



# Backwash water treatment at WTP Wierden

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Co-funded by the Eco-innovation  
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# Main goal: full scale demonstration

- Increase of sustainability by:
  - Reuse of backwash water from the sand filtration in a way that the total exploitation costs will not increase;
  - Reduction of the energy consumption per  $m^3$  produced water at WTP Wierden with 30 %;
  - Reduction of chemical consumption;
  - Reduction of ground water withdrawn;
  - Reduction of water being discharged.



Influent

Effluent

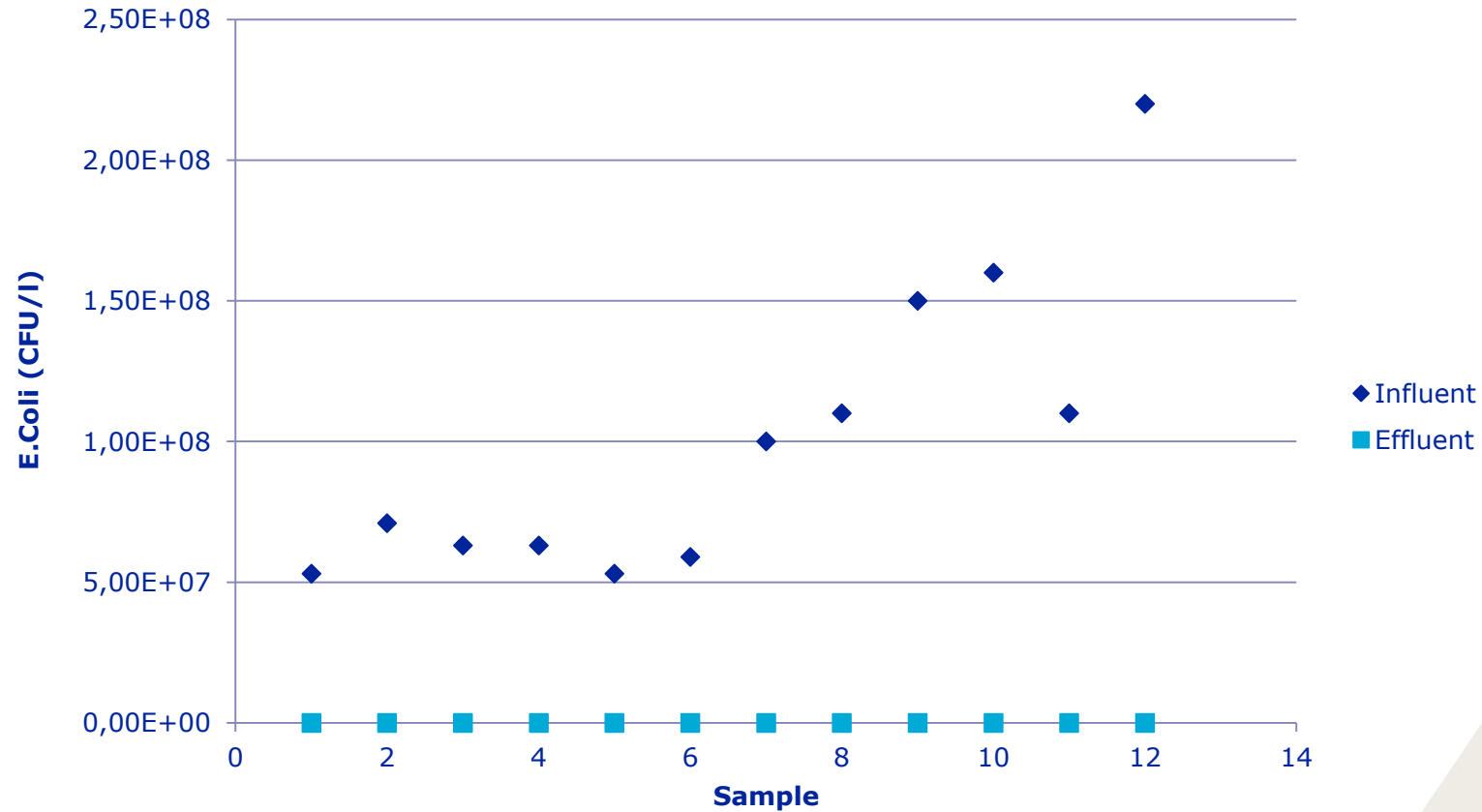
# Water quality: main goal of the installation



- Production of safe drinking water:
  - Microbiological barrier;
  - Reduction of metals;
  - Reduction of turbidity (suspended solids).



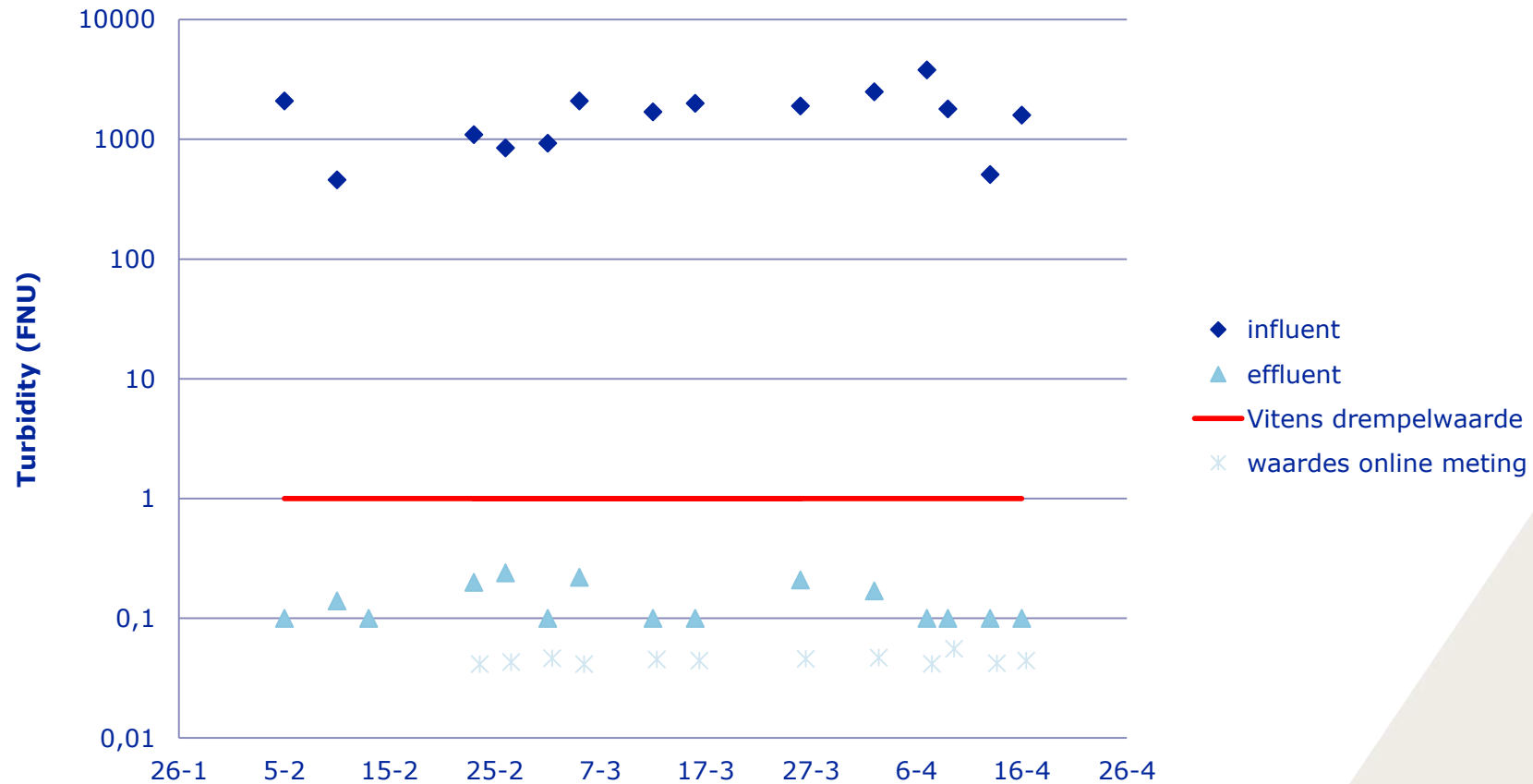
## Test dosing of E-coli



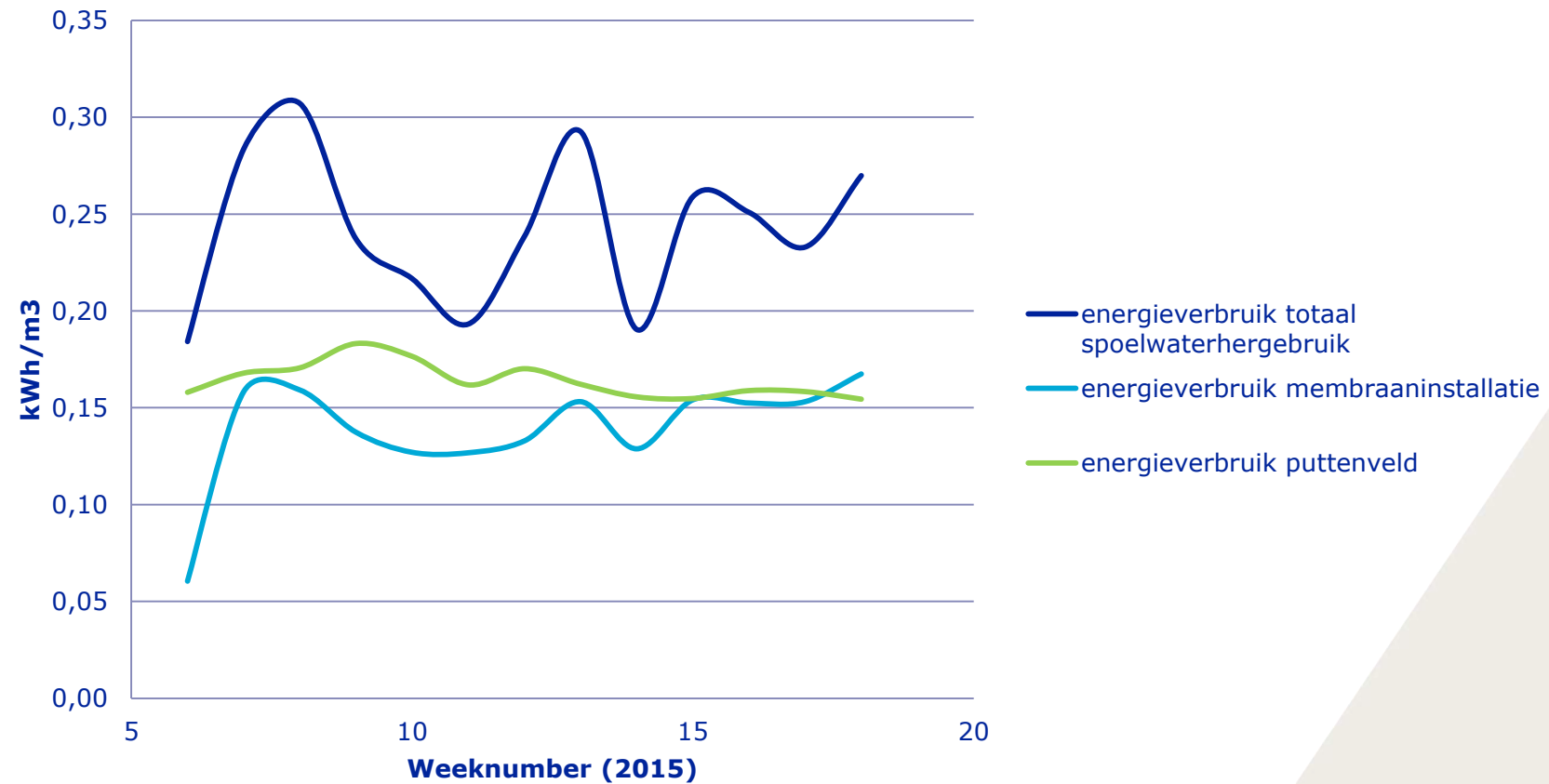
- From pilot research we know that manganese is not removed 100 %. This is the reason why the permeate is being fed to the secondary filtration (standard procedure of Vitens).
- In practice the concentration of other metals is being reduced with a factor of 10.
- Concentration of metals in permeate (beside manganese) is well below Vitens demands

# Water quality: reduction of turbidity

## Turbidity influent and effluent

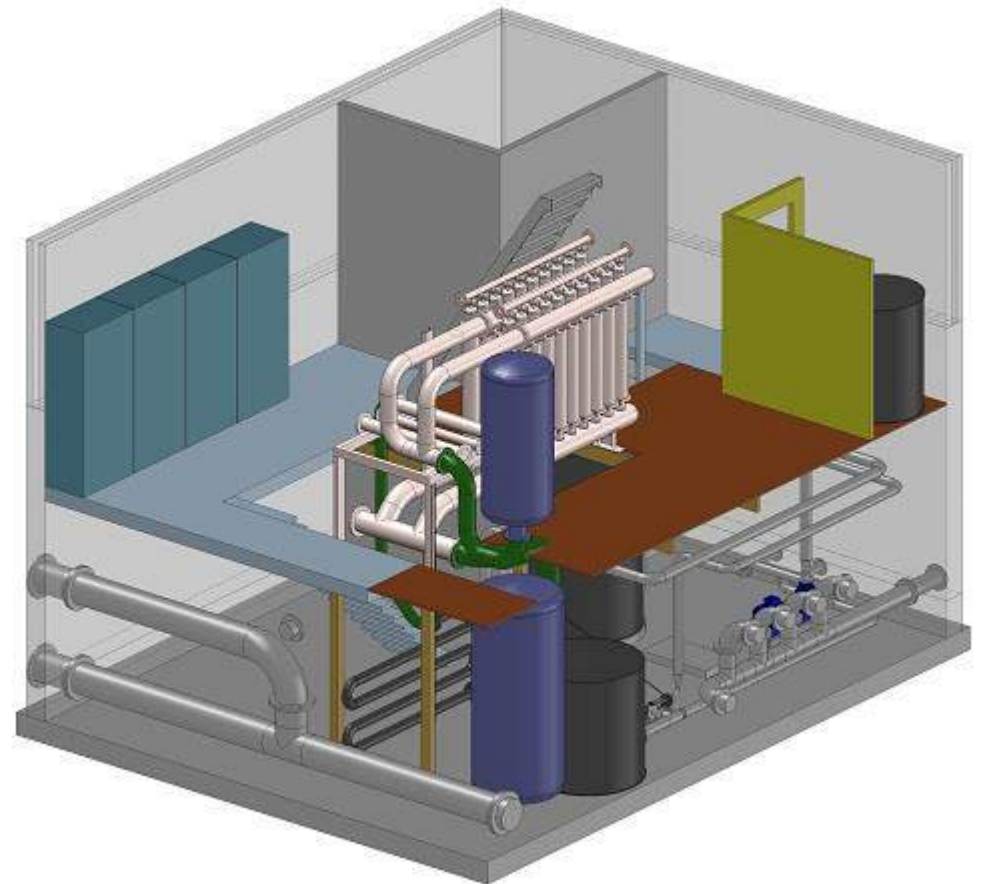


## Energie verbruik IWEBC



## Some remarks and observations

- Amount of treated water since February 2015 75.000 m<sup>3</sup>
- Recovery 99%
- Still no intensive cleaning is necessary;
- Very few failures.





- Permeate of installation fulfils the demands of Vitens, very high water quality;
- Installation is a very efficient barrier against micro organisms;
- Energy reduction of 30% is not reached yet, water is not being reused in the beginning;
- Iron chloride dosage is reduced with 90%.



**water reuse 3.0**



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