

## New Process Management System Helps Optimize Plant Performance

By Manuel de los Santos

In recent years wastewater treatment plant operators have had the challenge of meeting more stringent requirements. The requirement for additional plant information has increased, forcing operators to gather more samples and analyze more parameters. In addition, the interpretation of that data has become more critical as utilities seek to optimize their processes.



The new IntelliPro® system by Aqua-Aerobic Systems offers on-line monitoring of system processes combined with active control techniques to help optimize treatment plant performance.

A new process management system developed by Aqua-Aerobic Systems offers on-line monitoring of system processes combined with active control techniques to help treatment plant personnel meet those challenges.

The company's new IntelliPro® system is an operational guidance program that incorporates an intelligence-based control system to continuously manage the process environment in a more comprehensive manner than traditional process control systems. The system gathers information from the various process instruments and directs the equipment and processes to meet several possible operator-defined outcomes.

Process and performance variables (e.g. MCRT, F/M, nutrient removal rates, and many more) are determined and compared to operational targets. Excursions from targeted values will initiate a sequence of events that may include automatic adjustment of key operating variables, or operator alarms with diagnosis and on-line troubleshooting guidance. This is complemented with real time and historical graphical representation of the process parameters. In addition, the system simplifies the process of selecting alternate operational cycles to optimize the treatment system for prevailing influent conditions.

The system can provide highly focused control of specific biological processes. In-basin instrumentation data is received by the

IntelliPro® system PC via a network connection through the PLC used in biological systems. This data is recorded and interpreted, and the system reacts by either notifying the operator of any potential issue or by automatically modifying the process operation.

Design parameters and system setpoints are included in the software. These parameters are used for comparison with the actual operation conditions. The system will automatically calculate the process loading, which is part of its active mode decision-making feature.

The operator is able to set the system in "active" or "passive" operation. In Passive Mode, it will display the potential corrective action and in Active Mode of operation (automatic control) the system is able to control the biomass and provide automatic cycle adjust, D.O. control, as well as automatic chemical and biological nutrient removal control.

In addition to assisting the operator in achieving desired values and enhancing process performance, the IntelliPro system is suited for Operation and Maintenance troubleshooting. The system automatically generates a BioAlert™ notification of process alarms when process parameters are outside typically accepted, or operator-defined ranges.

The alert includes a description of possible negative consequences to the process, and recommendations for corrective action. The process management system also provides access to fully electronic Operation and Maintenance (O&M) Manual information for all system components, plus additional help resources such as an extensive index of microorganisms with color pictures.

In summary, the IntelliPro® process management system is a tool that helps to improve process efficiency by optimizing performance, which leads to a more reliable and consistent effluent quality. This improvement will represent time savings for the operator, allowing him or her to focus on other aspects of the plant operation.

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