

Sasivimol Tangshewinsirikul 2011: Emission Rate and Vertical Distribution of Methane and Hydrogen Sulfide from Domestic Sewage in Song Thevada Canal, Bangkhunsri, Bangkok Noi District, Bangkok. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Assistant Professor Surat Bualert, Ph.D. 101 pages.

Emission rate and vertical distribution of methane and hydrogen sulfide from sediment domestic sewage in Song Thevada Canal, Bangkhunsri, Bangkok was sampled in four stations and five positions over the canal. The results indicated that the highest methane emission rate was 0.442 and 0.349  $\text{kg.m}^{-2}.\text{year}^{-1}$  at sediment and water surface level, respectively at sampling station no.1. The average methane emission rate of all sampling station was 0.397  $\text{kg.m}^{-2}.\text{year}^{-1}$  at sediment level and 0.235  $\text{kg.m}^{-2}.\text{year}^{-1}$  at water surface level. For the highest hydrogen sulfide emission rate was 2.980 and 1.701  $\text{g.m}^{-2}.\text{year}^{-1}$  at sediment level and water surface level, respectively at sampling station no.1 as methane. Moreover the average hydrogen sulfide emission rate of all sampling station was 2.402  $\text{g.m}^{-2}.\text{year}^{-1}$  at sediment level and 1.492  $\text{g.m}^{-2}.\text{year}^{-1}$  at water surface level. The concentration gradient of methane and hydrogen sulfide was highest level where between water surface and 30 cm. above water surface level showed maximum gradient at sampling station no.3 which was 2.2416 ppm/cm. for methane and 0.0320 ppm /cm. for hydrogen sulfide. The cases of 10 days diurnal laboratory study showed maximum methane and hydrogen sulfide emission was on the sixth day of measurement from sampling station no.3 sediment. The maximum average emission was 36,183 ppm of methane and 2.71 ppm of hydrogen sulfide. The average methane and hydrogen sulfide emission rate from sediment of all sampling station were 2.98  $\text{kg.kg}^{-1}_{\text{sediment}}.\text{year}^{-1}$  and 0.37  $\text{g.kg}^{-1}_{\text{sediment}}.\text{year}^{-1}$ , respectively.

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Student's signature

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Thesis Advisor's signature