

Tullamarine Closed Landfill Hydrogeological Assessment



Hydrogeological Assessment Report:

- Hydrogeological Assessment (HA) requirement of PAN (90003661 issued 15/11/2013)
- Purpose of the Hydrogeological Assessment to determine maximum allowable leachate levels to minimise impacts to groundwater, considering Land fill gas (LFG) management.
- Key Dates:
 - HA due to EPA 8 July 2015
 - EPA has 28 days to review

Hydrogeological Assessment Report:

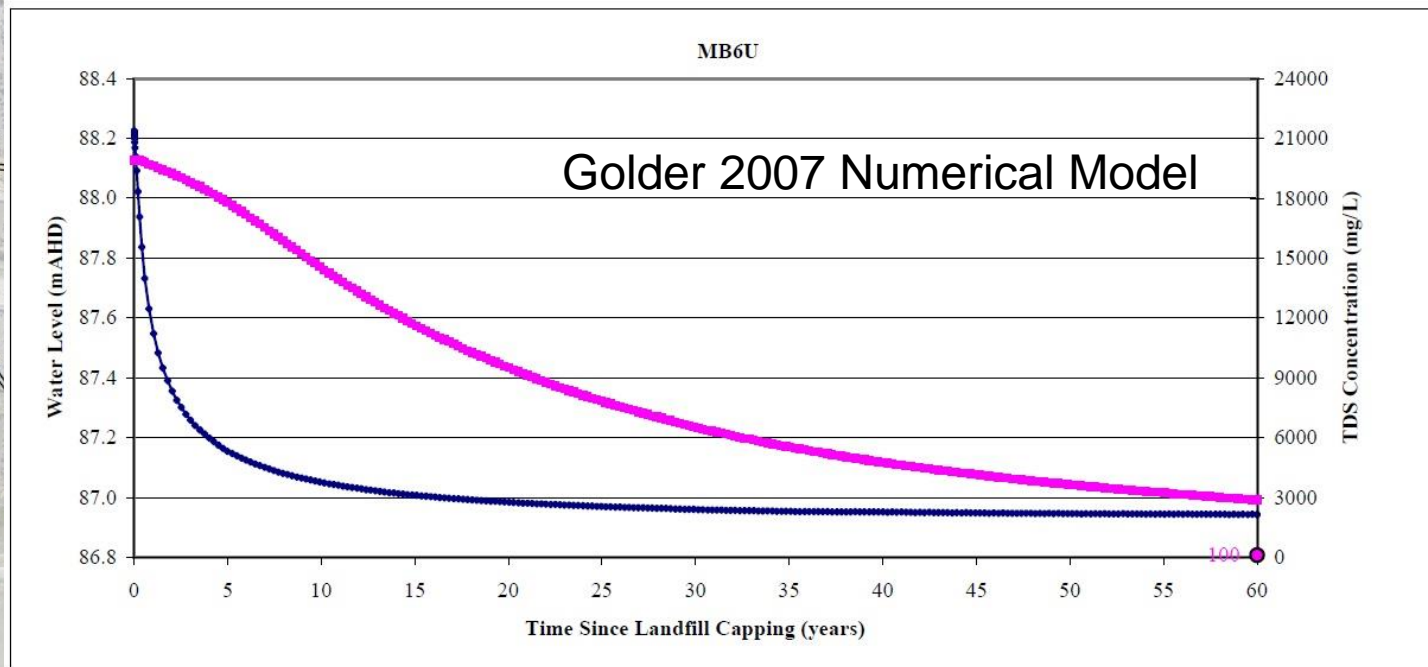
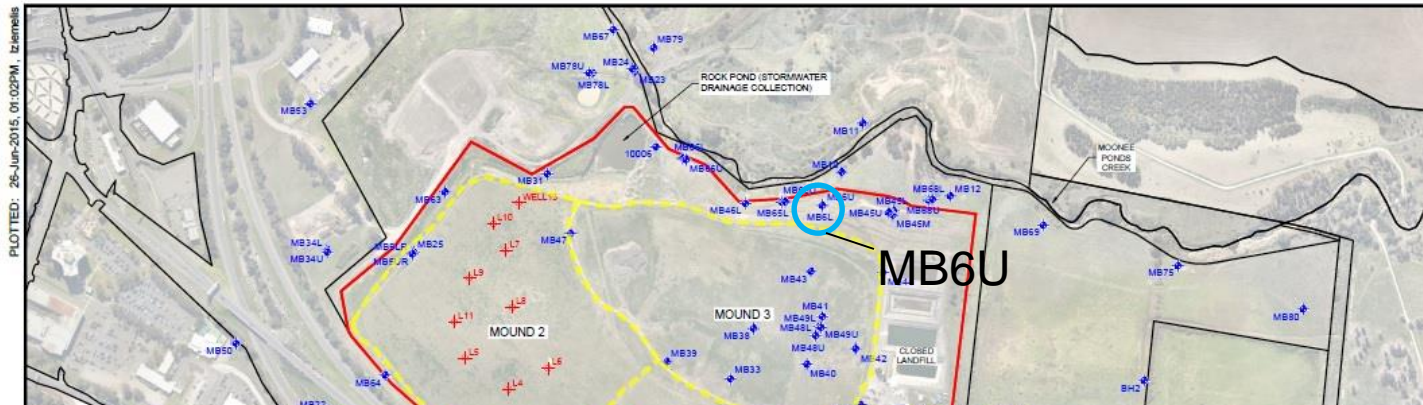
- Process of Developing the HA:
 - Completed in accordance with EPA Publication 668: *Hydrogeological Assessment (Groundwater Quality) Guidelines*, 2006.
 - Desktop investigation – Based on interpretation of recent works.
 - Was informed by recent assessment works at the site (Practicability Assessment, Leachate Attenuation Report, updated conceptual understanding provided in additional reports).
- Works Undertaken:
 - Review topographic, geological and hydrogeological data.
 - Review groundwater quality data.
 - Review leachate and groundwater level monitoring data.
 - Review Golder Associates 2007 Groundwater modeling.

Hydrogeological Assessment Report:

- Leachate Levels for LFG extraction:
 - Primary consideration is to ‘..allow effective management of landfill gas..’ such as ‘flooding’ of the collection system by leachate;
 - Efficiency of current LFG extraction system is considered independent of leachate level given:
 - LFG collection infrastructure is positioned directly beneath cap.
 - Unsaturated waste material thickness currently >17m and modeled to increase over time as leachate level falls.

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- **Maximum Leachate Levels:**
 - Tullamarine landfill has no base drainage layer and as such, the EPA requirement is for leachate levels that ‘..do not pose an unacceptable risk to the groundwater’.
 - Determined levels based on the modelled changes in surrounding groundwater elevation and MPC elevation (86 to 91 mAHD).
 - Modelling suggests stabilised groundwater elevation not likely to be observed until 30 years post landfill capping (c. 2041);
 - Proposed interim levels to be met between now and 2041.



LOCATIONS ARE APPROXIMATE.
COORDINATES IN METRES (M).
DATA INTERPRETED FROM
GOLDER ASSOCIATES 2007
FINAL SITE MODEL, FIGURE 11.



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Cell Identification	Maximum Leachate Level to be Achieved by 01-06-2041 (mAHD)
Mound 1	86.95
Mound 2	86.95
Mound 3	86.95

Cell Identification	Interim Target Leachate Level (mAHD)	Drawdown completed by
Mound 1	92.5	01-06-2018
	91.5	01-06-2020
	89.5	01-06-2025
	87.0	01-06-2035
Mound 2	92.0	01-06-2018
	91.0	01-06-2020
	89.0	01-06-2025
	87.0	01-06-2035
Mound 3	92.5	01-06-2018
	91.5	01-06-2020
	89.5	01-06-2025
	87.0	01-06-2035