

Watcharadetch Thaiwat 2009: Estimation of Particulate Matter Distribution from Large Scaled Construction Project for Air Quality Index Assessment. Master of Engineering (Safety Engineering), Major Field: Safety Engineering, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Thongchai Srinoppakhun, Ph.D. 115 pages.

A mathematic model can support particulate matter (PM) estimation with its short processing time and lower cost than real sampling and analysis. The model also has a capability to estimate the volume and distribution of the particulate matter which is generated from an artificial source. The model used in this study is AERMOD (Version 04300) which is capable of running in correspondence with all meteorological parameters.

This study estimates PM-10 generated from 2 large building construction projects in order to compare a summary of the generated PM-10 and the ambient PM-10 to the standard of PM-10 in the atmosphere. Results show that the 24-hour average PM-10 summaries for both projects exceed the standard. These result in an average Air Quality Index of 123 and 137 in the respective receptor areas, levels which are above the health impact level. Consequently, the people living in these areas are at risk of experiencing acute health impacts resulting from PM-10. In addition, some parts of the receptor areas of both projects, 40 % and 20% respectively, also recorded annual average PM-10 summaries over the standard which could create additional risk of chronic health impact from PM-10 for the people in these areas.

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