toxfree

PROJECT SNAPSHOT

TOXFREE IMPROVES LANDFILL WASTE PROCESSES FOR FMG

The issue

When Toxfree commenced operations at FMG, the landfills at those locations were preparing cells with vertical square side walls directed across the short dimension of the surveyed location. Toxfree recognised that this had several implications:

- The vertical square side walls represented a hazard in terms of possible collapse of the walls.
- The narrow, short format required a higher proportion of available void volume to be reserved for separation of adjacent cells.
- A high proportion of potential void volume was located underneath the access ramp and was, therefore, inaccessible.
- There were also no compaction methods being applied which resulted in low utilisation efficiency of the void and excessive settling of contours post closure of the cell.

The solution

These practices entailed significant risk and were determined to constitute a severe shortening of landfill life. Toxfree redesigned the landfill cell structure with the following outcomes:

- Stepped wall structure provided greater safety in relation to collapse of cell walls.
- Cell format was revised to provide wider, longer cells such that the inaccessible ramp volume was minimised.
- The use of excavators was implemented to prepare and fill cells. This allowed the use of tracked vehicles to compact waste thereby increasing landfill life by compacting more waste into a fixed void volume.
- The improved compaction also resulted in better compliance with environmental licence conditions in terms of finished ground level through reduced settling.

The outcome

The combined changes are expected to yield several multiples of additional landfill life resulting in lower overall landfill costs and delaying expenditure on new facilities by several years. The changes deliver optimum utilisation of available void volume, thus representing the most efficient service possible. In addition, the frequency with which machinery must be diverted from revenue generating operations for cell construction is also reduced by several fold. The changes provided greater safety in relation to working below natural ground level by managing the wall design to minimise both the likelihood of an incident and also the severity of any potential occurrence.