

# Solid Waste Landfills

## How They Work



**Leachate Storage**

**Soil Liner**

The bottom layer above the natural earth is made of at least two feet of clay soil.

**Liner (geomembrane)**

This is a strong, flexible, thick plastic. The liner protects ground water and the environment. It helps keep waste and contaminated water (leachate) in the landfill.

**Gravel Blanket and Leachate Pipes**

As rain and liquids filter through a landfill, they remove contaminants from the waste, producing a liquid called leachate. On top of the plastic liner is a one-foot layer of gravel with pipes running through it. The leachate collects in these pipes and is pumped out of the landfill and sent to be treated (cleaned).

**Daily Cover**

At the end of each day a layer of soil or alternative materials, like shredded tires or tarps, is spread over the waste. The daily cover is at least six inches thick and helps control odor, blowing litter, insects and other pests.

**Methane Gas Venting Pipes**

In a large landfill, most waste decomposes without oxygen (anaerobic), producing gases like methane and carbon dioxide. Pipes are placed throughout the landfill to vent the methane to the surface where it can be collected and used as fuel to generate electricity.

**Protective Cover (geotextile)**

The protective cover includes geotextile (tough fabric) and 18 inches of soil. This layer of soil and fabric protects the liner from being damaged by the waste or landfill equipment.

**Waste**

Waste from a landfill can be sorted into eight different categories. The pie chart below represents the breakdown of waste in a landfill by percentage.

### Closing a Landfill

When an area of the landfill is completely full, it is covered with more layers of up to five feet of clay, plastic and soil. The final landfill cover helps keep rainwater out of the waste and reduces the amount of leachate that forms.



OPEN



CLOSED

### Did You Know?

In 500 B.C., the ancient Greek residents of Athens had to walk their trash more than one mile away from the city to the landfill.

Indiana has 33 Municipal Solid Waste Landfills.

**Methane gas** is generated from anaerobic (without oxygen) waste decomposition. This gas can be collected and used as fuel to generate electricity, heat greenhouses or power trucks.

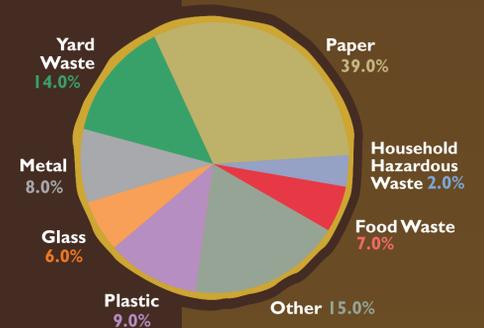


Chart represents the national average of waste found in a landfill; percentages of waste provided by the U.S. Environmental Protection Agency.



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For more information, please contact the Indiana Department of Environmental Management at (800) 351-6027.