

**SOLID WASTE COMPOSITION FROM SEMI  
AEROBIC SANITARY LANDFILL**

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**B. Eng (Hons) (Civil)  
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DECEMBER 2006**

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SANITARY LANDFILL**

By

**RAM SULAIMAN RAMLI**

Report is submitted as  
the requirement for the degree of  
**Bachelor Engineering (Hons.) (Civil)**

**UNIVERSITI TEKNOLOGI MARA  
DECEMBER 2006**

**DECLARATION BY THE CANDIDATE**

I (Ram Sulaiman Bin Ramli, 2003366717) confirm that the work is my own and that appropriate credit has been given where reference has been made to work of others.

(..... 1 December 2006)

## ACKNOWLEDGEMENT

*In The Name of Allah, The Most Beneficent and The Most Merciful. All Praises to Allah, God of The Universe and Peace be Upon His Messenger.*

I would like to express my gratitude to my Project Advisor, Pn. Satira Hambali, lectures of Faculty of Civil engineering (Water Resources and Environmental division), Univesiti Teknologi Mara Pulau Pinang, who offered assistance, comments, suggestion, recommendations, critsm and encouragements in ensuring the successful completion of this study.

This study, as well as the studies that have preceded it, would not be possible were it not for the considerable support and assistance provided by disposal site operators and garbage haulers throughout the state. I would like to appreciate to all the staff of Idaman Bersih Sdn. Bhd. especially to Mr. Sufian for allowing me to done my field work at their sanitary landfill site, conduct the study, assistance in obtaining samples from loads, providing the useful information and the data in completing this study.

Especially to my beloved parent, thanks for their encouragement, motivation and support during my period study in UiTM.

Last but not least, I would also like to express my gratitude to all lectures especially from Water Resource and Environmental division, all staff and all my friends who had been involved either directly or indirectly in making this study till success.

To all, May Allah blesses you.

## ABSTRACT

The successful planning for a waste management program is the availability of reliable information about the quantity and the type of material being generated. Municipal solid waste composition studies are essential to proper management of waste for a variety of reasons including a need to estimate materials recovery potential, to identify sources of component generation, to facilitate design of processing equipment, to estimate physical, chemical, and thermal properties of the wastes, and to maintain compliance with local, state, and national regulations. A study was conducted in Pulau Burung Sanitary Landfill which is located at Seberang Perai Selatan, Pulau Pinang for the purpose of identifying waste composition (including chemical and physical characterization), as well as any daily variation. A methodology was developed for conducting a composition study for solid waste component. Hand sorting was used for classifying the collected wastes into the following categories: plastics, paper, metals, aluminium, leather, wood, textiles, rubbers, etc. Further analysis included ultimate analysis of combustible materials, energy content, methane and leachate production were also carried out. The result shows that the solid waste components dumped at the landfill are varies everyday, as a result of a change in consumption patterns. Two main waste categories were identified: food wastes and plastics, which represent 47% and plastic 21% of the total waste in Pulau Burung sanitary landfill. The moisture contents and leachate produced are influenced by weather and the characteristic of the solid waste while the energy produced is influenced by moisture which is low moisture will increased the energy to resource recovery for energy. The results of this study can be utilized by the regional solid waste authorities in order to establish an integrated waste treatment site, capable of fulfilling the regional waste management demands.