SOMPONG JANKHONKAEN : EFFICIENCY OF LARGE SCALE SLOW SAND FILTER IN NAKHORNRATCHASIMA PROVINCE. THESIS ADVISOR : CHAOVAYUT PHORNPIMOLTHAPE, M.Eng., M.S.IE., PORANEE WANGTHAMRONGWONG, B.Sc., M.Sc., SUTHEP SILAPANUNTAKUL, M.Sc., Ph.D. 143 P. ISBN 974-589-229-7

The purpose of this study was to investigate the efficiency of the slow sand filter at the water treatment plant in Nakhornratchasima Province, which filter at three different filtering rates 0.14 , 0.17 and 0.19 $m^3 . m^{-2} . hr^{-1}$. The efficiency of the filter was considered in terms of turbidity and suspended solid removal and head loss at different running time. Species and densities of algae, the uniformity coefficient and effective size were also studied

The results of the experiment showed that at the different of filtering rates, the removal efficiency for turbidity and suspended solid were not significantly different ($p>0.05$) . The efficiency of removal rate ranged from 71.94 - 93.87 % for turbidity and from 57.51 - 93.75 % for suspended solids. The different algaes were indentified as Cyanophyta (Trichodesmium sp.), Chrysophyta (Melosira sp., Navicula sp.). Increasing head loss was linearly correlated with running time ($r=0.988, 0.971, 0.995, p<0.01$) . At head loss not greater than 80 cm. with different filtering rates of 0.14, 0.17, and 0.19 $m^3. m^{-2}. hr^{-1}$, the filter runs were 176,122 and 66 hours respectively.

Therefore head loss was associated with running time ($p < 0.05$) and the filtering rate ($p < 0.05$). The interaction between the running times and the filtering rates also influenced head loss ($P < 0.05$). From the experiment it was found that the effective size of sand had no correlation with filter run.