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INVESTIGATION OF THE RECOVERY EFFICIENCY OF METHANE USING VERTICAL WELLS OPERATING IN LANDFILLS

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Abstract

Methane production and concentration from six cells were investigated in two landfills in China. Long-term monitoring tests were conducted to evaluate the methane recovery efficiency of active wells. Results showed that the recovery efficiency of a wells distribution simulation method was 75.6% to 83.5%, which was much higher than 50.1% to 53.6% when considering the EPA method in the EST (Ecological Sludge Evapotranspiration Technology) cover structure. The recovery efficiency of methane in Cell 1-B in Yang Loo landfill varied from 50.1% to 53.6%, which was much higher than 32.5% to 41.2% in Cell 1 in Chen Gang landfill adopting the EPA method. The monitoring data and analytical results showed that Numerical Simulation of Gas Volume Method (NSGV) can perform a more comprehensive evaluation of methane recovery in landfill relative to EPA method, and cover system produced by EST technology was more efficient in restraining cracking and increasing the methane recovery efficiency.

Key words: collection system, landfill, methane, recovery efficiency, vertical well

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