

WMD-HW-8

2017

Reducing Hazardous Wastes A Pollution Prevention Strategy for Businesses

The definition of pollution prevention is simply reducing waste at the source instead of managing the waste after it is generated. Reducing waste by changing the processes or materials that create wastes not only decreases your management costs, it also improves efficiency, making your company more competitive and profitable.

Waste reduction is a matter of attitude as much as a matter of taking action. The first step in reducing waste is to rethink the way you look at it. Don't think of waste as an unavoidable by-product; think of it as evidence of a flaw in the process. The change in attitude from "how do I get rid of wastes?" to "how do I prevent waste?" is at the top of the hierarchy of waste management options. The pollution prevention hierarchy establishes priorities for evaluating waste management options at your facility.

Pollution Prevention Hierarchy



Although waste management strategies will be a blend of these practices, efforts should be made to attain the highest level within the hierarchy. For example, solvent distillation is an excellent practice because it returns the hazardous material back to the process as a product. But to do this it goes through a *recycling* process that uses energy. Alternatively, letting dirty solvent stand, settling out the heavy dirt, and then *reusing* the clean portion again is a better option because it eliminates distillation. *Reducing* the amount of solvent used during the cleaning process can reduce purchasing and disposal costs. *Avoiding* the solvent entirely, through substitution of a non-hazardous water-based cleaner is the best option of all because it may eliminate the generation or toxicity of the waste within the process.

The following section explains the "Reduce, Reuse and Recycle" section of the hierarchy and provides suggestions for how to implement waste reduction strategies applicable to various types of businesses.

REDUCE the toxicity of a waste or eliminate the generation of a waste at the source of generation, usually within a process. Your most cost effective and desirable approach to sound waste management is to prevent wastes from being produced at all. Some general tips may be applied to a variety of waste streams to prevent waste generation. Some options are:

Good housekeeping practices: These are common sense items such as leak prevention, proper production scheduling, waste segregation, employee training, and inventory control.

Technology modifications: This consists of improved controls, energy and water conservation, improvements to existing equipment, replacement equipment and efficiency modifications.

Production process changes: Substitution of non-hazardous in place of hazardous materials, optimization of

reactions, alteration of product composition, elimination of process steps, improved employee practices and simplification of processing are all strategies to reduce waste.

REUSE is the use of a material at least twice, without changing its original form. The secondary user may be the same as, or different from, the original user. Each time a material is reused, a new one doesn't have to be manufactured, purchased or disposed. In other words, don't throw away a good thing! When establishing or modifying a manufacturing process, consider the potential reuse of the byproducts. Typical ideas are:

Direct reuse: Waste materials such as process waters, waste heat or solvents are captured and reintroduced into the process without prior treatment.

Closed loop recycling: This is a form of reuse where a process waste is purified and hard piped directly back into the process without any direct handling or storage.

Indirect reuse: Materials such as solvents are reused, without purification, in a different process. For example, solvent used to clean an automobile carburetor may be used to clean a crankcase cover in a different part of the shop.

RECYCLING is the collection, separation and recovery of useful materials which cannot be directly reused or would otherwise be discarded as waste. The waste streams of most commercial and industrial establishments contain high percentages of recoverable materials. Recycling can eliminate a substantial portion of purchase and disposal costs for those materials. Generally, recycling consists of:

On-site recycling: This waste management strategy involves the processing of scrap materials and wastes and then returning the processed materials to a manufacturing process within the facility.

Off-site recycling: Materials not targeted for on-site processing may be collected and shipped to a recycling process off-site. This generally requires storage and shipment of a hazardous waste, although some waste management costs are eliminated.

There are many benefits of well-planned and implemented waste reduction efforts. These benefits include:

- Reduced purchase and waste disposal costs
- Reduced compliance and liability costs
- Improved customer satisfaction and corporate image
- Decreased employee health problems
- Higher production yields

A good waste reduction program takes careful planning, implementation and follow-up, as well as time and expertise. The New Hampshire Pollution Prevention Program (NHPPP) can help with this process. NHPPP is a non-regulatory program that provides free technical assistance and confidential compliance assistance to New Hampshire businesses. NHPPP can provide the expertise necessary to help businesses begin incorporating pollution prevention strategies into their waste reduction plans.

To set up a free consultation, contact NHPPP at: (603) 271-6460 or nhppp@des.nh.gov.