



HOW LANDFILLS WORK

Glossary of Terms

Today's landfills are entirely different than the old dumps. They are engineered structures, built into or on the ground, designed to hold and isolate the waste from the environment and personal exposure. There are different kinds of landfills subject to different regulations administered by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the United States Environmental Protection Agency (U.S. EPA). Below are definitions of terms you will hear as you learn about solid waste landfills.

TERMS

Cell – An open area in a landfill where waste is placed. Most landfills fill one cell at a time. When one cell is completely filled, a new cell is opened to accept incoming waste. Waste is placed and compacted in each cell in a manner that protects the landfill liner and the landfill gas and leachate collection systems.

Clean Air Act – The federal law that regulates pollution entering air across the United States and establishes air pollution standards.

Clean Water Act – The federal law that regulates pollution entering waters across the United States and establishes water quality standards for rivers, lakes, streams, and wetlands.

Composite Liner – The combination of a clay component directly overlain by plastic liner to prevent the movement of leachate and liquids (leakage from the landfill). A composite liner is 1,000 times more resistant to leakage than either component used alone.

Daily Cover – A layer of soil placed on top of compacted waste at the working face at the end of each day. Daily cover functions to minimize odors, pests, and rodents. It also prevents waste from being blown out of the cell and reduces the amount of water that enters the cell. This reduces the amount of water that comes in contact with the waste and reduces leachate production.

Decompose – To break down into simpler substances through natural bacterial decay.

Drainage layer – A layer in the landfill leachate collection system that is designed for the removal of liquids. Another drainage layer may be a component of the landfill leak detection system.

Environmental Monitoring System – All of the groundwater, stormwater, and gas monitoring programs combined, along with the leak detection system. The purpose of the environmental monitoring system is to detect an unauthorized release from the landfill as early as possible.

Final Cover System or Cap – The system used to close a landfill or part of a landfill that is no longer accepting waste that is designed to keep waste in place and prevent water from entering the landfill. The final cover system includes a clay layer, a plastic liner, and a soil layer that is maintained with shallow rooted plants like such as grasses and wildflowers.

SOLID WASTE LANDFILLS – GLOSSARY OF TERMS

Financial Assurance – Money that the disposal facility owner/operator must set aside to be accessed by the State of Michigan in case the State of Michigan needs to perform activities required under the solid waste regulations at the landfill.

Flare – A flame used to burn landfill gas released from a landfill gas collection system.

Geocomposite – Two or more materials that are bonded together and used as a barrier to prevent water, leachate, or other liquids from getting out of or into a landfill.

Grade – Slope, angle, or incline.

Groundwater Monitoring System - Groundwater monitoring wells around the landfill that are routinely sampled and evaluated to detect a release from the landfill.

Integrated Waste Management System – A comprehensive waste prevention, recycling, composting, processing, and disposal program that considers how to manage unwanted materials in ways to best protect human health and the environment while supporting a vibrant economy.

Interim Cover – One foot of compacted soil placed on top of lifts where waste will not be placed in the landfill for 90 days (or more) with the purpose of preventing stormwater from coming into contact with the waste in the landfill.

Landfill Gas – Gas naturally created from bacteria decomposing the waste, made up of around 50% methane and 50% carbon dioxide.

Landfill Gas Collection System – A series of pipes and pumps used to collect and remove landfill gas from the landfill.

Landfill Gas Monitoring System – Air monitoring required at most landfills with a landfill gas collection system designed to ensure the landfill gas collection and control system is operating properly and methane is not escaping the landfill. The landfill gas monitoring system includes a number of gas monitoring probes or wells around the landfill that are sampled and analyzed for methane.

Leachate – Liquids released through the waste decomposition process and rainwater that has come in contact with the waste in a landfill.

Leachate Collection System – A series of pipes and pumps used to routinely remove leachate settling on top of the primary liner in a landfill. A drainage layer is a part of the leachate collection system.

Leak Detection System – The drainage layer under the primary liner, including the pumps and pipes associated with the drainage layer. The leak detection system is sampled and the volume of liquids is routinely evaluated to determine if there has been leakage from the primary liner.

Licensing (for solid waste facilities) – The process that gives a person (property owner, individual, company, or organization) permission to operate a solid waste disposal facility that was constructed in accordance with the design requirements provided in the construction permit. The solid waste license includes the landfill's operating, maintenance, closure post-closure, and financial assurance requirements.

Lift – An 8- to 10-foot-thick layer of waste within a landfill cell.

SOLID WASTE LANDFILLS – GLOSSARY OF TERMS

Liner System – The system of layers of protection that must be installed to protect groundwater and keep waste and leachate in the landfill.

Low Permeability Clay – A type of clay soil with poor drainage used to prevent liquids from moving through the clay.

Municipal Solid Waste – Everyday household items we use and then throw away otherwise known as garbage.

Permitting (for solid waste facilities) – The process that gives a person (property owner, individual, company, or organization) permission to construct a disposal facility meeting specific design requirements provided in the construction permit and solid waste regulations.

Stormwater Monitoring Program – The stormwater monitoring program designates specific locations in the drainage ditches and storm water ponds where samples are to be collected and routinely analyzed to detect a release from the landfill.

Stormwater – Runoff that comes from rain or melting snow flowing across the land that does not come in contact with the waste. Generally, this includes stormwater from rain falling on areas of the landfill that have interim and final cover.

Stormwater Drainage System – The stormwater drainage system is designed to collect rainwater that falls on parts of the landfill that have final and interim cover. The storm water drainage system may include plastic drainage pipes and ditches that collect and move the rainwater to a storm water storage pond.

Tipping – When garbage trucks dump waste into the landfill

Type II Landfill – A landfill that receives household garbage and other non-hazardous solid waste.

Working Face – The area of the landfill within a specific cell where waste is currently being placed and compacted.

Visit Michigan.gov/SolidWaste to learn more about solid waste and materials management in Michigan.

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