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PHETNGAM DECHWANNASIT : EFFECT OF INFLUENT COD CONCENTRATION ON PHOSPHORUS REMOVAL IN THE ANAEROBIC-AEROBIC ACTIVATED SLUDGE PROCESS. THESIS ADVISOR : KRIENGSAK UDOMSINROT, Ph.D., THESIS CO-ADVISOR : ASSO. PROF. THEERA KAROT, Ph.D. 114 pp. ISBN 974-581-979-4

Anaerobic-aerobic activated sludge system used in this research consisted of two anaerobic tanks in series and followed by one aerobic tank. Wastewater used in this research was synthetic wastewater with a phosphorus concentration of 10 mg/l. Wastewater was fed into the first anaerobic tank at a flow rate of 24 litre/day. The return sludge was fed back into the first anaerobic tank at a flow rate of 36 litre/day in all experiments. The sludge age was also controlled at a period of 6 days.

This research was divided into three experiments by varying the influent COD concentration to be 200, 400,and 600 mg/l for the first, second, and the third experiments, respectively.

From the result, it was found that the system provided capability in the phosphorus removal with the removal efficiency of 4.84%, 32.01%,and 49.12% for the first, second, and the third experiments, respectively. The system also provided a high capability in the COD removal with the removal efficiency of 95.18%, 97.73%,and 98.12% for the first, second,and the third experiments, respectively. Moreover, the bulking was not present in all experiments. It was also found that the treated effluent from the sedimentation tank was clear and having low COD concentration of 10.02, 9.15,and 11.57 mg/l in the first,second, and the third experiments, respectively.