

TECHNICAL BULLETIN No. 97-01

SUBJECT(S): POLLUTION PREVENTION AND BEST MANAGEMENT PRACTICES (**P2-BMP**) FOR LITHOGRAPHIC PRINTERS OPERATING IN BROWARD COUNTY, FLORIDA.

A clean environment is vital to the health, quality of life, and economy of Broward County, and the Department of Planning & Environmental Protection (**DPEP**) works proactively to protect, restore, and enhance Broward County's environment.

This Technical bulletin has been prepared to assist lithographic printers obtain **compliance** with applicable Federal, State, and local environmental regulations, **minimize wastes**, and help lithographic printers develop a **pollution prevention attitude**.

The lithographic printing processes generate **hazardous waste** in all physical states: liquid wastes, solid wastes, and air emissions. Because of the opportunity for these contaminants to be released to the environment, lithographic printer facilities pose a significant risk to the environment.

The need for protecting the public health and the environment has resulted in Federal, State and local regulations that may affect lithographic printing businesses.

Regardless of the complexity of environmental regulations, the owners and operators are responsible for understanding and complying with the rules that affect their business.

The DPEP's Division of Pollution Prevention and Remediation Programs (**PPRP**), in cooperation with representatives of the lithographic printing industry, developed the Pollution Prevention and Best Management Practices (**P2-BMP**) document to assist owners and operators of lithographic printing facilities in Broward County in their effort to maintain an environmentally sound business.

The P2-BMP document is intended to serve as an instrumental compliance and pollution prevention tool. **The multi-media approach** of this P2-BMP assists lithographic printers in achieving compliance with many complex environmental laws and regulations, and addresses pollution prevention opportunities.

Two sections have been provided to achieve the aforementioned goal:

1. The first section of the P2-BMP provides a brief description of each Federal, State, and local **environmental regulation** affecting lithographic printers, followed by a **Self-Audit**

Checklist. These checklists are designed to assist owners and operators in evaluating the level of compliance at their facility. If a non-compliant item is identified during the self audit, instructions advising how to correct the discrepancy are provided.

2. The second section of the P2-BMP addresses pollution prevention opportunities for lithographic printers to further minimize the generation of waste and potential release of hazardous material to the environment. DPEP recommends a **Pollution Prevention Program** be implemented by each facility, including a **Pollution Prevention Plan**. This plan should describe the actions to be taken at a facility to minimize generation of wastes at the source and releases of hazardous materials to the environment, and to achieve a program of raw materials, water and energy conservation. An overview of national pollution prevention programs and opportunities specific to this industry is provided. Since the most appropriate method of preventing pollution can depend on site- specific consideration, each facility should identify, select and implement the cost-effective options appropriate for the needs and capabilities of each individual facility.

A successful program includes the following **pollution prevention steps**:

1. Commit to pollution prevention. Nothing will happen without your commitment.
2. Identify pollution-related problems you want to address and associated pollution prevention opportunities based on a review of facility activities.
3. Identify, evaluate and select appropriate pollution prevention techniques.
4. Implement the techniques and monitor their effectiveness.

A summary of the **pollution prevention opportunities** follows:

Good Operating Practices

- Segregate wastes to increase recyclability.
- Keep records of inventory. Implement a "first-in, first-out" policy of chemical use. Do not order more than can be used within the shelf life of the product.
- Labels and expiration dates should be legible.
- Designate one person to manage raw materials for proper inventory control and to ensure that hazardous materials are properly contained and labeled and Material Safety Data Sheets (MSDS) are on file.
- Keep lids on bulk solutions to prevent evaporation, oxidation and contamination.
- Minimize spills and use dry methods for cleanup wherever possible. If a spill of a hazardous substance occurs, use a rag or an absorptive material to soak it up and dispose of it in accordance with all local, state, and federal regulations.
- Be innovative in trying new procedures and products, including recycled paper with a high post-consumer content.

P2-BMPs for Lithographic Printers

- Find ways to reuse paper. Make notepads, poster-paper, or other products from extra paper. Recycle all paper waste.
- Conserve energy by using energy-efficient lights and equipment and turning them off when not in use.
- Conserve water by installing water-saving devices and using only what you need.
- Your local electric utility or water supplier may offer free energy and water conservation audits.

Prepress Operations

- Use computers to set up and edit jobs to produce proofs for client approval. This technique reduces photo processing wastes.
- Adjust chemical replenishment and washwater flow rates on photo processor to optimize bath life and reduce wastewater quantity.
- Reduce unnecessary photographic chemical changeouts by monitoring bath solutions closely.
- Employ photographic intensifiers that don't contain mercury or cyanide salts.
- Use silverless films, such as vesicular, diazo and electrostatic films, that have speeds and resolution comparable to silver films.
- Install an automatic wash bath which saves water and reduces waste by turning on washwater only when film is being processed.
- Use squeegees or rollers between baths to remove residual fluid from the film before it is placed in the next bath. This prevents bath contamination and reduces material use.
- Employ silver recovery units "in-line" to extend the life of the developer and to help meet wastewater discharge limits.
- Contract with a waste hauler to send used film and film scraps offsite for silver recycling.
- Use presensitized plates that only generate small volumes of spent developer (usually nonhazardous) and are reusable.
- Employ aqueous plate making to reduce or eliminate the use of hazardous developers and fixers. You may then be able to discharge wastewater from the aqueous process directly to the sanitary sewer. Check with your wastewater utility.
- Consider new prepress technologies like electronic image processing (e.g., desktop publishing, digital cameras), direct-to-plate, direct-to-press and digital proofing to reduce or eliminate prepress wastes.

Press Operations

- Maximize use of vegetable-based and ultra violet inks that significantly reduce or eliminate volatile organic compound (VOC) emissions. Soy-based inks with 1% VOC content are available. These inks reduce air emissions and improve workplace safety.
- Select inks that minimize the use of metallic pigments.

P2-BMPs for Lithographic Printers

- Try fountain solutions that don't contain isopropyl alcohol (IPA) to eliminate or significantly reduce VOC emissions and minimize employee exposure to toxics.
- Use low-VOC and citrus-based solvents that generate less air emissions.
- Buy recycled solvents.
- Install an automatic ink leveler to ensure that ink is evenly distributed.
- Gang print or run similar jobs simultaneously to minimize waste generation between cleanup and starting the next run.
- Look into waterless presses which require no fountain solution or water.
- Refrigerate fountain solution to maintain solution concentration by reducing evaporation. VOC emissions are reduced.
- Use hot parts washers or solvent sinks to clean removable parts. Ask for nonchlorinated solvents if you use sinks.
- Use dirty solvents or lower VOC cleaners for initial wipe down of press equipment, followed by final cleanup using a higher VOC solvent.
- Keep used cleaning rags in closed containers. Cleaning rags contaminated with ink pigments and/or solvents should be laundered off-site by an industrial service or disposed of as hazardous waste. Clean rags can be obtained from a laundry service.
- Use excess ink for future jobs, or mix it together to create a "shop black."
- Recycle ink. If possible, purchase inks from a distributor who will take back unused inks.
- Recycle press cleanup solvents. If you use large amounts, an onsite recovery unit may be practical.
- Find a recycler for press lubricating oils.

Postpress Operations

- Talk to your vendor and review material safety data sheets to identify lower VOC and less toxic glues that will work for you.
- Collect and segregate all paper trimmings, color and white waste paper, and cardboard for recycling purpose.
- Use water-based adhesives.

Pollution prevention techniques solve many pollution-related problems associated with waste generation, disposal, discharges and emissions. Pollution prevention is a powerful way to save money and protect the environment by:

- Reducing raw materials use and costs.
- Reducing waste treatment, disposal costs, and liability.
- Improving operations and efficiency.
- Protecting employee health and safety.

Pollution prevention can also enhance a positive image within your community.

P2-BMPs for Lithographic Printers

Making changes in your facility requires the understanding and commitment of managers and employees. Therefore, the techniques described above should be implemented with a program to inform, train and involve employees.

Also, tell your customers about the environmentally friendly materials that you have available. For example, inform customers about the availability and quality of soy-based inks and recycled paper. Display examples of finished products made with these materials. Customer interest in these "green products" may surprise you.

Overall, the P2-BMP document is intended to assist lithographic printers in achieving environmental compliance while maintaining a profitable business. Broward County staff will supplement this document by providing training workshops and technical support to facilities requesting assistance. Confidential, non-regulatory onsite visits are also available to assist facilities in developing Pollution Prevention Plans.

FURTHER INFORMATION: To obtain a copy of the P2-BMP for lithographic printers or to obtain further information on this topic, contact:

- Broward County at 954-519-1260 www.broward.org/environment
- Florida Department of Environmental Protection
- **Small Business Assistance Program** at 1-800-722-7457.
- U. S. Environmental Protection Agency (**EPA**) at 202-260-1023.