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 _____, 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 if 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 <u>below</u> 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 pounds per day x 365 days per year = 5475 pounds per year
> 5475 pounds per year / 2000 pounds per ton = 2.7375 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 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 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
Acting Chairperson