

Thesis Title The Treatment of Septic Tank Effluent by Tile Field System Integrated with Sand Filtration.

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#### ABSTRACT

The purpose of this study was to evaluate and investigate the main chemical  $BOD_5$ , COD and SS in the treatment of Septic tank effluent. The experiments were divided into 4 sets of septic tank model and tile field system integrated with sand filtration. The septic tank effluent was overflow by-pass through sand filter with effective size of 0.45 and 0.20 mm., uniformity coefficient of 2.0, at the depth of sand filter of 60 and 75 cm respectively.

The results showed that at the same of effective size and uniformity coefficient of sand, the higher dept of media has more effective than the shorter dept. When the sand filter had different effective size, but same of uniformity coefficient, at same hight of the sand filter, the efficiency to remove  $BOD_5$ , COD and SS was not different at 95 % confidence level. The results also showed that.

Model no.1, when the tile field system integrated with sand filtration at effective size 0.45 mm. and the depth of sand filter 60 cm., it has efficiency to reduce BOD<sub>5</sub>, COD and SS 76.13, 75.24 and 62.99 % respectively.

Model no.2, when the tile field system integrated with sand filtration at effective size 0.45 mm. and the depth of sand filter 75 cm., it has efficiency to reduce BOD<sub>5</sub>, COD and SS 88.32, 89.61 and 88.15 % respectively.

Model no.3, when the tile field system integrated with sand filtration at effective size 0.20 mm. and the depth of sand filter 60 cm., it has efficiency to reduce BOD<sub>5</sub>, COD and SS 78.92, 76.78 and 87.56 % respectively.

Model no.4, when the tile field system integrated with sand filtration at effective size 0.20 mm. and the depth of sand filter 75 cm., it has efficiency to reduce BOD<sub>5</sub>, COD and SS 86.81, 88.55 and 88.43 % respectively.

In conclusion all of 4 models can reduce the BOD<sub>5</sub>, COD and SS from domestic effluent lower the standard of a community which has the population less than 500 persons.