

**INDEPENDENT REGULATORY  
REVIEW COMMISSION**

**Regulatory Analysis Form**

(Completed by Promulgating Agency)

(All Comments submitted on this regulation will appear on IRRC's website)

(1) Agency:  
Environmental Protection

(2) Agency Number: None  
Identification Number: # 7-469

IRRC Number: 2930

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

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

(5) Agency Contacts (List Telephone Number and Email Address):  
Primary Contact: Laura Edinger, 772-3277, ledinger@pa.gov  
Secondary Contact: Hayley Book, 783-8727, hbook@pa.gov

(6) Type of Rulemaking (check applicable box):  
 Proposed Regulation  
 Final Regulation  
 Final Omitted Regulation  
 Emergency Certification Regulation:  
 Certification by the Governor  
 Certification by the Attorney General

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

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

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

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

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

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

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

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

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

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

Section 179 of the CAA (42 U.S.C.A. § 7509) authorizes the EPA to use two types of sanctions:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg\\_act/200609\\_voc\\_epa453\\_r-06-003\\_flexible\\_package\\_printing.pdf](http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/200609_voc_epa453_r-06-003_flexible_package_printing.pdf)

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

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

[http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg\\_act/200609\\_voc\\_epa453\\_r-06-002\\_litho\\_letterpress\\_printing.pdf](http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/200609_voc_epa453_r-06-002_litho_letterpress_printing.pdf)

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

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

[http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg\\_act/199406\\_voc\\_epa453\\_r-94-054\\_offset\\_lithography\\_act.pdf](http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/199406_voc_epa453_r-94-054_offset_lithography_act.pdf)

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

[http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg\\_act/199309\\_voc\\_epa453\\_d-95-001\\_offset\\_lithography\\_draft.pdf](http://www.epa.gov/airquality/ozonepollution/SIPToolkit/ctg_act/199309_voc_epa453_d-95-001_offset_lithography_draft.pdf)

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

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

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

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

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

#### Flexible Packaging Printing Press Operations

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

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

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

## Offset Lithographic Printing Press and Letterpress Printing Press Operations

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

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

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

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

The Department worked with information provided by the Graphic Arts Association (GAA) and information in a Department database to estimate the number of facilities that will be covered by the final-form rulemaking. According to Stephen Stankavage of the GAA<sup>1</sup>, there are about 1800 printing facilities in this Commonwealth that offer a printing service potentially covered by this final-form rulemaking, including 114 flexographic and gravure facilities and 1758 lithographic and letterpress facilities. However, these numbers are overestimations because they double count facilities that offer multiple printing services. Furthermore, due to the applicability thresholds in the final-form rulemaking, not all of these printing facilities will be subject to the VOC content limits, control provisions or work practice standards for cleaning activities of the final-form rulemaking. The GAA information does not list emission estimates; therefore, determining the number of facilities actually subject to the emission thresholds of the final-form rulemaking from this source of information alone is impossible.

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

---

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



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

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

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

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

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

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

<sup>2</sup>EPA flexible packaging printing CTG, September 2006, page 23, last sentence.

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

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

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

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

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

<b>Flexible Packaging Printing Press Facilities in eFACTS/AIMS</b>	<b>2011 VOC emissions, in tons</b>
BERWICK OFFRAY LLC/BERWICK	5.7241
GRAPHIC PKG INTL INC/PHOENIXVILLE	25.62
BEMIS PERFORMANCE PKG INC/LEBANON	30.56
CORE LABEL LLC/TYRONE	n/a
CP CONVERTERS INC/MANCHESTER	27.5
HUHTAMAKI FILMS INC/MALVERN	n/a
OLIVER-TOLAS HEALTHCARE PKG/FEASTERVILLE	14.49
BEMIS CO INC/HAZLETON*	188.6
CMS GILBRETH PACKAGING/BRISTOL	4.598
CONSTANTIA COLMAR/HATFIELD TWP	12.72
FRES CO SYS USA INC/TELFORD PLT	126.31
GLOBAL PKG/OAKS	13.08
MRI FLEXIBLE PKG/NEWTOWN	5.97
SUPERPAC INC/SOUTHAMPTON	24.92
TAVO PKG INC/FAIRLESS HILLS	3.78
TRINITY PKG/LEWISTOWN DIV	8.14
PACTIV PKG INC/DOWNTOWN	5.22
AVERY DENNISON CORP/QUAKERTOWN	16
BEDFORD MATERIALS CO/BEDFORD	n/a
EXOPACK LLC/HAZLETON	n/a
FILMTECH CORP/ALLENTOWN	n/a
HANDELOK BAG CO/LANSDALE	n/a
HILEX POLY CO/MILESBURG PLT	n/a
PKG CORP OF AMER/LANCASTER	n/a
RJM MFG INC/FAIRLESS HILLS	1.96
AESYS TECH LLC/YORK	n/a
CCL LABEL INC/BOOTHWYN	n/a
MULTI COLOR CORP/WILLOW SPRINGS PLT	12
SHARP CORP/CONSHOHOCKEN	n/a
TOPFLIGHT CORP/GLEN ROCK	16.95
PERFECSEAL	7.51
GENERAL PRESS CORPORATION	n/a
CATALENTA PHARMA SOLUTIONS, LLC	n/a
<b>2011 TOTAL EMISSIONS, TONS</b>	<b>551.65</b>
<b>Total emissions available for reduction (551.65-188.6 for Bemis Co., Inc. = 363.05)</b>	<b>363.05</b>
*No anticipated additional reductions of VOC emissions for this source category from this facility.	

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

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

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

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

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

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

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

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

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

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

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

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

Based on information provided by the EPA in the flexible packaging printing CTG, the cost effectiveness of reducing VOC emissions from flexible packaging printing press operations is dependent on the flow rate, hourly solvent usage and operating hours. Using \$5,700<sup>3</sup> 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<sup>4</sup> per ton of VOC removed for heatset

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

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

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

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

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

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

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

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

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

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

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

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

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

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

subsequent years.

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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