-form rulemaking, the Department has considered all comments from IRRC, the House and Senate Committees and the public.

Under section 5.1(j.2) of the Regulatory Review Act (71 P. S. § 745.5a(j.2)), on _____, 2014, the final-form rulemaking was deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on _____, 2014, and approved the final-form rulemaking.

K. Findings

The Board finds that:

- (1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P. S. §§ 1201 and 1202) and regulations promulgated thereunder at 1 Pa. Code §§ 7.1 and 7.2.
- (2) At least a 60-day public comment period was provided as required by law and all comments were considered.
- (3) This final-form rulemaking does not enlarge the purpose of the proposal published at 42 Pa.B. 779.
- (4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.
- (5) These regulations are reasonably necessary to attain and maintain the ozone NAAQS and to satisfy related CAA requirements.

L. Order

The Board, acting under the authorizing statutes, orders that:

- (a) The regulations of the Department, 25 Pa. Code Chapters 121, 129 and 130 are amended by amending §§ 121.1, 129.51, 129.67, 129.77 and 130.703, and by adding §§ 129.67a and 129.67b, to read as set forth in Annex A, with ellipses referring to the existing text of the regulations.
- (b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairperson of the Board shall submit this order and Annex A to IRRC and the Committees as required by the Regulatory Review Act.

(d) The Chairperson of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau as required by law.

(e) This final-form rulemaking will be submitted to the EPA as an amendment to the Pennsylvania SIP.

(f) This order shall take effect immediately upon publication in the *Pennsylvania Bulletin*.

E. CHRISTOPHER ABRUZZO
Chairperson



Annex A
TITLE 25. ENVIRONMENTAL PROTECTION
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE III. AIR RESOURCES
CHAPTER 121. GENERAL PROVISIONS

§ 121.1. Definitions.

The definitions in section 3 of the act (35 P. S. § 4003) apply to this article. In addition, the following words and terms, when used in this article, have the following meanings, unless the context clearly indicates otherwise:

* * * * *

Alcohol—A chemical compound consisting of the hydroxyl (OH) group attached to an alkyl radical and having the general formula $[C_nH_{2n+1}OH]$ $C_nH_{2n+1}OH$, such as ethanol, n-propanol and isopropyl alcohol.

Alcohol substitute—Nonalcohol additives that contain VOCs and are used in the fountain solution including ethylene glycol and glycol ethers. Some additives are used to reduce the surface tension of water and others are added to prevent piling (ink build up).

* * * * *

As applied—

(i) The VOC and solids content of a coating, adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent that is actually used to coat the substrate.

(ii) The term includes the contribution of materials used for in-house dilution of the coating.

(iii) FOR PURPOSES OF §§ 129.67a AND 129.67b (RELATING TO CONTROL OF VOC EMISSIONS FROM FLEXIBLE PACKAGING PRINTING PRESSES; AND CONTROL OF VOC EMISSIONS FROM OFFSET LITHOGRAPHIC PRINTING PRESSES AND LETTERPRESS PRINTING PRESSES) THE VOC CONCENTRATION OF AN INK, COATING, ADHESIVE, FOUNTAIN SOLUTION OR CLEANING SOLUTION AT THE TIME IT IS ACTUALLY USED ON A PRINTING PRESS.

As supplied—

(i) The VOC and solids content of a coating, adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent or cleanup solvent as sold and delivered to the end user.

(ii) FOR PURPOSES OF §§ 129.67a AND 129.67b, THE VOC CONCENTRATION OF AN INK, COATING, ADHESIVE, FOUNTAIN SOLUTION OR CLEANING SOLUTION THAT IS PURCHASED FOR USE ON A PRINTING PRESS.

* * * * *

Batch—

(i) For purposes of § 129.67b [(relating to control of VOC emissions from offset lithographic printing presses and letterpress printing presses)], a supply of fountain solution OR CLEANING SOLUTION that is prepared and used without alteration until completely used or removed from the printing process.

(ii) The term [applies to either of] INCLUDES the following:

(A) A supply of fountain solution OR CLEANING SOLUTION prepared in a discrete amount.

(B) A supply of fountain solution that is continuously blended with an auto mix unit.

(C) A SUPPLY OF CLEANING SOLUTION THAT IS BLENDED AND DELIVERED TO A PRESS BY USE OF AN AUTOMATIC BLANKET OR ROLLER WASH SYSTEM.

* * * * *

CPDS—Certified Product Data Sheet—

(i) For purposes of wood furniture manufacturing operations under §§ 129.101—129.107 (relating to wood furniture manufacturing operations), documentation furnished by a coating supplier or an outside laboratory for a coating, strippable spray booth coating or solvent that provides the VOC content as pounds of VOC per pound of coating solids calculated from data measured using the EPA Reference Method 24 or an equivalent or alternative method. Batch formulation data may be used if it is demonstrated to the satisfaction of the Administrator of the EPA that the coating does not release additional VOC as reaction byproducts during the cure. The VOC content stated should represent the maximum VOC emission potential of the coating, strippable spray booth coating or solvent.

(ii) FOR PURPOSES OF PRINTING OPERATIONS UNDER § 129.67b, DOCUMENTATION FURNISHED BY AN INK SUPPLIER OR AN OUTSIDE LABORATORY FOR AN INK, FOUNTAIN SOLUTION, CLEANING SOLUTION OR SOLVENT THAT PROVIDES THE VOC CONTENT CALCULATED FROM DATA MEASURED USING THE EPA REFERENCE METHOD 24 OR AN EQUIVALENT OR ALTERNATIVE METHOD APPROVED BY THE DEPARTMENT. THE VOC CONTENT STATED SHOULD REPRESENT THE MAXIMUM VOC EMISSION POTENTIAL OF THE INK, FOUNTAIN SOLUTION, CLEANING SOLUTION OR SOLVENT.

* * * * *

CLEANING SOLUTION—A LIQUID SOLVENT OR SOLUTION USED TO REMOVE INK, INCLUDING DRIED INK, AND DEBRIS FROM THE OPERATING SURFACES OF A PRINTING PRESS AND ITS PARTS. THE TERM INCLUDES A BLANKET

WASH, IMPRESSION CYLINDER WASH, ROLLER WASH, METERING ROLLER CLEANER, PLATE CLEANER, RUBBER REJUVENATOR AND OTHER CLEANERS USED FOR CLEANING A PRESS, PRESS PARTS OR TO REMOVE DRIED INK OR COATING FROM AREAS AROUND THE PRESS.

* * * * *

[First installation date—For purposes of § 129.67a (relating to control of VOC emissions from flexible packaging printing presses) and § 129.67b, the first date of operation for a source or a control device. This date will not change if the source or control device is moved to a new location or when the control device is later used to control a new source.]

[* * * * *]

Flexible packaging—

(i) A package or part of a package, such as a bag, pouch, liner or wrap, the shape of which can be readily changed. Flexible packaging may be made of paper, plastic, film, aluminum foil, metallized or coated paper, metallized or coated film, or other material.

(ii) The term includes a shrink-wrap label or wrapper printed on or in-line with a flexible packaging printing press.

(iii) The term does not include folding cartons or other rigid packaging or self-adhesive labels.

Flexible packaging printing press—A printing press used for the production of printed flexible packaging materials using flexographic printing or rotogravure printing, or both.

* * * * *

Fountain solution—A mixture of water, volatile and nonvolatile chemicals and one or more additives that reduce the surface tension of the water so that the mixture spreads easily across the printing surface of a lithographic plate. The mixture wets the nonimage area so that the printing ink is maintained within the image area.

(i) Alcohols, specifically isopropyl alcohol, and alcohol substitutes, including ethylene glycol and glycol ethers, are the most common VOC additives used.

(ii) Nonvolatile additives include mineral salts and hydrophilic gums.

* * * * *

Heatset dryer—A device used in a printing process to heat the printed substrate and promote the evaporation of ink oils.]

HEATSET—AN OPERATION IN WHICH HEAT IS REQUIRED TO EVAPORATE INK OILS FROM THE PRINTING INKS THAT ARE APPLIED TO THE SUBSTRATE.

Heatset ink—Printing ink that is set and dried with the use of heat.

* * * *

Letterpress printing—A printing process in which the image area of the plate is raised relative to the nonimage area and the paste ink is transferred to the substrate directly from the image surface. The substrate can be fed to the press as either an individual sheet or a rolled web.

* * * *

Lithographic plate—The [thin metal] plate used in lithographic or offset lithographic printing which has chemically differentiated image and nonimage areas so that the printing ink adheres to the image areas.

Lithographic printing—A printing process in which the image and nonimage areas are in the same plane on the surface of a [thin metal] lithographic plate. The image and nonimage areas are chemically differentiated; the image area is oil receptive and the nonimage area is water receptive. The substrate can be fed to the press as either an individual sheet or a rolled web.

* * * *

NON-HEATSET—A LITHOGRAPHIC OR LETTERPRESS PRINTING PROCESS IN WHICH THE PRINTING INKS, INCLUDING VARNISHES, ARE SET AND DRIED BY ABSORPTION OR OXIDATION OF THE INK OILS RATHER THAN BY EVAPORATION WITH HEAT. THESE NON-POLYMERIZATION PROCESSES ARE ALSO KNOWN AS “COLDSET” PROCESSES. POLYMERIZATION PROCESSES INCLUDING THE USE OF AN INFRARED DRYER, ULTRAVIOLET CURING OR ELECTRON BEAM CURING ARE ALSO CONSIDERED NON-HEATSET OPERATIONS.

* * * *

Offset lithographic printing—A printing process in which the image and nonimage areas are in the same plane on the surface of a [thin metal] lithographic plate and the image and nonimage areas are chemically differentiated. The ink film is transferred from the lithographic plate to an intermediary surface, typically a rubber-covered cylinder called a blanket, which in turn transfers the ink film to the substrate. The substrate can be fed to the press as either an individual sheet or a rolled web.

* * * *

Paper, film or foil coating or **paper, film or foil surface coating**—Coatings applied in a continuous, uniform layer to paper, film or foil surfaces, and pressure-sensitive tapes, regardless of substrate. The coatings are applied to provide a covering, finish or functional or protective layer to the substrate, saturate a substrate for lamination or provide adhesion between two substrates for lamination.

- (i) The term includes coatings used in web coating processes on the following **substrates**:

* * * *

(E) Flexible packaging, including coating of non-woven polymer substrates for use in flexible packaging, if the coating is not applied on or in-line with a flexible packaging printing press.

(F) [Miscellaneous] Those used in miscellaneous coating operations, including the following:

* * * *

Printing press—The equipment used to apply words, pictures or designs to a sheet or continuous substrate of paper, plastic or other material. The equipment must include at least one printing work station. The following equipment, if present, is also considered part of the term:

- (i) One or multiple unwind or feed sections.**
- (ii) A series of individual work stations, which may include inboard and outboard work stations. A work station that employs another technology, including surface coating, is considered part of the printing press if the station is capable of printing or coating on the same substrate and if the work station is physically connected as part of the printing press.**
- (iii) A dryer associated with a work station.**
- (iv) A rewind, stack or collection section.**

* * * *

Rotogravure printing—The application of words, designs and pictures to a substrate by means of a roll printing technique which involves an intaglio or recessed image area in the form of cells.

* * * *

Sheet-fed printing—A printing process in which individual sheets of substrate are fed sequentially to the printing press.

* * * *

Varnish—For purposes of § 129.67b, an unpigmented offset lithographic ink which is used or applied on an offset lithographic printing press in the same manner as [an] A PIGMENTED offset lithographic ink. The term includes a heatset varnish, sheet-fed varnish and [coldset] NON-HEATSET varnish.

* * * *

Web printing—A printing process in which continuous rolls of substrate material are fed to the printing press and rewound or cut to size after printing.

* * * *

CHAPTER 129. STANDARDS FOR SOURCES SOURCES OF VOCs

§ 129.51. General.

(a) *Equivalency.* Compliance with §§ 129.52, 129.52a, 129.52b, 129.52c, [and 129.54—
129.73] 129.54—129.69, 129.71—129.73 and 129.77 may be achieved by alternative methods if
the following exist:

* * * * *

(3) Compliance by a method other than the use of a low VOC coating, adhesive, sealant, adhesive primer, sealant primer, surface preparation solvent [~~or~~], cleanup solvent, **CLEANING SOLUTION, FOUNTAIN SOLUTION** or ink which meets the applicable emission limitation in §§ 129.52, 129.52a, 129.52b, 129.52c, 129.67, 129.67a, 129.67b, 129.73 and 129.77 shall be determined on the basis of equal volumes of solids.

* * * * *

(6) The alternative compliance method is incorporated into a plan approval or operating permit, or both, reviewed by the EPA, including the use of an air cleaning device to comply with § 129.52, § 129.52a, § 129.52b, § 129.52c, § 129.67, § 129.67a, § 129.67b, § 129.68(b)(2) and (c)(2), § 129.73 or § 129.77.

* * * * *

(c) *Demonstration of compliance.* [Test] Unless otherwise set forth in this chapter, test methods and procedures used to monitor compliance with the emission requirements of this section are those specified in Chapter 139 (relating to sampling and testing).

* * * * *

(d) *Records.* The owner or operator of a facility or source subject to **ONE OR MORE OF** the VOC emission limitations and control requirements in this chapter shall keep records to demonstrate compliance with the applicable limitation or control requirement.

(1) The records shall provide sufficient data and calculations to clearly demonstrate that the **APPLICABLE** emission [~~limitations~~] **LIMITATION** or control [~~requirements are~~] **REQUIREMENT IS** met. Data or information required to determine compliance with an applicable limitation shall be recorded and maintained in a time frame consistent with the averaging period of the standard.

(2) The records shall be [~~retained at least 2 years and~~] **MAINTAINED ON SITE FOR 2 YEARS, UNLESS A LONGER PERIOD IS REQUIRED BY A PLAN APPROVAL OR OPERATING PERMIT ISSUED UNDER CHAPTER 127 (RELATING TO CONSTRUCTION, MODIFICATION, REACTIVATION AND OPERATION OF SOURCES). THE RECORDS** shall be made available to the Department on request.

[~~(3)~~] (e) **DEMONSTRATION OF EXEMPT STATUS.** [An] **THE** owner or operator **OF A FACILITY OR SOURCE** claiming that [a] **THE** facility or source is exempt from the VOC

control provisions of this chapter shall maintain records that clearly demonstrate to the Department that the facility or source is not subject to the VOC emission limitations or control requirements **OF THIS CHAPTER.**

* * * *

§ 129.67. Graphic arts systems.

(a) This section applies **[to facilities] as follows:**

(1) This section applies to the owner and operator of a facility whose rotogravure and flexographic printing presses by themselves or in combination with a surface coating operation subject to § 129.52 [(relating to surface coating processes)], **§ 129.52a, § 129.52b or § 129.52c or in combination with a flexible packaging printing press subject to § 129.67a (relating to control of VOC emissions from flexible packaging printing presses)** have the potential to emit or have emitted VOCs into the outdoor atmosphere in quantities greater than 1,000 pounds (460 kilograms) per day or 100 tons (90,900 kilograms) per year during any calendar year since January 1, 1987.

(2) This section applies to the owner and operator of a flexographic or rotogravure printing press that prints flexible packaging materials subject to § 129.67a(a)(1)(ii) if the owner or operator was required to install a control device under this section prior to *(Editor's Note: The blank refers to the effective date of adoption of this proposed rulemaking.)*

(3) This section does not apply to the owner or operator of a flexible packaging printing press subject to § 129.67a(a)(1)(i).

* * * *

(Editor's Note: Sections 129.67a and 129.67b are new and printed in regular type to enhance readability.)

§ 129.67a. Control of VOC emissions from flexible packaging printing presses.

(a) *Applicability.*

(1) Except as specified in **[paragraphs]** **PARAGRAPH** (3) **and** **OR** (4), this section applies to the owner and operator of a flexible packaging printing press if one or **both** **MORE** of the following apply:

(i) **POTENTIAL VOC EMISSIONS.** An individual flexible packaging printing press has potential emissions from the dryer, before consideration of add-on controls, of at least 25 tpy of VOCs from inks, coatings and adhesives combined. This section supersedes § 129.67 (relating to graphic arts systems).

(ii) **ACTUAL VOC EMISSIONS AT OR ABOVE THRESHOLD.** The total actual VOC emissions from all inks, coatings and adhesives combined from all flexible packaging printing

presses and all VOC emissions from related cleaning activities at the facility are equal to or greater than [15 pounds (6.8 kilograms) per day] **450 POUNDS (204.1 KILOGRAMS) PER MONTH** or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(iii) ACTUAL VOC EMISSIONS BELOW THRESHOLD. THE TOTAL ACTUAL VOC EMISSIONS FROM ALL INKS, COATINGS AND ADHESIVES COMBINED FROM ALL FLEXIBLE PACKAGING PRINTING PRESSES AND ALL VOC EMISSIONS FROM RELATED CLEANING ACTIVITIES AT THE FACILITY ARE LESS THAN 450 POUNDS (204.1 KILOGRAMS) PER MONTH OR 2.7 TONS (2,455 KILOGRAMS) PER 12-MONTH ROLLING PERIOD, BEFORE CONSIDERATION OF ADD-ON CONTROLS.

(2) The owner or operator of a flexographic or rotogravure printing press subject to paragraph (1)(ii) and § 129.67, who was required to install a control device under § 129.67 prior to _____, (*Editor's Note:* The blank refers to the effective date of adoption of this proposed rulemaking.) shall continue the operation of that control device and also meet the requirements of this section.

(3) VOCs from adhesives used at a facility that are not used or applied on or with a flexible packaging printing press are not subject to this section and may be regulated under § 129.52b, § 129.77 or Chapter 130, Subchapter D (relating to control of VOC emissions from paper, film and foil surface coating processes; control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).

(4) [This section does not apply to surface coating of flexible packaging substrates that is not done with a flexible packaging printing press.] Surface coating of flexible packaging substrates **THAT IS NOT DONE WITH A FLEXIBLE PACKAGING PRINTING PRESS** is regulated under § 129.52b.

(b) *Existing RACT permit.* This section supersedes the requirements of a RACT permit issued to the owner or operator of a source subject to this section prior to [January 1, 2013] **JANUARY 1, 2015**, under §§ 129.91—129.95 (relating to stationary sources of NOx and VOCs) to control, reduce or minimize VOCs from a flexible packaging printing press, except to the extent the RACT permit contains more stringent requirements.

(c) *Emission limits.* Beginning [January 1, 2013] **JANUARY 1, 2015**, a person subject to subsection (a)(1)(i) may not cause or permit the emission into the outdoor atmosphere of VOCs from a flexible packaging printing press, unless one or more of the following limitations is met:

(1) **INDIVIDUAL INK, COATING OR ADHESIVE.** The VOC content of each as applied ink, coating or adhesive used on a single flexible packaging printing press **[is] MEETS THE FOLLOWING REQUIREMENTS:**

(i) **THE VOC CONTENT IS** equal to or less than one or both of the following limits:

(ii) (A) 0.16 lb VOC per lb material as applied.

(iii) (B) 0.8 lb VOC per lb material solids as applied.

(ii) THE VOC CONTENT IS CALCULATED AS FOLLOWS FOR VOC CONTENT EXPRESSED IN UNITS OF WEIGHT OF VOC PER WEIGHT OF MATERIAL SOLIDS:

$$\text{VOC}_B = (W_o)/(W_n)$$

WHERE:

VOC_B = VOC CONTENT IN LB VOC/LB OF SOLIDS AS APPLIED OR KG VOC/KG OF SOLIDS AS APPLIED

W_o = WEIGHT PERCENT OF VOC (W_v-W_w-W_{ex})

W_v = WEIGHT PERCENT OF TOTAL VOLATILES (100%-WEIGHT PERCENT SOLIDS)

W_w = WEIGHT PERCENT OF WATER

W_{ex} = WEIGHT PERCENT OF EXEMPT SOLVENTS

W_n = WEIGHT PERCENT OF SOLIDS OF THE AS APPLIED INK, COATING OR ADHESIVE

(iii) SAMPLING OF THE INK, COATING OR ADHESIVE AND TESTING FOR THE VOC CONTENT OF THE INK, COATING OR ADHESIVE IS PERFORMED IN ACCORDANCE WITH SUBSECTION (f).

(2) **WEIGHTED AVERAGE.** The daily weighted-average VOC content of all inks, coatings and adhesives combined used on a single flexible packaging printing press meets one or both of the VOC content limits in paragraph (1)(i). The use of averaging to meet the VOC content limits may not be used across multiple printing presses. **AVERAGING IS AVAILABLE ON A SINGLE FLEXIBLE PACKAGING PRINTING PRESS IF THE FOLLOWING REQUIREMENTS ARE MET:**

(i) THE DAILY WEIGHTED AVERAGE IS CALCULATED USING THE FOLLOWING EQUATION:

$$VOC_w = \frac{\sum_{i=1}^n C_i V_i}{V_t}$$

WHERE:

VOC_w=THE DAILY WEIGHTED AVERAGE VOC CONTENT, AS APPLIED, OF ALL INKS, COATINGS AND ADHESIVES COMBINED USED ON A SINGLE FLEXIBLE PACKAGING PRINTING PRESS, IN LB VOC/GAL OF COATING SOLIDS

n=THE NUMBER OF DIFFERENT INKS, COATINGS AND ADHESIVES USED EACH DAY ON THE SINGLE FLEXIBLE PACKAGING PRINTING PRESS

V_i=THE VOLUME OF SOLIDS FOR EACH INK, COATING AND ADHESIVE, AS APPLIED, USED EACH DAY ON THE SINGLE FLEXIBLE PACKAGING PRINTING PRESS, IN GALLONS

C_i=THE VOC CONTENT OF EACH INK, COATING AND ADHESIVE, AS APPLIED, USED EACH DAY ON THE SINGLE FLEXIBLE PACKAGING PRINTING PRESS, IN LB VOC/GAL COATING SOLIDS

V_f=THE TOTAL VOLUME OF SOLIDS FOR ALL INKS, COATINGS AND ADHESIVES COMBINED, AS APPLIED, USED EACH DAY ON THE SINGLE FLEXIBLE PACKAGING PRINTING PRESS, IN GALLONS

(ii) SAMPLING OF THE INKS, COATINGS AND ADHESIVES AND TESTING FOR THE VOC CONTENT OF THE INKS, COATINGS AND ADHESIVES IS PERFORMED IN ACCORDANCE WITH SUBSECTION (f).

(3) **ADD-ON AIR POLLUTION CONTROL DEVICE.** The overall weight of VOCs emitted to the atmosphere from all inks, coatings and adhesives combined used on a single flexible packaging printing press is reduced through the use of vapor recovery or [~~incineration~~] **OXIDATION** or another method that is acceptable under § 129.51(a) (relating to general). The overall **CONTROL** efficiency of a control system, as determined by the test methods and procedures specified in [**Chapter 139 (relating to sampling and testing)**] **SUBSECTION (f)**, may not be less than that listed in Table 1.

Table 1

*Overall **CONTROL** Efficiency Requirement of a Control System on a Single Flexible Packaging Printing Press with Potential Emissions \geq 25 tpy of VOC Before Control*

Control System Overall CONTROL Efficiency Requirement	Printing Press First Installation Date ¹	Air Pollution Control Device First Installation Date ¹
Prior to March 14, 1995*	On or after March 14, 1995*	Prior to [January 1, 2013] JANUARY 1, 2015**
\geq 65%	X	X
\geq 70%	X	X
\geq 75%	X	X
\geq 80%	X	X

¹ FIRST INSTALLATION DATE IS THE FIRST DATE OF OPERATION FOR A SOURCE OR A CONTROL DEVICE. THIS DATE DOES NOT CHANGE IF THE SOURCE OR CONTROL DEVICE IS MOVED TO A NEW LOCATION OR IF THE CONTROL DEVICE IS LATER USED TO CONTROL A NEW SOURCE.

* March 14, 1995, is the date of the proposed 1996 NESHAP for the printing and publishing industry.

** **[January 1, 2013] JANUARY 1, 2015**, is the **[proposed]** compliance date of the flexible packaging printing press regulation.

(4) **The overall weight of VOCs emitted to the atmosphere from a single flexible packaging printing press that uses a noncomplying ink, coating or adhesive, or a combination of noncomplying and complying inks, coatings or adhesives, is reduced through the use of vapor recovery or incineration or another method that is authorized under § 129.51(a).**

(5) RESTRICTION ON POTENTIAL VOC EMISSIONS. The Department has issued a plan approval, operating permit or Title V permit to the owner or operator prior to **[January 1, 2013] JANUARY 1, 2015**, establishing a Federally-enforceable limitation to limit the potential emissions of VOC from the flexible packaging printing press below 25 tpy before consideration of add-on controls.

(d) **Compliance AND monitoring requirements FOR AN ADD-ON AIR POLLUTION CONTROL DEVICE.**

(1) The VOC content of the as applied ink, coating or adhesive, expressed in units of weight of VOC per weight of solids, shall be calculated as follows:

$$\underline{\underline{VOC_B = (W_o)/(W_s)}}$$

Where:

VOC_B = VOC content in lb VOC/lb of solids as applied or kg VOC/kg of solids as applied

W_e = Weight percent of VOC ($W_v \cdot W_w \cdot W_{ex}$)

W_v = Weight percent of total volatiles (100% weight percent solids)

W_w = Weight percent of water

W_{ex} = Weight percent of exempt solvents

W_n = Weight percent of solids of the as applied ink, coating or adhesive

(2) The overall efficiency of a control system for a single flexible packaging printing press that uses a combination of controls and noncomplying and complying inks, coatings and adhesives, as determined by the test methods and procedures specified in Chapter 139, must be no less than 80% or the equivalent overall efficiency as calculated by the following equation, whichever is less stringent:

$$O = (1 - E/V) \times 100$$

Where:

V = The VOC content of the as applied coating, in lb VOC/lb material or in lb VOC/lb material solids.

E = The emission limit from subsection (e)(1): either 0.16 lb VOC/lb material or 0.8 lb VOC/lb material solids.

O = The overall required control efficiency.

(3) The owner or operator of a FLEXIBLE PACKAGING printing press subject to [this section] SUBSECTION (a)(1)(i) using an add-on air pollution control device in accordance with subsection (c)(3) shall comply with the following requirements:

[f](1) The add-on air pollution control device [must] SHALL be equipped with the applicable monitoring equipment and the monitoring equipment shall be installed, calibrated, operated and maintained according to manufacturer's specifications at all times the add-on air pollution control device is in use. IF THE ADD-ON AIR POLLUTION CONTROL DEVICE IS A:

[A] The

(i) NON-CATALYTIC THERMAL OXIDIZER, THE MINIMUM combustion OR OPERATING temperature must be continuously monitored [and recorded daily if a thermal

incinerator is operated]. THE TEMPERATURE READING MUST BE RECORDED IN ACCORDANCE WITH SUBSECTION (e)(1) AT LEAST ONCE EVERY 15 MINUTES WHILE THE NON-CATALYTIC THERMAL OXIDIZER IS OPERATING.

[B] Inlet and exhaust gas temperatures]

(ii) CATALYTIC THERMAL OXIDIZER:

(A) THE INLET GAS TEMPERATURE must be continuously monitored [and recorded daily if a catalytic incinerator is operated]. THE TEMPERATURE READING MUST BE RECORDED IN ACCORDANCE WITH SUBSECTION (e)(1) AT LEAST ONCE EVERY 15 MINUTES WHILE THE CATALYTIC THERMAL OXIDIZER IS OPERATING.

(B) A CATALYST ACTIVITY TEST MUST BE PERFORMED A MINIMUM OF ONE TIME PER ROLLING 2-YEAR PERIOD.

(iii) CONTROL DEVICE OTHER THAN THAT SPECIFIED IN SUBPARAGRAPH (i) OR (ii), PARAMETERS SPECIFIC TO THE CONTROL DEVICE MUST BE CONTINUOUSLY MONITORED. THE PARAMETERS MUST BE RECORDED IN ACCORDANCE WITH SUBSECTION (e)(1) AT LEAST ONCE EVERY 15 MINUTES WHILE THE CONTROL DEVICE IS OPERATING.

(ii) Operational records sufficient to demonstrate compliance with the requirements of this subsection shall be maintained in accordance with subsection (e), including the following:

(A) Daily records of the hours of operation of the add-on air pollution control device.

(B) Records of the maintenance performed on the add-on air pollution control device, including the date and type of maintenance.

(C) Records of the maintenance performed on the air pollution control device monitoring equipment, including the date and type of maintenance.

(iii)](2) THE ADD-ON AIR POLLUTION CONTROL DEVICE SPECIFIED IN PARAGRAPH (1) MUST BE OPERATED AT A 3-HOUR AVERAGE TEMPERATURE NOT LOWER THAN 50°F BELOW THE AVERAGE TEMPERATURE DEMONSTRATED DURING THE MOST RECENT COMPLIANT SOURCE TEST APPROVED BY THE DEPARTMENT.

(3) The ADD-ON air pollution control device SPECIFIED IN PARAGRAPH (1) must be in operation at all times that the source is operating.

(iv)](4) The ADD-ON air pollution control device [is] SHALL BE approved, in writing, by the Department in [an] A PLAN APPROVAL, operating permit OR TITLE V PERMIT prior to use.

(e) Recordkeeping and reporting requirements. Beginning [January 1, 2013] **JANUARY 1, 2015**, the owner or operator of a flexible packaging printing press subject to this section shall maintain records sufficient to demonstrate compliance with the requirements of this section. **[At a minimum, the] RECORDS MAINTAINED FOR COMPLIANCE DEMONSTRATIONS MAY INCLUDE PURCHASE, USE, PRODUCTION AND OTHER RECORDS.**

(1) AN owner or operator **SUBJECT TO SUBSECTION (a)(1)(i) USING AN ADD-ON AIR POLLUTION CONTROL DEVICE** shall maintain [daily] records **SUFFICIENT TO DEMONSTRATE COMPLIANCE WITH SUBSECTION (d), INCLUDING** records of the following information:

(i) TEMPERATURE READING OF THE ADD-ON AIR POLLUTION CONTROL DEVICE.

(ii) MAINTENANCE PERFORMED ON THE ADD-ON AIR POLLUTION CONTROL DEVICE AND MONITORING EQUIPMENT, INCLUDING THE DATE AND TYPE OF MAINTENANCE.

(iii) CATALYST ACTIVITY TEST PERFORMED, IF APPLICABLE.

[1 (1) The following parameters for each VOC-containing material, including ink, coating, adhesive, thinner, component or cleaning solvent, as supplied:

(i) The name and identification number of the ink, coating, adhesive, thinner, component or cleaning solvent.

(ii) The amount used.

(iii) The density or specific gravity.

(iv) The VOC content (weight % or pounds/gallon).

(2) The VOC content of each ink, coating, adhesive, thinner, component or cleaning solvent as applied.

(3) The volume used of each ink, coating, adhesive, thinner, component or cleaning solvent as applied.]

(2) AN OWNER OR OPERATOR SUBJECT TO SUBSECTION (a)(1)(i) NOT USING AN ADD-ON AIR POLLUTION CONTROL DEVICE SHALL MAINTAIN RECORDS OF THE AS APPLIED VOC CONTENT OF INKS, COATINGS AND ADHESIVES SUFFICIENT TO DEMONSTRATE COMPLIANCE WITH THE LIMITATIONS UNDER SUBSECTION (c)(1) OR (c)(2).

(3) AN OWNER OR OPERATOR CLAIMING EXEMPTION FROM A VOC CONTROL PROVISION OF THIS SECTION BASED ON POTENTIAL OR ACTUAL VOC EMISSIONS, AS APPLICABLE, SHALL MAINTAIN RECORDS THAT DEMONSTRATE TO THE DEPARTMENT THAT THE PRESS OR FACILITY IS EXEMPT.

(4) THE OWNER OR OPERATOR MAY GROUP MATERIALS INTO CLASSES USING THE HIGHEST VOC CONTENT IN ANY MATERIAL IN A CLASS TO REPRESENT THAT CLASS OF MATERIAL.

(5) The records required under paragraphs [1]—(3) (1)—(4) shall be maintained for 2 years, unless a longer period is required [under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements)] BY A PLAN APPROVAL OR OPERATING PERMIT ISSUED UNDER CHAPTER 127 (RELATING TO CONSTRUCTION, MODIFICATION, REACTIVATION AND OPERATION OF SOURCES). The records shall be submitted to the Department **IN AN ACCEPTABLE FORMAT** upon receipt of a written request.

(6) THE OWNER OR OPERATOR OF A FLEXIBLE PACKAGING PRINTING PRESS SUBJECT TO SUBSECTION (a)(1)(i) THAT IS REQUIRED TO DEMONSTRATE OVERALL CONTROL EFFICIENCY IN ACCORDANCE WITH SUBSECTIONS (c)(3) AND (d) SHALL SUBMIT REPORTS TO THE DEPARTMENT IN ACCORDANCE WITH CHAPTER 139 (RELATING TO SAMPLING AND TESTING).

(f) *Sampling and testing.*

(1) Sampling and testing **SHALL BE PERFORMED AS FOLLOWS:**

(i) SAMPLING OF AN INK OR COATING AND TESTING FOR THE VOC CONTENT OF THE INK OR COATING shall be **[done]** **PERFORMED** in accordance with the procedures and test methods specified in Chapter 139.

(ii) SAMPLING AND TESTING OF AN ADD-ON AIR POLLUTION CONTROL DEVICE SHALL BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES AND TEST METHODS SPECIFIED IN CHAPTER 139 AND MEET ONE OF THE FOLLOWING:

(A) SAMPLING AND TESTING SHALL BE PERFORMED NO LATER THAN 180 DAYS AFTER THE COMPLIANCE DATE OF THE PRESS.

(B) SAMPLING AND TESTING SHALL HAVE BEEN PERFORMED WITHIN 5 YEARS PRIOR TO JANUARY 1, 2015, AND SHALL HAVE BEEN PREVIOUSLY APPROVED BY THE DEPARTMENT. CAPTURE EFFICIENCY RETESTING MAY BE WAIVED FOR CAPTURE SYSTEMS THAT ARE NOT PERMANENT TOTAL ENCLOSURES IF THE OPERATING PARAMETERS INDICATE THAT A

FUNDAMENTAL CHANGE HAS NOT TAKEN PLACE IN THE OPERATION OR DESIGN OF THE EQUIPMENT, UNLESS RETESTING IS REQUIRED BY ARTICLE III OR A PLAN APPROVAL, OPERATING PERMIT OR AN ORDER ISSUED BY THE DEPARTMENT. FOR PURPOSES OF THIS CLAUSE, FUNDAMENTAL CHANGES INCLUDE THE FOLLOWING: ADDING PRINTING STATIONS TO A PRESS, INCREASING OR DECREASING THE VOLUMETRIC FLOW RATE FROM THE DRYER OR CHANGING THE STATIC DUCT PRESSURE.

(2) THE OVERALL CONTROL EFFICIENCY OF THE ADD-ON AIR POLLUTION CONTROL DEVICE SHALL BE DETERMINED BY THE FOLLOWING TEST METHODS AND PROCEDURES SUBJECT TO PRIOR WRITTEN APPROVAL BY THE DEPARTMENT.

(i) THE CAPTURE EFFICIENCY SHALL BE DETERMINED IN ACCORDANCE WITH EITHER OF THE FOLLOWING METHODS:

(A) 40 CFR PART 51, APPENDIX M, METHODS 204—204F, INCLUDING UPDATES AND REVISIONS.

(B) 40 CFR PART 63, SUBPART KK, APPENDIX A, DATA QUALITY OBJECTIVE AND LOWER CONFIDENCE LIMIT APPROACHES FOR ALTERNATIVE CAPTURE EFFICIENCY PROTOCOLS AND TEST METHODS.

(ii) THE CONTROL EFFICIENCY SHALL BE DETERMINED USING ONE OR MORE OF THE FOLLOWING METHODS, AS APPLICABLE. THE METHOD USED TO MEASURE THE INLET CONCENTRATION OF VOC MAY BE THE SAME METHOD USED TO DETERMINE THE OUTLET CONCENTRATION OF VOC UNLESS USE OF THE SAME METHOD IS DETERMINED TO BE TECHNICALLY INFEASIBLE.

(A) EPA REFERENCE METHOD 25, DETERMINATION OF TOTAL GASEOUS NONMETHANE ORGANIC EMISSIONS AS CARBON, FOUND IN 40 CFR PART 60, APPENDIX A, INCLUDING UPDATES AND REVISIONS. EPA REFERENCE METHOD 25 MAY BE USED IF THE TOTAL GASEOUS NONMETHANE ORGANIC COMPOUND CONCENTRATION IS EQUAL TO OR GREATER THAN 50 PARTS PER MILLION BY VOLUME, MEASURED AS CARBON.

(B) EPA REFERENCE METHOD 25A, DETERMINATION OF TOTAL GASEOUS ORGANIC CONCENTRATION USING A FLAME IONIZATION ANALYZER, FOUND IN 40 CFR PART 60, APPENDIX A, INCLUDING UPDATES AND REVISIONS. EPA REFERENCE METHOD 25A MAY NOT BE USED IF THE TOTAL GASEOUS NONMETHANE ORGANIC COMPOUND CONCENTRATION AT THE OUTLET OF THE ADD-ON AIR POLLUTION CONTROL DEVICE IS EQUAL TO OR GREATER THAN 50 PARTS PER MILLION BY VOLUME, MEASURED AS CARBON.

(C) EPA REFERENCE METHOD 18, MEASUREMENT OF GASEOUS ORGANIC COMPOUND EMISSIONS BY GAS CHROMATOGRAPHY, FOUND IN 40 CFR PART 60, APPENDIX A, INCLUDING UPDATES AND REVISIONS. EPA REFERENCE METHOD 18 MAY BE USED IF THE TOTAL GASEOUS NONMETHANE ORGANIC COMPOUND CONCENTRATION IS EQUAL TO OR GREATER THAN 50 PARTS PER MILLION BY VOLUME, MEASURED AS CARBON. EPA REFERENCE METHOD 18 MAY BE USED IN CONJUNCTION WITH EPA REFERENCE METHOD 25A TO SUBTRACT EMISSIONS OF EXEMPT VOCs.

(3) Other test methods demonstrated to provide results that are acceptable for purposes of determining compliance with this section may be used if prior approval is obtained in writing from the Department and the EPA.

(g) *Work practice requirements for cleaning [materials] ACTIVITIES.*

(1) **[Beginning January 1, 2013] EXCEPT AS SPECIFIED IN PARAGRAPH (3), BEGINNING JANUARY 1, 2015,** the owner or operator of a flexible packaging printing press subject to **[this section] SUBSECTION (a)(1)(i), (a)(1)(ii) OR (a)(2)** shall comply with the following work practices for cleaning activities at the facility:

- (i) Store all VOC-containing cleaning **[materials] SOLUTIONS**, waste cleaning **[materials] SOLUTIONS** and used shop towels in closed containers.
- (ii) Ensure that mixing vessels and storage containers used for VOC-containing cleaning **[materials] SOLUTIONS [and]**, waste cleaning **[materials] SOLUTIONS AND USED SHOP TOWELS** are kept closed at all times, except when depositing or removing these **[materials] SOLUTIONS OR SHOP TOWELS**.
- (iii) Minimize spills of VOC-containing cleaning **[materials] SOLUTIONS** and waste cleaning **[materials] SOLUTIONS** and clean up spills immediately.
- (iv) Convey VOC-containing cleaning **[materials] SOLUTIONS [and]**, waste cleaning **[materials] SOLUTIONS AND USED SHOP TOWELS** from one location to another in closed containers or pipes.

(2) The requirements in paragraph (1) apply to the following activities:

- (i) Cleaning of ink, coating or adhesive from a press.
 - (ii) Cleaning of ink, coating or adhesive from press parts, including press parts that have been removed from the press for cleaning.
 - (iii) Cleaning of ink, coating or adhesive from areas around a press.
- (3) The requirements in paragraph (1) do not apply to the following activities:

- (i) Cleaning electronic components of a press.
- (ii) Cleaning in pre-press ([that is] FOR EXAMPLE, platemaking) operations.
- (iii) Cleaning in post-press ([that is] FOR EXAMPLE, binding) operations.
- (iv) Using janitorial supplies (for example, detergents or floor cleaners) for general cleaning around a press.
- (v) The use of parts washers or cold cleaners at a flexible packaging printing facility. The use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations).

§ 129.67b. Control of VOC emissions from offset lithographic printing presses and letterpress printing presses.

(a) *Applicability.*

(1) Except as specified in paragraph (2) (3), this section applies to the owner and operator of an offset lithographic printing press or a letterpress printing press, or both, if the press meets one or a combination of the following:

(i) **ADD-ON AIR POLLUTION CONTROL DEVICE.** A single heatset web offset lithographic printing press or heatset web letterpress printing press that has potential emissions from the dryer, before consideration of add-on controls, of at least 25 tpy of VOCs from all heatset inks (**INCLUDING VARNISHES**), coatings and adhesives combined.

(ii) **LETTERPRESS PRINTING.** **[A] ONE OR MORE** letterpress printing **[press]** **PRESSES** if the total actual VOC emissions from all inks (**INCLUDING VARNISHES**), coatings and adhesives combined from all letterpress printing presses and all **VOC** emissions from related cleaning activities at the facility are equal to or greater than **[15 pounds (6.8 kilograms) per day]** **450 POUNDS (204.1 KILOGRAMS) PER MONTH** or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(iii) **OFFSET LITHOGRAPHIC PRINTING.** **[An] ONE OR MORE** offset lithographic printing **[press]** **PRESSES** if the total actual VOC emissions from all inks (**INCLUDING VARNISHES**), coatings **[and]**, adhesives **AND FOUNTAIN SOLUTIONS** combined from all offset lithographic printing presses and all **VOC** emissions from related cleaning activities at the facility are equal to or greater than **[15 pounds (6.8 kilograms) per day]** **450 POUNDS (204.1 KILOGRAMS) PER MONTH** or 2.7 tons (2,455 kilograms) per 12-month rolling period, before consideration of add-on controls.

(iv) **OFFSET LITHOGRAPHIC PRINTING AND LETTERPRESS PRINTING. ONE OR MORE OFFSET LITHOGRAPHIC PRINTING PRESSES AND ONE OR MORE LETTERPRESS PRINTING PRESSES IF THE TOTAL ACTUAL VOC EMISSIONS FROM ALL INKS (INCLUDING VARNISHES), COATINGS, ADHESIVES AND FOUNTAIN SOLUTIONS COMBINED AND ALL VOC EMISSIONS FROM RELATED CLEANING ACTIVITIES AT THE FACILITY ARE EQUAL TO OR GREATER THAN 450 POUNDS (204.1 KILOGRAMS) PER MONTH OR 2.7 TONS (2,455 KILOGRAMS) PER 12-MONTH ROLLING PERIOD, BEFORE CONSIDERATION OF ADD-ON CONTROLS.**

(v) **EMISSIONS BELOW 450 POUNDS PER MONTH AND 2.7 TONS PER 12-MONTH ROLLING PERIOD. THE TOTAL ACTUAL VOC EMISSIONS FROM ALL INKS (INCLUDING VARNISHES), COATINGS, ADHESIVES AND FOUNTAIN SOLUTIONS COMBINED FROM ALL OFFSET LITHOGRAPHIC PRINTING PRESSES, ALL LETTERPRESS PRINTING PRESSES AND ALL VOC EMISSIONS FROM RELATED CLEANING ACTIVITIES AT THE FACILITY ARE LESS THAN 450 POUNDS (204.1**

KILOGRAMS) PER MONTH AND 2.7 TONS (2,455 KILOGRAMS) PER 12-MONTH ROLLING PERIOD, BEFORE CONSIDERATION OF ADD-ON CONTROLS.

(2) THE OWNER OR OPERATOR OF AN OFFSET LITHOGRAPHIC PRINTING PRESS SUBJECT TO PARAGRAPH (1) MAY USE THE VOC EMISSION RETENTION FACTORS AND CAPTURE EFFICIENCY FACTORS SPECIFIED IN SUBSECTION (1) TO DETERMINE THE AMOUNT OF POTENTIAL OR ACTUAL VOC EMISSIONS THAT IS AVAILABLE FOR CAPTURE AND CONTROL FROM THE INKS (INCLUDING VARNISHES), FOUNTAIN SOLUTIONS AND CLEANING SOLUTIONS USED ON THE OFFSET LITHOGRAPHIC PRINTING PRESS.

(3) VOCs from adhesives used at a facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to this section and may be regulated under § 129.77 or Chapter 130, Subchapter D (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).

(b) *Existing RACT permit.* This section supersedes the requirements of a RACT permit issued to the owner or operator of a source subject to subsection (a) prior to **[January 1, 2013]** **JANUARY 1, 2015**, under §§ 129.91—129.95 (relating to stationary sources of NO_x and VOCs) to control, reduce or minimize VOCs from an offset lithographic printing press or a letterpress printing press, or both, except to the extent the RACT permit contains more stringent requirements.

(c) *Emission limits for **CLEANING SOLUTIONS AND FOUNTAIN SOLUTIONS USED IN OR ON** printing presses subject to this section.*

(1) **CLEANING SOLUTIONS.** Beginning **[January 1, 2013]** **JANUARY 1, 2015**, a person subject to **[this section]** **SUBSECTION (a)(1)(i), (ii), (iii) OR (iv)** may not cause or permit the emission into the outdoor atmosphere of VOCs from cleaning **[materials]** **SOLUTIONS** used in **OR ON** an offset lithographic printing press or a letterpress printing press unless the following conditions are met:

(i) The cleaning **[materials]** **SOLUTIONS** used shall meet one or both of the following VOC limits:

(A) A VOC composite partial vapor pressure less than 10 millimeters of mercury at 68°F (20°C).

(B) A VOC content less than **[30%]** **70%** by weight.

(ii) The use of one or more cleaning **[materials]** **SOLUTIONS** with a higher VOC composite partial vapor pressure or higher VOC content, or both, than is listed in subparagraph (i), is limited to **[55]** **110** gallons per year, combined, of all cleaning **[materials]** **SOLUTIONS** that exceed the limits in subparagraph (i).

(2) [Beginning January 1, 2013] FOUNTAIN SOLUTIONS. EXCEPT AS SPECIFIED IN PARAGRAPH (3), BEGINNING JANUARY 1, 2015, a person subject to subsection (a)(1)(i) [or], (iii) OR (iv) may not cause or permit the emission into the outdoor atmosphere of VOCs from a fountain solution used in an offset lithographic printing press unless the fountain solution meets one or more of the following VOC limits. [This paragraph does not apply to an owner or operator subject to paragraph (3).]

(i) For EACH heatset web offset lithographic printing PRESS, THE press-ready (as applied) fountain solution shall [contain 1.6% or less alcohol by weight or equivalent. This limit may be met by] MEET one [or more] of the following [methods] LIMITS:

(A) [Reducing the press-ready (as applied) fountain solution alcohol content to] A VOC CONTENT OF 1.6% or less by weight.

(B) [Using press-ready (as applied) fountain solution with alcohol] A VOC content of 3% or less by weight if the fountain solution is refrigerated [at or] below 60°F (15.5°C).

(C) [Using press-ready (as applied) fountain solution with alcohol substitute] A VOC content of 5% or less by weight and no alcohol in the fountain solution.

(D) [Using another] ANOTHER method that achieves a level of control of VOC emissions from the press-ready (as applied) fountain solution equal to or better than the methods listed in clauses (A)–(C).

(ii) For EACH sheet-fed offset lithographic printing PRESS, THE press-ready (as applied) fountain solution shall [contain 5% or less alcohol by weight or equivalent. This limit may be met by] MEET one [or more] of the following [methods] LIMITS:

(A) [Reducing the press-ready (as applied) fountain solution alcohol content to] A VOC CONTENT OF 5% or less by weight.

(B) [Using press-ready (as applied) fountain solution with alcohol content of] A VOC CONTENT OF 8.5% or less by weight if the fountain solution is refrigerated [at or] below 60°F (15.5°C).

(C) [Using press-ready (as applied) fountain solution with alcohol substitute] A VOC content of 5% or less by weight and no alcohol in the fountain solution.

(D) [Using another] ANOTHER method that achieves a level of control of VOC emissions from the press-ready (as applied) fountain solution equal to or better than the methods listed in clauses (A)–(C).

(iii) For [coldset] EACH NON-HEATSET web offset lithographic printing PRESS, THE press-ready (as applied) fountain solution shall contain [alcohol substitute] A VOC CONTENT of 5% or less by weight and no alcohol in the fountain solution.

(3) **FOUNTAIN SOLUTION EXCEPTIONS.** The control requirements under paragraph (2) for a fountain solution do not apply to the owner or operator of either of the following:

(i) A sheet-fed offset lithographic printing press with maximum sheet size 11 x 17 inches or smaller.

(ii) An offset lithographic printing press with total fountain solution reservoir of less than 1 gallon.

(d) *Emission limits for heatset web offset lithographic printing presses and heatset web letterpress printing presses.*

(1) [This subsection only applies if a single heatset web offset lithographic printing press or heatset web letterpress printing press has potential emissions from the dryer, before consideration of add-on controls, of at least 25 tpy of VOCs from all heatset inks, coatings and adhesives combined.]

(2) This subsection does not apply for one or a combination of the following circumstances:

(i) The press is used for book printing.

(ii) The press has a maximum web width of 22 inches or less.

(iii) When the press is operated with one or a combination of the following inks, coatings or varnishes:

(A) Waterborne coatings.

(B) Ultra-violet light or electron-beam radiation cured materials.

(C) Sheet-fed or coldset web inks.

(D) Sheet-fed or coldset web varnishes.

(3) This subsection does not apply to the owner or operator of the press if the Department has issued a plan approval, operating permit or Title V permit to the owner or operator prior to January 1, 2013, establishing a Federally enforceable limitation to limit the potential emissions of VOC from the offset lithographic printing press or the letterpress printing press below 25 tpy, before consideration of add-on controls.

(4) Beginning January 1, 2013] EXCEPT AS SPECIFIED IN PARAGRAPH (2) OR (3), BEGINNING JANUARY 1, 2015, a person subject to subsection (a)(1)(i) may not cause or permit the emission into the outdoor atmosphere of VOCs from a heatset web offset lithographic printing press or a heatset web letterpress printing press, or both, unless the overall weight of VOCs emitted to the atmosphere from the heatset dryer is reduced through the use of vapor

recovery or [~~incineration~~] **OXIDATION** or another method that is authorized under § 129.51(a) (relating to general). The **HEATSET** dryer pressure must be maintained lower than the press room area pressure so that air flows into the **HEATSET** dryer at all times when the press is operating.

(i) The [~~overall~~] **VOC CONTROL** efficiency of an add-on air pollution control device for a heatset dryer, determined in accordance with [~~this~~] subsection (h), shall meet either of the following:

(A) At least 90% for an add-on air pollution control device whose first installation date was prior to [January 1, 2013] **JANUARY 1, 2015**.

(B) At least 95% for an add-on air pollution control device whose first installation date is on or after [January 1, 2013] **JANUARY 1, 2015**.

(ii) **THE FIRST INSTALLATION DATE IS THE FIRST DATE OF OPERATION FOR A SOURCE OR A CONTROL DEVICE. THIS DATE WILL NOT CHANGE IF THE SOURCE OR CONTROL DEVICE IS MOVED TO A NEW LOCATION OR IF THE CONTROL DEVICE IS LATER USED TO CONTROL A NEW SOURCE.**

(iii) [~~If the inlet VOC concentration to the control device is so low that compliance with the 90% or 95% overall efficiency in subparagraph (i) is not achievable, the~~] **THE** owner or operator of the printing press may request **THE DEPARTMENT'S** approval for an alternative [~~demonstration that meets~~] **LIMITATION IF** the following requirements **ARE MET**:

(A) The request is submitted to the Department in writing.

(B) The request demonstrates [~~the~~] **ONE OF THE FOLLOWING:**

(I) THE inlet VOC concentration to the control device is so low that compliance with the 90% or 95% overall efficiency in subparagraph (i) is not achievable.

(II) THE PRESS IS USING A COMBINATION DRYER AND OXIDIZER OR OTHER CONTROL EQUIPMENT CONFIGURATION THAT DOES NOT HAVE AN INLET THAT MEETS THE REQUIREMENT FOR TESTING SPECIFIED IN SUBSECTION (h).

(C) The request [~~is for an~~] **DEMONSTRATES THE MINIMUM** outlet VOC concentration [~~less than or equal to~~] **THAT THE UNIT CAN ACHIEVE, NOT TO EXCEED** 20 ppm as hexane (**40 PPM AS PROPANE**) on a dry basis.

[D) The Department approves the request in writing.]

(iv) THE ALTERNATIVE LIMITATION REQUESTED UNDER SUBPARAGRAPH
(iii) MUST BE APPROVED BY THE DEPARTMENT IN A PLAN APPROVAL,
OPERATING PERMIT OR TITLE V PERMIT.

(2) THIS SUBSECTION DOES NOT APPLY FOR ONE OR A COMBINATION OF
THE FOLLOWING CIRCUMSTANCES:

(i) THE PRESS IS USED FOR BOOK PRINTING.

(ii) THE PRESS HAS A MAXIMUM WEB WIDTH OF 22 INCHES OR LESS.

(iii) THE PRESS IS OPERATED WITH ONE OR A COMBINATION OF THE
FOLLOWING INKS, COATINGS OR VARNISHES:

(A) WATERBORNE COATINGS.

(B) ULTRA-VIOLET LIGHT OR ELECTRON BEAM RADIATION CURED
MATERIALS.

(C) SHEET-FED OR NON-HEATSET WEB INKS.

(D) SHEET-FED OR NON-HEATSET WEB VARNISHES.

(3) THIS SUBSECTION DOES NOT APPLY TO THE OWNER OR OPERATOR OF
THE PRESS IF THE DEPARTMENT HAS ISSUED A PLAN APPROVAL, OPERATING
PERMIT OR TITLE V PERMIT TO THE OWNER OR OPERATOR PRIOR TO
JANUARY 1, 2015, ESTABLISHING A FEDERALLY-ENFORCEABLE LIMITATION
TO LIMIT THE POTENTIAL EMISSIONS OF VOC FROM THE OFFSET
LITHOGRAPHIC PRINTING PRESS OR THE LETTERPRESS PRINTING PRESS
BELow 25 TPY, BEFORE CONSIDERATION OF ADD-ON CONTROLS.

(e) *Compliance and monitoring requirements.*

(1) ADD-ON AIR POLLUTION CONTROL DEVICE. The owner or operator of a heatset web offset lithographic printing press or heatset web letterpress printing press subject to this section using an add-on air pollution control device in accordance with subsection (d) shall comply with the following requirements:

(i) The add-on air pollution control device shall be equipped with the applicable monitoring equipment and the monitoring equipment [is] SHALL BE installed, calibrated, operated and maintained according to manufacturer's specifications at all times the add-on air pollution control device is in use. IF THE ADD-ON AIR POLLUTION CONTROL DEVICE IS A:

(A) [The] NON-CATALYTIC THERMAL OXIDIZER, THE MINIMUM combustion
OR OPERATING temperature must be continuously monitored [and recorded daily if a
thermal incinerator is operated]. THE TEMPERATURE READING MUST BE

RECORDED IN ACCORDANCE WITH SUBSECTION (f)(1) AT LEAST ONCE EVERY 15 MINUTES WHILE THE NON-CATALYTIC THERMAL OXIDIZER IS OPERATING.

(B) [Inlet and exhaust gas temperatures] CATALYTIC THERMAL OXIDIZER:

(I) THE INLET GAS TEMPERATURE must be continuously monitored [and recorded daily if a catalytic incinerator is operated]. **THE TEMPERATURE READING MUST BE RECORDED IN ACCORDANCE WITH SUBSECTION (f)(1) AT LEAST ONCE EVERY 15 MINUTES WHILE THE THERMAL CATALYTIC OXIDIZER IS OPERATING.**

(II) A CATALYST ACTIVITY TEST MUST BE PERFORMED A MINIMUM OF ONE TIME PER ROLLING 2-YEAR PERIOD.

(C) CONTROL DEVICE OTHER THAN THAT SPECIFIED IN CLAUSE (A) OR (B), PARAMETERS SPECIFIC TO THE CONTROL DEVICE MUST BE CONTINUOUSLY MONITORED. THE PARAMETERS MUST BE RECORDED IN ACCORDANCE WITH SUBSECTION (f)(1) AT LEAST ONCE EVERY 15 MINUTES WHILE THE CONTROL DEVICE IS OPERATING.

(ii) [Operational records sufficient to demonstrate compliance with this subsection shall be maintained in accordance with subsection (e), including the following:

(A) Daily records of the hours of operation of the add-on air pollution control device.

(B) Records of the maintenance performed on the add-on air pollution control device, including the date and type of maintenance.

(C) Records of the maintenance performed on the air pollution control device monitoring equipment, including the date and type of maintenance] THE ADD-ON AIR POLLUTION CONTROL DEVICE SPECIFIED IN SUBPARAGRAPH (i) MUST BE OPERATED AT A 3-HOUR AVERAGE TEMPERATURE NOT LOWER THAN 50°F BELOW THE AVERAGE TEMPERATURE DEMONSTRATED DURING THE MOST RECENT COMPLIANT SOURCE TEST APPROVED BY THE DEPARTMENT.

(iii) The ADD-ON air pollution control device SPECIFIED IN SUBPARAGRAPH (i) must be in operation at all times that the source is operating.

(iv) THE NEGATIVE DRYER PRESSURE SHALL BE ESTABLISHED DURING THE INITIAL TEST USING AN AIR FLOW DIRECTION INDICATOR, SUCH AS A SMOKE STICK OR ALUMINUM RIBBONS, OR A DIFFERENTIAL PRESSURE GAUGE. CAPTURE EFFICIENCY TESTING AND CONTINUOUS DRYER AIR FLOW MONITORING ARE NOT REQUIRED.

(v) The ADD-ON air pollution control device shall be approved, in writing, by the Department in a plan approval, operating permit or Title V permit PRIOR TO USE.

(2) FOUNTAIN SOLUTION. The owner or operator of an offset lithographic printing press subject to this section that is required to meet one of the fountain solution VOC limits of subsection (c)(2) shall demonstrate compliance by using one or more of the following methods:

(i) Analysis of a sample of the press-ready (as applied) fountain solution for VOC content using EPA Reference Method 24, *Determination of Volatile Matter Content, Water Content, Density, Volume Solids and Weight solids of Surface Coatings*, found in 40 CFR Part 60, Appendix A, including updates and revisions.

(ii) Maintenance onsite of MSDS, CPDS or other data provided by the manufacturer of the fountain solution that indicates the VOC content of the press-ready (as applied) fountain solution.

(iii) Calculation of the VOC content of the press-ready (as applied) fountain solution that combines the EPA Reference Method 24 analytical VOC content data for each of the concentrated [materials] **COMPONENTS OR ADDITIVES** used to prepare the press-ready fountain solution.

(A) The VOC content data FOR EACH of the concentrated [materials] **COMPONENTS OR ADDITIVES** shall be combined in the proportions in which the concentrated [materials] **COMPONENTS OR ADDITIVES** are mixed to make the batch of press-ready (as applied) fountain solution.

(B) The VOC content shall be calculated [onee] ONE TIME for each [batch] **RECIPE** of press-ready (as applied) fountain solution [and]. **THE RECIPE NAME, VOC CONTENT FOR EACH CONCENTRATED COMPONENT OR ADDITIVE AND FOUNTAIN SOLUTION MIX RATIO SHALL BE** recorded in [the form of] a [batch log] **LOGBOOK**.

(C) The EPA Reference Method 24 analysis of the concentrated [materials] **COMPONENTS OR ADDITIVES** used to prepare the press-ready (as applied) fountain solution may be performed by the supplier of the [materials] **COMPONENTS OR ADDITIVES** and these results provided to the owner or operator of the affected press.

(iv) Measurement of the recirculating reservoir temperature of a refrigerated press-ready (as applied) fountain solution SPECIFIED IN SUBSECTION (c)(2)(i)(B) or (c)(2)(ii)(B) with a thermometer or other temperature detection device capable of reading to 0.5°F (0.28°C) to ensure that the temperature of the refrigerated fountain solution containing alcohol is maintained [at or] below 60°F (15.5°C) at all times.

[(A) A temperature monitor shall be installed on the fountain solution recirculating reservoir, calibrated, maintained and continuously operated.]

(B)] The temperature on the **THERMOMETER OR OTHER** temperature [**monitor**] **DETECTION DEVICE** shall be **CONTINUOUSLY MONITORED. THE TEMPERATURE READING SHALL BE** recorded at least once per operating day to verify that the refrigeration system is operating properly.

(v) Monitoring of the press-ready (as applied) fountain solution [**shall be performed**] **FOR ALCOHOL CONCENTRATION OR VOC CONTENT** with one or more of the following instruments:

(A) A refractometer [**shall be used**] **OR A HYDROMETER** to monitor the fountain solution alcohol concentration. The [**refractometer**] **INSTRUMENT** must:

(I) Be corrected for temperature [**at least once for each**] **ONE TIME PER** 8-hour shift [**or once per batch, whichever is longer**].

(II) Have a visual, analog or digital readout with an accuracy of 0.5%.

(III) Be calibrated with a standard solution for the type of alcohol used in the fountain solution.

(B) [**A hydrometer shall be used to monitor the fountain solution alcohol concentration. The hydrometer must:**

(I) Be corrected for temperature at least once for each 8-hour shift or once per batch, whichever is longer.

(II) Have a visual, analog or digital readout with an accuracy of 0.5%.

(III) Be calibrated with a standard solution for the type of alcohol used in the fountain solution.

(C)] A conductivity meter [**shall be used**] to determine the fountain solution VOC content. [**The conductivity meter:**

(I) May only be used if the Department has determined[, in writing, that a refractometer or hydrometer cannot be used for monitoring the alcohol concentration of the fountain solution. Requests for the use of a conductivity meter must be submitted to the Department in writing.]

(II)] Reading for the fountain solution must be referenced to the conductivity of the incoming water.

(vi) Another method [**may be used**] to determine compliance with the VOC content limits for fountain solutions in subsection (c)(2) if the [**written request submitted to the Department for approval meets the**] following requirements **ARE MET**:

(A) THE FACILITY OWNER OR OPERATOR SUBMITS A REQUEST, IN WRITING, TO THE APPROPRIATE REGIONAL OFFICE OF THE DEPARTMENT FOR APPROVAL OF THE ALTERNATIVE METHOD.

(B) The request demonstrates that the ALTERNATIVE method provides results that accurately determine the fountain solution VOC content.

[B] [C] The Department provides prior written approval of the alternative method.

(3) CLEANING SOLUTION. The owner or operator of an offset lithographic printing press or a letterpress printing press subject to this section shall demonstrate compliance with the VOC content limit or VOC composite partial vapor pressure limit for cleaning [materials] **SOLUTIONS** in subsection (c)(1) by one or more of the following methods:

(i) Analysis of a sample of press-ready (as applied) cleaning [material] **SOLUTION** for VOC content using EPA Reference Method 24.

(ii) Use of the equation in subsection (j) to calculate the composite partial vapor pressure of the press-ready (as applied) cleaning [material] **SOLUTION**.

(iii) Use of the methods in subsection (k) to determine the **VOC COMPOSITE** partial vapor pressure of a single CONCENTRATED component [of the] **OR ADDITIVE USED TO PREPARE THE PRESS-READY (AS APPLIED)** cleaning [material] **SOLUTION**.

(iv) Maintenance onsite of MSDS, CPDS or other data provided by the manufacturer of the **PRESS-READY (AS APPLIED)** cleaning [material] **SOLUTION** that indicates the VOC content or the VOC composite partial vapor pressure, or both, of the press-ready (as applied) cleaning [material] **SOLUTION**.

(v) Calculation of the VOC content **OR THE VOC COMPOSITE PARTIAL VAPOR PRESSURE, OR BOTH,** of the press-ready (as applied) cleaning [material] **SOLUTION** that combines the EPA Reference Method 24 analytical VOC content data or analytical VOC **COMPOSITE** partial vapor pressure data for each of the concentrated [materials] **COMPONENTS OR ADDITIVES** used to prepare the press-ready (as applied) cleaning [material] **SOLUTION**.

(A) The VOC content data or VOC composite partial vapor pressure data for each of the concentrated [materials] **COMPONENTS OR ADDITIVES** shall be combined in the proportions in which the concentrated [materials] **COMPONENTS OR ADDITIVES** are mixed to make the batch of press-ready (as applied) cleaning [material] **SOLUTION**.

(B) The VOC content or VOC composite partial vapor pressure [calculation] shall be calculated [onee] **ONE TIME** for each RECIPE OF press-ready (as applied) cleaning [material and kept in the form of a batch log] **SOLUTION. THE RECIPE NAME, VOC CONTENT OR VOC COMPOSITE PARTIAL VAPOR PRESSURE FOR EACH**

CONCENTRATED COMPONENT OR ADDITIVE AND CLEANING SOLUTION MIX RATIO SHALL BE RECORDED IN A LOG BOOK.

(C) The EPA Reference Method 24 analysis of the concentrated [cleaning material] **COMPONENTS OR ADDITIVES USED TO PREPARE THE PRESS-READY (AS APPLIED) CLEANING SOLUTION** may be performed or the VOC composite partial vapor pressure data may be determined by the supplier of the [materials] **COMPONENTS OR ADDITIVES** and these results provided to the owner or operator of the affected press.

(vi) Another method [may be used] to determine compliance with the VOC content limits for cleaning [materials] **SOLUTIONS** in subsection (c)(1) if the [written request submitted to the Department for approval meets the] following requirements **ARE MET:**

(A) **THE FACILITY OWNER OR OPERATOR SUBMITS A REQUEST, IN WRITING, TO THE APPROPRIATE REGIONAL OFFICE OF THE DEPARTMENT FOR APPROVAL OF THE ALTERNATIVE METHOD.**

(B) The request demonstrates that the **ALTERNATIVE** method provides results that accurately determine the cleaning [material] **SOLUTION** VOC content or VOC composite partial vapor pressure.

[B] (C) The Department provides prior written approval of the alternative method.

(f) *Recordkeeping requirements.* Beginning [January 1, 2013] **JANUARY 1, 2015**, the owner or operator of a printing press subject to this section shall maintain records sufficient to demonstrate compliance with this section. [At a minimum, the] **RECORDS MAINTAINED FOR COMPLIANCE DEMONSTRATIONS MAY INCLUDE PURCHASE, USE, PRODUCTION AND OTHER RECORDS.**

(1) AN owner or operator **USING AN ADD-ON AIR POLLUTION CONTROL DEVICE** shall maintain [daily records as follows] **RECORDS SUFFICIENT TO DEMONSTRATE COMPLIANCE WITH SUBSECTION (e), INCLUDING THE FOLLOWING:**

(i) TEMPERATURE READING OF THE ADD-ON AIR POLLUTION CONTROL DEVICE.

(ii) MAINTENANCE PERFORMED ON THE ADD-ON AIR POLLUTION CONTROL DEVICE AND MONITORING EQUIPMENT, INCLUDING THE DATE AND TYPE OF MAINTENANCE.

(iii) CATALYST ACTIVITY TEST PERFORMED, IF APPLICABLE.

[1) The following parameters for each ink, varnish, coating, adhesive, thinner or component, as supplied:

(i) The name and identification number of the ink, varnish, coating, adhesive, thinner or component.

(ii) The amount used.

(iii) The density or specific gravity.

(iv) The VOC content (weight % or pounds/gallon).

(2) The VOC content of each ink, varnish, coating or adhesive as applied.

(3) The volume used of each ink, varnish, coating or adhesive as applied.

(4) The] (2) AN OWNER OR OPERATOR SUBJECT TO SUBSECTION (a)(1)(i), (ii), (iii) OR (iv) SHALL MAINTAIN RECORDS OF CLEANING SOLUTIONS AND FOUNTAIN SOLUTIONS USED AT THE FACILITY, INCLUDING:

(i) THE following parameters for each PRESS READY blanket, roller or other [concentrated cleaning material used, as supplied] CLEANING SOLUTION:

(1) (A) The name and identification number for the blanket, roller or other [concentrated cleaning material] CLEANING SOLUTION.

(ii) The amount used.

(iii) The weight percent of total volatiles, water and exempt solvents.

(iv) The density or specific gravity.

(v) One of the following:

(A) VOC content (weight %).

(B) Composite partial vapor pressure.

(5) (B) The VOC content (WEIGHT %) or VOC composite partial vapor pressure of each cleaning [material] SOLUTION as applied.

[6] (C) The volume used of each cleaning [material] SOLUTION as applied, IF THE OWNER OR OPERATOR IS USING CLEANING SOLUTIONS WHICH EXCEED THE LIMITS IN SUBSECTION (c)(1)(i).

(D) RECORDS OF CLEANING SOLUTION MONITORING AS REQUIRED BY SUBSECTION (e)(3).

[7] (ii) The following parameters for each concentrated component or additive, as supplied, used to prepare the press-ready (as applied) fountain solution **[batch]**:

- (i) The name and identification number of the component or additive.**
- (ii) The amount used.**
- (iii) The density or specific gravity.**
- (iv) The weight percent of total volatiles, water and exempt solvents of each concentrated component material or additive.**
- (v) The VOC content of each concentrated component or additive material (weight %).**

[8] (A) The VOC content (weight %) [of each batch of the press-ready (as applied) fountain solution].

(B) RECORDS OF FOUNTAIN SOLUTION MONITORING AS REQUIRED BY SUBSECTION (e)(2).

(9) The volume used of each press-ready (as applied) fountain solution.]

(3) AN OWNER OR OPERATOR CLAIMING EXEMPTION FROM A VOC CONTROL PROVISION OF THIS SECTION BASED ON POTENTIAL OR ACTUAL VOC EMISSIONS, AS APPLICABLE, SHALL MAINTAIN RECORDS THAT DEMONSTRATE TO THE DEPARTMENT THAT THE PRESS OR FACILITY IS EXEMPT.

(4) THE OWNER OR OPERATOR MAY GROUP MATERIALS INTO CLASSES USING THE HIGHEST VOC CONTENT IN ANY MATERIAL IN A CLASS TO REPRESENT THAT CLASS OF MATERIAL.

(g) *Reporting requirements.* Beginning **[January 1, 2013] JANUARY 1, 2015**, the owner or operator of an offset lithographic printing press or a letterpress printing press subject to this section shall meet the following reporting requirements:

(1) The records required under subsection (f) shall be maintained **ON SITE** for 2 years unless a longer period is required [under § 127.511(b)(2) (relating to monitoring and related recordkeeping and reporting requirements)] **BY A PLAN APPROVAL OR OPERATING PERMIT ISSUED UNDER CHAPTER 127 (RELATING TO CONSTRUCTION, MODIFICATION, REACTIVATION AND OPERATION OF SOURCES).** The records shall be submitted to the Department **IN AN ACCEPTABLE FORMAT** upon receipt of a written request.

(2) The owner or operator of an offset lithographic printing press **OR LETTERPRESS PRINTING PRESS** required to demonstrate **VOC** control efficiency in **ACCORDANCE**

WITH subsection (d) shall submit reports to the Department in accordance with Chapter 139 (relating to sampling and testing).

(h) *Sampling and testing.*

(1) Sampling and testing SHALL BE PERFORMED AS FOLLOWS:

(i) SAMPLING OF AN INK, VARNISH, COATING, FOUNTAIN SOLUTION OR CLEANING SOLUTION AND TESTING FOR THE VOC CONTENT OF THE INK, VARNISH, COATING, FOUNTAIN SOLUTION OR CLEANING SOLUTION shall be [done] PERFORMED in accordance with the procedures and test methods specified in Chapter 139 [or with the following methods, or both]:

(1) The overall efficiency of the add-on air pollution control device shall be determined by the following test methods and procedures:

(i) The capture efficiency shall be determined in accordance with 40 CFR Part 51, Appendix M, Methods 204 – 204F, including updates and revisions].

(ii) SAMPLING AND TESTING OF AN ADD-ON AIR POLLUTION CONTROL DEVICE SHALL BE PERFORMED IN ACCORDANCE WITH THE PROCEDURES AND TEST METHODS SPECIFIED IN CHAPTER 139 AND MEET ONE OF THE FOLLOWING:

(A) SAMPLING AND TESTING SHALL BE PERFORMED NO LATER THAN 180 DAYS AFTER THE COMPLIANCE DATE OF THE PRESS.

(B) SAMPLING AND TESTING SHALL HAVE BEEN PERFORMED WITHIN 5 YEARS PRIOR TO JANUARY 1, 2015, AND SHALL HAVE BEEN PREVIOUSLY APPROVED BY THE DEPARTMENT.

(2) The control efficiency shall be determined [in accordance with one of the following] USING ONE OR MORE OF THE FOLLOWING METHODS, AS APPLICABLE, subject to prior written approval by the Department[:]. THE METHOD USED TO MEASURE THE INLET CONCENTRATION OF VOC MAY BE THE SAME METHOD USED TO DETERMINE THE OUTLET CONCENTRATION OF VOC UNLESS USE OF THE SAME METHOD IS DETERMINED TO BE TECHNICALLY INFEASIBLE.

[A] (i) EPA Reference Method 25, *Determination of Total Gaseous Nonmethane Organic Emissions as Carbon*, found in 40 CFR Part 60, Appendix A, including updates and revisions. **EPA REFERENCE METHOD 25 MAY BE USED IF THE TOTAL GASEOUS NONMETHANE ORGANIC COMPOUND CONCENTRATION IS EQUAL TO OR GREATER THAN 50 PARTS PER MILLION BY VOLUME, MEASURED AS CARBON.**

[B] (ii) EPA Reference Method 25A, *Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer*, found in 40 CFR Part 60, Appendix A,

including updates and revisions. **EPA REFERENCE METHOD 25A MAY NOT BE USED IF THE TOTAL GASEOUS NONMETHANE ORGANIC COMPOUND CONCENTRATION AT THE OUTLET OF THE ADD-ON AIR POLLUTION CONTROL DEVICE IS EQUAL TO OR GREATER THAN 50 PARTS PER MILLION BY VOLUME, MEASURED AS CARBON.**

[(C) EPA Reference Method 25B, Determination of Total Gaseous Organic Concentration Using a Nondispersive Infrared Analyzer, found in 40 CFR Part 60, Appendix A, including updates and revisions.]

(iii) [The capture efficiency or control efficiency, or both, may be determined using an alternate method approved by the Department in writing, prior to testing. A request for the use of an alternative method must be submitted to the Department in writing.] EPA REFERENCE METHOD 18, MEASUREMENT OF GASEOUS ORGANIC COMPOUND EMISSIONS BY GAS CHROMATOGRAPHY, FOUND IN 40 CFR PART 60, APPENDIX A, INCLUDING UPDATES AND REVISIONS. EPA REFERENCE METHOD 18 MAY BE USED IF THE TOTAL GASEOUS NONMETHANE ORGANIC COMPOUND CONCENTRATION IS EQUAL TO OR GREATER THAN 50 PARTS PER MILLION BY VOLUME, MEASURED AS CARBON. EPA REFERENCE METHOD 18 MAY BE USED IN CONJUNCTION WITH EPA REFERENCE METHOD 25A TO SUBTRACT EMISSIONS OF EXEMPT VOCs.

(2) The constant negative pressure into the dryer, as required under subsection (d), must be demonstrated using an air flow direction measuring device or indicator, such as a smoke stick or aluminum ribbons.]

(3) OTHER TEST METHODS DEMONSTRATED TO PROVIDE RESULTS THAT ARE ACCEPTABLE FOR PURPOSES OF DETERMINING COMPLIANCE WITH THIS SECTION MAY BE USED IF PRIOR APPROVAL IS OBTAINED IN WRITING FROM THE DEPARTMENT AND THE EPA.

(i) Work practice requirements for cleaning [materials] ACTIVITIES.

(1) [Beginning January 1, 2013] EXCEPT AS SPECIFIED IN PARAGRAPH (3), BEGINNING JANUARY 1, 2015, the owner or operator of an offset lithographic printing press or a letterpress printing press subject to [this section] SUBSECTION (a)(1)(i), (ii), (iii) OR (iv) shall comply with the following work practices for cleaning activities at the facility:

(i) Store all VOC-containing cleaning [materials] SOLUTIONS, waste cleaning [materials] SOLUTIONS and used shop towels in closed containers.

(ii) Ensure that mixing vessels and storage containers used for VOC-containing cleaning [materials] SOLUTIONS [and], waste cleaning [materials] SOLUTIONS AND USED SHOP TOWELS are kept closed at all times, except when depositing or removing these [materials] SOLUTIONS OR SHOP TOWELS.

(iii) Minimize spills of VOC-containing cleaning [**materials**] **SOLUTIONS** and waste cleaning [**materials**] **SOLUTIONS** and clean up spills immediately.

(iv) Convey VOC-containing cleaning [**materials**] **SOLUTIONS** [**and**], waste cleaning [**materials**] **SOLUTIONS AND USED SHOP TOWELS** from one location to another in closed containers or pipes.

(2) The requirements in paragraph (1) apply to the following activities:

(i) Cleaning of a press, including blanket washing, roller washing, plate cleaners, metering roller cleaners, impression cylinder cleaners and rubber rejuvenators.

(ii) Cleaning of press parts, including press parts that have been removed from the press for cleaning.

(iii) Cleaning of ink, coating or adhesive from areas around a press.

(3) The requirements in paragraph (1) do not apply to the following activities:

(i) Cleaning electronic components of a press.

(ii) Cleaning in pre-press (**[that is] FOR EXAMPLE**, platemaking) operations.

(iii) Cleaning in post-press (**[that is] FOR EXAMPLE**, binding) operations.

(iv) Using janitorial supplies (for example, detergents or floor cleaners) for general cleaning around a press.

(v) The use of parts washers or cold cleaners at an offset lithographic printing or a letterpress printing facility. The use of parts washers and cold cleaners is regulated under § 129.63 (relating to degreasing operations).

(j) *Composite partial vapor pressure.* The composite partial vapor pressure of organic compounds in cleaning [**materials**] **SOLUTIONS** shall be determined by **ONE OF** the following **[procedure] PROCEDURES**:

(1) Quantifying the amount of each compound in the blend using gas chromatographic analysis, using **[the following methods]**:

(i) ASTM E260, Standard Practice for Packed Column Gas Chromatography, ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 for organic content, including updates and revisions.

(ii) ASTM D3792, Standard Test Method for Water Content of Coatings by Direct Injection Into a Gas Chromatograph, ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959 for water content, including updates and

revisions] AN APPROPRIATE AND CURRENT ASTM TEST METHOD WITH PRIOR WRITTEN APPROVAL BY THE DEPARTMENT.

(2) Calculating the composite partial vapor pressure using the following equation:

$$PP_c = \frac{\sum_{i=1}^n (W_i) (VP_i)/MW_i}{W_w/MW_w + \sum_{e=1}^k W_e/MW_e + \sum_{i=1}^n W_i/MW_i}$$

Where:

PP_c = VOC composite partial vapor pressure at 20°C, in mm mercury.

W_i = Weight of the "i"th VOC compound, in grams[, as determined by ASTM E260].

W_w = Weight of water, in grams[, as determined by ASTM D3792].

W_e = Weight of the "e"th exempt compound, in grams[, as determined by ASTM E260].

MW_i = Molecular weight of the "i"th VOC compound, in grams per g-mole, as given in chemical reference literature.

MW_w = Molecular weight of water, in [g/g-mole] **GRAMS PER G-MOLE** (18 grams per g-mole).

MW_e = Molecular weight of the "e"th exempt compound, in grams per g-mole, as given in chemical reference literature.

VP_i = Vapor pressure of the "i"th VOC compound at 20°C, in mm mercury, as determined by subsection (k).

(k) *Determination of vapor pressure of single organic compounds in cleaning [materials] SOLUTIONS.* The vapor pressure of each single component compound shall be determined from one or more of the following:

(1) [ASTM D2879, Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, including updates and revisions] AN APPROPRIATE AND CURRENT ASTM TEST METHOD WITH PRIOR WRITTEN APPROVAL BY THE DEPARTMENT.

(2) The most recent edition of one or more of the following sources:

- (i) *Vapour Pressures of Pure Substances*, Boublil, Elsevier Scientific Publishing Company, New York.
- (ii) *Perry's Chemical Engineers' Handbook*, Green and Perry, McGraw-Hill Book Company.
- (iii) *CRC Handbook of Chemistry and Physics*, CRC Press.
- (iv) *Lange's Handbook of Chemistry*, McGraw-Hill Book Company.
- (v) Additional sources approved by the Department.

(I) VOC RETENTION FACTORS AND CAPTURE EFFICIENCY FACTORS. AS SPECIFIED IN SUBSECTION (a)(2), IF:

(1) A PORTION OF THE VOCs CONTAINED IN THE INK OR CLEANING SOLUTION, OR BOTH, IS RETAINED IN THE PRINTED WEB SUBSTRATE OR IN THE SHOP TOWELS USED FOR CLEANING, THE FOLLOWING VOC EMISSION RETENTION FACTORS SHALL BE USED, AS APPLICABLE:

(i) A 20% VOC EMISSION RETENTION FACTOR FOR A PETROLEUM INK OIL-BASED HEATSET INK PRINTED ON AN ABSORPTIVE SUBSTRATE, MEANING 80% OF THE PETROLEUM INK OIL CONTENT IS EMITTED AS VOC DURING THE PRINTING PROCESS AND IS AVAILABLE FOR CAPTURE AND CONTROL BY AN ADD-ON AIR POLLUTION CONTROL DEVICE. THE PETROLEUM INK OIL CONTENT OF A HEATSET INK MAY BE DETERMINED FROM FORMULATION DATA INCLUDED ON A CPDS OR MSDS.

(ii) A 95% VOC EMISSION RETENTION FACTOR FOR A PETROLEUM INK OIL-BASED NON-HEATSET WEB OR NON-HEATSET SHEET-FED INK, MEANING 5% OF THE PETROLEUM INK OIL CONTENT IS EMITTED AS VOC DURING THE PRINTING PROCESS AND IS AVAILABLE FOR CAPTURE AND CONTROL BY AN ADD-ON AIR POLLUTION CONTROL DEVICE. THE PETROLEUM INK OIL CONTENT OF A NON-HEATSET WEB OR NON-HEATSET SHEET-FED INK MAY BE DETERMINED FROM FORMULATION DATA INCLUDED ON A CPDS OR MSDS.

(iii) A 100% VOC EMISSION RETENTION FACTOR FOR VEGETABLE INK OIL-BASED HEATSET AND NON-HEATSET INKS.

(iv) A 50% VOC EMISSION RETENTION FACTOR FOR LOW VOC COMPOSITE VAPOR PRESSURE CLEANING SOLUTIONS IN SHOP TOWELS IF BOTH OF THE FOLLOWING CONDITIONS ARE MET:

(A) THE VOC COMPOSITE VAPOR PRESSURE OF THE CLEANING SOLUTION IS LESS THAN 10mm Hg AT 20°C (68°F).

(B) THE CLEANING SOLUTIONS AND USED SHOP TOWELS ARE KEPT IN CLOSED CONTAINERS.

(2) A PORTION OF THE VOCs CONTAINED IN ONE OR MORE OF THE INK, FOUNTAIN SOLUTION OR AUTOMATIC BLANKET WASH MATERIALS IS CAPTURED IN THE PRESS DRYER FOR CONTROL BY THE ADD-ON AIR POLLUTION CONTROL DEVICE, THE FOLLOWING CAPTURE EFFICIENCY FACTORS SHALL BE USED, AS APPLICABLE:

(i) A 100% VOC EMISSION CAPTURE EFFICIENCY FOR VOLATILIZED INK OILS FOR OIL-BASED HEATSET PASTE INKS AND VARNISHES AS SPECIFIED IN PARAGRAPH (1) IF BOTH OF THE FOLLOWING CONDITIONS ARE MET:

(A) THE PRESS DRYER IS OPERATING AT NEGATIVE PRESSURE RELATIVE TO THE SURROUNDING PRESSROOM.

(B) THE AIR FLOW IS INTO THE PRESS DRYER.

(ii) A 70% VOC EMISSION CAPTURE EFFICIENCY FOR A FOUNTAIN SOLUTION THAT CONTAINS AN ALCOHOL SUBSTITUTE.

(iii) A 40% VOC EMISSION CAPTURE EFFICIENCY FOR AN AUTOMATIC BLANKET WASH IF THE VOC COMPOSITE VAPOR PRESSURE OF THE CLEANING SOLUTION IS LESS THAN 10mm Hg AT 20°C (68°F).

§ 129.77. Control of emissions from the use or application of adhesives, sealants, primers and solvents.

* * * * *

(k) This section does not apply to the use or application of the following compounds or products:

* * * * *

(2) Adhesives, sealants, adhesive primers or sealant primers that are subject to [§ 129.73 (relating to aerospace manufacturing and rework) or Chapter 130, Subchapter B or C (relating to consumer products; and architectural and industrial maintenance coatings)] other sections in this chapter or Chapter 130 (relating to standards for products).

* * * * *

CHAPTER 130. STANDARDS FOR PRODUCTS
Subchapter D. ADHESIVES, SEALANTS, PRIMERS AND SOLVENTS
GENERAL PROVISIONS

§ 130.703. Exemptions and exceptions.

(a) This subchapter does not apply to the use, application, sale, supply, offer for sale or manufacture for sale for use in this Commonwealth of the following compounds or products:

* * * * *

(2) Adhesives, sealants, adhesive primers or sealant primers that are subject to [**§ 129.73 (relating to aerospace manufacturing and rework) or Chapter 130, Subchapter B or C (relating to consumer products; and architectural and industrial maintenance coatings)**] other sections in this chapter or Chapter 129 (relating to standards for sources).

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CONTROL OF VOC EMISSIONS FROM
FLEXIBLE PACKAGING PRINTING PRESSES,
OFFSET LITHOGRAPHIC PRINTING PRESSES AND
LETTERPRESS PRINTING PRESSES,
and
ADHESIVES, SEALANTS, PRIMERS AND SOLVENTS

25 Pa. Code Chapters 121, 129 and 130

42 Pa.B. 779 (February 11, 2012)

Environmental Quality Board Regulation #7-469
(Independent Regulatory Review Commission #2930)

Comment and Response Document

Bureau of Air Quality

**Flexible Packaging Printing Presses;
Offset Lithographic Printing Presses and Letterpress Printing Presses; and
Adhesives, Sealants, Primers and Solvents**

On February 11, 2012, the Environmental Quality Board (Board, EQB) published a *Pennsylvania Bulletin* notice of public hearings and written comment period on the proposed amendments to Chapters 121, 129 and 130 (relating to general provisions; standards for sources; and standards for products) for flexible packaging printing presses, offset lithographic printing presses, letterpress printing presses and adhesives, sealants, primers and solvents (42 Pa.B. 779). The proposed rulemaking amends terms and definitions in § 121.1 (relating to definitions) and adds provisions to Chapters 129 and 130 for the control of emissions of volatile organic compounds (VOC) from flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. The proposed rulemaking also makes clarifying amendments to §§ 129.77 and 130.703 (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and exemptions and exceptions).

The comment period opened on February 11, 2012, and closed on April 16, 2012. Three public hearings were held on the proposed rulemaking as follows:

March 14, 2012
1:00 PM

Department of Environmental Protection
Southwest Region Office
Upper Allegheny Conference Room
400 Waterfront Drive
Pittsburgh, PA 15222-4745

March 15, 2012
1:00 PM

Department of Environmental Protection
Southeast Regional Office
Delaware Conference Room
2 East Main Street
Norristown, PA 19401

March 16, 2012
1:00 PM

Department of Environmental Protection
Rachel Carson State Office Building
Conference Room 105
400 Market Street
Harrisburg, PA 17105

This document summarizes the written comments received during the public comment period as well as those received from the Independent Regulatory Review Commission (IRRC). No testimony was received during the public hearings. The Board invited each commentator to prepare a one-page summary of the commentator's comments. No one-page summaries were submitted to the Board for this rulemaking. Each comment is listed with the identifying commentator number for each commentator that made the comment. A list of the commentators, including name and affiliation (if any), can be found on page 4 of this document.

The final-form regulation will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to the State Implementation Plan (SIP) upon final-form publication in the *Pennsylvania Bulletin*.

Copies of all comments received are posted on the web site of the Independent Regulatory Review Commission (IRRC) at <http://www.irrc.state.pa.us>. Search by Regulation # 7-469 or IRRC # 2930.

Acronyms used in this Comment/Response Document

BAT – Best Available Technology
BAQ – Bureau of Air Quality
CTG – Control Techniques Guideline
EMAP – Environmental Management Assistance Program
EPA – United States Environmental Protection Agency
FPP – Flexible Package Printing
GAA – Graphics Arts Association
GP – General Permit
GPA – General Plan Approval
HAP – Hazardous Air Pollutant
IRRC – Independent Regulatory Review Commission
LLP – Lithographic Printing and Letterpress Printing
MACT – Maximum Achievable Control Technology
NESHAP – National Emission Standard for Hazardous Air Pollutant
NSR – New Source Review
OTR – Ozone Transport Region
PADEP – Pennsylvania Department of Environmental Protection
RACT – Reasonably Available Control Technology
SIP – State Implementation Plan
TPY – Tons per Year
TSD – Technical Support Document

Frequently Referenced Materials

FPP CTG – *Control Techniques Guidelines for Flexible Package Printing*, EPA 453/R-06-003, Office of Air Quality Planning and Standards, EPA, September 2006

LLP CTG – *Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing*, EPA 453/R-06-002, Office of Air Quality Planning and Standards, EPA, September 2006.

The CTGs are available on EPA's website at:
www.epa.gov/airquality/ozonepollution/SIPToolkit/ctgs.html.

Table of Commentators for the Environmental Quality Board
Flexible Packaging Printing Presses; Offset Lithographic Printing Presses and
Letterpresses Printing Presses; Adhesives, Sealants, Primers and Solvents
Rulemaking EQB #7-469
(IRRC #2930)

ID	Name/Address	Submitted one page Summary for distribution to EQB	Provided Testimony	Requested Copy of Final Rulemaking following EQB Action
1	Ms. Doreen Monteleone, PhD Director of EHS, Membership & Special Projects Flexographic Technical Association 3920 Veterans Memorial Highway Suite 9 Bohemia, NY 11716			
2	Mr. Craig Timm Manager, Public Affairs Domtar Regional Public Affairs Office 301 Point Basse Avenue Nekoosa, WI 54457-1422			
3	Mr. Howard Hofmeister Director, Environmental Affairs Bemis Company, Inc. P.O. Box 2968 Oshkosh, WI 54903-2968			
4	Ms. Margaret Baumhauer President, The Graphic Arts Association 1210 Northbrook Drive Suite 250 Trevose, PA 19053			
5	Mr. David Sumner Executive Director Independent Regulatory Review Commission (IRRC) 333 Market Street, 14 th Floor Harrisburg, PA 17101			

General Support of Proposed Rulemaking

1. Comment: A commentator supports the Department overall in its use of the EPA's 2006 Control Techniques Guidelines (CTG) for flexible package printing. (1)

Response: The Department of Environmental Protection (Department, DEP) thanks the commentator for the support.

2. Comment: A commentator supports the Department overall in its use of the EPA's 2006 CTG for offset lithographic printing and letterpress printing. (4)

Response: The Department thanks the commentator for the support.

Effect of printing industry emissions on the environment

3. Comment: An overall negative effect of small printers to the environment doesn't seem to be clearly shown. (2)

Response: The Department disagrees. Both the Flexible Package Printing (FPP) CTG and the Offset Lithographic and Letterpress Printing (LLP) CTG provide emission estimates and impacts of the emissions from the printing industry. For instance, page 3 of the FPP CTG states: "In section 183(e), Congress directed EPA to assist States in achieving VOC emission reductions from consumer and commercial products. These products individually may result in relatively small amounts of VOC emissions, but, in the aggregate, they contribute significantly to ozone formation in nonattainment areas."

Furthermore, section 183(e) of the CAA (42 U.S.C.A. § 7511b(e)) directs the EPA to list for regulation those categories of products that account for at least 80% of the VOC emissions from consumer and commercial products in ozone nonattainment areas. Section 183(e)(3)(C) of the CAA further provides that the EPA may issue a CTG in place of a National regulation for a product category when the EPA determines that the CTG will be "substantially as effective as regulations" in reducing emissions of VOC in ozone nonattainment areas. In 1995, the EPA listed flexible packaging printing materials, lithographic printing materials and letterpress printing materials on its section 183(e) list and, in 2006, issued CTGs for flexible packaging printing materials and for offset lithographic printing and letterpress printing materials. See 60 FR 15264 (March 23, 1995) and 71 FR 58745 (October 5, 2006).

Definitions

4. Comment: A commentator wrote that several definitions need to be revised or added to provide clarity and consistency with the CTG. "Batch" should be revised to reflect that it applies to both fountain solutions and "cleaning solution" and definitions should be added for "cleaning solution," "heatset" and "non-heatset." The commentator provided suggested language to revise the definitions in accordance with the comment. (4)

Response: The Department revised the definition of “batch,” which already applies to “fountain solution,” to also apply to “cleaning solution,” as requested by the commentator.

The Department added a definition of “cleaning solution” using wording similar to that provided by the commentator.

The Department added definitions for “heatset” and “non-heatset” using some of the commentator’s suggested language and also using information available in the CTG. Under the definition of “non-heatset,” the polymerization curing processes of infrared drying, ultraviolet curing and electron beam curing are included.

5. Comment: The Independent Regulatory Review Commission (IRRC) believed the clarity of the rulemaking would be improved by defining the term “heatset.” (5)

Response: The Department added a definition for “heatset” to § 121.1 (relating to definitions) in the final-form rulemaking. Please see the response to Comment No. 4 concerning the added “heatset” language.

6. Comment: The commentator and IRRC recommended that “thin metal” be deleted from the definitions of “lithographic plate” and “lithographic printing,” because plates can also be made from paper or plastic. IRRC further noted that this language also appears in the definition of “offset lithographic printing.” (4, 5)

Response: The Department agrees and has removed the words “thin metal” from the definitions of “lithographic plate,” “lithographic printing” and “offset lithographic printing.”

7. Comment: The commentator and IRRC requested the acronyms MSDS and CPDS be explained or defined for clarity in the subsection in which they first appear, namely § 129.67b(e)(2)(ii). The commentator suggested wording. (4, 5)

Response: The Department agrees that the acronyms MSDS and CPDS should be defined. In fact, both terms are already defined in § 121.1, as they are used in other portions of *25 Pa. Code* Chapters 121—145. Since both terms are already defined in § 121.1, the Department did not move the definitions into § 129.67b(e)(2)(ii). Instead, the Department revised the definition of “CPDS” in § 121.1 to make it applicable to § 129.67b and left the generally-applicable definition of “MSDS” as is.

8. Comment: IRRC commented that under § 121.1, relating to definitions, the new definition of “batch” begins with the phrase “For purposes of § 129.67b . . .”, the new definition of “first installation date” begins with the phrase “For purposes of § 129.67a . . . and 129.67b . . .” and the new definition of “varnish” begins with the phrase “For purposes of § 129.67b . . .” Since these definitions are specific to the sections referenced in each definition, IRRC suggested that the definitions be moved to those particular sections. (5)

Response: The Department agrees with the suggestion to move the definition of “first installation date.” The Department moved the definition into Table 1 in § 129.67a, where the term is used in the table headers. The Department also moved the definition into § 129.67b(d)(1), where the term is used in § 129.67b(d)(1)(i) and the definition fits comfortably in § 129.67b(d)(1)(ii).

The Department considered the recommendation to move the definition of the term “batch” to § 129.67b, but has left it in § 121.1, along with the rest of the definitions for this rulemaking. The term’s definition is lengthy and does not fit well into § 129.67b, where the term appears in paragraphs (e)(2) and (e)(3). The wording “For purposes of § 129.67b” is necessary in § 121.1, because the term “batch” appears in unrelated definitions in § 121.1 and also in unrelated §§ 129.17, 129.63 and 123.22 (relating to Kraft pulp mills; degreasing operations; and combustion units).

Similarly, the Department has left the term “varnish” in § 121.1, as its definition also does not fit well into § 129.67b, where the term appears in subsections (a), (d), (f), (h) and (l). Further, the term is used in the definition of the term “non-heatset” newly added to § 121.1. The wording “For purposes of § 129.67b” is necessary in § 121.1, because the term “varnish” also appears in unrelated § 129.102 (relating to emission standards) and in three unrelated sections in Chapter 130, Subchapter C (relating to architectural and industrial maintenance coatings).

9. Comment: IRRC commented that the last sentence of the definition of “first installation date” found in § 121.1 is substantive and should be moved to the appropriate section or sections of the rulemaking. (5)

Response: The Department agrees and has moved the definition and substantive language of the term “first installation date” into Table 1 of § 129.67a and into § 129.67b(d)(1)(ii), as explained in the response to Comment No. 8.

Applicability

10. Comment: Conservative material use estimates should be followed that would allow facilities to determine applicability by tracking material use volumes rather than completing complex and time-consuming calculations. (2, 4)

Response: The Department disagrees that the regulation should contain material usage tracking limits for purposes of applicability. The Department has not included the suggested limits in the final-form rulemaking. The Department consulted with the EPA on this matter and has decided not to create a separate applicability criterion based on material use limits since the lower applicability limits are based on ACTUAL emissions of 450 pounds per month and 2.7 tons per 12-month rolling total, before consideration of add-on controls. The Department plans to include material use information in a Frequently Asked Questions document or Fact Sheet to assist owners and operators in making a preliminary determination of whether they might be subject to the regulation.

Additionally, the Department has added flexibility by removing the “per day” applicability level and by allowing actual emissions to be estimated by using the highest VOC content in any material in a class to represent that class of materials.

Furthermore, the Department and staff of the Environmental Management Assistance Program (EMAP) are willing to work with the GAA on its toolkit for GAA members to provide assistance with the emission calculations when necessary. The Pennsylvania Small Business Development Centers EMAP is a partnership funded, in part, through the Departments of Community and Economic Development and Environmental Protection, the U.S. Small Business Administration, and the participating colleges and universities. EMAP offers free and confidential environmental assistance to small businesses on a non-discriminatory basis.

11. Comment: The material use approach makes it much easier for facilities to determine their applicability and was approved by the EPA in its *PTE Guidance for Specific Source Categories* released on April 14, 1998. The commentator suggested specific numeric edits and language to revise the section in accordance with the comment. (4)

Response: The Department does not agree that it is technically advisable to use Potential to Emit (PTE) guidance to determine ACTUAL emissions. The Department believes that, since the EPA did not reference the PTE guidance document in the LLP CTG document when it referenced other documents, the EPA did not intend the PTE guidance to be used to determine applicability for the offset lithographic printing and letterpress printing source categories. Furthermore, the levels suggested by the commentator seem not to take into account the “50% of the major source threshold margin of safety factor” suggested by the PTE guidance document. Therefore, the Department is not including material use thresholds as an applicability criterion in the final-form rulemaking. Please also see the response to Comment No. 10.

12. Comment: The commentator stated that proposed § 129.67b(a)(1)(i) is not consistent with the CTG because in the CTG the exemption threshold of a potential to emit, prior to controls, of at least 25 tpy of VOC emissions applies only to the emissions of VOC from petroleum ink oil and not to total VOC emissions from the press dryer as was proposed. The commentator suggested language to revise the section in accordance with the comment. IRRC acknowledged comments regarding certain sections of the rulemaking being inconsistent with the CTG. IRRC referenced proposed § 129.67b(a)(1)(i) –(iii) and asked the Board to explain the need to deviate from the CTG. (4, 5)

Response: The Department disagrees that the final-form rulemaking should be revised to account for only some, but not all, of the potential VOC emissions from the dryers, prior to controls, of heatset web offset lithographic printing and letterpress printing operations in determining applicability. Even though the LLP CTG recommends basing the “potential to emit” applicability threshold on potential emissions from the dryer, prior to controls, of VOCs from ink oils, basing the threshold on potential emissions, prior to controls, of all VOC emissions from the dryer is also reasonable. The majority of the potential VOC emissions will come from the ink oils and implementation of the add-on air pollution control measure requirements will

continue to be cost-effective even if the small amounts of potential VOC emissions from coatings and adhesives are included.

The Department had detailed discussions with EPA Region 3 concerning this issue. It was generally understood that lithographic printing presses and letterpress printing presses would have small to no amounts of adhesives and coatings going through the press as compared to flexible package printing presses; therefore, for lithographic printing, the majority of potential VOC emissions would be from ink oil and the applicability would effectively be only to potential VOC emissions from heatset inks.

The EPA provides in the CTGs that the recommendations are guidance and states may promulgate applicability criteria that differ from those recommended in the CTG. For instance, the EPA explains on page 3 of the LLP CTG:

“This CTG provides control recommendations for reducing VOC emissions stemming from the use of fountain solutions, cleaning materials and inks in offset lithographic printing and cleaning materials and inks in letterpress printing. This section addresses EPA’s recommendations as to the scope of entities to which the RACT recommendations in this CTG should apply. As explained above, this document is guidance and provides information for States to consider in determining RACT. When State and local pollution control agencies develop RACT rules, they may elect to adopt control approaches that differ from those described in this document and/or promulgate applicability criteria that differ from those recommended here.”

Several nearby states similarly base this “potential-to-emit” applicability threshold on the VOC emissions from more than just inks. For instance, New York’s regulation is based on the VOC emissions from inks, coatings and adhesives used on the press (see, N.Y. COMP. CODES R. & REGS. Tit. 6, § 234.3(b)(1)); Maryland’s regulation is based on all VOC emissions from the press (see, MD. CODE REGS. 26.11.19.11(e)); and Connecticut’s regulation is based on all VOC emissions from the dryers prior to control (see, CONN. AGENCIES REGS. § 22a-174-20(gg)(4)).

After considering this comment and the other information described in this response, the Department determined that no changes to this provision are being made in the final-form rulemaking.

13. Comment: Proposed § 129.67b(a)(1)(ii) and (iii) express the applicability threshold in terms of 15 pounds per day or 2.7 tons per year. This should be revised to reflect a single annual limit of 3 tons per year over a 12-month rolling period, which the EPA has defined as one of several options for an acceptable applicability threshold. The commentator suggested language to revise the section in accordance with its comment. IRRC acknowledged comments regarding certain sections of the rulemaking being inconsistent with the CTG, referencing proposed §§ 129.67a(a)(1)(ii) and 129.67b(a)(1)(i)-(iii), and asked the Board to explain the need to deviate from the CTG. (4, 5)

Response: The Department has considered the comments but disagrees with using only an annual limit for the applicability threshold for actual VOC emissions, and with that limit being 3 tons per year (tpy) over a 12-month rolling period. The Department has established the

applicability threshold for actual VOC emissions in the final-form rulemaking as a per-month or as a per-12-month rolling period threshold. The Department has removed the proposed 15 pounds per day threshold. The monthly threshold provides the basis for evaluating the 12-month rolling period threshold. With regard to whether the 12-month rolling period threshold should be 3 tpy, the Department has historically used 2.7 tpy or 2.7 tons per 12-month rolling period as the equivalent to 15 pounds per day for surface coating and other VOC emission-control regulations. See, for instance, §§ 129.52, 129.52a and 129.52b (relating to surface coating processes; control of VOC emissions from large appliance and metal furniture surface coating processes; and control of VOC emissions from paper, film and foil surface coating processes). The Department derives 2.7 tpy as follows:

$$15 \text{ pounds per day} \times 365 \text{ days per year} = 5475 \text{ pounds per year}$$

$$5475 \text{ pounds per year} / 2000 \text{ pounds per ton} = 2.7375 \text{ tons per year}$$

The Department keeps one decimal place for more accuracy; the EPA rounds 2.7 to 3.

Using 3 tpy in the printing rulemakings would be inconsistent with other air quality regulations in Article III of Title 25 of the *Pennsylvania Code*. The EPA provides in the CTGs that the recommendations are guidance and states may promulgate applicability criteria that differ from those recommended in the CTG.

14. Comment: The commentator states that the “per day” applicability threshold imposes daily recordkeeping which is not acceptable or technically feasible, given the nature of the printing industry and how it utilizes inks, fountain solutions, coatings, and other input materials. (4)

Response: In consideration of this comment and the recordkeeping comments received from other commentators, the Department has replaced the proposed “per day” applicability threshold for this industry sector with a 450 pounds per month applicability threshold in the final-form rulemaking. The monthly applicability threshold allows the owners or operators of all flexible packaging, lithographic printing and letterpress printing facilities to keep monthly records using purchase, use or production records.

A monthly applicability threshold for actual VOC emissions is consistent with the LLP CTG, which states on page 4: “In developing their RACT rules, State and local agencies should consider carefully the facts and circumstances of the affected sources in their States. As noted above, States can adopt the above recommended 15 lb/day actual emissions of VOC applicability criterion before consideration of controls, or an equivalent applicability level expressed on a monthly basis (e.g., 450 lb/month) or 12-month rolling basis (e.g., 3 tons per 12-month rolling period), or they can develop other applicability criteria that they determine are appropriate considering the facts and circumstances of the sources in their particular nonattainment areas.” Page 3 of the FPP CTG has a similar sentence. Therefore, considering the large number of small businesses that would be required to keep daily records to demonstrate applicability only, the Department decided instead to use the alternative monthly basis applicability level. Please also see the portion of the response to Comment No. 12 explaining the flexibility given to states.

Note that for certain other VOC regulations applying to other industry sectors, the Department has found daily recordkeeping to be acceptable and technically feasible. The Department agrees that a “per day” applicability threshold imposes daily recordkeeping.

15. Comment: Proposed § 129.67b(a)(2) excludes only the VOCs from adhesives that are applied via the printing presses. The commentator believes the exclusion needs to be expanded to cover all adhesive application in a graphic arts operation, primarily because of the types of adhesives used. Adhesives are not commonly applied by the press, but for those that are, they are the same adhesives that are applied via other pieces of equipment in the facility. The commentator further requested that adhesives used in graphic arts operations be excluded from the requirements of § 129.77, as well.

The commentator suggested language to revise §§ 129.67b(a)(2) and 129.77(l) in accordance with the comment. The commentator believes these revisions are necessary in order to avoid the confusion that would be caused by requiring the owners and operators of graphic arts facilities to comply with two separate regulations governing their VOC emissions: the lithographic and letterpress regulation or the flexographic printing regulation and the miscellaneous industrial adhesives regulation. (4)

Response: The Department thanks the commentator for the correspondence concerning this issue. However, the Department disagrees with the commentator that all VOC emissions from adhesive application facility-wide should be excluded from regulation under both proposed § 129.67b and § 129.77. Further, the commentator is mistaken in asserting that the proposed rulemaking excludes VOC emissions from adhesives used or applied on or with an offset lithographic printing press or letterpress printing press from being regulated under § 129.67b. Section 129.67b(a)(2) excludes emissions of VOCs from adhesives that are NOT used or applied on or with the printing press from regulation under § 129.67b. Emissions of VOC from adhesives that *are* used or applied on or with an offset lithographic printing press or letterpress printing press are subject to regulation under § 129.67b. The Department consulted with EPA Region 3 about applicability to VOC emissions from adhesives when drafting § 129.67b(a)(2) and revising § 129.77. Please also see the responses to Comments No. 12 and 16.

Integral to understanding these provisions is the meaning of “printing press,” as only adhesives used or applied on or with the printing press are subject to § 129.67b. The Department crafted the definition of “printing press” in consultation with the EPA to address the situations described in the commentator’s comments about how the adhesives used on the press versus the adhesives used elsewhere in the facility were to be regulated. The proposed rulemaking specifically included the following language in § 129.67b(a)(2) to direct the regulated community to other potentially applicable requirements:

“(2) VOCs from adhesives used at a facility that are not used or applied on or with an offset lithographic printing press or a letterpress printing press are not subject to this section and may be regulated under § 129.77 or Chapter 130, Subchapter D (relating to control of emissions from the use or application of adhesives, sealants, primers and solvents; and adhesives, sealants, primers and solvents).”

The Department retained this wording in the final-form rulemaking, as the Department believes it is reasonable and that the regulated parties have the technical capability to implement the different regulations. The Department notes further that proposed § 129.67b(a)(2) is redesignated as § 129.67b(a)(3) in the final-form rulemaking.

Please see the response to Comment No. 10 about available assistance for the owners and operators of affected facilities.

16. Comment: The commentator indicated that the printing industry submitted comments on September 26, 2011, to EPA Region III requesting that a modification of the applicability requirements for § 129.77 be made that would specifically exclude adhesives used in graphic arts from the requirements of § 129.77. The commentator included an appendix with its comments to the EPA to support this comment. (4)

Response: The September 26, 2011, comments to the EPA were submitted with reference to the EPA's proposed approval of the Pennsylvania SIP revision submittal to incorporate the adhesive and sealant rulemaking into the SIP. The EPA addressed the printing industry comments in its final action approving the SIP revision, stating that, "Pennsylvania's regulation for adhesives and sealants clearly addresses the adhesives and adhesive application activities regulated....Thus, we believe the Pennsylvania regulations are clear that the adhesives used in printing operations were considered and that the state intended to cover those adhesives." The EPA approved the SIP revision on September 26, 2012, at 77 FR 59090. See page 59091 for the quoted material.

17. Comment: IRRC noted that a commentator suggested that the exemption under § 129.67b(a)(2) for VOCs from adhesives used at facilities that are not used or applied with an offset lithographic printing press or a letterpress printing press needs to be expanded to cover all adhesives applied in graphic art operations. IRRC further noted that § 129.67a(a)(3) contains a similar provision relating to flexible packaging printing presses. IRRC asked whether the Board considered expanding the exemption as suggested by the commentator. (5)

Response: Yes, the Department considered the comments and decided not to modify the final-form rulemaking in this area. Please see the responses to Comments No. 12, 15 and 16, which set forth the Department's reasoning. The Department notes further that proposed § 129.67b(a)(2) is redesignated as § 129.67b(a)(3) in the final-form rulemaking.

Recordkeeping

18. Comment: Several commentators commented that they believe the daily recordkeeping requirements in the proposed rulemaking would be burdensome to printers without any benefit. (1, 2, 4)

Response: In consideration of the recordkeeping comments received from these commentators, the Department replaced the "per day" applicability threshold -- which necessitated keeping daily material use records -- with a 450 pounds per month applicability threshold. Please also see the responses to Comments No. 14, 19 and 20.

In addition, the Department made several changes to streamline the recordkeeping requirements. For instance, the Department added language to the recordkeeping subsections that states: “Records maintained for compliance demonstrations may include purchase, use, production and other records.”

Furthermore, the Department has removed the requirement commented on, which specified records of particular parameters of each ink used. The Department added flexibility by including a paragraph that states:

“An owner or operator claiming exemption from a VOC control provision of this section based on potential or actual VOC emissions, as applicable, shall maintain records that demonstrate to the Department that the press or facility is exempt.”

The final-form rulemaking does not prescribe the records to be kept, but allows the owner or operator of the facility to calculate VOC emissions by whatever means are appropriate to demonstrate that the amount of emissions is below the level of actual or potential VOC emissions necessary to be exempted from the control provisions of the regulation.

Furthermore, language was added in the recordkeeping subsections allowing an owner or operator to group materials into classes using the highest VOC content in any material in a class to represent that class of materials. Please also see the response to Comment No. 23.

19. Comment: The minimum recordkeeping requirements as set out under § 129.67a(e)(1) should be narrowed to only apply to companies using a “compliant ink” approach to comply with the rulemaking (under § 129.67a(c)(1), (2) or possibly (4)). (3)

Response: The Department agrees. The recordkeeping requirements set forth under final-form § 129.67a(e)(1) for an owner or operator subject to § 129.67a(a)(1)(i) using an add-on air pollution control device are specific to the add-on air pollution control device and not to the inks used. Final-form § 129.67a(e)(2) requires the owner or operator subject to § 129.67a(a)(1)(i) that is NOT using an add-on air pollution control device (in other words, using the “compliant ink” approach) to maintain records of the as applied VOC content of inks, coatings and adhesives sufficient to demonstrate compliance with the limitations set forth under § 129.67a(c)(1) or (2). Proposed § 129.67a(c)(4), referenced in the comment, has been deleted at final because it was redundant. Please also see the response to Comment No. 24.

20. Comment: The compliance demonstration for sites choosing to meet the requirements of the rulemaking through the use of an add-on control device is to meet a minimum overall control efficiency. The compliance demonstration under this option is completely independent of the composition or quantity of the ink being used. Since the material specific records are not needed to demonstrate compliance with the provisions of the rulemaking, there is no environmental or compliance benefit to maintain them. We suggest the rulemaking set separate recordkeeping requirements specifically addressing appropriate records for the control device for sites meeting the rulemaking through § 129.67a(c)(3). (3)

Response: The Department agrees. The records required of an owner or operator subject to § 129.67a(a)(1)(i) using an add-on air pollution control device in accordance with § 129.67a(c)(3) are set forth under final-form § 129.67a(e)(1) and are specific to the add-on air pollution control device. Similar revisions were made to § 129.67b(f). See provisions added to §§ 129.67a(e) and 129.67b(f). In addition, the Department revised the final-form rulemaking to move the recordkeeping requirements relating to control devices from the compliance and monitoring portions of the final-form rulemaking (§§ 129.67a(d) and 129.67b(e)) to the recordkeeping sections (§§ 129.67a(e) and 129.67b(f)) of the rulemaking. Please also see the response to Comment No. 19.

21. Comment: Proposed § 129.67b(f) requires daily recordkeeping for a variety of parameters. This entire subsection should be deleted and replaced with the recordkeeping requirements that are necessary to demonstrate compliance with the actual limits in the rulemaking (documentation of the composition of fountain solutions and cleaning solvents). Recordkeeping of the composition of materials such as ink, varnish or coating, or the quantities of materials consumed are not relevant to demonstrating compliance. This type of recordkeeping is associated with determining VOC emissions and is contained in all plan approvals and operating permits issued to printing operations. (4)

Response: The Department disagrees that the entire subsection (f) of § 129.67b should be deleted. The Department agrees that the recordkeeping of fountain solution and cleaning solvent composition requirements is necessary to demonstrate compliance with the requirements set forth under § 129.67b(c)(1) and (2) and for determining applicability under § 129.67b(a).

The Department made several changes to streamline the recordkeeping requirements. For instance, the Department added language to the recordkeeping subsections that states: “Records maintained for compliance demonstrations may include purchase, use, production and other records.”

The Department has revised § 129.67b(f) to set forth recordkeeping requirements under final-form § 129.67b(f)(1) specific to the add-on air pollution control device for those owners or operators subject to § 129.67b(a)(1)(i) and further revised § 129.67b(f) to specify under final-form § 129.67b(f)(2) the cleaning solution and fountain solution records required. The Department has also revised § 129.67b(f) to specify under final-form § 129.67b(f)(3) to specify that “An owner or operator claiming exemption from a VOC control provision of this section based on potential or actual VOC emissions, as applicable, shall maintain records that demonstrate to the Department that the press or facility is exempt.”

In addition, the Department added flexibility to final-form § 129.67b(f)(4) by allowing an owner or operator to group materials into classes using the highest VOC content in any material in a class to represent that class of material, rather than requiring the actual VOC content of each individual material in the class be used for records. Please also see the responses to Comments No. 18-20 and 22.

22. Comment: In many instances daily recordkeeping is in direct conflict with the recordkeeping requirements that are included in plan approvals and operating permits issued to printing operations. The most common recordkeeping requirements are monthly. (4)

Response: The Department recognizes the commentator's concern. The Department has both revised the recordkeeping requirements in the final-form rulemaking and provided additional flexibility, as described in the responses to Comments No. 18-21.

23. Comment: Since the applicability threshold for permitting presses is 2.7 tons per year, which is equivalent to the proposed threshold for this regulation, there is no reason to deviate from the current approach which is to allow monthly recordkeeping of input materials and to allow for the grouping of such materials into classes using the highest VOC content in any material in that class to represent that class of material. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The proposed rulemaking had an applicability threshold of 15 pounds per day or 2.7 tons per 12-month rolling basis of VOC emissions. As discussed in the response to Comment No. 14, the "per day" applicability threshold would have required daily recordkeeping. However, in consideration of the recordkeeping comments received from commentators, the Department has replaced the "per day" applicability threshold with a 450 pounds per month applicability threshold. The Department revised the recordkeeping requirements so as not to prescribe the records to be kept, but rather to enable the owner or operator of the facility to calculate VOC emissions by whatever means are appropriate to demonstrate that the amount of emissions is below the level of actual or potential VOC emissions necessary to be exempted from the control provisions of the regulation. Further, the Department agrees that facilities can group like materials into classes to determine applicability. Please see the responses to Comments No. 18-21 for an explanation of revisions in the final-form rulemaking.

Emission limit options

24. Comment: A commentator noted that the compliance option of § 129.67a(c)(4) would appear to provide an equivalency approach where a site could meet the RACT rule by means of an averaging approach which would allow for use of non-complying materials using control efficiencies below those specified under § 129.67a(c)(3). We question whether it meets the intent of RACT as suggested in the CTG. IRRC acknowledged comments regarding certain sections of the proposed rulemaking being inconsistent with the CTG. IRRC referenced proposed § 129.67a(c)(3) and (4), and asked the Board to explain the need to deviate from the CTG. (3, 5)

Response: In considering this comment, the Department determined that proposed § 129.67a(c)(4) was redundant; therefore, the Department deleted the provision in the final-form rulemaking.

25. Comment: A commentator stated that proposed § 129.67b(c)(1)(i)(B) sets a VOC content limit of 30% VOC by weight. While this limit was included in the 1993 draft CTG for offset

lithography, it is superseded by the 70% VOC by weight content limit issued in the 2006 LLP CTG. The commentator submitted an excerpt from the CTG as support for its request that the proposed limit of 30% be revised to 70%. IRRC acknowledged this comment and asked the Board to explain the need to deviate from the CTG. (4, 5)

Response: As explained in the preamble to the proposed rulemaking, the Department proposed the 30% VOC by weight content limit for cleaning materials in part because a 30% VOC by weight content limit has been implemented in the Bureau of Air Quality-General Plan Approval/General Permit-7 (BAQ-GPA/GP-7) and BAQ-GPA/GP-10, which have been approved for use by permitted facilities since July 2, 1998, and July 3, 1999, respectively. These are the Department's general permits for sheet-fed offset lithographic printing presses and for non-heatset web offset lithographic printing presses, respectively. The limit of 30% VOC by weight content limit for cleaning materials is considered Best Available Technology (BAT) in the GPs; this limit has also been used in plan approvals and state-only operating permits. The Department specifically sought comment on this proposed provision in the preamble.

In considering comments received on the proposed 30% VOC by weight content limit for cleaning materials, the Department evaluated different options, including options to retain the 30% VOC by weight content limit while allowing flexibility, but the Department concluded that the most reasonable solution, on balance, is that suggested by the commentators. Consequently, the Department selected the CTG limit of 70% VOC by weight content limit for cleaning materials for the final-form rulemaking. Adopting the 70% VOC by weight content limit will not result in more VOC emissions from cleaning materials used at facilities subject to the final-form rulemaking than anticipated, since the emission reductions discussed in the proposed rulemaking were based on EPA calculations that used the CTG-recommended limit of 70%. Permits that already have the more stringent BAT limit of 30% VOC by weight content from cleaning materials will keep that limit to prevent backsliding. The Department notes further that the term cleaning materials in the proposed rulemaking has been revised to cleaning solutions in the final-form rulemaking.

26. Comment: The commentator noted that proposed § 129.67b(c)(1)(ii) allows a 55 gallon cleaning material allowance for those materials that do not meet the VOC limits in § 129.67b(c)(1)(i). The commentator believes that due to the nature of the equipment being cleaned, 55 gallons per year is not adequate to allow a facility to achieve the amount of cleaning required to be done with cleaning materials that do not meet the limit, and suggests an exclusion of 110 gallons per year as suggested in the LLP CTG. The commentator submitted an excerpt from the LLP CTG as support for its request that the proposed limit of 55 gallons be revised to 110 gallons. IRRC acknowledged this comment and asked the Board to explain the need to deviate from the CTG. (4, 5)

Response: As explained in the preamble to the proposed rulemaking, the Department proposed the 55 gallon limit because this limit has been implemented in BAQ-GPA/GP-7 and BAQ-GPA/GP-10, which have been approved for use by facilities since July 2, 1998, and July 3, 1999, respectively. These are the Department's GPs for sheet-fed offset lithographic printing presses and for non-heatset web offset lithographic printing presses. The limit of 55 gallons for non-compliant VOC solvent is considered BAT in the GPs; this limit has also been used in plan

approvals and state-only operating permits. The Department specifically sought comment on this proposed provision in the preamble. In considering the comments received on the 55 gallon limit, the Department evaluated different options, including options to retain the 55 gallon limit while allowing flexibility, but the Department concluded that the most reasonable solution, on balance, is that suggested by the commentators. Consequently, the Department selected the CTG limit of 110 gallons of non-compliant VOC solvent for the final-form rulemaking. Adopting the 110 gallon limit will not result in more VOC emissions than anticipated from cleaning activities performed by facilities subject to the final-form rulemaking, since the emission reductions discussed in the proposed rulemaking were based on EPA calculations that used the CTG limit of non-compliant VOC solvent usage of 110 gallons. Permits that already have the more stringent BAT limit of 55 gallons will keep that limit to prevent backsliding.

27. Comment: Proposed § 129.67b(c)(2)(i) is very confusing as currently written because it seems to be setting a single limit for alcohol content in all fountain solutions and the limit is the same one that is specified in § 129.67b(c)(2)(i)(A). The same comment applies to §§ 129.67b(c)(2)(ii) and 129.67b(c)(2)(ii)(A) as well. (4)

Response: The Department agrees that §§ 129.67b(c)(2)(i) and 129.67b(c)(2)(i)(A) are duplicative, as are §§ 129.67b(c)(2)(ii) and 129.67b(c)(2)(ii)(A). The Department revised the language in the final-form rulemaking to remove the repetitive language.

28. Comment: Proposed § 129.67b(c)(2)(i)(A) is not consistent with § 129.67b(c)(2)(i)(B) or (C). The words “Reducing the” in § 129.67b(c)(2)(i)(A) should be deleted and replaced with the word “Using.” The same comment applies for § 129.67b(c)(2)(ii)(A). (4)

Response: The Department agrees. The Department revised the provision in the final-form rulemaking to remove the word “reducing” and to base the provision on use.

29. Comment: Proposed §§ 129.67b(c)(2)(i), 129.67b(c)(2)(ii) and 129.67b(c)(2)(iii) should express the fountain solution content limit as “VOC content” and not as a specific material such as “alcohol” or “alcohol substitute,” as some printing operations are still using a combination of alcohol and alcohol substitutes in their fountain solution. Using “VOC content” will allow for this situation. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department agrees that using “VOC content” in place of “alcohol” or “alcohol substitute” is an acceptable change. Upon consultation with the EPA, review of other states’ regulations, and review of the Department’s own general permits BAQ-GPA/GP-7 and BAQ-GPA/GP-10, which use “VOC content,” the Department has replaced the “alcohol” or “alcohol substitute” limits with VOC content limits since alcohols are VOCs and the commentator has a point that other VOCs may be present.

30. Comment: Proposed §§ 129.67b(d)(1) and (2) and 129.67b(d)(2)(iii) are confusing because of the exclusions contained in each. Furthermore, the applicability language of § 129.67b(d)(1) duplicates that of § 129.67b(a)(1)(i). The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department thanks the commentator for expressing the confusion. The Department revised § 129.67b(d)(1) through (4) to remove the duplicative language found in subsection (d)(1), and changed the order of the remaining paragraphs to clarify what is excluded.

31. Comment: Proposed §§ 129.67b(d)(3) and (d)(4) should be renumbered to reflect the changes discussed in Comment No. 30. (4)

Response: The paragraphs have been appropriately renumbered in the final-form rulemaking. Please also see the response to Comment No. 30.

Control Options

32. Comment: The commentator noted that proposed § 129.67b(d)(4)(i) should be revised by deleting the word “overall” and replacing it with “destruction” so that it is consistent with the LLP CTG and does not introduce an unnecessary compliance demonstration for capture testing. The term “overall” is used to describe a requirement that is the product of both the capture of VOC emissions and their subsequent destruction by the use of a capture/control system. IRRC acknowledged comments regarding certain sections of the rulemaking being inconsistent with the CTG. IRRC referenced proposed § 129.67b(d)(4)(i) and asked the Board to explain the need to deviate from the CTG. (4, 5)

Response: The Department agrees with the description of “overall” efficiency as it refers to “capture” x “destruction” efficiencies. The final-form rulemaking means to limit the control (destruction) efficiency of any type of add-on air pollution control device including a thermal oxidizer or other approved device.

The Department has revised § 129.67b(d)(1)(i) in the final-form rulemaking to replace the word “overall” with “control.” The Department believes this change is warranted due to the following other changes in the final-form rulemaking. Section 129.67b(d)(1) requires that the heatset dryer pressure must be maintained lower than the press room area pressure so that air flows into the heatset dryer at all times when the press is operating. This is operating at negative pressure. Since the unit is required to operate at negative pressure, the owner or operator of the facility may use the capture efficiency factor of 100% added under final-form § 129.67b(l)(2)(i) in the calculation of overall efficiency for control (destruction) of volatilized ink oils from oil-based heatset paste inks and varnishes. The use of 100% is equivalent to 1 (that is, 100/100), which would mean that control (destruction) efficiency and overall efficiency would be equal.

The final-form rulemaking has also been revised to clearly state that capture efficiency testing is not required for offset lithographic and letterpress printing presses in the compliance and monitoring subsection (e)(1)(iv). Please also see the response to Comment No. 33.

33. Comment: The commentator noted that the EPA has stated in both the LLP CTG and the Technical Support Document for Title V Permitting of Printing Operations that capture testing is not required and that only a one time demonstration is necessary to demonstrate that the air flow is into the dryer. (4)

Response: The Department agrees. The Department has removed the capture efficiency testing requirement from § 129.67b(h) and added § 129.67b(e)(1)(iv), which states: “The negative dryer pressure shall be established during the initial test using an air flow direction indicator, such as a smoke stick or aluminum ribbons, or a differential pressure gauge. Capture efficiency retesting and continuous dryer air flow monitoring are not required.”

34. Comment: The commentator noted that proposed § 129.67b(d)(4)(ii) should be revised to reflect that in addition to presses with a low inlet concentration, a press with a combination dryer/oxidizer unit does not have an inlet that meets the requirement for testing. The commentator suggested language to revise the section in accordance with the comment. IRRC acknowledged this comment and requested that if the concern can be addressed while meeting the required EPA standards, that the Board please do so. (4, 5)

Response: The Department agrees and has revised the final-form rulemaking to allow the owner or operator of a press with a combination dryer and oxidizer, or other control equipment configuration without an identifiable, measurable inlet, to apply for an alternative limit. The Department further notes that proposed § 129.67b(d)(4)(ii) is redesignated as § 129.67b(d)(1)(iii) in the final-form rulemaking.

35. Comment: Proposed § 129.67b(d)(4)(ii) should be revised to eliminate the requirement to seek an alternative limit in writing since that issue would be addressed at the time of permitting a press, thus making the requirement redundant as it imposes an unnecessary administrative burden. The commentator suggested language to revise the section in accordance with the comment. IRRC acknowledged this comment and requested that if the concern can be addressed while meeting the required EPA standards, that the Board please do so. (4, 5)

Response: The Department disagrees that the alternative limit issue would always be resolved at the time of permitting a press and that the proposed regulatory requirement is therefore redundant and imposes an unnecessary administrative burden. For existing permitted presses subject to the rulemaking requirements upon final-form publication in the Pennsylvania Bulletin, the compliance date of the final-form rulemaking would be after the issuance of the original plan approval or permit and would not supersede existing plan approval or permit requirements unless the plan approval or permit requirements are less stringent than the requirements in the final-form rulemaking. For a new press subject to the final-form rulemaking and installed after final-form publication of the requirements in the Pennsylvania Bulletin, that uses a combination dryer and oxidizer, the alternative limit could be requested at the time of plan approval, but BAT may require a more stringent limit than the default limit in the final-form rulemaking.

Whether an alternative limit is obtained through a plan approval, permit or other written approval from the Department, as appropriate, it is important from an environmental standpoint that the Department consider and approve (or disapprove) the request in writing, as an alternative limit could be less stringent than the 90% or 95% required efficiency. The final-form rulemaking continues to require a written request and specifies the information required for the Department to make the appropriate determination. The Department further notes that the language of

proposed § 129.67b(d)(4)(ii) is revised as set forth in § 129.67b(d)(1)(iii) and (iv) in the final-form rulemaking.

Compliance and Monitoring

36. Comment: Proposed § 129.67b(e) contains both monitoring and recordkeeping requirements. The recordkeeping requirements should be removed and placed into § 129.67b(f) which is dedicated to recordkeeping. (4)

Response: The Department agrees. The recordkeeping requirements have been moved to subsection (f) in the final-form rulemaking.

37. Comment: The term “incinerator” in § 129.67b(e)(1)(i)(A) and (B) should be deleted and replaced with the term “oxidizer” as “oxidizer” is a more accurate term to use when describing add-on control devices used to control emissions from printing presses. (4)

Response: The Department concurs and has replaced the term “incinerator” or “incineration” with the term “oxidizer” or “oxidation” throughout the final-form rulemaking. Corresponding changes were made in final-form § 129.67a.

38. Comment: Proposed § 129.67b(e)(1)(i)(A) and (B) should qualify the term “continuously” to indicate that the temperature is to be recorded at least every 15 minutes to be consistent with the guidance found in the *EPA TSD for Title V permitting of Printing Operations* document. IRRC acknowledged this comment and asked if the Board has considered requiring gauges be checked every 15 minutes. (4, 5)

Response: The Department concurs with the comment and has revised § 129.67b(e)(1) of the final-form rulemaking to require that the temperature be continuously monitored; the temperature reading must be recorded at least once every 15 minutes while the oxidizer is operating. The Department made similar revisions in final-form § 129.67a(d)(1).

39. Comment: Proposed § 129.67a(d)(3)(i)(A) and (B) require certain temperatures to be “continuously monitored and recorded daily.” How would a printing facility “continuously” monitor a temperature gauge? IRRC noted that another commentator commented on a similar provision found under § 129.67b(e), and IRRC asked if the Board has considered requiring gauges to be checked every 15 minutes? (5)

Response: Please see the response to Comment No. 38. The Department notes that proposed § 129.67a(d)(3)(i)(A) and (B) are redesignated at final as § 129.67a(d)(1)(i) and (ii).

40. Comment: Proposed § 129.67b(e)(1)(i)(B) requires daily monitoring of the inlet and exhaust gas temperatures of a catalytic unit. Monitoring the outlet temperature of a catalytic unit is not necessary as it provides meaningless data due to the variations in coverage on a per job or per day basis. The commentator included language from the *EPA TSD for Title V Permitting of*

Printing Operations to provide several examples of catalytic oxidizer temperature monitoring that clearly state only the inlet temperature is to be monitored. (4)

Response: The Department agrees that monitoring of only the inlet temperature should occur. The requirement to monitor outlet temperature on the catalytic unit has been removed from the final-form rulemaking in § 129.67a(d)(1)(i)(A) for flexible package printing and § 129.67b(e)(1)(i)(B)(I) for lithographic printing and letterpress printing.

41. Comment: The Department needs to provide guidance to address temperature monitoring for regenerative thermal oxidizers. Since the temperature that is measured during the compliance test becomes the minimum temperature at which the unit can operate, a provision needs to be added specifying that the temperature to be monitored must equal the lower of the minimum operating temperature or “set point” at which the unit is required to run or the temperature that was measured during the compliance test. (4)

Response: The Department agrees that the temperature that is measured during the compliance stack test becomes the minimum temperature at which the unit can operate; however, once compliance is demonstrated at that particular temperature, the “set point” may no longer guarantee compliance with the required control efficiency. The Department has revised final-form §§ 129.67a(d)(1)(i) and 129.67b(e)(1)(i)(A) to read that the “minimum combustion or operating temperature must be continuously monitored” to address this concern.

42. Comment: A new condition needs to be added that recognizes that temperature fluctuations can and do occur with properly operating oxidizers. The EPA recognized this situation in the *TSD for Title V Permitting of Printing Operations* and allows for a 50°F temperature fluctuation over a 3-hour average. The commentator suggested language to revise the section. (4)

Response: The Department agrees and has revised the final-form rulemaking to address this concern. Please see final-form §§ 129.67a(d)(2) and 129.67b(e)(1)(ii).

43. Comment: Proposed § 129.67b(e)(1)(ii)(A) should be revised to clarify that records of the oxidizer temperature must be retained rather than the hours of operation. The temperature monitoring and recording requirements of § 129.67b(e)(1)(i) provide the necessary documentation that the unit was operating. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department agrees. The final-form rulemaking requires records of only the oxidizer temperature because the clarification to recording the temperature from daily as proposed to once every 15 minutes in the final-form rulemaking provides enough data about when the oxidizer is operating. Please see final-form § 129.67b(f)(1) for the records required.

44. Comment: Proposed § 129.67b(e)(2)(iii)(B) should be revised to indicate that the calculation only needs to be performed once for each batch of fountain solution being used, not for each use of a batch of fountain solution. Since more than one fountain solution can be used on different presses in one operation, the calculation needs to be performed for each fountain solution. This is important as once the printing operation determines the proper mix ratio for its

fountain solution, the mix ratio is not altered. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department agrees with the comment and has revised the final-form rulemaking to require that the calculation be performed once for each recipe of fountain solution.

45. Comment: The commentator and IRRC questioned the necessity of permanently installing a temperature monitoring device for the fountain solution recirculating reservoir when a hand held thermometer is sufficient to accomplish the temperature monitoring requirement. The commentator suggested language to revise the section in accordance with its comment. IRRC further noted that § 129.67a(d)(3)(i) has a similar temperature monitoring requirement. (4, 5)

Response: The Department agrees that it is not necessary to permanently install a temperature monitoring device for the fountain solution recirculating reservoir; therefore, the Department has revised § 129.67b(e)(2)(iv) in the final-form rulemaking to delete proposed § 129.67b(e)(2)(iv)(A). The Department believes a hand-held thermometer could be used with the recording of the temperature reading being at least once per operating day. The Department further notes that proposed § 129.67b(e)(2)(iv)(B) has been revised in the final-form rulemaking to be part of § 129.67b(e)(2)(iv).

The Department disagrees that § 129.67a(d)(3)(i) could be modified in the same way as § 129.67b(e)(2)(iv) because § 129.67a(d)(3)(i) discusses monitoring the temperature of the control device, for which use of a hand-held thermometer is not sufficient. Therefore no changes to that section were made. The Department notes that proposed § 129.67a(d)(3)(i) has been redesignated in the final-form rulemaking as § 129.67a(d)(1).

46. Comment: It is not necessary to require permission to use a conductivity meter to monitor the alcohol concentration in fountain solution. This is an unnecessary and burdensome requirement that is not warranted. The commentator suggested language to revise proposed § 129.67b(e)(2)(v)(C) in accordance with the comment. (4)

Response: The Department agrees with the comment and has revised § 129.67b(e)(2)(v)(C) in the final-form rulemaking to remove the written request to the Department. Further, proposed § 129.67b(e)(2)(v)(C) is redesignated as § 129.67b(e)(2)(v)(B) in the final-form rulemaking.

47. Comment: Proposed § 129.67b(e)(3)(v)(B) should be revised to indicate that the calculation only needs to be performed once for each batch of cleaning solution being used, not for each use of a batch of cleaning solution. This is important as once the printing operation determines the proper mix ration for its cleaning solution, the mix ratio is not altered. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department agrees with the comment and has revised the final-form rulemaking to require that the calculation be performed once for each recipe of cleaning solution.

Sampling and Testing

48. Comment: Proposed § 129.67b(h) needs to be revised to reflect the testing requirements necessary for a successful destruction efficiency determination for an oxidizer used to control emissions from a heatset web offset lithographic press. The nature of the emissions from a heatset web offset lithographic press is such that simply following EPA protocols will result in failure forcing either re-testing or enforcement action.

The EPA has recommended in the *TSD for Title V Printing Operations* that compliance testing of the emissions from an add-on air pollution control device should be conducted at operating conditions representative of a typical production schedule. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department agrees that the proposed language for emissions testing could be clearer and has revised § 129.67b(h) in the final-form rulemaking using some of the suggested language.

The Department did not incorporate all of the suggested language relating to stack testing of an add-on air pollution control device. Stack testing of source emissions from an add-on air pollution control device must undergo a stack test protocol review by the Department prior to conducting the stack test. Certain operating conditions, such as temperatures, duration, frequency and loading, are based on the actual source and control device to be tested and should be specified in the stack test protocol submitted to the Department for review and approval in accordance with the procedures and test methods of 25 Pa. *Code Chapter 139* (relating to sampling and testing).

49. Comment: A commentator suggested language for proposed § 129.67b(h) which specified an acceptable time frame for stack testing relative to the compliance date. (4)

Response: The Department agrees that the final-form rulemaking should specify the acceptable time frame for performance of the stack test and has added § 129.67b(h)(1)(ii).

50. Comment: A commentator suggested that continuous dryer air flow or pressure monitoring is not required to demonstrate constant negative pressure into the dryer, only an initial stack test. The commentator suggested language to revise proposed § 129.67b(h) in accordance with the comment. (4)

Response: The Department agrees. Final-form § 129.67b(d)(1) requires that negative pressure be maintained at all times the press is operating; otherwise, the owner and operator of the press cannot assume 100% capture of emissions from volatilized ink oils from oil-based heatset paste inks and varnishes into the dryer. The proposed § 129.67b(h)(2) dryer constant negative pressure testing requirement was deleted at final and replaced with requirements in § 129.67b(e)(1)(iv) for compliance and monitoring. Please also see the responses to Comments No. 32 and 33.

51. Comment: Proposed § 129.67b(j) should be modified by inserting the phrase “one of” between “by” and “the” so that it is clear that any of the identified methods are acceptable. (4)

Response: The Department agrees with the comment and revised the final-form rulemaking accordingly.

Fiscal Impact:

52. Comment: IRRC agreed with other commentators that daily recordkeeping requirements could be costly to printing facilities, many of which are small businesses. IRRC asked the Board to quantify the costs of the daily recordkeeping requirements of the proposed rulemaking and explain the need for those requirements. (5)

Response: The Department has reconsidered the need for daily records and has revised the proposed applicability criterion of 15 pounds per day of actual VOC emissions to the equivalent threshold of 450 pounds per month at final. The Department also added language that allows the use of “purchase, use, production and other records” to demonstrate compliance, thereby adding additional flexibility.

These revisions minimize the recordkeeping costs to printing facilities. The Department therefore did not quantify the costs required to comply with the proposed daily recordkeeping requirements.

53. Comment: IRRC writes that the Board has acknowledged the large discrepancy between the number of potentially affected printing facilities identified by a trade association compared to the number of facilities identified by the Department’s Air Information Management System. IRRC appreciates the Board’s efforts to work with the regulated community and DEP’s Small Business Compliance Advisory Committee to gain a better understanding of the number of printing facilities that might be affected by this rulemaking. IRRC asked the Board to incorporate its finding into any new fiscal impact calculations it prepares as it develops the final-form regulation. This should include costs associated with the VOC emissions reductions equipment and record-keeping requirements. (5)

Response: In developing the final-form rulemaking, the Department made some inquiries of small business-sized printers, including certain print shops operated by the Commonwealth, to determine the applicability of this rulemaking to them. The Department did not gain a significantly different understanding of the number of printing facilities that might be affected by this rulemaking. Based on the findings, the Department still believes that the majority of small business-sized printing operations, those 73% of Pennsylvania printers who employ fewer than 20 employees that were a concern for the trade association, will not emit enough VOC emissions to meet the applicability threshold for control requirements in the final-form rulemaking. The owners and operators of these printing operations will, therefore, have no increased cost other than the minimal cost of maintaining records to demonstrate that the amount of VOC emissions from their operation is below the applicability threshold of actual or potential VOC emissions that trigger the control provisions of the regulation. The Department has, however, revised the data presented for the final-form rulemaking cost analysis from the data presented for the proposed rulemaking cost analysis. The data were revised at final based on the slight changes in amounts of annual emissions and number of potentially subject operating facilities in 2011

versus the 2009 data that were used for the proposed rulemaking. Please also see the responses to Comments No. 52, 55 and 56.

Miscellaneous

54. Comment: The commentator supports the comments of the GAA. The commentator requests that the comments from the printing industry and its trade associations be taken into account in the review of the proposed regulation. (2)

Response: The Department has considered all comments received during the public comment period for this proposed rulemaking during the development of the final-form rulemaking. Responses for all comments received are provided in this Comment Response document.

55. Comment: In Pennsylvania, there are approximately 1,812 companies employing about 60,000 workers engaged in the printing industry. As reported in the 2010 Print Market Atlas, reporting 2009 data, the value of goods shipped for the industry in Pennsylvania is approximately \$9.4 billion. Over 73% of printers in Pennsylvania employ fewer than 20 employees. (4)

Response: The Department thanks the commentator for the information.

56. Comment: Since the majority of the printers in the Commonwealth employ 20 persons or less, the proposed rules are too complicated and burdensome with which to comply. (2, 4)

Response: The Department revised the rulemaking from proposed to final in ways that reduce the complexity and burden commented on with regard to the proposed rulemaking. For example, the Department revised the applicability provisions in the final-form rulemaking from daily to monthly emission thresholds and made revisions to recordkeeping requirements applicable to the owners and operators of smaller printing facilities. Furthermore, the addition of the ability to use the highest VOC content in any material in a class to represent that class of material offers an option that reduces the calculation and paperwork burden for the owners and operators of affected facilities in the flexographic, lithographic or letterpress printing industry. Under the final-form rulemaking, the owners and operators of a large portion of small business-sized printing operations will only need to keep minimal records to establish that they are not subject to the remaining control or compliance portions of the final-form rulemaking and report these records to the Department if requested.

As referred to in the response to Comment No. 53, the Department made some inquiries of owners or operators of small business-sized printing operations with less than 20 employees – the size that the printing industry trade association references for considering a printer to be a small business – about amounts of VOC emissions. The Department evaluated the Pennsylvania Department of Transportation's (PennDOT) graphic arts operation, which is staffed with 18 employees and consists of two sheet-fed offset lithographic presses and four (offset) duplicating presses, and the associated annual material throughput of inks, fountain solutions, cleaning materials and adhesives, as an example. The evaluation determined that the print shop would not

meet the minimum VOC emission threshold to be subject to the material VOC content limits or control requirements included in the final-form rulemaking. The Department believes that the PennDOT print shop is similar in size and throughput to the majority of printers in this Commonwealth that employ 20 persons or less and that are of concern to the printing industry trade association. The Department therefore further believes that few of the smaller printing operations will be subject to the control portions of the final-form rulemaking.

As a result of the other revisions described throughout the Comment and Response document, the Department disagrees that compliance with the requirements of the final-form rulemaking is too complicated or burdensome for small businesses. Please also see responses to Comments No. 10, 18, 21 and 23.

Emission and Retention Factors

57. Comment: Printers should be given credit for efficiencies captured on heatset presses. (2)

Response: The Department agrees and included the VOC emission retention factors and capture efficiency factors in the final-form rulemaking. Please see newly added subsection (l) in § 129.67b.

58. Comment: The draft rulemaking does not address key emission and retention factors that are specific to the lithographic printing industry and are necessary to perform accurate emission determinations. In order to ensure that the proper emission and retention factors are applied for purposes of determining applicability and compliance, the appropriate factors need to be included in the revisions to the rulemaking. The recommended section [drafted by the commentator] clarifies the methodology for estimating actual emissions in the lithographic printing industry, saving administrative time and costs for both the Department and the printing industry. The inclusion of the emission and retention factors are supported by the EPA in the CTG on Pages 18-20. The commentator suggested language to revise the section in accordance with the comment. (4)

Response: The Department agrees with the comment and included the VOC emission retention factors and capture efficiency factors in the final-form rulemaking. Please see newly added subsection (l) in § 129.67b.

Provisions more stringent than or inconsistent with CTGs

59. Comment: The Board has identified four sections of the proposed rulemaking that are more stringent than EPA requirements. The Board has explained why the requirements for §§ 129.67a(g) and 129.67b(i) are necessary. However, the Board has not explained the need for the proposed language found in §§ 129.67b(c)(l)(i)(B) and 129.67b(c)(l)(ii). We ask the Board to provide a more detailed explanation of why these requirements are needed. (5)

Response: Please see the responses to Comments No. 25 and 26.



March 21, 2014

David Sumner
Executive Director
Independent Regulatory Review Commission
14th Floor
333 Market Street
Harrisburg, PA 17120

Re: Final Rulemaking: Control of VOC Emissions from Flexible Packaging, Printing Presses, Offset Lithographic Printing Presses, and Letterpress Printing Presses; and Adhesives, Sealants, Primers and Solvents (25 Pa Code Chapters 121, 129 and 130) (#7-469)

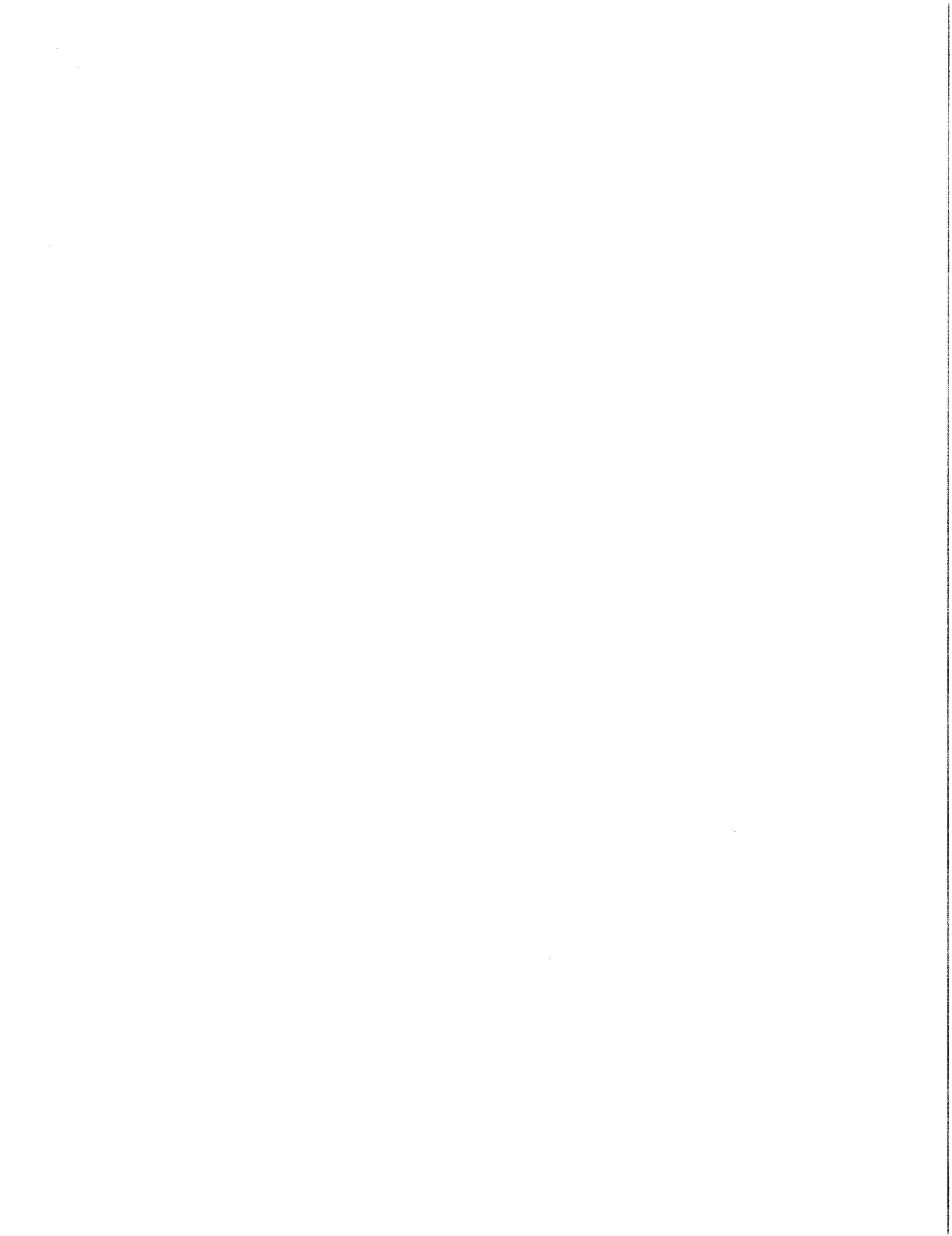
Dear Mr. Sumner:

Pursuant to Section 5.1(a) of the Regulatory Review Act, please find enclosed the Control of VOC Emissions from Flexible Packaging, Printing Presses, Offset Lithographic Printing Presses, and Letterpress Printing Presses; and Adhesives, Sealants, Primers and Solvents final rulemaking for review and comment by the Independent Regulatory Review Commission (IRRC). The Environmental Quality Board (EQB) adopted the final rulemaking at its February 18, 2014, meeting.

The enclosed final-form rulemaking includes amendments to 25 Pa. Code Chapters 121 and 129 to limit emissions of volatile organic compounds (VOCs) from inks, varnishes, coatings, adhesives, fountain solutions and cleaning solutions applied on and with flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses. VOCs are precursors to the formation of ground-level ozone air pollution. The final-form rulemaking establishes the emission limits and implements recommendations of the United States Environmental Protection Agency's (EPA) 2006 Control Techniques Guidelines (CTGs) for flexible packaging printing and for offset lithographic printing and letterpress printing for these sources in this Commonwealth. The final-form rulemaking also includes clarifying amendments to the regulations for adhesives, sealants, primers and solvents in Chapters 129 and 130.

The VOC emission reduction measures set forth in the final-form rulemaking are reasonably required to attain and maintain the 1997 and 2008 8-hour National Ambient Air Quality Standards for ozone and to satisfy related Clean Air Act requirements. The final-form rulemaking, once published as final-form regulation in the *Pennsylvania Bulletin*, will be submitted to the EPA as a revision to the State Implementation Plan.

Owners and operators of affected printing presses will be subject to newly adopted requirements in 25 Pa. Code §§ 129.67a and 129.67b, which limit VOC emissions from inks, coatings, fountain solutions, adhesives, and cleaning solutions used or applied on or with flexible packaging printing presses, offset lithographic printing presses and letterpress printing presses.



The Chapter 129 amendments will become effective upon publication as a final-form regulation in the *Pennsylvania Bulletin*. The compliance date is January 1, 2015.

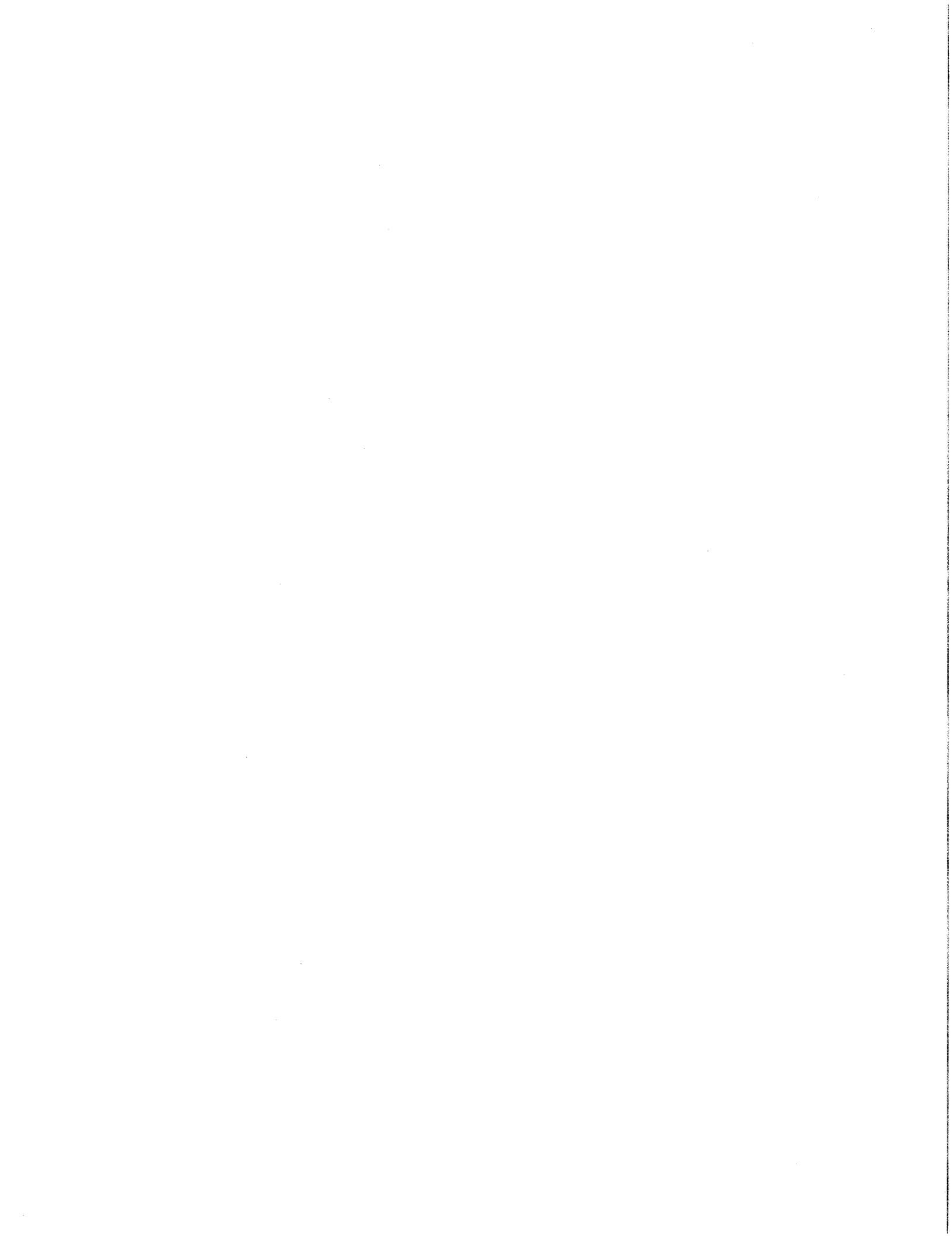
The proposed rulemaking was adopted by the EQB on September 20, 2011, and was published in the *Pennsylvania Bulletin* on February 11, 2012, where notice of a 66-day public comment period (42 Pa.B.779) was advertised. Three public hearings were held on March 14, 15 and 16, 2012, in Pittsburgh, Norristown and Harrisburg, PA, respectively. The public comment period closed on April 16, 2012. The Board received comments from five commentators including: the Flexographic Technical Association, Domtar, Bemis Company, Inc., The Graphic Arts Association and the Independent Regulatory Review Commission (IRRC). All comments, responses, and changes incorporated into the final-form rulemaking are elaborated upon in the Comment and Response Document that accompanies this final rulemaking.

The final-form rulemaking was discussed with the Air Quality Technical Advisory Committee (AQTAC) at its August 1, 2013, meeting. During the AQTAC's consideration of the final-form rulemaking, the following issues were discussed: the change from the proposed 15 pounds per day applicability threshold to the 450 pounds per month applicability threshold and the associated change from daily recordkeeping to monthly recordkeeping; the change from 30% by weight to 70% by weight VOC content for cleaning solutions; the change from a 55-gallon limit to a 110-gallon limit for non-complying cleaning solutions used at the facility each year; and the use of the VOC content of the highest VOC-containing ink as a surrogate for the VOC content of all inks used on the press to ease the recordkeeping burden for the owners and operators of small printing operations. Following the discussion, AQTAC voted 11-1-1 to concur with the Department's recommendation to present the draft final-form rulemaking, with consideration of the issues discussed by the Committee, to the Board for consideration for publication as a final-form rulemaking.

The Department consulted with the Small Business Compliance Advisory Committee (SBCAC) on July 24, 2013. The SBCAC encouraged the Department to reach out to the potentially affected small businesses with information about the final-form rulemaking. The SBCAC concurred with the Department's recommendation to forward the final-form rulemaking to the EQB for consideration as a final-form rulemaking. The Department also consulted with the Citizens Advisory Council (CAC) Policy and Regulatory Oversight Committee on August 28, 2013. The CAC Policy and Regulatory Oversight Committee reported on the final-form rulemaking to the CAC at the CAC meeting of September 17, 2013.

The Department communicated with several industry associations and one printing facility during development of the final-form rulemaking, namely Printing Industries of America, the Graphic Arts Association, the Flexographic Technical Association, the National Federal of Independent Businesses and Bemis Company, Inc.

The Department will provide assistance as necessary to facilitate IRRC's review of the enclosed final-form rulemaking under Section 5.1(e) of the Regulatory Review Act.



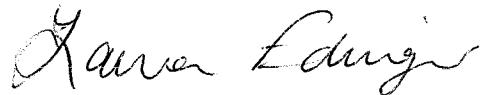
Mr. David Sumner, Executive Director

- 3 -

March 21, 2014

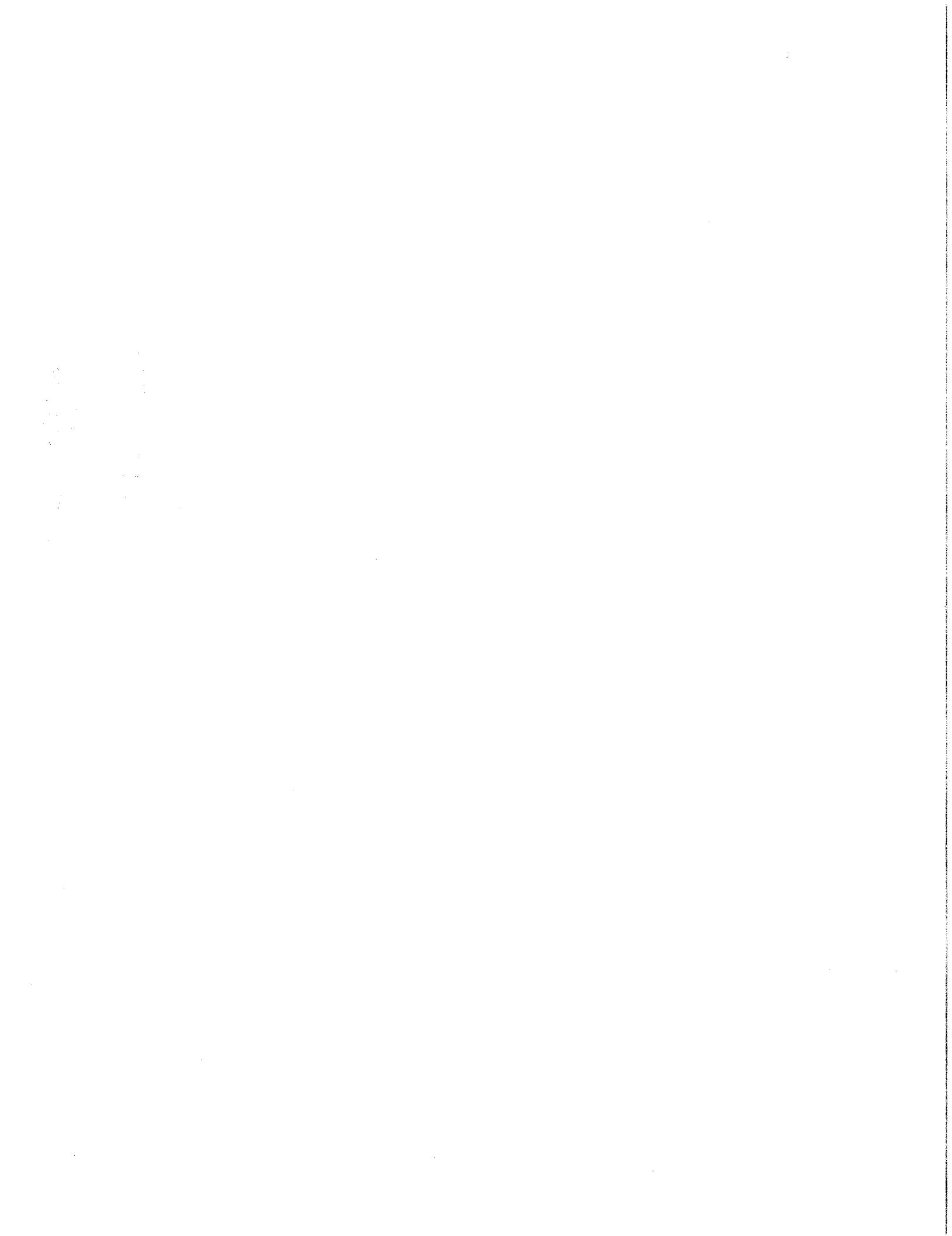
Please contact me at 717.783.8727 or by e-mail at ledinger@pa.gov if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Laura Edinger".

Laura Edinger
Regulatory Coordinator

Enclosures





**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO
THE REGULATORY REVIEW ACT**

I.D. NUMBER: 7-469

SUBJECT: Control of VOC Emissions from Flexible Packaging Printing Presses, Offset Lithographic
printing Presses and Letterpress Printing Presses, and Adhesives, Sealants, Primers,
AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION and Solvents

TYPE OF REGULATION

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
 - a. With Revisions
 - b. Without Revisions

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RECEIVED
IRRC

FILING OF REGULATION

DATE

SIGNATURE

DESIGNATION

3-21-14

Mary Scioce

Majority Chair, HOUSE COMMITTEE ON
ENVIRONMENTAL RESOURCES & ENERGY
Rep. Ron Miller

3-21-14

Terry Keh

Minority Chair, HOUSE COMMITTEE ON
ENVIRONMENTAL RESOURCES & ENERGY
Rep. Greg Vitali

3/21/14

Yvonne

Majority Chair, SENATE COMMITTEE ON
ENVIRONMENTAL RESOURCES & ENERGY
Senator Gene Yaw

3/21/14

Frank Villano

Minority Chair, SENATE COMMITTEE ON
ENVIRONMENTAL RESOURCES & ENERGY
Senator John Yudichak

3/21/14

K Cooper.

INDEPENDENT REGULATORY REVIEW COMMISSION

ATTORNEY GENERAL (for Final Omitted only)

LEGISLATIVE REFERENCE BUREAU (for Proposed only)

