



Waste Management

Landfill Construction

Jane Van Hool:

The design of a land fill site has to take into account what processes occur on that site. Decomposing rubbish produces not only leachates, but also what's known as land fill gas, of which methane is a major constituent, the remainder is principally carbon dioxide. To stop the gas and leachates migrating, or escaping into the surrounding area, the site is lined, different materials are used, depending on the geology of the site. If a natural liner, such as clay is not present, then a synthetic impermeable liner of asphalt, or industrial polyethylene are used. Liners are carefully tested for leaks, especially where the joins have been welded together.

These are protected above and below by a layer of sand to prevent piercing. A system of drainage pipes are laid to carry away any ground water. Finally a separate network of pipes is added to collect the land fill gas. Both leachates and gas, can now be extracted and treated in a controlled way, rather than escaping randomly into the environment. But that's not all.

Lesley Heasman

You've also got to design all the site infrastructure right from day one, where the facilities to check all the in coming waste, are in place and ready. You've got to think about all the monitoring facilities that you need to install, and they're going to be there for a very long time, so you've got to put them in the right locations, it's no good having to move them half way through. So the design itself needs to juggle all these things together, and you often go through very many iterations till you get it right at the end of the day.

Jane Van Hool:

The European directive has banned the disposal of a mix of hazardous and none hazardous waste. So what impact will this have on current practises throughout the land fill industry.

Lesley Heasman

The main impact that the land fill directive has had on the design and construction is, that it introduces different categories of land fill site. The actual engineering is no different to the engineering that we've done already in the UK, but what it does is separate out, it demands that you must have separate sites for inert waste for none hazardous waste, and hazardous waste. and in the UK, we've not had land fills predominantly for hazardous waste alone, we've always disposed of hazardous waste with biodegradable waste.