

Comparison Of Ammonia And DO Aeration Control Strategies To Optimize Energy And Process At Low Capital Cost: A Case Study

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Abstract: Currently, most aeration systems that use real-time control are based on dissolved oxygen (D.O.) measurements in the tank. New control strategies that use predictive parameters allow control based on influent wastewater quality as opposed to the often slow-to-react D.O. parameter. In this study, full-scale D.O. and ammonia-based control strategies were tested in the activated sludge system to judge the relative treatment efficiency and process stability. Ammonia feed-forward control resulted in 11% energy savings compared to D.O. control and responds faster to process loadings, which can allow for tightened control of aeration zones for BNR processes. As compared to other control strategies, ammonia feed-forward is the only one to balance both energy savings and process reliabilit