DETERMINATION OF WASTEWATER QUALITY CHANGES UNDER ANAEROBIC CONDITIONS

By

ZAIPAH BT SAAD

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

UNIVERSITY TEKNOLOGY MARA
OCTOBER 2003

DECLARATION BY THE CANDIDATE

I Zaipah bt Saad, 2001667889 confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

(.....26/10/03

ACKNOWLEDGEMENT

In the name of GOD, most gracious, most merciful. With His permission, Alhamdullillah this project has been completed. Praised to Prophet Muhammad, his companions and to those who are on the path as what he preached upon, may God always keep us in His blessing.

I would like to express the highest appreciation to those who had sincerely without hesitation helped to make this project a possible success. Very special thanks to my supervisor Dr Ir Hj Suhaimi Bin Hj Abdul Talib, who has sincerely advised, patience, constructive comments and guided us including providing assistance towards completing this project.

Specially, I would like to express my sincere gratitude to all laboratory staffs who kindly assisted in various way during our experimental research especially Tuan Hj Mat Som Marwi, Pn Nora Sofian, Siti Maizurah Misuan and Noora Samsina Johari.

Thanks a lot, Wassalam.

Zaipah Bt Saad
October 2003

ABSTRACT

The management of the sewerage services in Malaysia has undergone drastic changes with the introduction of the Sewerage Services Act (1993). Sewerage Services in Malaysia is now managed by Indah Water Konsortium (IWK), a private company which has been fully acquired by the government. Measures are being implemented by IWK to upgrade the facilities related to sewerage services. New, bigger and more efficient centralized wastewater treatment plants (WWTPs) will be constructed to replace the existing 8000 smaller plants. This will result in increased transport time, thus allowing for possible significant microbial processes to occur during transport.

This thesis presents the methodology and results of studies on wastewater quality changes under anaerobic condition in the bulkwater phase of municipal wastewater as it occurs in sewers. Wastewater samples for the study was taken from sewers or from the wastewater treatment plant (WWTP) at Jalan Ilmu, UiTM Shah Alam.

Two types of batch reactors were used. One reactor subjected to aerobic condition, used to investigate the COD-fraction of the wastewater. Another reactor was used to investigate sulphate utilization in the wastewater.

Key words: anaerobic condition, COD fraction, in-sewer processes, wastewater quality changes

TABLE OF CONTENTS