

##3971542121 : MAJOR ENVIRONMENTAL ENGINEERING

KEY WORD : EVAPORATION / LEACHATE / LANDFILL

WORAPHONG BILLY : DISPOSAL OF LEACHATE BY

EVAPORATION PROCESS. THESIS ADVISOR: ASSOC. PROF.DR.

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This research investigated the measurement of the leachate evaporation by dividing the experiment into 3 sets; normal leachate evaporation, leachate evaporation using spray and leachate evaporation using solar panel. The measurement of the water evaporation in compare with the leachate itself was also investigated. During the study, the whole year weather condition data was collected in order to compare and find out the relationship with the evaporation data. Then the evaporation equation of each set of the experiment was investigated in order to estimate the evaporation in each month for the whole year.

The pre-test in this research indicated that the energy values required for the evaporation (latent heat) of water and of leachate are about the same at 540 kcal per litre. The computation results of leachate generation indicated that the estimation amount of the leachate that will be generated and leak out of the landfill in Bangkok is 0.1320 m³ per 1 ton of solid waste collected. In Bangkok for the year 2000, the waste collecting rate will be estimated at 9,800 ton per day and the leachate will be estimated about 1,132 m³ per daily waste collected. From the result of the experiment and calculation show that the average water evaporation rate in Bangkok is about 6.61 mm per day. The leachate evaporation rate is about 6.98 mm per day, which is higher than the evaporation rate of the water. By using spray system, the evaporation rate is increased to 7.58 mm per day. And by using solar plate, the evaporation rate is 7.18 mm per day. In order to treat the leachate from landfills in Bangkok by using either normal leachate evaporation pond, leachate evaporation using spray or leachate evaporation using solar panel, it required about 143, 132 or 139 m² per 1 m³ of leachate to be treated each day, respectively.

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