

CHAPTER I

INTRODUCTION

Industries in Bangkok Area

Industries in Thailand expand larger and larger every year. Some industrial wastes are discharged into canals and rivers in a comparatively raw state. Such discharges of the wastes are adding more problems to rivers and canals which are more or less almost polluted.

The policy of the Thai Government is to encourage both local and foreign investments to increase industrial activities in Thailand. Assistance and promotion of small scale and cottage industries; and services in technology, marketing and finance are given special emphasis.

As the number of industries as well as their diversities increases, there is a corresponding increase in the discharge of wastes; i.e. water contaminated with acids, alkalis, putrescible organic matters and other chemicals. The discharge of low concentration of non-toxic industrial wastes can cause little damage to the rivers while the high concentration ones will cause heavy pollution so the water is offensive unsuitable for fish, other aquatic lives and unsafe for public use.

There is no doubt that at the present time, the pollution of some canals in Bangkok are very serious and others are becoming more offensive and dangerous to public health.

The improvement of the water pollution situation in Bangkok can be made by installation of waste collection and treatment facilities. Standards for the discharge of effluents into canals and rivers, as well as the rules and regulations governing the sanitation of each industries must be specified. The establishment and enforcement of these status for the solution of water pollution problems depend on co-operations between government and industries.

The Bangkok Dairy Plant is one of those factories which discharges the waste into the river in a comparatively raw state. The results of this study will be more or less useful for sanitary engineers and government officials concerned.

Purposes of the Research

Purposes of this research are to study the physical, chemical and biological characteristics of the waste, to find the relationship between BOD_5 and COD, also find the organic removal rate (m) by assimilation, logarithmic growth rate constant K_1 for log growth phase, declining growth rate constant - K_2 for declining growth phase, endogenous growth rate constant - K_3 for endogenous growth phase and determination of ammonia-nitrogen requirements. These will be useful informations for evaluating the efficiency of dairy waste treatment by Activated Sludge for this research.

Scope of the Research

There are two main phases of the research:

Phase I: Analyses the physical, chemical and biological characteristics of the samples. D.O., COD, BOD₅ and pH were analyzed from the samples which collected on consecutive weeks. Also NH₃-N, NO₃-N, total volatile suspended solids and suspended solids were determined. Dairy waste is rich in organic matter. Fat in the waste usually causes the sludge non-settle so its determination is essential.

Phase II: Treatment of dairy waste by Activated Sludge Process and evaluate its efficiency.