



PROJECTS

RISK ASSESSMENT

Risk 4

HEALTH BASED RISK ASSESSMENT: PROPOSED RESIDENTIAL REDEVELOPMENT OF LANDFILL SITE, South Fremantle



The site had received mixed domestic & industrial waste between 1956 and 1985. The proposed redevelopment included residential, tourist, commercial & retail use. A comprehensive site investigation was undertaken, including 24 soil bores, 10 groundwater monitoring bores, 15 trial pits & a landfill gas investigation. In-situ geotechnical testing of fill was conducted to assess foundation/settlement properties.

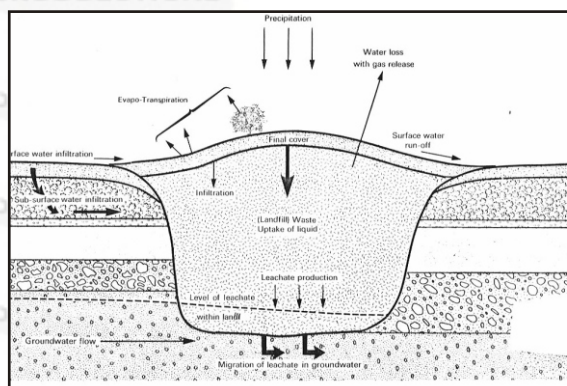
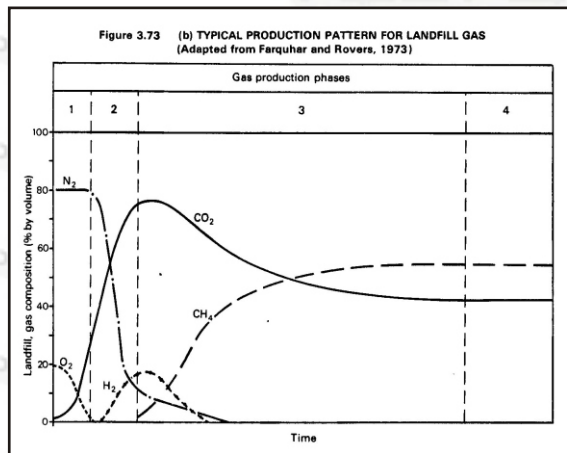
The HBRA was conducted in accordance with ANZECC.NHMRC guidelines. A screening level assessment identified contaminants of concern from observed concentrations. Exposure route scenarios were developed for construction workers & ultimate users, including commercial/ maintenance & residents using standard exposure parameters.

The following risks to human health were identified:

- Exposure to solid wastes via dermal/ inhalation & ingestion
- Risk of asphyxiation (LFG)

Mitigation measures to reduce risk to acceptable levels included provision of a 1-metre inert cap.

Potential settlement of the fill would be mitigated through construction of suspended foundations above piles driven to bedrock. Risk to groundwater was identified from the landfill disperse & attenuate design philosophy: existing contaminants included nutrients, heavy metals, hydrocarbons & organics. Mitigation measures included restricting downgradient usage within the groundwater attenuation zone & ongoing monitoring consistent with WRP27.



An LFG generation model was developed to predict generation rates & the risk of accumulation within built structures at potentially explosive or asphyxiative concentrations based on indoor ventilation rates. Mitigation measures included:

- Provision of an active LFG extraction system
- Prevention of below ground structures
- Use of ventilated footings
- Ongoing gas monitoring.

HydroSolutions Pty Ltd
 U14/14 Whyalla Street
 Willetton
 Western Australia 6155
 Tel: (+61 8) 9457 5448
 Fax: (+61 8) 9457 4293
 Mob: 0403 021533

E-mail: stuart.jeffries@hydrosolutions.com.au
 Website: www.hydrosolutions.com.au