



# Environmental Information

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## HAZARDOUS WASTES AND THEIR MANAGEMENT

One of the serious drawbacks of the technological era is the steadily increasing amount of hazardous wastes being produced daily by industry, agriculture, government, hospitals, and laboratories. All radioactive waste material is regarded as hazardous. In addition, about 10 percent, or at least 10 million tons per year of all waste material generated by industry is considered hazardous. To protect human health and the natural environment it is imperative that we use safe handling and disposal techniques for these wastes.

### What are hazardous wastes?

They are wastes that pose a substantial danger, immediately or over time, to human, plant, or animal life and which, therefore, must be handled or disposed of with special precautions. They may be chemical, biological, flammable, explosive, or radioactive substances. They are mostly liquids but also occur as gases, solids, and sludges. Some specific examples: arsenic-bearing flue dusts from the smelting of metallic ores, pesticide wastes, oily sludges from the petrochemical industries, obsolete munitions, radioactive waste from nuclear power plants.

### How are they disposed of now?

Radioactive wastes are stored and monitored according to Federal and State regulations until decayed into harmless substances--a process that takes from several months to hundreds of thousands of years.

The most common methods of disposing of other hazardous wastes are dumping on the land, burial in the land, injection in deep wells, and dumping in the ocean. Sometimes explosives are detonated and burned in the open. And some organic chemicals, biological wastes, and flammable materials are incinerated. Each of these commonly used disposal methods is a potential threat to public health and the environment.

Some industrial firms and other sources of waste are processing and disposing of their hazardous materials safely. In fact, a hazardous waste management industry has developed in the past few years, but at present it is handling only about six percent of the Nation's needs.

What harm can come from improper disposal of hazardous wastes?

A number of instances of serious harm are on record. Some examples: Arsenic buried 30 years ago near Perham, Minnesota, contaminated a new well drilled near the site; several persons were hospitalized. In Waynesboro, Tennessee, chemical wastes at a city dump got into a spring that rises under the dump and then empties into a creek; once used as a source of drinking water, as well as for watering cattle, fishing, and recreation, the creek is now polluted for at least 10 miles and is not fit for any of these purposes. At a New Jersey landfill, a bulldozer operator was killed in 1974 when drums of chemical wastes exploded.

Are there regulations that apply to disposal of hazardous wastes?

The disposal of wastes on land is essentially unregulated except in the case of radioactive wastes. The Clean Air Act covers the burning of toxic materials. The Federal Water Pollution Control Act of 1972 deals with the discharge of hazardous materials into lakes and streams. And the Marine Protection, Research and Sanctuaries Act of 1972 (Ocean Dumping) regulates ocean disposal operations. As the antipollution laws protecting air and water are implemented, many hazardous substances, sometimes in greatly concentrated form, are being diverted to the land. Unless the right precautions are taken, however, these substances can leak from the land into water and air, or they can stay on the land as unsuspected sources of potential danger. Some 25 States have some regulatory provision for controlling hazardous waste disposal but few are comprehensive or fully implemented. The U.S. Environmental Protection Agency (EPA) has proposed that the Congress enact hazardous waste management legislation which would establish a nationwide Federal and State-regulatory program.

What really should be done with hazardous wastes?

To safeguard public health and the environment, and also conserve resources, maximum use should be made of existing technology to

- \* Reduce the amount of hazardous waste generated in the first place.

- \* Concentrate wastes (through evaporation, precipitation, other techniques) at the source to reduce handling and transport problems.

- \* Stimulate "waste exchange"--one factory's hazardous wastes can become another's feedstock; for instance, acid and solvent wastes from some industries can be utilized by others.

- \* Recapture and recycle metals, the energy content, and other useful resources contained in the wastes.

- \* Destroy some hazardous wastes in special incinerators.

- \* Detoxify and neutralize other wastes destined for land disposal; most nonradioactive wastes can be rendered harmless.

- \* Build specially designed landfills, cut off from groundwater and properly monitored and secured, for hazardous materials that have to be buried in the ground.

Such a program will require construction of new treatment facilities at industrial plants. It will require a system of regional treatment and disposal facilities across the Nation, especially designed for dangerous wastes that industry cannot dispose of safely.

Switching to environmentally sound treatment and disposal will generally mean higher costs to those sources producing dangerous wastes. That, in turn, may mean higher prices for consumers of some products. But the alternative cost--the environmental and health damage we will incur if dangerous materials continue to be discarded irresponsibly--is infinitely greater.

Is there more information available on this subject?

Yes. EPA has published Report to Congress: Disposal of Hazardous Wastes, which was prepared in response to the 1970 Congressional mandate to study the problem of hazardous wastes and submit a report and recommendations for action. Another EPA publication, Hazardous Wastes, gives a brief, basic description of the problem and what can be done about it. These publications and other information can be obtained from the Office of Solid Waste Management Programs (AW-562), U.S. Environmental Protection Agency, Washington, D. C. 20460.

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