DP CleanTech
Creating value from waste

Sharjah Landfill Remediation Project Case Study

2008 – 2010 World's Largest Landfill Remediation Project in Sharjah / UAE

In the early 2000's, the City of Sharjah / UAE was one of the fastest growing cities in the Middle East. However, it is bordered by the sea, and the other Arab Emirates of Dubai and Ajman, meaning that any expansion was limited.

As the city grew, former landfills that were previously on the edge of the city became part of the urban area, and a former landfill at University City Road was a landfill area of 200 ha, with a total volume of 6.4 million m^3 was identified as a suitable project for remediation.

This landfill was filled with municipal solid waste; construction and demolition waste; industrial and chemical wastes and other refuse. It was essentially an unsorted landfill that was no longer operational but was becoming an environmental problem for the surrounding area. It was also a barrier to further expansion of the city.

The landfill was closed in 2000, the decision to remediate the site was taken in 2004. Work started in January 2005.

The remediation process consists of Site Analysis, Aeration, Excavation, Treatment, Analysis of excavated material; and backfill.

Site Analysis and Stabilisation

The site was stabilised for 5-7 days before excavation to avoid contamination and toxic emissions to the surrounding area, which included the University and private schools. Trial pits were established to understand the nature of the site and characteristics of the waste.

The site was divided into a 50m by 50 m grid prior to the installation of a chemical laboratory, two SMELL WELL Systems and two sorting plants. The SMELL WELL system aerates the landfill, changing its status from 'anaerobic' to 'aerobic' to prevent further decomposition, and removing toxic gases from the landfill, eliminating odours and the risk of explosions.

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Excavation, Treatment, Backfilling

Excavated material was analysed for metals and other materials and then sorted to eliminate recyclable products like metals and wood before creating clean refilling material. This was then carefully checked by the site lab and compacted to reduce the landfill volume needed. This compacted material was then backfilled into the existing site. A 15% residual fraction was introduced to a new landfill in Sharjah.

After refilling and compaction of the original landfill, the remediated land is carefully controlled by means of monitoring wells which check for gas emissions, and regular reporting.

By March 2008 more than 160ha had already been cleaned and refilled. Construction of new infrastructure (water, electricity, sewage, roads) was in progress, and a new highway was built, passing the former landfill. Construction of residential communities, shopping malls and mosques began.

Technical details

Total volume of old dump	6.4 million m^3
Remediation time	4 years
Remediation capacity	up to 9,000 m^3/day
Volume balance:	
Refilling fraction	53%
Recycling	3%
Residue going to new landfill (after compaction)	15%




This project achieved an effective reduction of carbon emissions through the permanent prevention of carbon dioxide and methane emissions from the old dump site. It has also created valuable new land for development.

Contact Us

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