AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

IntelliPro® Filtration Optimization System
Features and Advantages

The IntelliPro® Filtration Optimization System is a PC based control system for Aqua-Aerobic® cloth media filters that uses real-time data to optimize chemical addition to meet phosphorus removal objectives. The system features automatic, optimal-dose selection for metal salts, polymer, and pH adjusting chemicals. The IntelliPro system is an efficient and economical solution to assist treatment plants in achieving low level phosphorus objectives while minimizing the expense associated with costly chemicals.

System Features:

- Instrumentation with mounting and communication module.
- PC with IntelliPro software developed by Aqua-Aerobic Systems, Inc.
- Network settings to allow communication between the instruments, the PLC and the PC.
- Process, instrumentation and software onsite training
- Free online support, including troubleshooting and software updates.

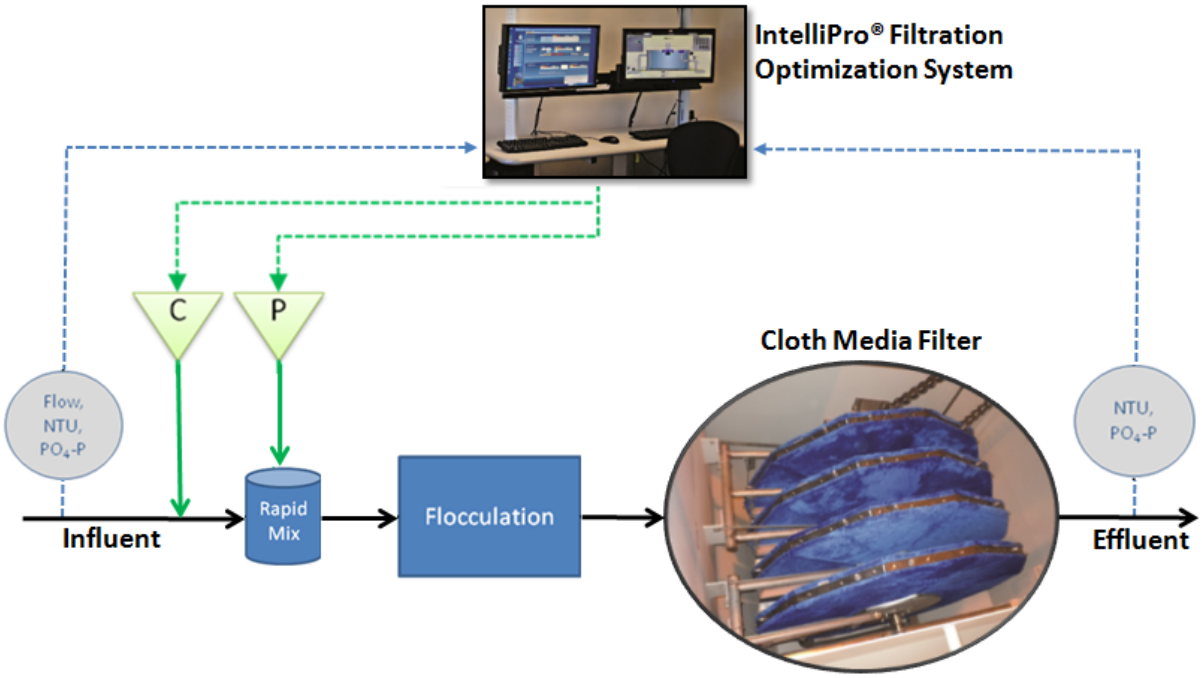

Figure 1. IntelliPro setup for Ultra-Low Phosphorus requirement

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System Advantages:

- Advanced process control for low total phosphorus applications
- Chemical savings through load based control
- Automatic chemical dose response curves which replaces jar testing
- Automated multi-point analysis
- Automatic composite sampling

The system automatically adjusts coagulant and polymer addition based on the mass load of phosphorus in the influent and the target effluent phosphorus. It also creates a polymer dose response curve, which replaces the common laboratory scale jar tests, making the entire filter a real-time jar test. The system selects the optimum dosage required for the best percentage removal of solids.

Flow measurement, phosphorus concentration and algorithm included in the program allows for controlling the chemical addition based on phosphorus loading, saving chemical compared to fixed dosage or even flow paced dosage. In addition, the system keeps a record of the effluent phosphorus in response to the metal salt to influent phosphorus molar ratio.

Additional features of the IntelliPro Filtration Optimization system include a multi-point analysis feature, allowing for a single phosphorus analyzer to measure phosphorus concentration in the influent and effluent. It also includes an automatic composite sampler, providing improved data quality compared to grab samples. The composite sampling is fully adjustable to fit the operator's needs (volume, frequency, interval, etc).

The software includes monitoring, control and trending of process parameters such as phosphorus, flows, turbidity, chemical dosage, etc, and advanced tools that provide a simple solution for the operator to modify the system operation.

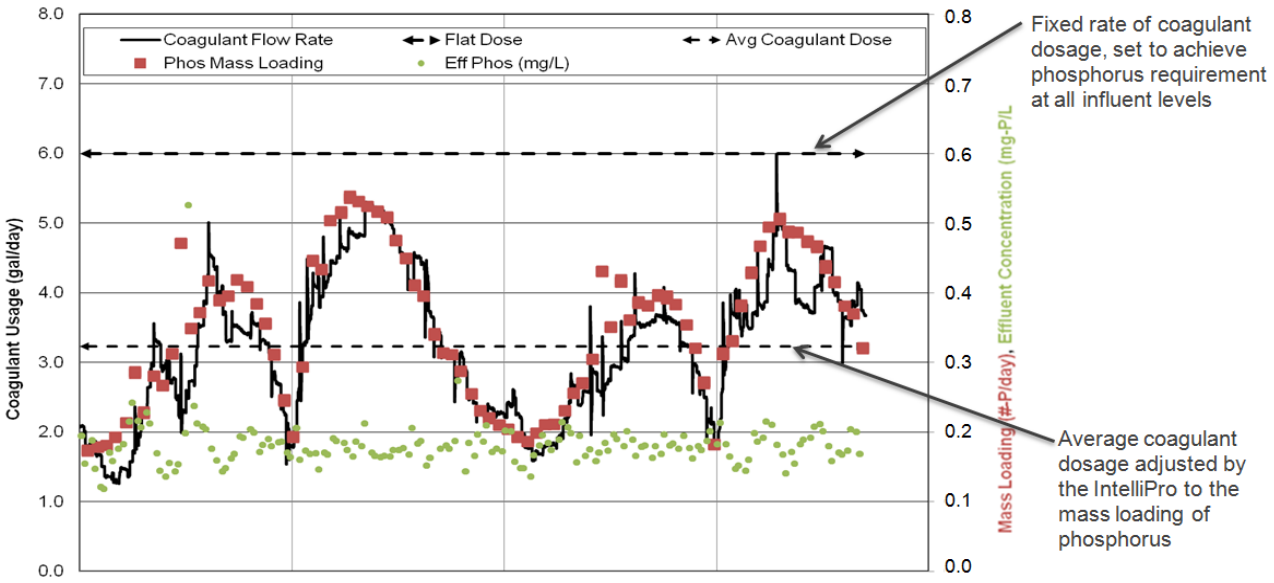

Figure 2. Fixed Chemical Dosing Vs. IntelliPro Chemical Adjustment

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System Benefits for the End-User:

There are two main benefits of the IntelliPro Filter Optimization System. The first is a reduced risk in meeting low-level phosphorus limits. By providing real-time feedback on the actual concentration of phosphorus leaving the filter, and the potential remedy for deviations from effluent requirements for system, greatly reduces the risk of permit violations based on deviations from given requirements.

The second benefit of the IntelliPro System is running cost savings associated with much reduced and more efficient chemical addition. The real-time feedback offered by online phosphate meters means that safety factors, while still important, can be minimized and can be made more efficient, greatly reducing chemical addition to a plant. It is estimated that by controlling the chemical dosing based on influent loading and effluent concentration, a plant where chemical is dosed on a fixed basis can save up to 50% in chemical (See figure 2), and a plant that uses flow proportional dosing can save 20-30% in chemical.

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