

WHERE DOES MY WASTE GO?

In the hazardous waste industry, the Environmental Protection Agency (EPA) regulates hazardous waste from “cradle-to-grave”. Laboratories that generate hazardous waste are the “cradle”, while the disposal facilities that receive the hazardous waste are known as the “grave”. The phrase “cradle-to-grave” indicates that every step of the process of managing hazardous waste is important. This means that you, the generator, are responsible, and potentially liable, for managing your hazardous waste from the day it is generated until final disposal. Recent events such as the fires at hazardous waste facilities in Arkansas, Michigan and North Carolina and a mercury contamination and cleanup effort at a high school in Washington, D.C. should prompt laboratory personnel to ask “Where does my waste go?”

In simple terms, your hazardous waste disposal vendor should be transporting your hazardous wastes (both regulated and non-regulated) to an EPA permitted disposal facility using properly permitted vehicles. These vehicles often display identification placards that indicate the types of hazardous waste they are carrying (e.g. Flammable, UN 1203). The EPA, in conjunction with individual state agencies, administers a process for private companies in which they receive special permits to treat, store and/or dispose of hazardous wastes. These permits could cover short and long-term storage, processing, recycling, treatment and disposal of a wide variety of hazardous waste streams. Hazardous waste facilities are commonly referred to as Treatment, Storage and Disposal Facilities (TSDFs).

Every TSDF is permitted to accept a specific amount and type of waste and to perform specific processes. There are two primary types of TSDFs: transfer stations and final disposal facilities.

- Facilities that re-process the waste for further treatment or final disposal at another facility are called “transfer stations”.
- Landfills, incinerators and some wastewater treatment facilities are called “final disposal facilities” because they treat hazardous wastes and render the material non-hazardous.

Transfer stations usually accept waste from a variety of customers and consolidate or co-mingle similar materials into truckload quantities. That means a 55 gallon drum of solvents will get pumped into a storage tank with compatible solvents from other waste generators. When a sufficient quantity of material is collected, a full load of solvents will be shipped to an incinerator or cement kiln for “final disposal”. Similarly, a 5 gallon lab pack of sodium azide will be unpackaged, inventoried, and re-packaged into a larger drum with similar materials. The new, larger lab pack will then be shipped to an incinerator for “final disposal”. The most common processes at transfer stations include:

- TConsolidation of solvents for fuel blending.
- TConsolidation of acids and bases for wastewater treatment.
- TRepackaging and consolidation of lab packs.
- TConsolidation of inert solids for landfill.

End disposal facilities also accept waste from a variety of customers. They process the waste to render it non-hazardous, according to EPA treatment standards, through specific technologies such as incineration or contaminant removal. Some drums of waste are consolidated into larger containers for handling purposes, such as drums of acid pumped into tanks for treatment, while other drums may be handled individually due to incinerator limitations or chemical properties like water reactive chemicals. Other examples of end disposal for common lab waste are:

- ❖ A 55 gallon drum of ethidium bromide gels that is sent to an incinerator may be co-mingled with similar materials and the bulk waste stream will be fed into the incinerator for destruction.
- ❖ A 5 gallon lab pack of sodium azide shipped to an incinerator may be fed directly into the incinerator for destruction.
- ❖ A 55 gallon drum of photographic chemical waste shipped to a treatment facility will be pumped into a holding tank with like materials. Any contaminants in the waste, such as silver, will be removed by chemical means before the material is neutralized and discharged into an EPA permitted sewer system.
- ❖ A 30 gallon drum of sulfuric acid spill clean-up shipped to a landfill will be mixed with treatment materials (often cement) that will “stabilize” the contaminants to “at or below” regulatory limits. This process is also known as “fixation”. The stabilized waste can then be placed in the permitted landfill.

The following are typical processes at end disposal facilities:

- ✓ Incineration of almost all waste types.
- ✓ Waste Water Treatment of acids and bases.
- ✓ Incineration of solvents as fuels.
- ✓ Stabilization and landfill of acceptable materials.

The next time you speak with your hazardous waste disposal vendor, the above outline will give you a better understanding of where your material is shipped and how it is handled. You can inquire as to what type of facility your material is being shipped to, and what processes it will undergo before final disposal. There are good disposal facilities, and bad disposal facilities. You can inquire about yours through your state regulatory agency, and by checking the EPA web site (www.epa.gov) and typing ECHO in the search bar (Enforcement and Compliance History Online).

In addition to local market conditions, the cost for disposal of your hazardous waste will depend upon the type of waste you create and the process necessary to treat it properly. Landfill is generally the least expensive disposal option, while incineration tends to be the most expensive. However, incineration offers the most protection for your future liability since wastes are virtually destroyed by the process. As you review your current practices, keep in mind that “cradle-to-grave” should influence which disposal technology you utilize. Which will lead us to our next topic... “What steps can I take to manage my waste more effectively?”

