

CLOSED LANDFILL SEMINAR

EPA Closed Landfill Guidelines

An Auditors Perspective

April 2013

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Overview

- Recent changes in EPA regulatory requirements for landfills.
- Key aspects of the closed landfill guidelines and responsibilities of owners of such sites.
- How to meet regulatory obligations with least pain.

Landfills – a Renewed Focus for EPA

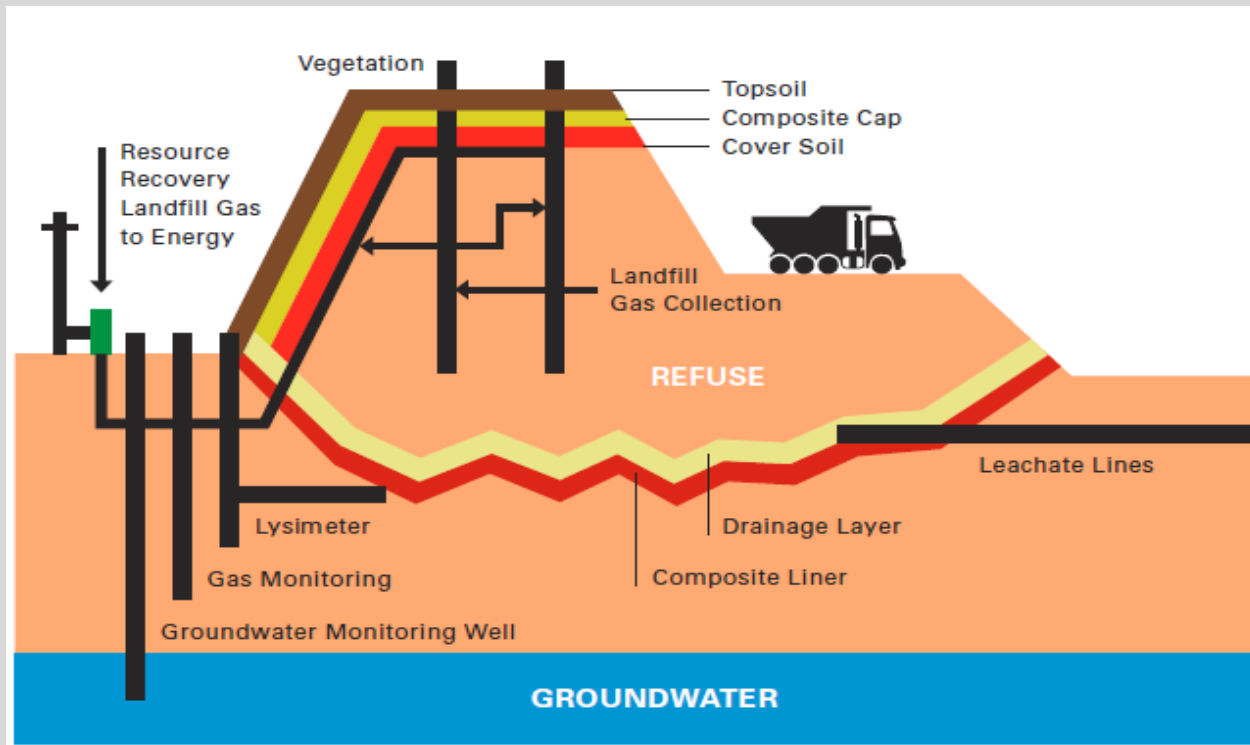
- In **August 2008** the emergency evacuation of residents at Brookland Greens estate in Cranbourne was initiated in response to high levels of methane in residences adjoining the closed City of Casey landfill.
- These events and the subsequent enquiries and litigation resulted in significant **financial and reputational losses** for a number of parties including the EPA.
- The result has been a firming of EPA attitude to landfill management. Since that time, EPA has demonstrated significant initiative and leadership in terms of creating **new guidance and directions for landfill management.**

Recent changes to landfill regulations

- Issuing of EPA Publication 1323.1 *Landfill licensing Guidelines in June 2010* (and subsequent revision into Publication 1323.2 in August 2011).
- Revision of the *Best Practice Environmental Management – Siting, Design, Operation and Rehabilitation of Landfills* (EPA Publication 788.1) – otherwise known as the BPEM Landfills. Published September 2010.
- Issuing of the *Closed Landfill Guidelines* (EPA Publication No 1490) in December 2012.

The Context of the New Closed Landfill Guidelines – Long Term Management of Environmental Risk

- Consistent with the requirements for operating landfills, the key objective is to ensure long term management of risks by adherence to BPEM standards or equivalent



In essence the BPEM Landfills Requires:

- Provision of **leachate containment** via construction of an engineered liner
- Long term maintenance of **leachate levels**
- Leachate capture, **treatment and disposal**
- **Gas control** to ensure gases do not escape to cause risks
- Provision of an appropriate **capping system** that will prevent water ingress and assist in gas control
- Provision of **long term management and monitoring** tailored to the actual risks presented
- Overview of all of the above via the **environmental audit** system

If things go wrong the consequences can include:

- Impacts to groundwater
- Impacts to surface water
- Risks to human health and the environment
- Aesthetic issues

The New Closed Landfill Guidelines will work like this:

- EPA will issue “preliminary” or Supporting PANS.
- Landfill owner/operator will respond by producing plans, programs and assessments as required by the supporting PANS.
- Landfill owner/operator will then action the required plans, programs and assessments.
- The supporting PANS will then be revoked and EPA will issue a PC Pan which will define the long term management requirement for the site.

Supporting PANS will require

- The development of a rehabilitation plan for the site that will either provide for capping to be commensurate with BPEM requirements or demonstrate that any existing cap provides adequate protection
- Development of an aftercare plan that will address long term maintenance of the cap, the leachate collection/treatment system, the landfill gas collection system and surface water control measures.
- Completion of a Hydrogeological Assessment to determine long term leachate management levels
- Development of a risk based environmental monitoring and auditing program. The Environmental Monitoring and Hydrogeological Assessments will both need to be verified by an auditor.

Importantly the Supporting Pans will be Site Specific. As a consequence:

- Sites already operating under an environmental auditor verified environmental monitoring program will not be required to develop a new program until such time as an updated risk assessment has been completed.
- Where all cells have been engineered to standards which conform to the BPEM, the site will not require a Hydrogeological Assessment.
- Where an assessment of an existing cap can demonstrate protection of groundwater and control of gas emissions, cap replacement will not be required.

In Summary

- The renewed emphasis on effective landfill management by EPA is based on:
 - Adoption of **performance based engineering standards** designed to ensure long term environmental protection;
 - Application of **risk based monitoring and management** programs; and
 - Use of EPA accredited **Environmental Auditors to validate** and/or verify all steps in the process including engineering design, construction, operational impacts, environmental risk assessments and environmental monitoring programs.
- **This is not a simple walk in the park as experience since 2010 demonstrates**

So How Can We Reduce the Pain?

- Operators need to understand that environmental management of a landfill needs to be undertaken on a cradle to grave basis. This includes:
 - Initial site appraisal and purchase planning
 - Works Approval application
 - Landfill design and construction according to BPEM
 - Implementation of License conditions including environmental risk appraisal, design of monitoring plan
 - Implementation of Auditor overview via construction and operational audits
- Failures to meet standards early in the landfill life cycle will create issues further down the track.

So How Can We Reduce the Pain?

- The engineering and science that under-pins landfill design, construction and management is highly specialized – you need specialists to deliver. This includes:
 - landfill designer
 - construction contractors
 - assessment consultants
 - your auditors.

So How Can We Reduce the Pain?

- The processes involved requires you to have a sound understanding of what's involved including recognition of likely costs and time schedules.
- You will most likely need to have some-one specifically responsible for landfill environmental management and you will have a heavy reliance on external contractors.
- Clearly defined briefs for contributing contractors – especially for the design and assessment consultants.
- Obtain sound professional advice in relation to setting short/medium and long term work programs and budget estimates.
- Recognize that value for money will not be based on price alone – for this type of work cheap is not necessarily good.
- Be aware of the time taken for things to happen and set schedules realistically.

Thank you

