UNIVERSITI TEKNOLOGI MARA

NON – OCCUPATIONAL EXPOSURE OF PARTICULATE MATTER (PM 10) AMONG RECEPTOR POPULATION PROXIMITY THE CEMENT MANUFACTURING INDUSTRIES.

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Project paper submitted in partial fulfillment of the requirements for the degree of Bachelor in Environmental Health and Safety (Hons.)

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Declaration by student

Project entitled "*Non Occupational exposure of Particulate Matter (PM 10) among receptor population proximity the cement manufacturing industries* " is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement to collaborative research and discussions. The project was done under the guidance of Mr Ahmad Razali b Ishak as Project Supervisor and Dr. K. Subramaniam as Co-Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (HONs).

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Thank you.

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Abstract

NON OCCUPATIONAL EXPOSURE OF PARTICULATE MATTER (PM 10) AMONG RECEPTOR POPULATION NEAR THE CEMENT MANUFACTURING INDUSTRIES

Zuriyana Binti Ahmad

Particulate matter (PM) is a collective term used for very small solid and/or liquid particles found in the atmosphere. While individual particles cannot be seen with the naked eye, collectively they can appear as black soot, dust clouds or grey hazes. Particulate matter may be generated by natural processes (e.g., pollen, bacteria, viruses, fungi, mold, yeast, salt spray, soil from erosion) or through human activities, including diesel trucks, power plants, wood stoves and industrial processes. The effect of particulates on human health and the environment varies with the physical and chemical makeup of the particulates. This study was conducted in Ipoh, Perak. The study location was a residential area located near a Tasek Industrial Estate. This is a cross sectional study among residential who live within near the cement manufacturing. A statistical analysis using SPSS version 18.0. The p-value is less than 0.05, ($p< 0.05$) it shows that the data is distributed normal . From the data, p- value is 0.028 which is less than 0.05 ($p< 0.05$) hence at least one of the housing resident differ significantly. The PM 10 concentration in Kampung Tasek is significantly higher which is 82.2200 µg/m3 compare to PM 10 concentration in Desa Tasek Bakti (50.5380 µg/m3) and Desa Lang Indah (61.6800 µg/m3) . The concentration of PM 10 in Desa Lang Indah does not differ significantly to concentration of PM 10 in Desa Tasek Bakti and Kampung Tasek. The mean of FEV 1/FVC % Predicted in Desa Lang Indah is 104.75±10.96 . While the mean of FEV 1/FVC % Predicted in Kampung Tasek is 93.01±23.01. The mean FEV 1/FVC % Predicted in Desa Tasek Bakti is 97.21±7.16 . The p- value is 0.027 which is less than 0.05 (< 0.05) hence all the housing resident differ significantly to the FEV 1/FVC % Predicted. The FEV 1/FVC % Predicted in Desa Lang Indah is 104.7533, significantly higher compare to FEV 1/FVC % Predicted in Desa Tasek Bakti which is 93.0133 and Kampung Tasek which is 93.8867. The FEV1/ FVC % Predicted in Kampung Tasek does not differ significantly to FEV1/ FVC % Predicted in Desa Tasek Bakti and Desa Lang Indah. From the Bivariate correlation test for FEV1/FVC % predicted and PM 10 result, the correlation coefficient, r value is – 0.015, which is less then 0.3 ($r <0.3$) .A negative association is seen between lung function performance and concentration of PM 10. There are weak correlation between lung function performance and PM 10 concentration. Thus there is no association of PM 10 and lung function performance.

Key words : *Particulate matter (PM 10), Lung Function Performance, Cement dust.*