EVALUATION OF POLLUTION LEVEL AT DIFFERENT POINT SOURCES OF SG. KG. PERTAMA THROUGH PHYSICO-CHEMICAL PROPERTIES USING STANDARD ANALYTICAL METHOD

SITI NURRUHAYA BINTI HADZIFAH

BACHELOR OF CHEMICAL ENGINEERING (ENVIRONMENT) WITH HONOURS

UNIVERSITI TEKNOLOGI MARA

2022

EVALUATION OF POLLUTION LEVEL AT DIFFERENT POINT SOURCES OF SG. KG. PERTAMA THROUGH PHYSICO-CHEMICAL PROPERTIES USING STANDARD ANALYTICAL METHOD

By

SITI NURRUHAYA BINTI HADZIFAH

This report is submitted in partial fulfillment of the requirements
needed for the award of
Bachelor of Chemical Engineering (Environment) with Honours

CENTRE FOR CHEMICAL ENGINEERING STUDIES
UNIVERSITI TEKNOLOGI MARA

AUG 2022

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my PhD and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor IR. Noorzalila binti Muhammad Niza.

My appreciation goes to the IR. Noorzalila binti Muhammad Niza and UiTM Permatang Pauh who provided the facilities and assistance during sampling. Special thanks to my colleagues and friends for helping me with this project.

Finally, this thesis is dedicated to the loving memory of my very dear late father for the vision and determination to educate me. This piece of victory is dedicated to you. Alhamdulilah.

TABLE OF CONTENTS

ABSTRACT

The study evaluated the physico-chemical properties of Sg. Pertama at different point sources using standard analytical methods. Water pollution is defined as the presence of excessive physical, chemical, or biological contaminants in water that alter the water's quality and can harm living creatures. Evaluation of water properties is important because quality of water can give big impact to human health and the environment. Water Quality Index (WQI) can be used to categorize the water body into five categories. Along Sg. Pertama, there are various types of activities that may contribute to different concentration of pollutants. The three objectives of this study are to evaluate the pollution level of Sg. Kg. Pertama at different point sources by analyzing their physico-chemical properties using standard analytical methods, to determine the water quality index (WQI) of Sg. Kg. Pertama, lastly is to compare the physico-chemical properties with DOE standard B discharge regulations. Five locations determined to be point sources were selected for sampling. Some physico-chemical parameters that reflects with the river pollution level are selected to be evaluated, such as temperature, suspended solids, colour, biochemical oxygen demand (BOD), dissolved oxygen (DO), chemical oxygen demand (COD) and ammoniacal nitrogen (AN). Samples were be collected and some properties were directly measured, such as pH, DO, and colour. The other properties were analysed using methods provided by HACH. This study aims to evaluate the pollution level of Sg. Pertama at different point sources through physico-chemical properties using standard analytical methods and compare the properties with DOE standard B discharge regulations. Other than that, the purpose of this study is also to determine the water quality index (WQI) of Sg. Pertama. According to the result, dry season sample complies with DOE Standard while wet season sample exceeds the standard. Overall WQI for dry season calculated to be 67.46, therefore it is classified as “Slightly Polluted”. Meanwhile, overall WQI for Sungai Pertama during wet season is 57.75, thus classified in “Polluted”