



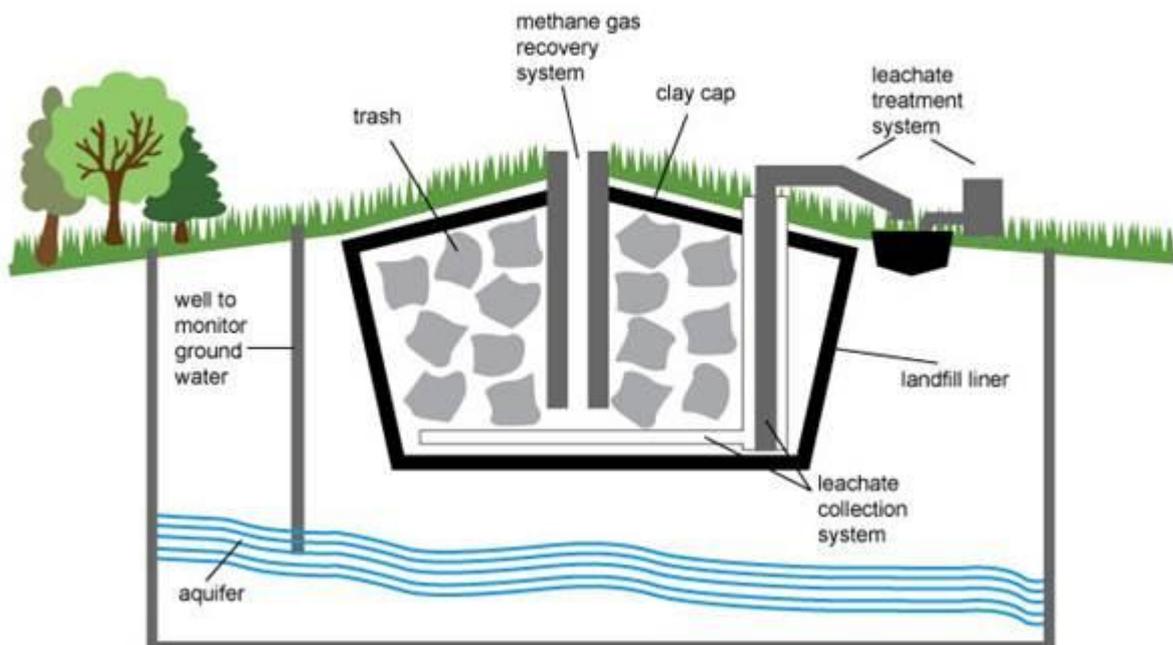
MEDIA RELEASE

Everything you need to know about landfill

IMMEDIATE RELEASE

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Modern landfill



[Image source: National Education Development Project]

Did you know that the waste that you throw away in your bin at home will most likely end up in a landfill site? Landfilling still remains the most widely used option for end of the line disposal of municipal waste. In South Africa, we have a total number of 876¹ landfill sites which receive municipal waste. The design of a landfill site, regulated by waste disposal norms and standards, aims to minimise pollution and protect the health and safety of residents by adequately containing the waste.

“In 2013 the new Waste Classification and Management regulations came into effect which imposed strict norms and standards for waste disposal by landfill. It is important that we have such regulatory mechanisms

in place which ensure that the engineering design of landfill sites improve this practice of landfilling,” says Jan Palm, president of the Institute of Waste Management of Southern Africa (IWMSA), the multi-disciplinary non-profit industry body for waste management in Southern Africa.

“These new regulations have been implemented as a result of many badly located, designed and operated landfill sites in our country. Consequently, these older sites have been significant potential points of pollution in the past and some still are. Landfill operators countrywide are now under pressure to acquire licensing by implementing adequate waste sorting and classification, better landfill design, improving operation and monitoring the surrounding environment for contamination,” he explains.

A typical municipal landfill site in South Africa’s metros will receive high volumes of waste daily. This waste can consist of domestic waste, garden waste, business and commercial waste, building rubble, industrial waste and in the past, tyres. The composition of waste going to each landfill will differ according to the generation of different types of waste in the area. Some landfill sites may receive higher volumes of organic waste while others may receive higher volumes of building rubble. According to the new regulations, landfill sites that receive hazardous waste need to be licensed to receive such waste.

“Every landfill site will differ according to the environmental and social conditions, incoming waste composition and entities operating the site. Even though landfill sites may differ, the design and operational components that make up a landfill site are similar,” says Palm.

When waste gets offloaded at the landfill, it is first compacted to minimise the voids between the waste materials. After compaction, waste is covered with a layer of soil to prevent further contact with the outside air. This prevents rodents and birds from flocking to the site and also reduces any odours emitting from the waste. The waste that is added daily, compacted and then covered is known as a daily ‘cell’.

Once covered, a series of reactions begin to occur via microorganisms that are present in the organic waste and the soil. During the beginning stages, microbes break down the organic waste to produce carbon dioxide which eventually completely depletes the oxygen. After all the oxygen is depleted, anaerobic bacteria, which thrive in conditions that lack oxygen, digest the organic waste to produce methane and carbon dioxide. This is the background as to why carbon dioxide and methane are the two principle gases coming from landfill sites. Both methane and carbon dioxide are odourless and make up approximately 98% of the landfill gas produced. The other gases include hydrogen, sulfides and ammonia and these are responsible for poor odours that residents in close proximity may experience. Luckily most new landfill sites are implementing a landfill gas management system as this gas can be used to generate renewable power if available in sufficient quantities, otherwise, the gas is flared.

Water that trickles through the waste body and accumulates contaminants is referred to as leachate. In the past, leachate has been a major concern associated with landfills as it has the potential to contaminate groundwater resources if it is not managed. This leachate will seep to the bottom of the landfill site where a liner, which is usually a combination of high-density polyethylene (HDPE -plastic)

and a mineral layer (clay or bentonite), will prevent it from contaminating the groundwater below. Regulations also require regular monitoring of the groundwater quality near landfill sites.

“The current reality that we are faced with is that most landfill sites are reaching capacity and on top of this, the available land to extend landfill sites or construct new ones is also limited. The legislation also requires that landfill sites have to be at a specified distance away from residential areas and ecologically sensitive zones. This is all to protect the health and safety of residents and the environment. However, it is often found that informal settlements encroach on existing landfills by inhabiting the buffer zones,” concludes Palm.

The Institute of Waste Management of Southern Africa will be hosting a seminar on landfilling which will take place from 18 to 20 October 2017. Renowned industry bodies will share experiences, knowledge and demonstrate new technology which will improve landfill as a practice at this seminar.

For more information about the Institute of Waste Management Southern Africa and their Landfill 2017 event, visit www.iwmsa.co.za. You can also follow IWMSA on Facebook (<https://www.facebook.com/iwmsa>) and Twitter (<https://twitter.com/IWMSA>).

¹Department of Environmental Affairs (2014). South African Waste Information Centre

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