Chalalai Rungruang 2008: Efficiency of TSP and PM_{10} Reduction by High Pressure Water Spraying under the Bangkok Mass Transit System (BTS) Station. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Samakkee Boonyawat, Ph.D. 103 pages.

The objectives of this research were to study efficiency of PM_{10} and TSP reduction at footpath under the Saphan-Khwai BTS station by high pressure water spraying, and to study the effect of water spraying patterns on PM_{10} and TSP reduction. PM_{10} and TSP concentration sample was collected every 3 hours of 6 sampling sites at Saphan-Khwai BTS station by using PM_{10} Hi-Volume Sampler as well as TSP Hi-Volume Sampler between January 31 to February 8, 2007.

The results showed that high pressure water spraying under the Saphan-Khwai BTS station when the wind direction come from northeast had the average reduction efficiency of PM_{10} and TSP at footpath in the southeast of station were 47% and 37%, respectively. However, the PM_{10} concentrations still exceed the National Ambient Air Quality Standard, with average PM_{10} and TSP concentrations were 173 $\mu g.m^{-3}$ and 292 $\mu g.m^{-3}$, respectively.

The pattern of spraying high pressure water all time show that the highest reduction efficiency of PM_{10} and TSP, then spraying every 10 minutes and 5 minutes, respectively. Such patterns of spraying can reduce PM_{10} concentrations, in average, 52%, 46% and 43%, respectively, while can reduce TSP concentrations, in average, 42%, 36% and 32%, respectively. The results can be concluded that the Saphan-Khwai BTS station should be spray high pressure water all time, especially during rush hours that had many people use the footpath under the Bangkok Mass Transit System (BTS) station.

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