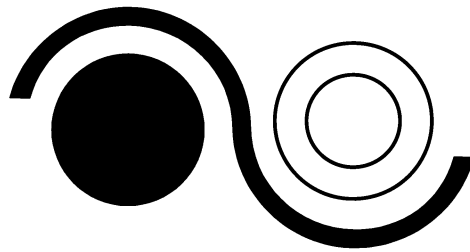


# PRINT SHOPS

## *Preventing Water* **Pollution**



### **WATER POLLUTION PREVENTION TIPS FOR THE PRINTING INDUSTRY**



Prepared by Oregon Department  
of Environmental Quality,



Oregon Association  
of Clean Water Agencies

and your local sewerage agency

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## What's the Problem?

In the 50s and 60s, we used to think of pollution prevention as keeping polluting substances out of the air and water. We built sewage treatment plants and put scrubbers on smokestacks.

Today, pollution prevention means much more. It means looking at every action to determine:

- how we can use fewer and less harmful substances;
- how we can create fewer waste products;
- how we can reuse or recycle substances; and
- what disposal alternatives are available to keep these substances out of the sewer systems, landfills and the air.

Many business activities have the potential to pollute air, water or soil. This booklet focuses on ways to prevent water pollution by conscious reduction, reuse or recycling of chemicals and hazardous substances. Information about other types of pollution prevention is available from the Department of Environmental Quality, your local recycler or your garbage hauler. Many industry groups also offer pollution prevention tips.

### Why Is Water Pollution Prevention Important?

It's in everyone's best interest to reduce the amount of chemicals and hazardous substances that flow into the sewer system. It's good for the earth, it's good for our pocketbooks and it's good for our communities.

**Sanitary Sewers.** The fundamental reason we have to be careful about what goes into sanitary sewers is that *even the best sewage treatment facility has limitations*. Oregon's sewage treatment systems are designed primarily to handle sanitary sewage. Bacteria provide "treatment" by breaking down organic matter in the water. We need to remember that:

- Treatment facilities can't treat many chemicals, so the substances may pass untouched into the environment. This threatens fish, wildlife and vegetation, as well as people using polluted water sources for drinking or recreation.
- Some chemicals can destroy the bacteria in the treatment process — leaving the facility useless. This not only endangers the environment — it means a tremendous expense to community ratepayers.

## What's the Problem?

- If the facility receives too much of one type of waste at a time, it will not be able to process the organic matter. Again, this creates environmental hazards, and the community may need to invest in greater treatment capacity.
- Chemicals in the sewage treatment system put system employees at risk. Exposure to chemicals can cause health problems, and some substances may cause explosions and fires.

**Storm Sewers.** In most Oregon communities, storm drains flow directly into rivers and streams, without passing through a treatment plant. Anything in the storm drain — from leaves to motor oil — can contribute to water pollution. In a few Oregon cities, storm drains feed into the sewage treatment plant. In these cases, pollutants in the storm water can threaten the plant's ability to effectively treat wastewater.

### How Can Pollution Prevention Help Businesses' Bottom Line?

Many businesses find that taking steps to prevent pollution actually saves money.

- Cutting back on chemical use can reduce material costs as well as waste disposal fees.
- Reducing water use means less water down the drain — and lower sewer and water fees.
- Printers may pay extra for high levels of organic waste. Keeping these out of the sewer system saves money.
- Reducing chemical use can create a safer workplace, with fewer accidents and lower insurance costs.
- Ultimately, we will all pay if we need to build more treatment system capacity. We all save by keeping materials out of the sewer system.

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### Notes:

Start pollution prevention with common-sense operational improvements,

## Good Housekeeping

### ✓ **Be conscious of chemical use.**

Even the least toxic chemicals can be harmful if used incorrectly. Chemicals can be dangerous to employees and customers, as well as to the environment. Don't be careless about any aspect of chemicals – from initial use to disposal.

### ✓ **Reduce chemical use whenever possible.**

Many businesses have found that they have saved money by adopting new procedures that require less chemical use.

Whenever possible – substitute. Many manufacturers are creating new products with less environmental impact. Avoid taking free product samples unless you are certain what's in them

### ✓ **Use good housekeeping practices.**

- Sweep, vacuum and mop floors rather than hosing them down, and don't leave sweepings outside where rain can wash them into storm drains. Do not send wash water down storm drains.
- Clean up spills immediately.
- Sweep parking lots in the fall, before the rains come. Rubber from tires and other products from automobiles contribute to water pollution.

### ✓ **Store chemicals and liquids sensibly.**

- Store chemicals so they can be found and identified easily.

- Follow manufacturers' directions for all product storage.
- Consider requirements for temperature, air circulation, length of time and other storage factors.
- Make sure products are sealed properly and stored safely.
- Buy smaller quantities, more frequently. Avoid purchasing products that won't be used.
- Provide secondary containment for all liquids. Place original containers inside a pan, jar or bottle capable of capturing all the contents in case of a leak. Place large containers on spill control pallets.

### ✓ **Spill prevention and control.**

- Use chemicals only in designated areas where spills can be contained.
- Avoid moving chemicals long distances from storage to use.
- When cleaning up spills, remove liquids with rags and sweep the floor with a dry absorbent; pour mop water into an oil/water separator before sending it down the drain. Choose an absorbant which suits your needs. Some absorbants can create dust, affecting equipment and products.

### ✓ **Train employees.**

All employees – whether or not they work with chemicals – should receive training about the products in use, storage requirements, spill procedures and potential hazards.

## *Pollution and the Printing Industry*

Printers across the nation generally are well-informed about the type of chemicals they use and the potential hazards to employees and the workplace. It's equally as important to consider what happens to those chemicals once they are used and discarded.

Printers generate waste water during image processing, plate making, the printing process and clean-up. Some waste products carried in the water, like silver, are highly toxic and can have a serious impact on the environment. Some can also be hazardous to treatment plant personnel and others who inadvertently come into contact with them.

Pollution prevention does not have to be expensive. It takes forethought and planning, and some investment will help reduce chemical use substantially. Ultimately, businesses find that pollution prevention results in cost savings. The steps to pollution prevention are also the steps to working more efficiently, spending less on chemicals and creating a safer workplace.

**Pollution prevention falls in two categories:** 1) Reducing the volume and toxicity of products used in printing processes; and 2) Reusing and recycling waste products. The following are suggestions that printing facilities can adopt to cut costs, operate more efficiently and reduce pollutants in waste water.

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### *Notes:*

Pollution prevention is good business. Today, the 3M Company produces 500,000 tons fewer pollutants than it did in 1975, saving the company \$426 million.

## *Steps to Pollution Prevention*

### **Reducing the Volume and Toxicity of Printing Products**

The following suggestions have helped printers reduce water use and generate less waste.

- 1.** Switch to silver-free films – vesicular, diazo, electrostatic or photopolymer film.
- 2.** When using silver, install a commercial recovery system to extract silver from waste water. Commercial firms purchase and resell silver and other metals.
- 3.** Substitute environmentally safe inks when possible. Many printers have switched successfully to soy-based inks.
- 4.** Recycle waste inks when possible.
- 5.** Recycle product rejects when possible.
- 6.** Structure your processes to limit ink fountain cleaning.
  - Continue the routine practice of adopting a standard ink sequence, reducing the need to clean fountains for ink rotations.
  - Dedicate presses to different colored inks if possible, to reduce cleaning – or schedule light-colored ink runs before darker ones.
- 7.** Buy solvents from a company that picks up and recycles them. Consider recycling solvents on-site, or choose recycling as a waste disposal option.
- 8.** Make solvents go farther by applying them with a pump can or squeeze bottle.



## *Steps to Pollution Prevention*

**9.** Automatic blanket cleaners can be safer and improve efficiency while reducing waste.

**10.** Electronic imaging and laser platemaking reduce wastewater.

**11.** Substitute non-hazardous alternatives for metal etching or plating processes. Some alternatives are:

- Presensitized lithographic plates;
- Plastic or photopolymer plates; or
- Electrostatic plates.

**12.** Consider ways to keep liquids from rags and wipes out of the liquid and solid waste streams. Use rags, rather than disposables, whenever possible; remove solvents from rags before laundering.

**13.** Where possible, choose less-evaporative solvents to reduce VOC emissions and solvent use.

**14.** Use water-developed lithographic plates and film where possible.

**15.** Recycle plates and plate materials by returning them to the manufacturer or to a metal recovery firm.

*Notes:*

***For More Information...***

A great deal of detailed information exists on ways printing businesses can reduce their contribution to water pollution. Some sources are:

- Pacific Printing and Imaging Association, 5319 SW Westgate Dr., Suite 117, Portland, OR 97221; 503/297-3328
- Graphic Arts Technical Foundation, 4615 Forbes Avenue, Pittsburgh, PA 15213; 412/621-6941.
- National Association of Printers and Lithographers, 780 Palisade Avenue, Teaneck, NJ 07666; 201/342-0700
- American Institute of Graphic Arts, 164 Fifth Avenue, New York, NY 10021; 212/807-1990
- Oregon DEQ, 503/229-5630, Available toll-free in Oregon at 1-800-452-4011

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***For more information,  
contact your local  
sewerage agency at...***