ColiMinder
rapid microbiology by VWM SOLUTIONS

Fully Automated Online Measurement of Bacterial Contamination in Water

PROVIDING MICROBIOLOGICAL CONTAMINATION as a PROCESS PARAMETER

Wolfgang Vogl
Founder - General Manager
Vienna Water Monitoring Solutions
www.coliminder.com

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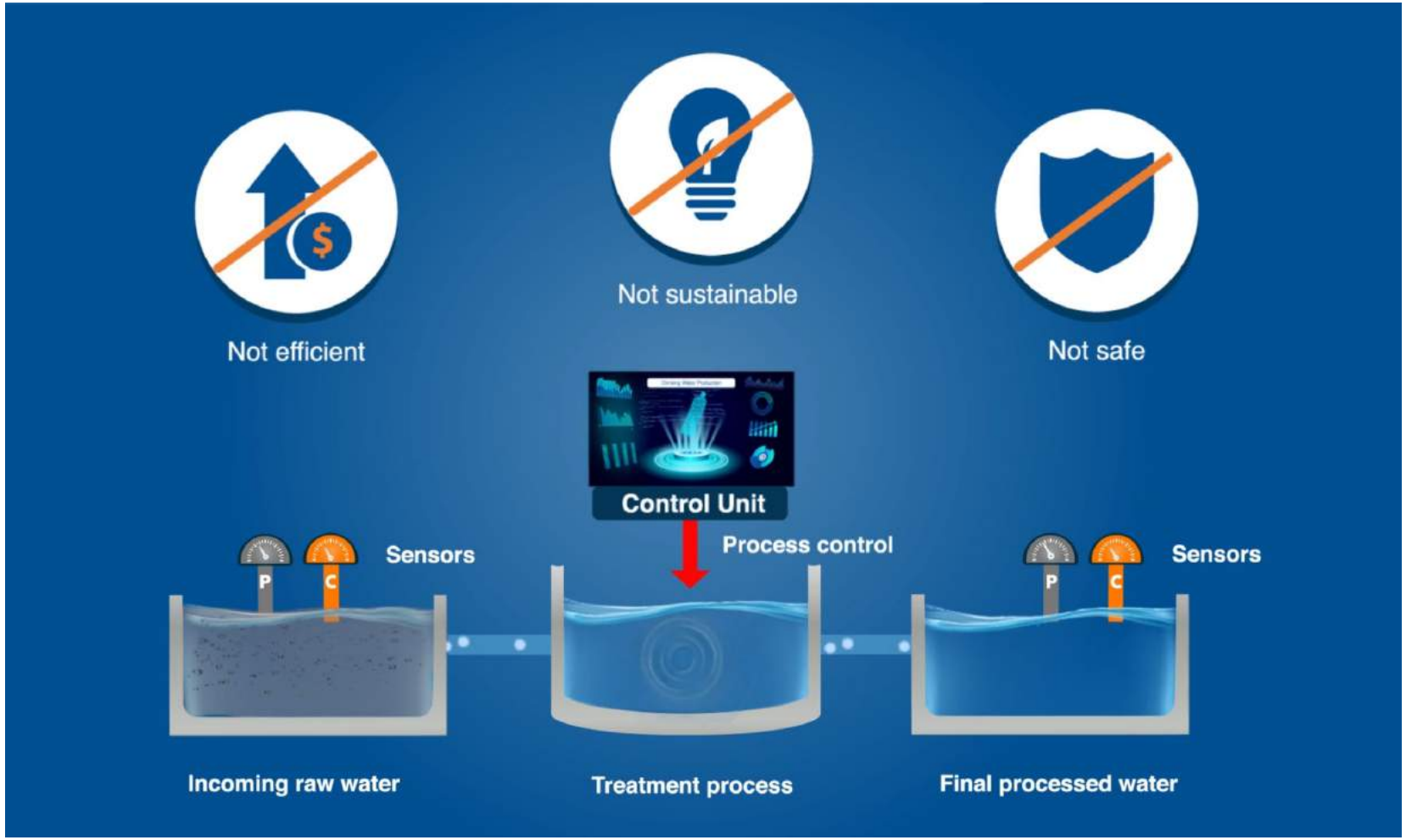
Three Dimensions to Water Quality

There are online sensors available for the physical and the chemical dimension, but not for the microbiological dimension.

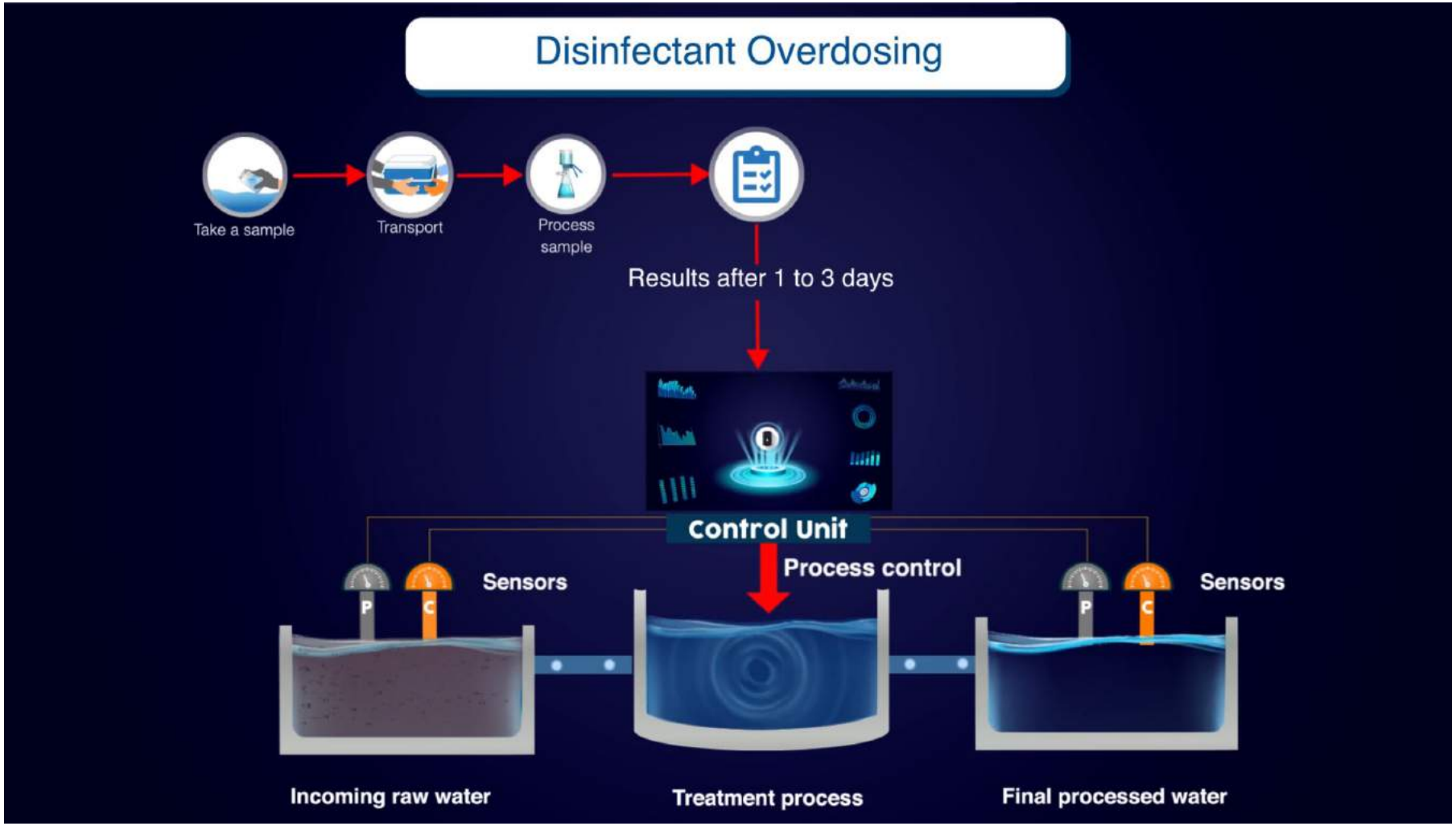
Importance of process control



Only those parameters that can be measured can be controlled.

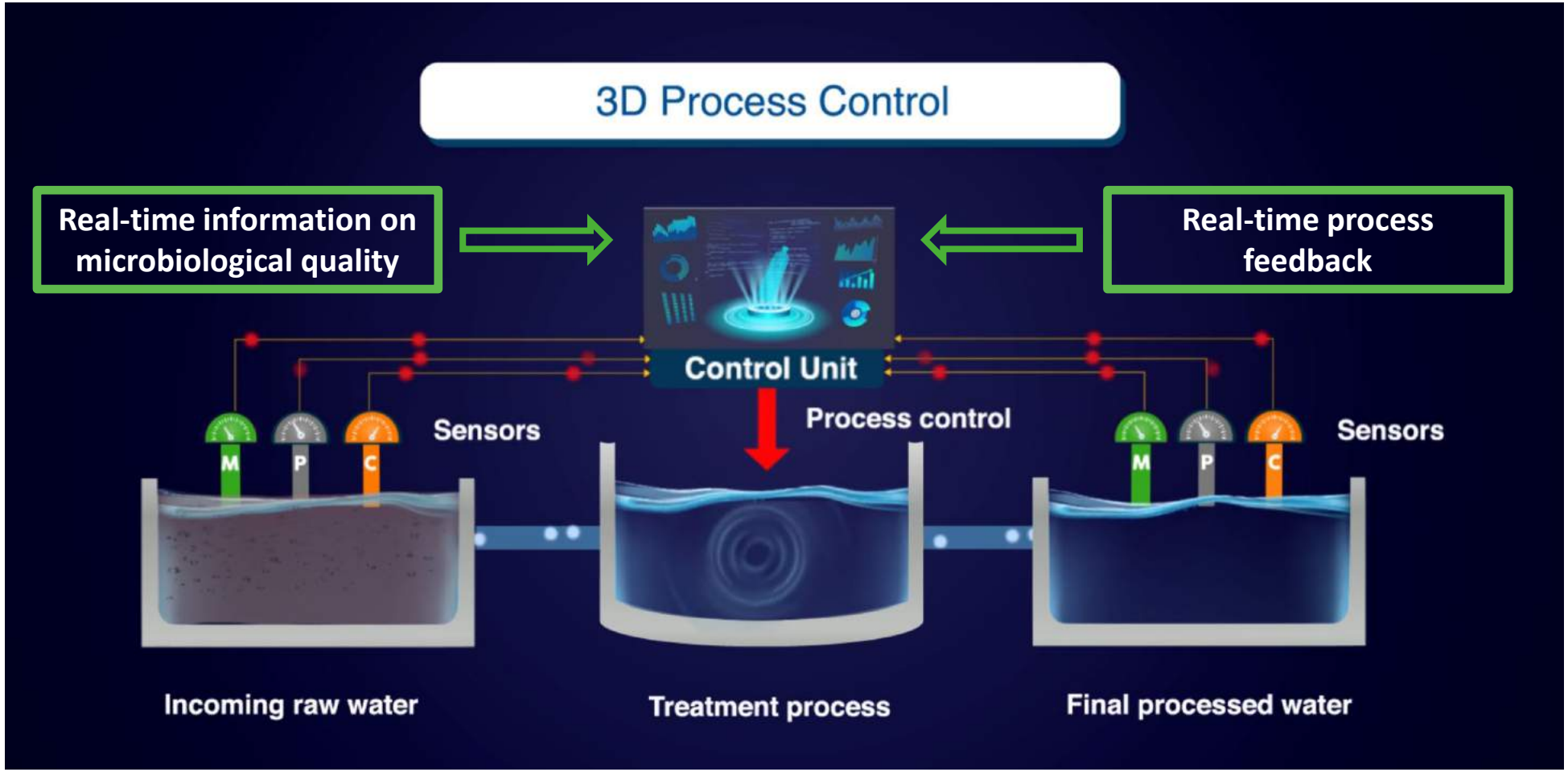
Uncontrolled processes are not efficient, not sustainable and not safe.

Consequences of 2D process control



For example, due to the lack of real-time microbiological measurements, disinfection processes are constantly overdosing.

Moving to 3D process control



In addition to the physical and chemical parameters, the ColiMinder provides the microbiological parameter for process control, enabling much more efficient, safe and sustainable processes.

Solution

ColiMinder Rapid Microbiology – Result in 15 Minutes

ColiMinder Key Features

- ✓ Fully Automated Sampling, Measurement, Cleaning, Calibration
- ✓ 15 min from Sampling to Result- 10 min Cleaning
- ✓ Online Visualisation and Automatic Notification (Email, SMS)
- ✓ Available for the following Target Organisms:

E. COLI ①②
Specific indicator of faecal pollution

ENTEROCOCCI ①②
Specific indicator of faecal pollution

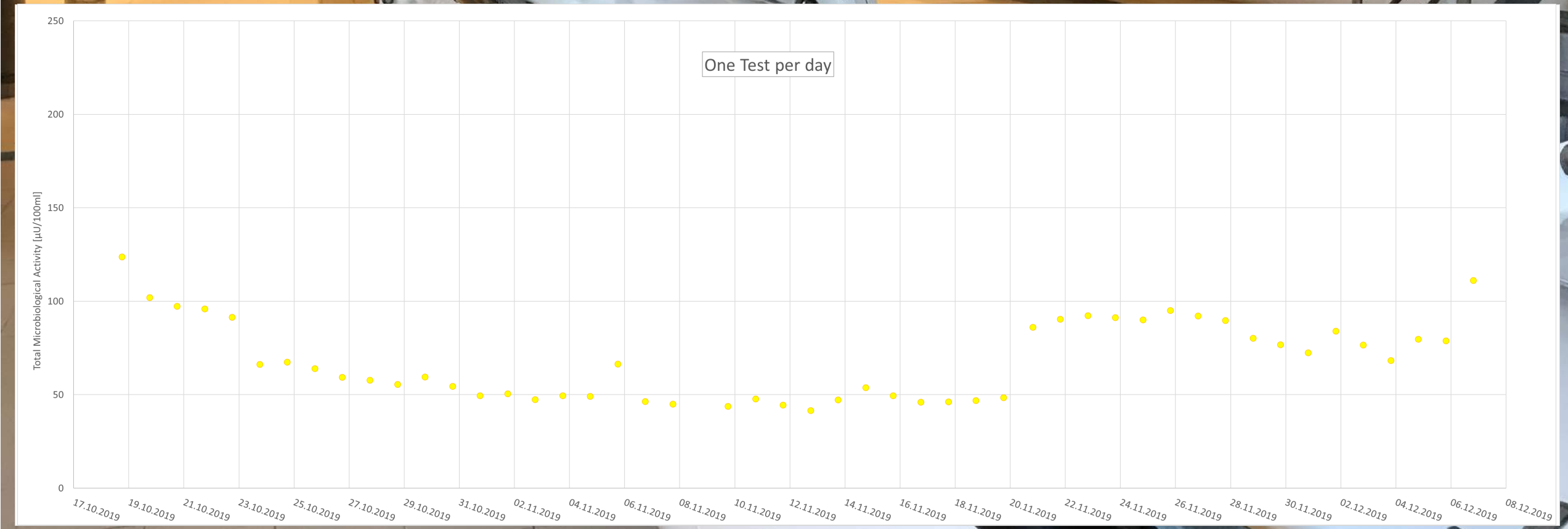
TOTAL ACTIVITY ¹○
Bulk parameter of total microbiological activity

ColiMinder®
rapid microbiology by VWM

Monitoring Semi Treated Drinking Water

Timeline of one manual test per day

Not much information contained



Monitoring Semi Treated Drinking Water

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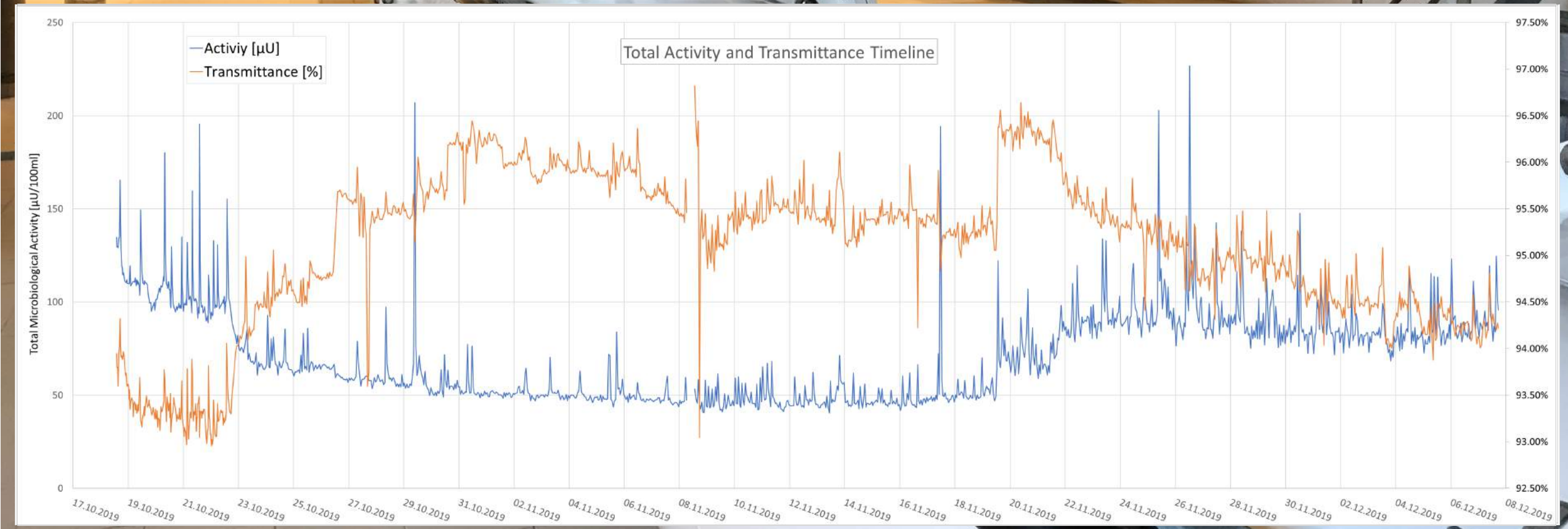
Timeline of ColiMinder measurements

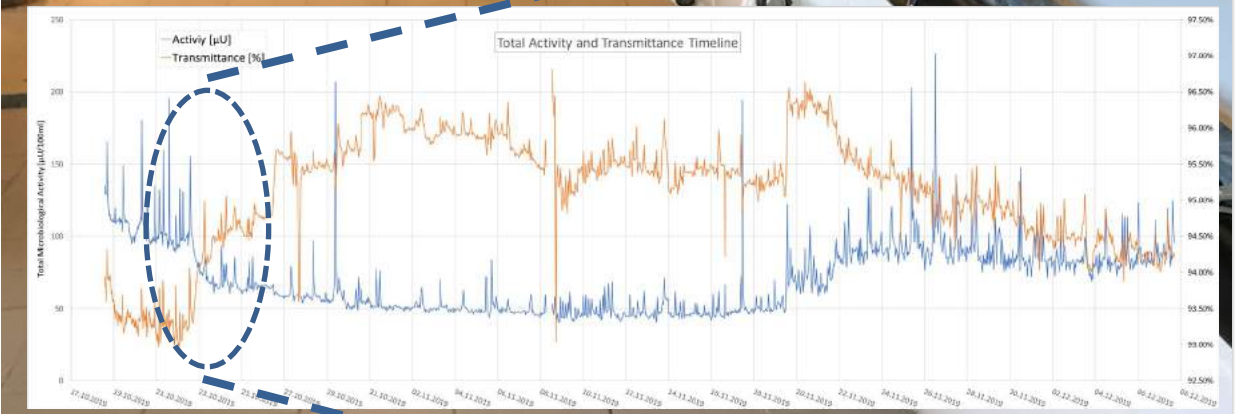
including activity and transmittance measurement results

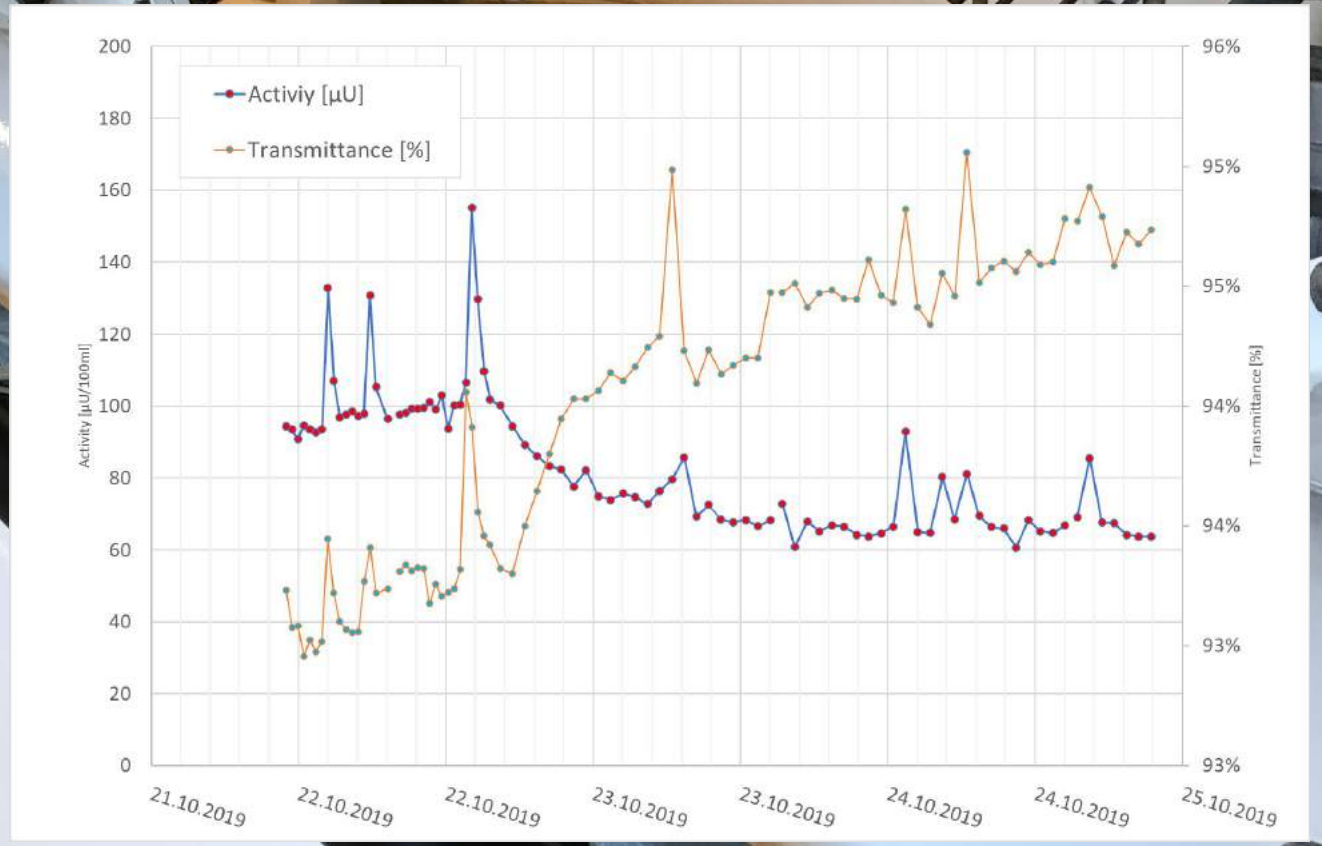


Monitoring Semi Treated Drinking Water

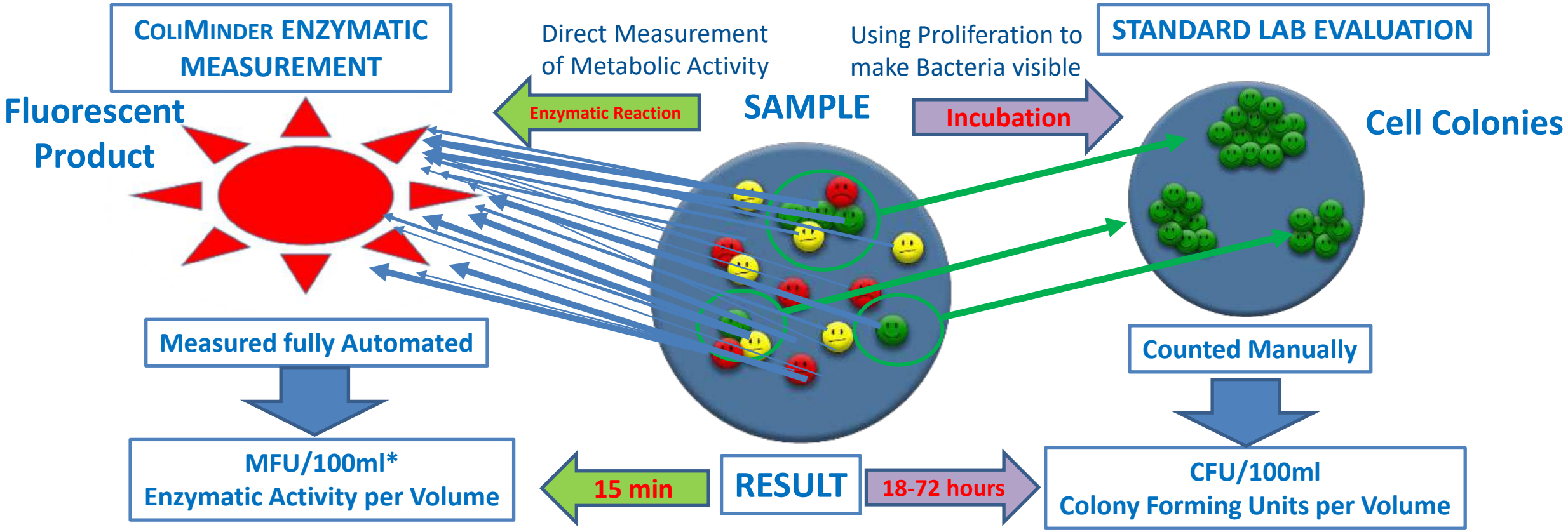
ColiMinder® rapid microbiology by VWM

Zoom into measurement timeline





How does it work?



*Modified Fishman Units (E.*coli* –specific enzymatic activity)

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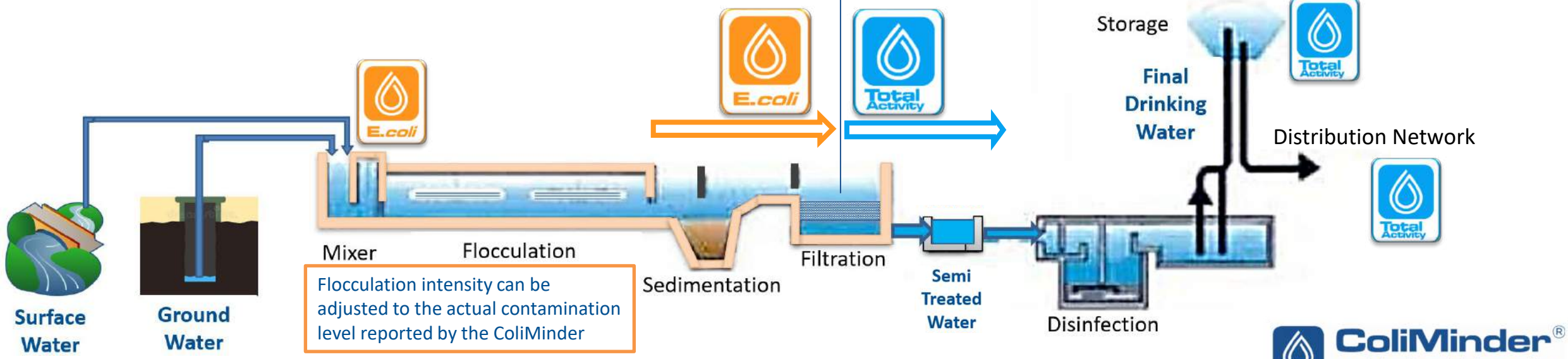
Choosing the suitable Target Organism

Schematic Diagram of a Drinking Water Production Process flow

Before the first filtration step, it is useful to monitor for E.coli as a measure for fecal contamination which is correlated with a risk of pathogens being present

After the first filter it is recommended to monitor total activity as any filter has the potential to act as a source of all kinds or microorganisms.



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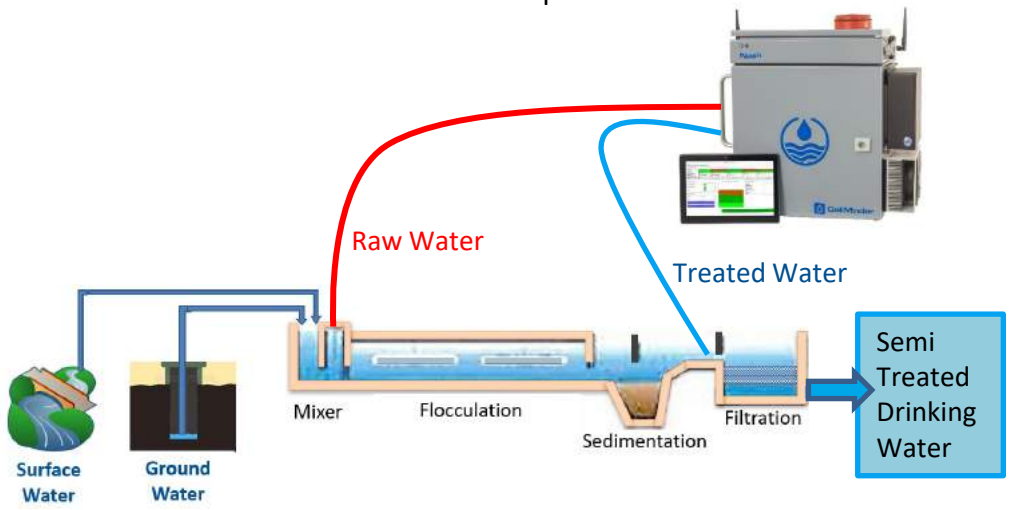
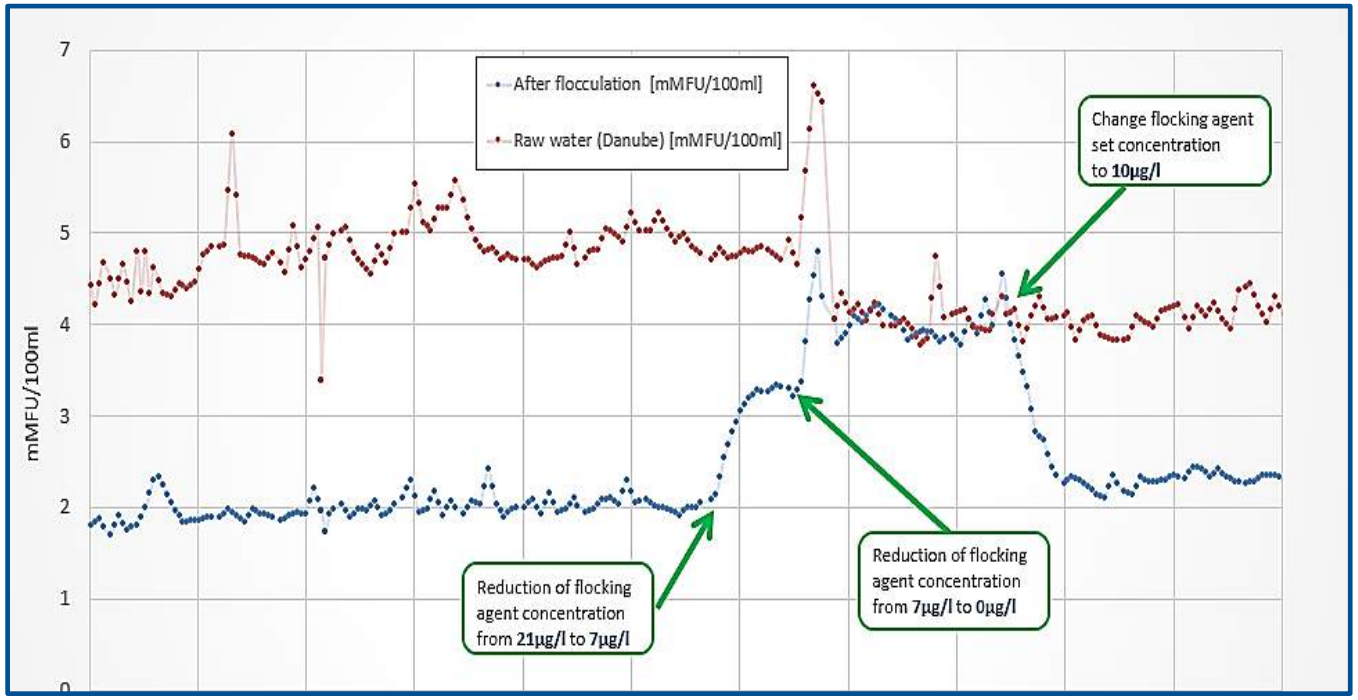
Example: Coagulation Process Monitoring

Measurement Project:
One ColiMinder is monitoring flocculation process performance by measuring before and after the flocculation process in alternating measurement regime.

Raw water has been taken from Danube river. The measurement timeline shows how different concentration and quality of flocculant influences the disinfection rate of the process.





Universität für Bodenkultur Wien
Department Wasser-Atmosphäre-Umwelt

SIG

The Project has been realized in cooperation with Institute of Sanitary Engineering and Water Pollution Control (SIG), BOKU Vienna, Austria.

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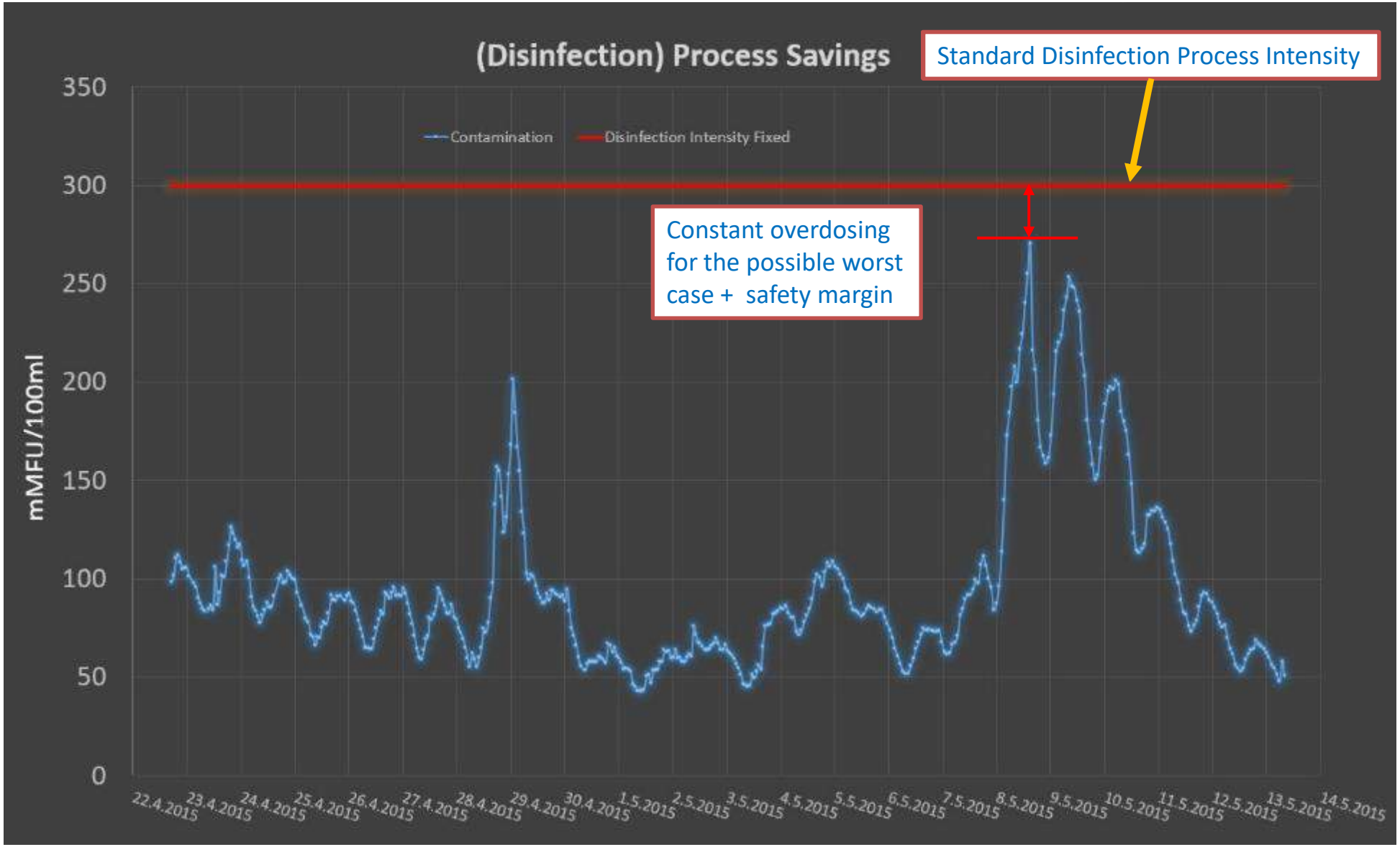
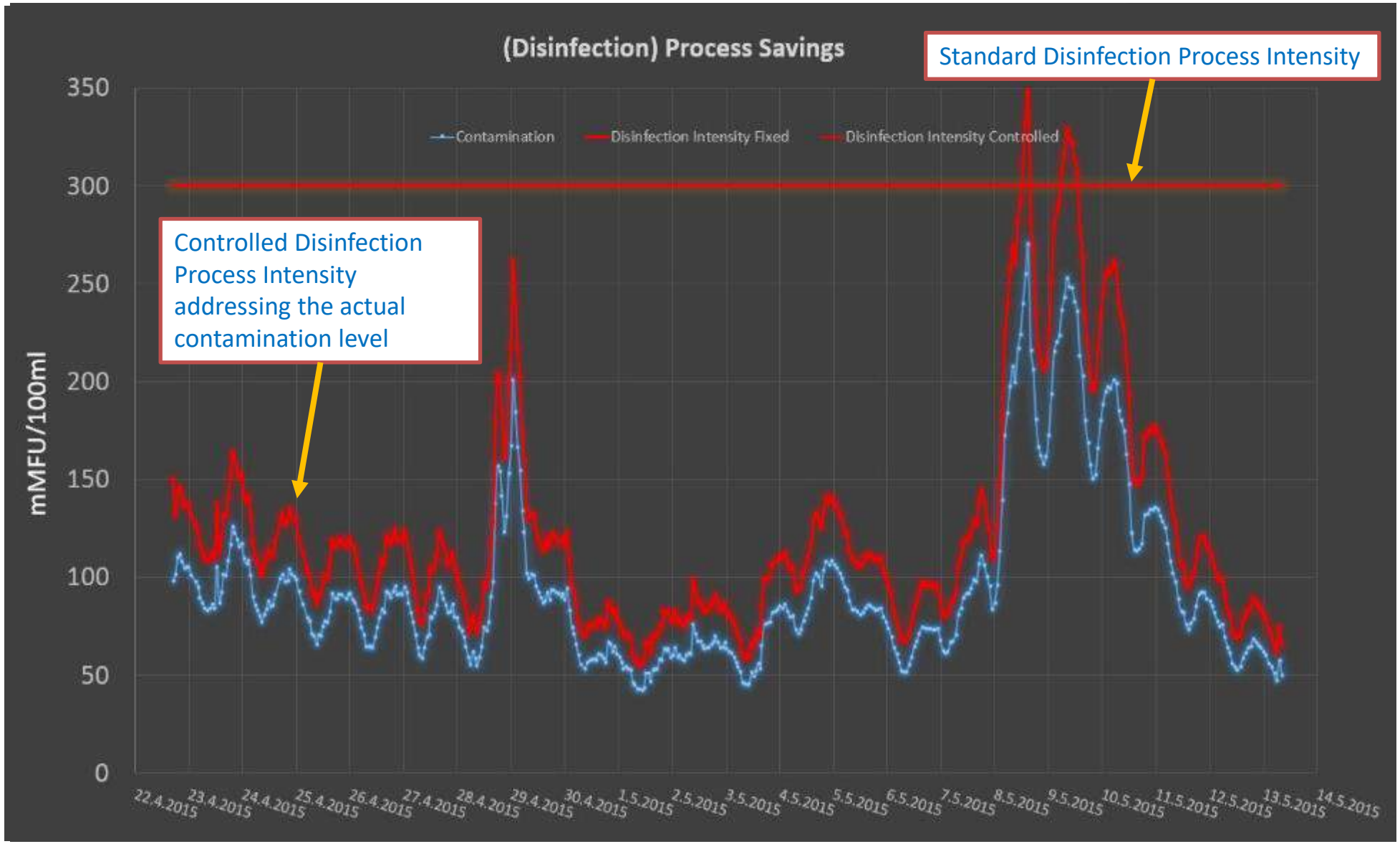
WWTP Discharge Disinfection Process



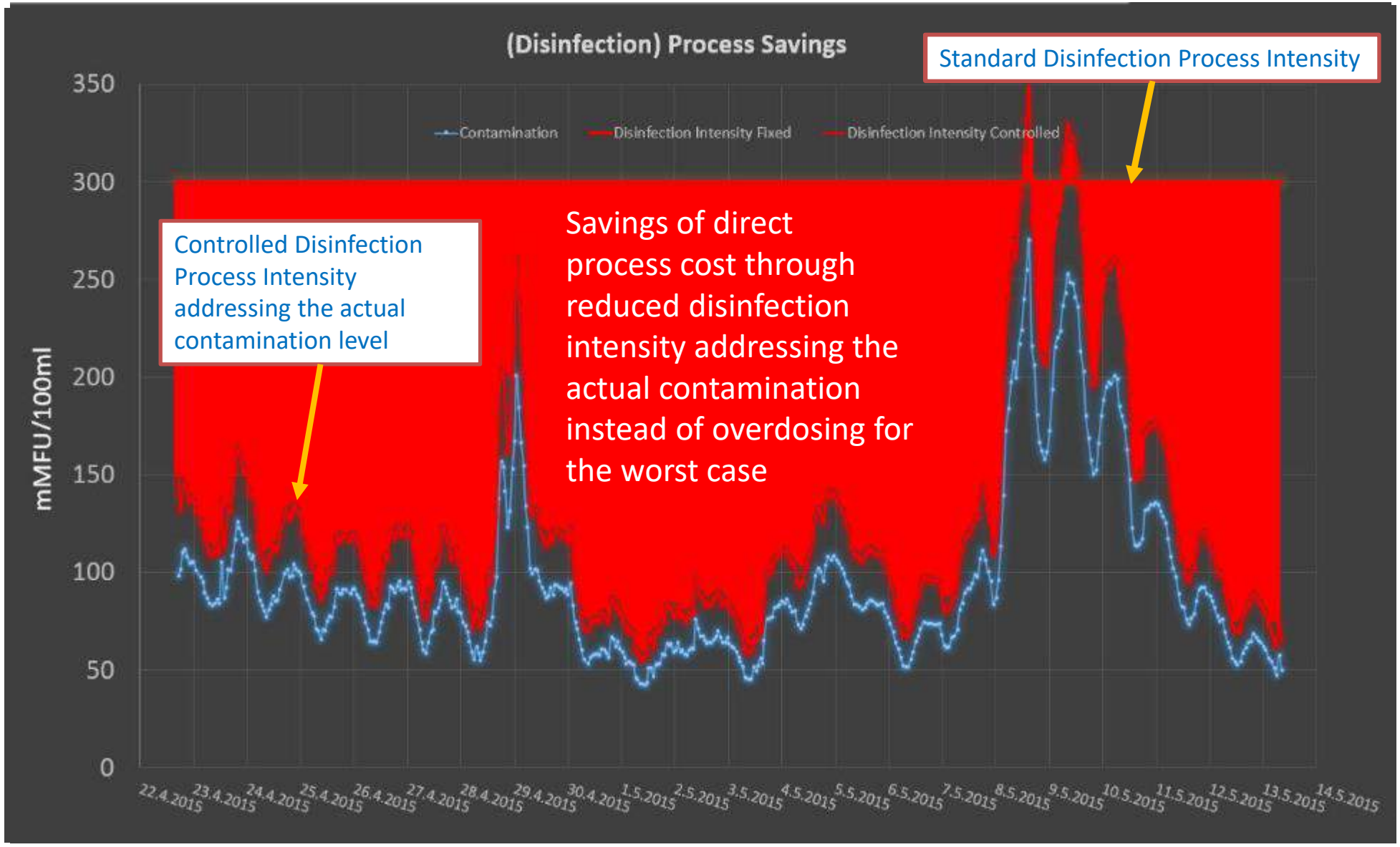
WWTP discharge stream contamination timeline of Vienna's main sewage plant showing daily variation of contamination.

WWTP Discharge Disinfection Process



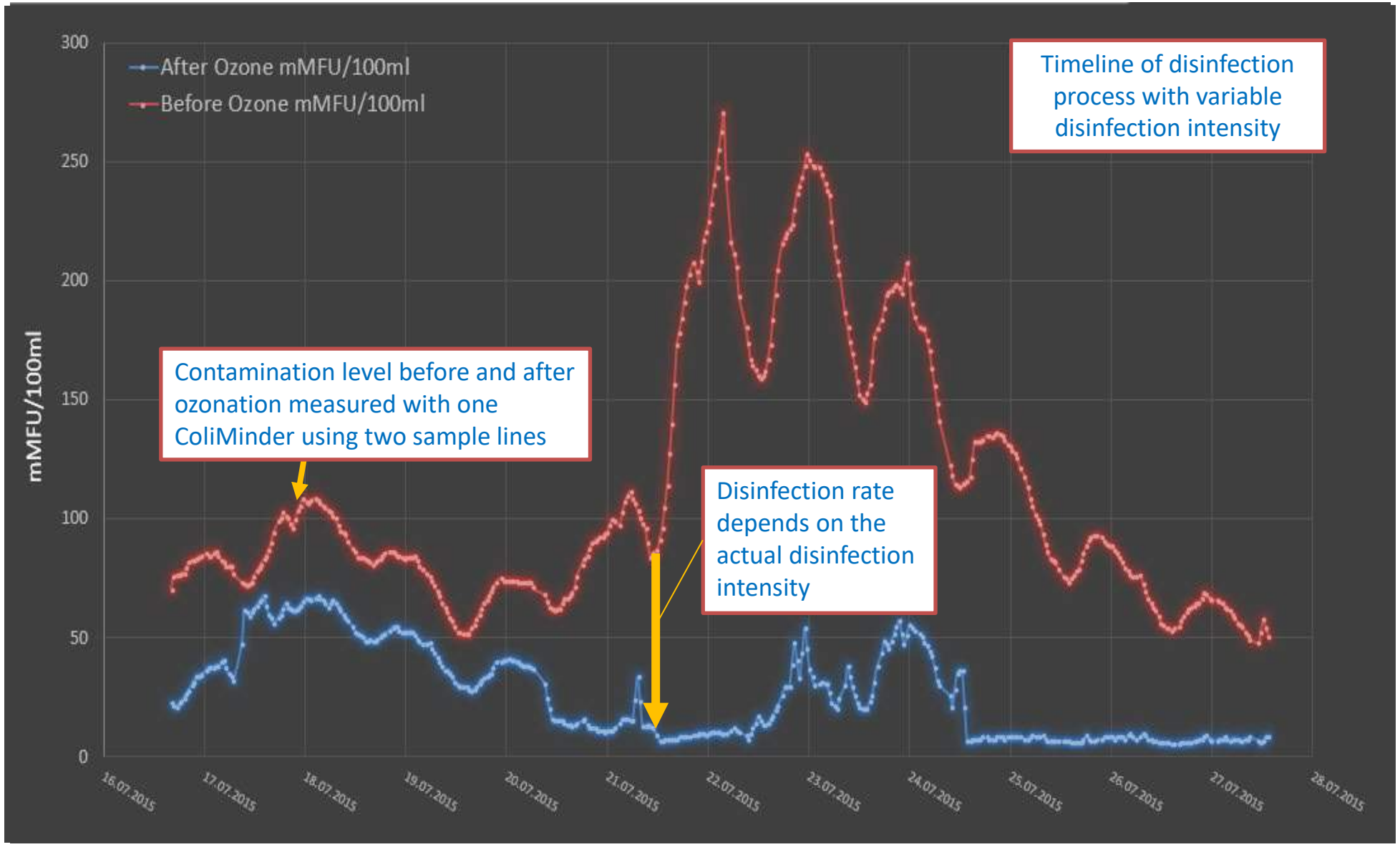
Adjusting the disinfection intensity to actual contamination level provided by the ColiMinder measurements drastically increases process efficiency and safety.

WWTP Discharge Disinfection Process



Saving >50 % in process cost by adjusting disinfection intensity to actual contamination level

WWTP Discharge Disinfection Process

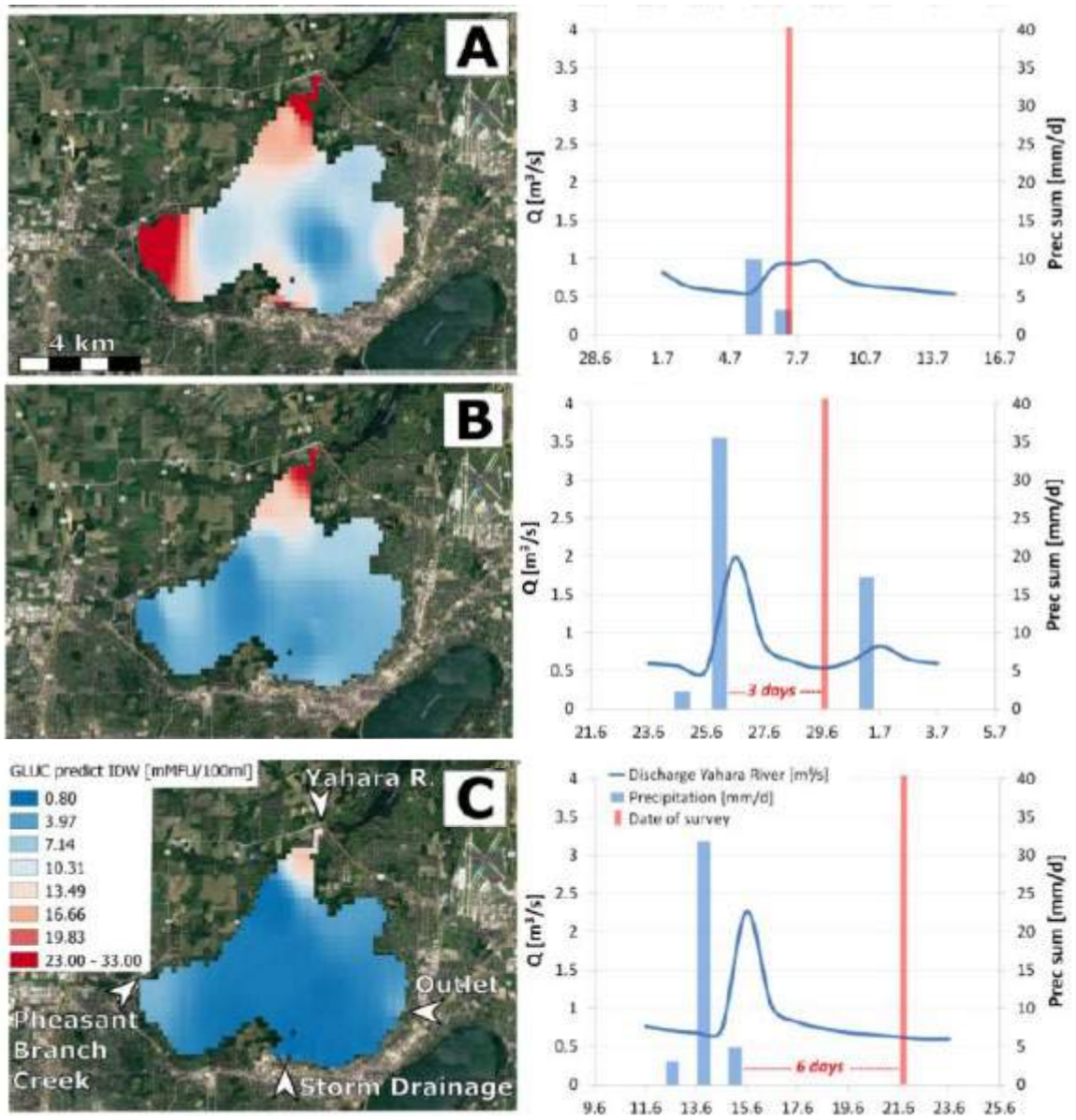


WWTP discharge stream disinfection: monitored with the ColiMinder to show process performance and enable controlled disinfection.

ColiMinder in mobile applications: Surface Water Mapping

Lake Mendota, USA: **Impact of hydrological events on the GLUC activity of lake water**

Results of the survey 1a focusing on the impact of hydrological events on the GLUC activity of Lake Mendota. GLUC activity screening maps on the left (A, B, C) were generated using inverse distance weighting and show the diverse spatial patterns of GLUC activity on the lake depending on time since last precipitation event. On the right the corresponding hydrograph of the Yahara River (blue graph), precipitation amount (light blue bars) and date of survey (red bar) are shown.



Philipp Stadler, MSc - Doctoral Thesis

Key Customers & Projects I*

水務署
Water Supplies Department

HONG KONG

SINCE 2020

PROCESS MONITORING OF MICROBIOLOGICAL QUALITY IN DRINKING WATER PRODUCTION AT SHEUNG SHUI WATER TREATMENT WORKS

渠務署
Drainage Services Department

HONG KONG

SINCE 2017

MONITORING MICROBIAL QUALITY OF WASTEWATER EFFLUENT AFTER DISINFECTION AT STONECUTTER ISLAND SEWAGE TREATMENT WORKS

eau de Paris
service public de l'eau

PARIS' PUBLICLY OWNED DRINKING WATER AND WASTEWATER COMPANY

FRANCE

SINCE 2018 2 COLIMINDER

MONITORING OF RECREATIONAL WATERS AND RAW WATER INTAKES FOR DRINKING WATER PRODUCTION

Ville de Paris

CITY OF PARIS

FRANCE

SINCE 2021

2 COLIMINDER

MONITORING OF SURFACE WATER SAFEGUARDING WATER QUALITY

* Many other customers use the ColiMinder, the named ones serve as examples.
We are pleased to provide a complete list of customers and references

ColiMinder® rapid microbiology by VWM

Key Customers & Projects II

HERLEV HOSPITAL - MBR PLANT

DENMARK

SINCE 2015

MONITORING MEMBRANE INTEGRITY AT MBR PLANT

ENSURING MICROBIAL QUALITY OF DISCHARGE DRAINED INTO RECREATIONAL AREA

PUBLIC DRINKING WATER SUPPLIER, AUSTRALIA

SINCE 2019

MONITORING MICROBIAL QUALITY IN DRINKING WATER NETWORK AND STORAGE RESERVOIR

INCREASING DRINKING WATER SAFETY, CONTINUOUS MONITORING OF MICROBIOLOGICAL QUALITY OF DRINKING WATER

MEKOROT
ISRAEL NATIONAL WATER CORPORATION

ISRAEL

SINCE 2017

MONITORING OF NATIONAL DRINKING WATER NETWORK

MONITORING OF SURFACE WATER

SAFEGUARDING WATER QUALITY

ROMANIA

1ST COLIMINDER JULY 2020
2ND COLIMINDER FEB. 2021

MONITORING OF RAW WATER, PRODUCTION PROCESS AND FINAL PRODUCTS

ENSURING FOOD SAFETY

ColiMinder® rapid microbiology by VWM

Thank you very much!

ColiMinder®
rapid microbiology
by VWM SOLUTIONS