

CHAPTER 1

INTRODUCTION

1.1 General

The population growths followed by the urban development have increased fast, so the domestic solid wastes are produced and needs to be managed more frequently. The land filling has been to the main method of the waste management. The current landfill technology is primarily determined by the need to prevent and control leachate problem.

The management of landfill leachate has become to one of main focus for the environment management of landfill. The leachate normally generated by the rainfall and surface water flow into the landfill, through a period time, they change to the high concentrated wastewater on the bottom of the landfill. Actually, the leachate is a potential threat for the quality of groundwater.

The landfill Leachates contain complex compositions, such as High concentration of ammonia Nitrogen and salt, the suspended solids, N, P and heavy metals, which are belong to the water quality characteristic of leachate also. Various factors could bring the difficult problems for management of landfill leachate.

The method of landfill design consists of several parts related to the control of landfill leachate. However, the special landfill design for leachate control could be divided into three important keys: Pretreatment of landfill solids before the filling into the landfill. Cover system include the daily cover, intermediate cover and final cover. Bottom liners systems include the clay liner, plastic liner, composite liner and leachate collection system. Mass of the leachate treatment methods should through the biological process, physical process or chemical process. In order to saving the management cost, the landfill design could connect with the treatment methods for leachate, such as the nature treatment system – constructed wetland, which through the biological and chemical process to reduce the concentration of leachate. The aim of this work was to survey the present methods of landfill leachate management and find out basic information about the quality and characteristics of landfill leachate. This was done by literature survey about landfill design, leachate management and quality. It also included basic laboratory analyses about landfill leachate collected from a closed landfill site of Tarastenjarvi waste

treatment plant (TWTP) in Tampere region in Finland. The target of the testing was through the basic laboratory experiment to analyze and realize the characteristic of leachates. In the laboratory analyses total suspended solids (TSS), pH and conductivity of leachate were analyzed. Also the chemical composition of leachate sample using by HACH such as sulfate, phosphate, nitrate, iron and chromium were determined.