

Chapter I

INTRODUCTION

Hospital sewage means polluted water generated in daily use of water like domestic waste. It contains floating material, soluble organics and inorganics compound, colloidal solids, suspended solid, and microorganism which mainly bacteria. Hospital waste is organic in nature, in so far as it deliterious effect on recieving water quality is concerned.

Environmental health problem has been directly and indirectly affected by hospital sewage. Waste water born diseases willbe occured if the hospital waste is not treated. Pathogenic bacteria represent a potential public health harzard, control communicable diseases is the direct duty of sanitary engineer. Odour and nuisance from the sewage are also problem.

Suspended solids affected the clarity of recieving water and stream, sediment may be detrimental to bottom flora and fauna, while ammonia is toxic to aquatic life, nitrates and phosphates are important plant nutrient responsible to algal bloom. So that hospital sewage treatment is very important and neccessary.

The resources of sewage from the hospital are out - patient department, inpatient department, staff resting area, laundry house, dinning room, operation room, X-ray department, pharmaceutical department, laboratory room and others.

General background of the study

The Ministry of Public Health, Division of Environmental Health is interested in hospital sewage treatment, so there are many of sewage treatment plant in Thailand, such as Khon - Khaen Hospital at which the sewage is treated by the oxidation pond system, Lampang Hospital is also, Tak General Hospital is the first hospital utilized an oxidation ditch system in Thailand, started on October 1974.

In this study, Tak Hospital sewage treatment plant is used the pilot plant. The hospital has 250 beds, staff 203 persons, and average 100 out-patients per day.

There are many method for sewage treatment plant each one had it own advantages and disadvantages depending on locality and the characteristics of sewage. Oxidation ditch system is the method for hospital sewage treatment. Its efficiency is improved by the addition of aeration system to supply oxygen to the aerobic biological treatment process (PASVEER.A.1960, WILSON 1960, ADEMA 1967).

The information required from the study is to find out the oxidation ditch system for hospital waste treatment, oxidation ditch characteristics and the characteristics of hospital sewage.

Objective of the study

The primary objective of the study is to study the characteristics of hospital sewage such as pH value, biochemical oxygen demand, chemical oxygen demand, suspended solid, ammonia nitrogen, nitrate and phosphate.

the secondary objective of the study is to study operation of an oxidation ditch system at a pilot plant.

Scope and limitation of the study

1. The 10 sample for study of hospital sewage characteristics were taken from Bangkok and other provincial hospitals.

2. The study of oxidation ditch system for hospital waste water treatment at the Tak Hospital which was taken as a pilot plant. The following characteristics were determine :-

- 2.1 Waste flow rate
- 2.2 Influent characteristics
- 2.3 Adequancy of the system
- 2.4 Check efficiency of plant
- 2.5 flow velocity in the oxidation ditch.