FWEA Process Committee ABSTRACT

Wastewater Process Modeling Presentation

The presentation reviews the concept of wastewater biological, chemical, and physical process modeling, typical process control objectives, and typical process control parameters. The presentation discusses the successful implementation of different process control strategies including PID controller, aeration setpoint, and internal recycle modifications to optimize nutrient removal and reduce aeration energy.

The presentation will include multiple demonstrations of biological process and hydraulic models developed to investigate the potential impact of different operational strategies and/or changes to process configurations. The presentation will demonstrate typical process modeling tools used to evaluate process modifications that would result in increased biological nutrient reduction, reduced chemical use, and reduced aeration energy at the WRF. A review of typical process model calibration techniques based on existing condition evaluations and/or detailed wastewater sampling and characterization will be included. The calibrated wastewater process model demonstration will utilize BioWin and the BioWin Controller module.

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Matt is a Water and Wastewater Engineer at Kimley-Horn in their West Palm Beach office. He has over 13 years of experience with water and wastewater treatment process design, capacity analysis, optimization, rehabilitation, expansion, construction, and project management. Matt is a registered Professional Engineer in the State of Florida with a master's degree in Civil/Environmental Engineering from the University of Florida.