



# ZERO2WASTE®

## **What's one minute worth?**

A plant with eight (8) filters and an average runtime of 70 hours will require 1,000 backwashes annually. If IQ helps this plant save just one minute during every backwash at 5,000 GPM, this would save the plant more than 5,000,000 gallons of water annually.

Depending on the condition of an existing filter system, filter control system, and operational procedures, it is possible to save tens of millions of gallons of water annually.

Water plant gravity filter systems grow dirty over time, prompting a need to be backwashed periodically. During the backwash procedure, the most critical action is the highwash step. During the highwash, a maximum backwash flow rate is applied to the media to wash away the suspended solids collected within the media. Many times the highwash duration is longer than necessary to effectively clean the media. When this happens, the ripening, or seasoning, in the media is stripped away causing excessive rewash, or filter-to-waste, durations when returning a filter to service.

Zero2Waste® IQ was designed as a low-cost solution to provide operations with the information necessary to fine tune existing filter control systems to achieve the most efficient highwash duration. When efficient highwashes are achieved, it is possible for a utility to save a substantial amount of water and money over time.

WATER... EVERY DROP COUNTS



# FILTER BACKWASH OPTIMIZATION SYSTEM

## Water Treatment Plant Solution

*"If you don't need a capital project, recently upgraded your filter control system, or just don't have the budget, but still want to save water, then Z2W® IQ is just what you need", Mark Romers, President of Filter Magic.*

The Zero2Waste® IQ System by Filter Magic® is a low-cost, easy-to-use, easy-to-install, secure, innovative and intelligent gravity filter backwash optimization system. IQ analyzes each backwash, interacts with operations through their mobile phones or tablets and provides them critical information allowing fine tuning of filter backwashes for maximum performance and efficiency.

While traditional filter control systems use backwash flow rate and time to highwash filters, IQ uses backwash turbidity and media bed expansion to control the highwash.

Traditional technology and methods do not

provide operations live accurate information to clearly understand if the backwash flow rate is properly fluidizing the media or when to terminate the highwash. Yet, this information is critical to ensure that the media is not over washed and water is not wasted.

IQ provides operations continuous accurate data needed to fine tune the highwash for a precise media bed expansion, backwash turbidity truncation, typically 20 NTU. With this critical information, operations may substantially improve filter backwash performance and efficiency without wasting water.

## How An IQ System Works

The Zero2Waste® IQ System utilizes new innovative instrumentation located inside the filters at trough height that constantly monitors and analyzes turbidity and media level.

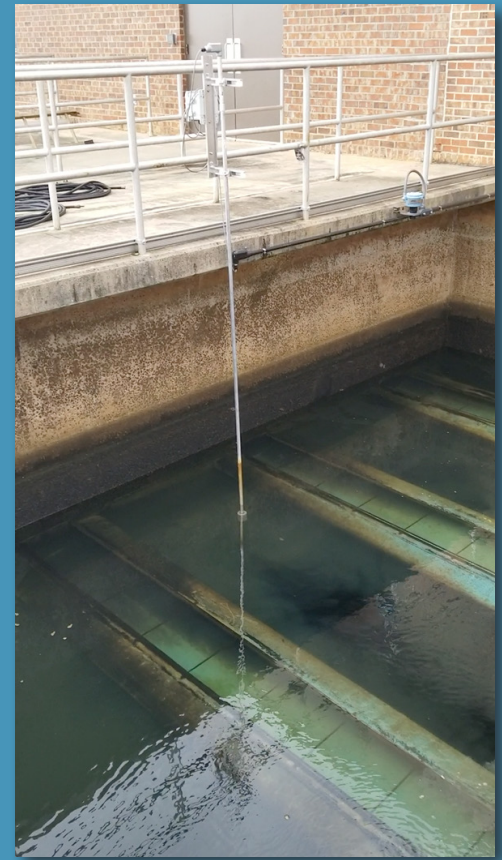
When filters are in service, the Z2W® IQ System



A full mud boil at the height of a high wash



As the mud boil dissipates and turbidity falls toward 20 NTU



A clean filter

provides media level, media level loss alarms, and influent turbidity.

When filters are being backwashed, the system provides media bed expansion and backwash turbidity (mud boil). IQ also monitors existing filter's effluent turbidity and backwash flow.

During a backwash, all of the previously mentioned data is available to operations through the interactive IQ browser on their smart mobile phones or tablets. Operators use the browser to enter existing operational parameters used to control their backwashes, such as media level, highwash flow rates and durations. Operators also enter desired media bed expansion (20%) and highwash turbidity truncation (20 NTU) as backwash control goals.

Once these steps are completed, a backwash is then performed and IQ analyzes all of the data. Reports are displayed on the browser which

then informs the operators of performance deviations within the preset set points. With this knowledge, operators can make adjustments to their filter control system to increase or decrease the highwash flow rate set point and highwash duration to achieve desired media bed expansion and backwash truncation. After 2 to 3 backwashes, the changes made to the control system will provide enhanced backwash performance, leave the media ripened after a backwash, mitigate the effluent turbidity spike, reduce the rewash process and will save water.

### **The Zero2Waste® IQ Solution**

IQ is specifically designed to be fully incorporated into a future Filter Magic® Zero2Waste® filter control system when the Utility decides to move forward to upgrade existing filter control systems. Thus saving the Utility money at the time of the upgrade.



Warranty Includes  
Remote Access Support



ZERO2WASTE®

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