

CHAPTER V

CONCLUSIONS

Removal of THM precursors from surface water source by up-flow pelletization process was investigated at pilot scale. On the basis of the results of these investigations, the following conclusion are drawn:

1. The pelletizer could be applicable for THM precursors removal. The removal efficiency up to 43.2 %THMFP, 48.6 %TOC, 78.9 %UV260, and 98.0 %turbidity were obtained in this study.
2. The number of paddles and up-flow velocity influences the performance of the process in terms of TOC, UV260 and turbidity removal. The efficiency of process increased as the number of paddles and up-flow velocity increases.
3. Maximum removal of TOC, UV260 and turbidity was obtained with 6 paddles with up-flow velocity of 10 m/h, resulting in a very low detention time of only 13 min.
4. The maximum removal of TOC and UV260 was obtained using 5 mg/L of PACl and 0.3 mg/L of nonionic polymer. At these concentrations, humic substances are likely to be removed by formation of insoluble aluminum-humate complex and adsorption to aluminum hydroxide precipitation.
5. Maximum of turbidity removal was obtained using 5 mg/L of PACl and 0.2 mg/L of nonionic polymer. At these concentrations, particles were removed predominantly by sweep-floc coagulation. A further increase in coagulant and coagulant aid had little effects on turbidity removal.
6. The addition of nonionic polymer as a coagulant aid improved both charge neutralization and interparticle bridging, leading to the formation of larger, stronger, and more settleable pellet.
7. The diameter and settling velocity of pellets taken from the pellet bed were in the range of 0.19-0.33 mm ,and 19.66-53.96 m/h, respectively.