

Estimation of Landfill Methane Gas Emissions from the Mallam No.1 and Oblogo No.1 Dumpsites in Ghana

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Abstract

The purpose of this paper is to estimate the theoretical methane gas emissions from two of the largest abandoned dumpsites in the Greater Accra metropolis from 1991 – 2035 using two first order decay models i.e. the LandGEM and BC MOE LFG generation estimation tool. Generally, the BC MOE LFG generation estimation tool results were slightly higher than those obtained using the LandGEM. However, both models predicted the time of peak production as occurring in 2002 and 2008 for the Mallam No.1 and Oblogo No.1 dumpsites respectively. The total combined peak annual methane production from the Oblogo No.1 and Mallam No.1 dumpsite within the study time frame was estimated to be in excess of 17,000 metric tonnes. The findings of this study seem to suggest that the two dumpsites especially the Mallam No.1 site are fast approaching the stabilization phase where there would be a drastic reduction in gas production.

Keywords: dumpsite, landfill gas, methane gas, Ghana

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