

TECHNOLOGY: 1) Early Warning System for pathogens in reclaimed/recycled water: AQUATRACK®:

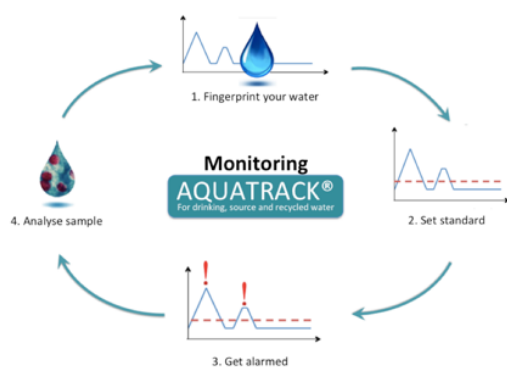
Aqua-Q AB, Sweden

DESCRIPTION:

Aqua-Q's early warning system for water, AQUATRACK® is an optical laser based online sensor system equipped with automatic sampler. AQUATRACK® **detects all possible form of variations** caused by contamination (natural, human error, process failure) in reclaimed and

recycled water. The system has the ability to communicate wireless and access data remotely. Our software creates a **dynamic fingerprint** based upon the micro contaminants in the water. The system analyses in real time micro particles in a flow of water and characterizes them based upon their size, shape and density. When specific particle size and shape

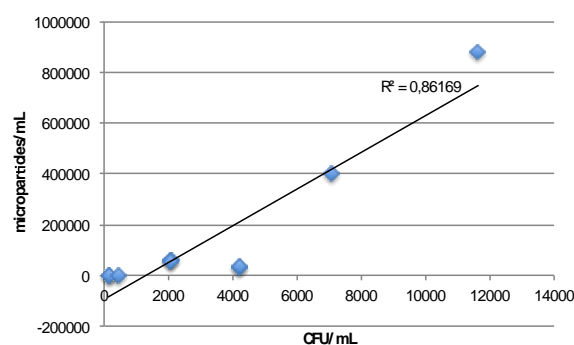
of pathogens are detected the sensor alarms and collects a water sample. AQUATRACK® provides preventive information of technical breakdown in a process, and reports to management changes in water quality.



- 1) Connect AQUATRACK® to your water stream and always access the water quality changes wireless.
- 2-3) Decide a highest amount of water quality variations of your process water and get alarmed when variation occurs.

4) The variation that trigger the alarm is automatically sampled and stored for further analysis.

The graph illustrates a real time example of AQUATRACK® monitoring treated waste water. The increased values triggering the automatic sampler is plotted against the amount of Heterotrophs (Total Count) measured by MBS MultiReader. A correlation of



86% between the triggered alarms and bacteria count was found.

APPLICABILITY AND PRE-REQUISITES:

Applicability:

AQUATRACK® gives early warning to the management of the plant when there is a deviation in water quality and increased risk for pathogens and possibilities for filter break through and system break down.

Pre-requisites:

Connect AQUATRACK® to a partial flow of the water system, 220-240 V AC and a floor drain or a circulating pump. Place the system in a clean indoor atmosphere at normal room temperature without condensation

OPERATION AND MAINTENANCE:

Minimum energy consumption and maintenance.
Traceable calibration once/year.

COSTS:

AQUATRACK® 1.200-1.500 Euro/month depending upon the business model.

REFERENCES: Hammarby Sjöstadswerk, Stockholm, Sweden and La Bisbal d'Empordà, Spain.

TECHNOLOGY: 2) Reuse of effluent with ozone polishing

Aqua-Q AB, Sweden

The main source of contamination comes from purified / insufficiently purified wastewater, both industrial and small-scale private sewage discharge. It pollutes rivers, lakes, water bodies, and coastal waters and creates potential risk of microbial contamination in drinking water, bathing



water, groundwater, etc.

The emerging environmental problem in the developed countries is pharmaceutical residues in purified/ insufficiently purified wastewater both from municipality and industries.

In the EU R3 Water project Aqua-Q has developed/composed a modular ozone polishing system and have successfully demonstrated that in a cost effective way with a minimum dose of ozone both pharmaceuticals residues and pathogens can be totally removed beyond the limit of detection.



The glass to the right represent effluent water from MBR process containing both pathogens and pharmaceutical residues. The left glass of water shows after ozone polishing having no pathogens nor pharmaceutical residues. The water in the left glass can be used to replenish aquifers or artificial recharge. Thereby, the negative spiral of water scarcity in the world can be broken.



APPLICABILITY AND PRE-REQUISITES:

Applicability:

Reuse of reclaimed water and replenish aquifers.

Pre-requisites:

Effluent water electricity 220-240 V AC.

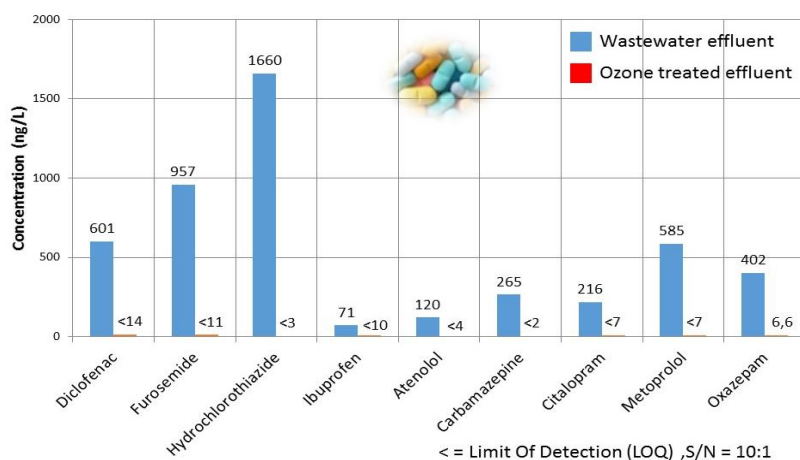
OPERATION AND MAINTENANCE:

Low operational cost and low maintenance.

COSTS:

Cost is dependent on how much water will be treated. The price cannot be specified at the moment.

REFERENCE: Hammarby Sjöstadsverk, Stockholm, Sweden.



AQUA-Q
Online Water Control & Ozone Application