

Kittikul Sursuwan 2011: Evaluation of Methane Emission Rate from Municipal Solid Waste Landfill during Initial Stage. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Pofessor Chart Chiemchaisri, D.Eng. 123 pages.

This research is aimed to study methane rate and specific factors which are influential in methane emission from solid waste landfill during intial period. The research is conduted by measuring methane emission at eight different locations of solid waste disposal area of Laem Chabang solid waste disposal facility by using close flux chamber method. Three factors which are influential to methane emission from solid waste disposal area, i.e. age of disposed wastes, gas composition in landfill cell and precipitation are considered.

From the measuring results, it was found that methane emission rate varied with location and time. They are between 0.02 – 225.28 g/m<sup>2</sup>/day with an average of 31.74 g/m<sup>2</sup>/day over the entire disposal area during 11 months of monitoring period. The most influencing factors to methane emission rates were the age of disposed wastes. Methane emission rates could be explained by exponential mathematical expression over time during the first 6 months and S shaped cruve during the whole 11 months of monitoring period. At some monitoring locations, air intrusion into landfill cell took place after about 6 months of its closure. Moreover, methane emission rates were also found inceasing after rainy season has terminated by 3 – 4 months.

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Thesis Advisor's signature