DETERMINATION OF WATER QUALITY INDEX AND HEAVY METALS OF AN EX-MINING LAKE, KG GAJAH, PERAK

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MAY 2008

ACKNOWLEDGEMENTS

All praise be to Allah SWT and blessing be upon His Prophet Muhammad SAW, for giving me strength, courage and spirit to absolutely complete this study. I wish to express my sincere gratitude and appreciation to those who have provided me with information, comments, and ideas either directly or indirectly.

My heartfelt thanks go to my supervisor, Assoc. Prof. Dr. Zaini Hamzah and Dr. Ahmad Saat as my second examiner. Without their support, guidance and advices, I would not be able to complete this study. Thank you for giving me course of action and encouragement to finish up my final project.

My thanks also goes to my family especially my beloved mother, father, and sister for their amazing support and advices. They mean too much for me. Lastly I also would like thank my lectures, friends and everyone who have contributed their aid for me in completing this research project successfully.

Shamsilawati Mustafar

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ABSTRACT

This study was carried out at ex-mining lake in Kg.Gajah, Perak. The study covered the measurement of the Water Quality Index (WQI), determination of heavy metals and essential in water of ex-mining lake and compare water quality index with Malaysia Water Quality Index from DOE. Ex-mining lake of Kg.Gajah, Perak was preferred as the area of study because this lake is one of the largest ex-mining areas in Perak. This area was used as the land for mining activities. There were ten different points where water samples were collected. Parameters that are used to calculate WQI are pH, DO, COD, BOD, AN and SS. AAS was used to determine the concentration of heavy metals in the various points of water samples. The results are evidence for that WQI for this ex-mining lake is 66.1, which meant it was in class III based on DOE water quality standard for Malaysia. According to DOE, class III of Water Quality Index showed that water need extensive treatment before it was used as water supply.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Water is important to our life, without water the earth and other living things will not survive. Water quality in the lake and river has been influenced the range of pollutants from many sources.

Water quality changes in a particular water supply can be monitored by using WQI. The results can also be used to determine if a particular body of water is considered to be "healthy".

Heavy metals that always found in water are Arsenic, Cadmium, Cobalt, Chromium, Copper, Mercury, Lead, Nitrate, Aluminium, Selenium and Zinc. The sources of heavy metals are associated with several activities or sources like human activities, such as mining and manufacturing and natural processes of chemical weathering and soil leaching. Industrial sources such as mining will contribute high amount or concentration of heavy metals to the lake and water supply. The present excess of heavy metal in water will reduce the water quality standard. The most serious consequences of excessive heavy metals are related to adverse impact on aquatic ecosystem, food quality and human life.