

**EVALUATION THE PERFORMANCE OF A TWO STAGE FIBER  
FILTER SYSTEM**

By

**AMIN HUZAERY BIN ABD RAZAK**

This report is submitted as a  
partial requirement for the degree of  
**Bachelor of Engineering (Hons) Civil**

**UNIVERSITY TEKNOLOGI MARA  
APRIL 2009**

## DECLARATION BY THE CANDIDATE

I *Amin Huzaery bin Abd Razak*, UiTM no: 2006142581 confirm that the work in this report is my own work and the appropriate credit has been given where references have been made to the work of other researchers.



.....

Student Name	: Amin Huzaery Bin Abd Razak
Student ID	: 2006142581
Date	: 29 APRIL 2009

## **ABSTRACT**

Current conventional treatment system faced inefficiencies of treatment performance especially dealing with highly turbid water. Lift Pore Controlled Fiber (LPCF) filtration system is one of those developed membrane type filtration system designed to be used for producing high quality drinking water. This report presents the study on the performance of LPCF filtration system on removing chemical and physical pollutant in raw water. The purpose of this study is to investigate the efficiency and effectiveness of this system in removing selected physical and chemical pollutant in raw water namely TOC, TN, TSS, turbidity, pH and conductivity. Average removal efficiency by the system for TOC, TN, TSS and turbidity are found to be at 75.35%, 11.39%, 87.9% and 99.6% respectively. Conductivity and pH were not affected by the treatment system with relative increment of 4.09% and 8.66% respectively. This indicates that the system is effective in removal of selected parameters in water, with better effectiveness for the chemical parameters studied.

## **ACKNOWLEDGEMENT**

All praise to Allah, Lord of universe, the Merciful and Gracious. I would like to extend my heartfelt gratitude to my advisor Prof. Sr Ir Dr. Suhaimi Bin Abdul Talib for his constant effort, guidance, substantial advice and helpful discussion throughout this project.

I would like to take this opportunity to convey my deepest gratitude to Mr Liew Hong Hooi for his cooperation and helping hands through the project accomplishment. Also, million thanks to all technicians in civil engineering environmental laboratory, UiTM, Shah Alam for providing adequate facilities and experience sharing.

Last but not least, not to forget my families and friends for their assistances in the preparation and project completion.

## TABLE OF CONTENTS

CHAPTER	PAGE
ABSTRACT	i
ACKNOWLEDGEMENT	ii
TABLE OF CONTENT	iii
LIST OF FIGURES	vi
LIST OF TABLES	vii

### CHAPTER 1: INTRODUCTION

1.1 Background	1
1.2 Problem Statement	4
1.3 Objectives	4
1.4 Significant	5
1.5 Scope Of Work	5
1.6 Limitation	7

### CHAPTER 2: LITERATURE REVIEW

2.1 Water Supply in Malaysia	8
2.2 Malaysia Drinking Water Quality Standard	9
2.3 Source And Demand For Water	11
2.4 Water Treatment Processes	13
2.4.1 Flocculation/ Sedimentation	14
2.4.2 Filtration	14
2.4.3 Ion Exchange	14
2.4.4 Adsorption	14
2.4.5 Disinfection	15
2.4.6 Distribution To Customers	15
2.4.7 Water Treatment Plant	15
2.5 Challenge In Water Treatment	16