IWEC

water reuse 3.0

Backwash water treatment at WTP Wierden

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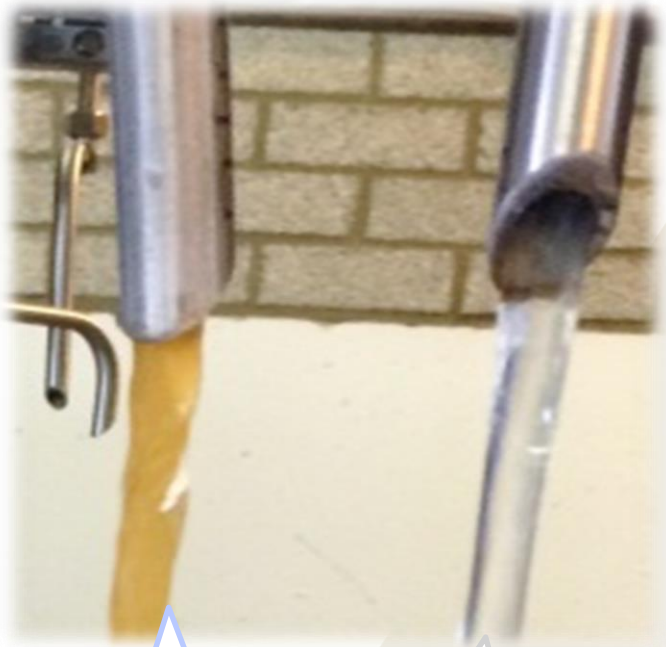
Co-funded by the Eco-innovation Initiative of the European Union

Rwb Vitens EUROSTEEL

Main goal: full scale demonstration

- Increase of sustainability by:

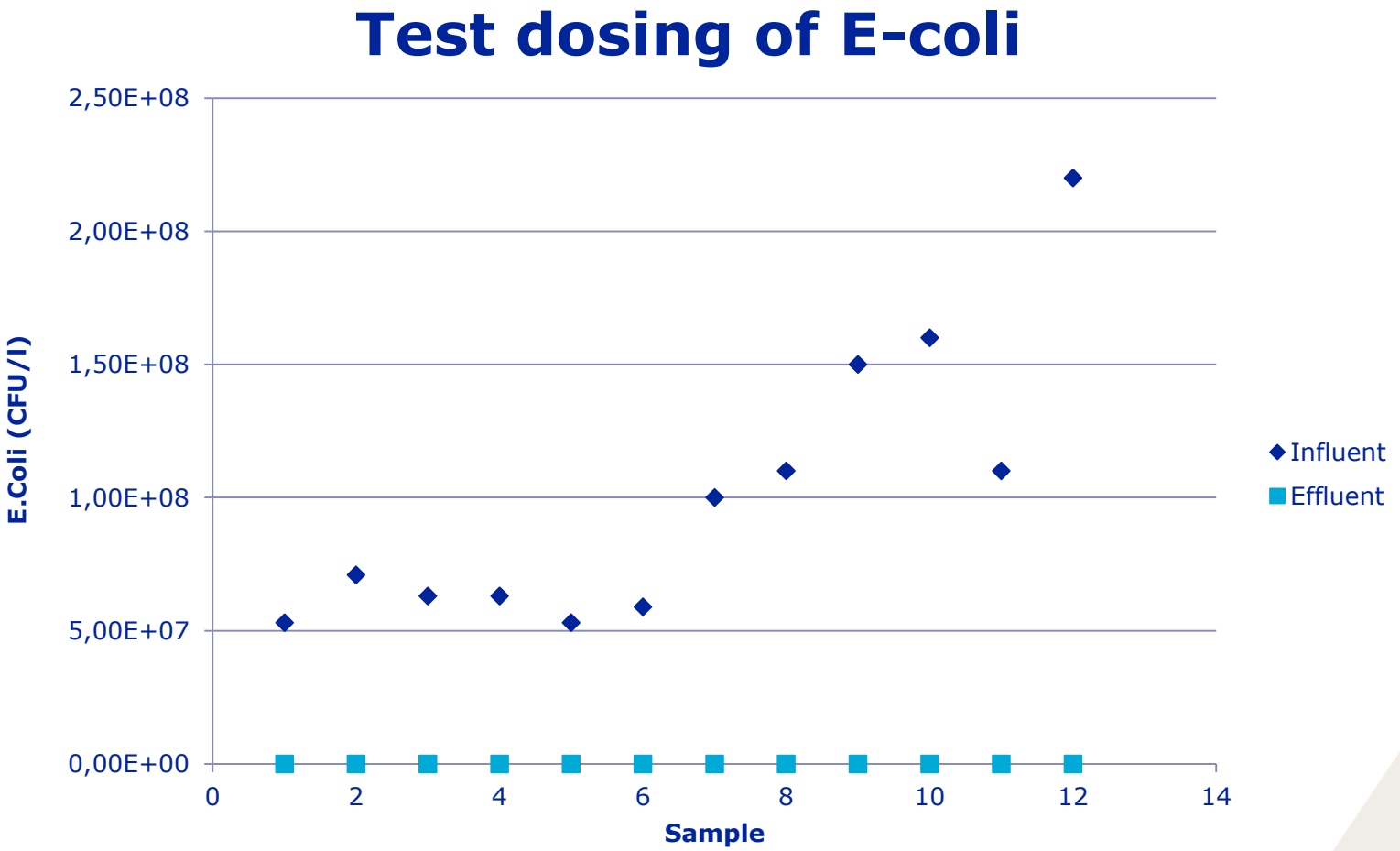
  - Reuse of backwash water from the sand filtration in a way that the total exploitation costs will not increase;
  - Reduction of the energy consumption per m^3 produced water at WTP Wierden with 30 %;
  - Reduction of chemical consumption;
  - Reduction of ground water withdrawn;
  - Reduction of water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



Water quality: main goal of the installation

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

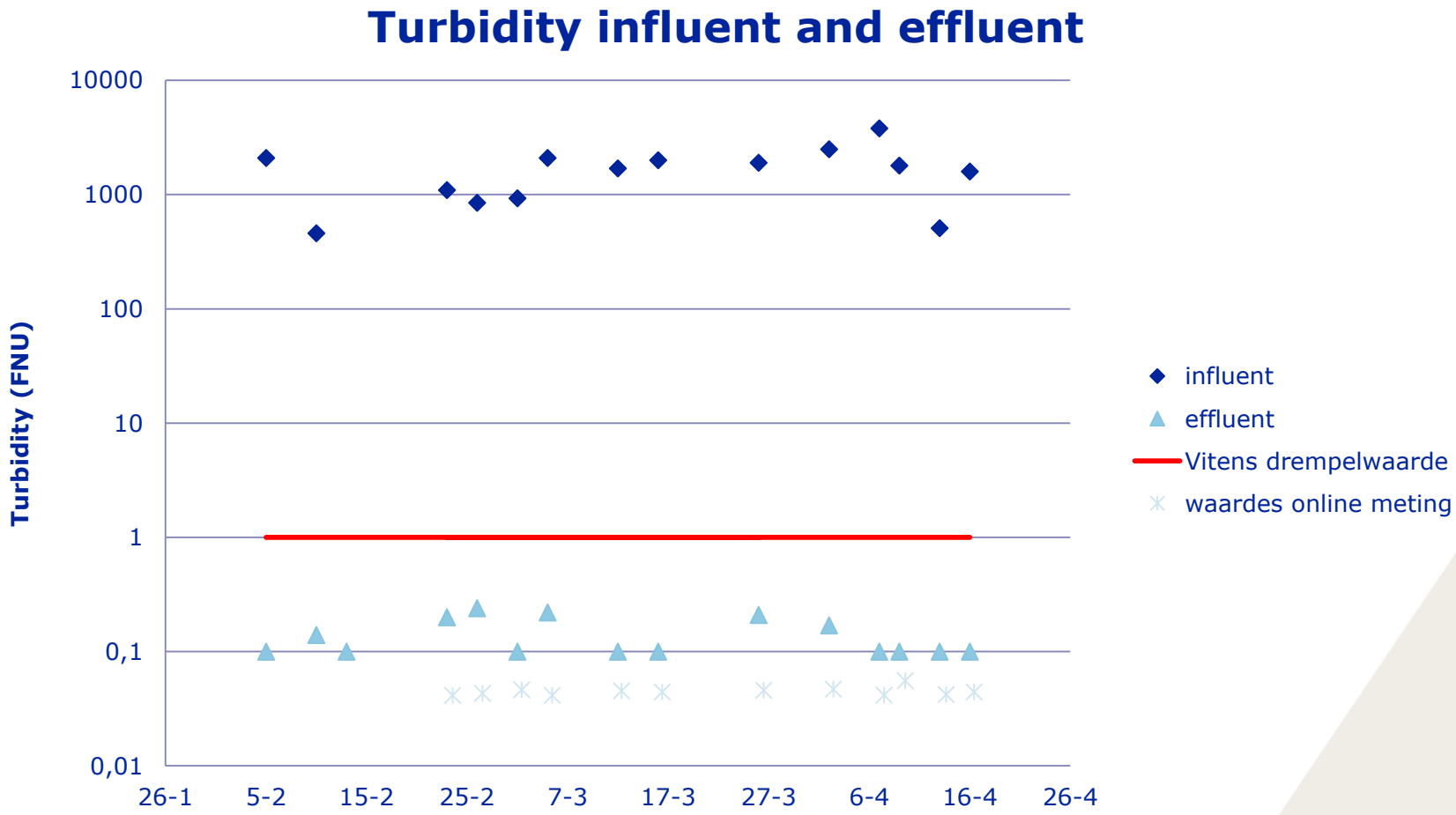
Water quality: microbiological barrier



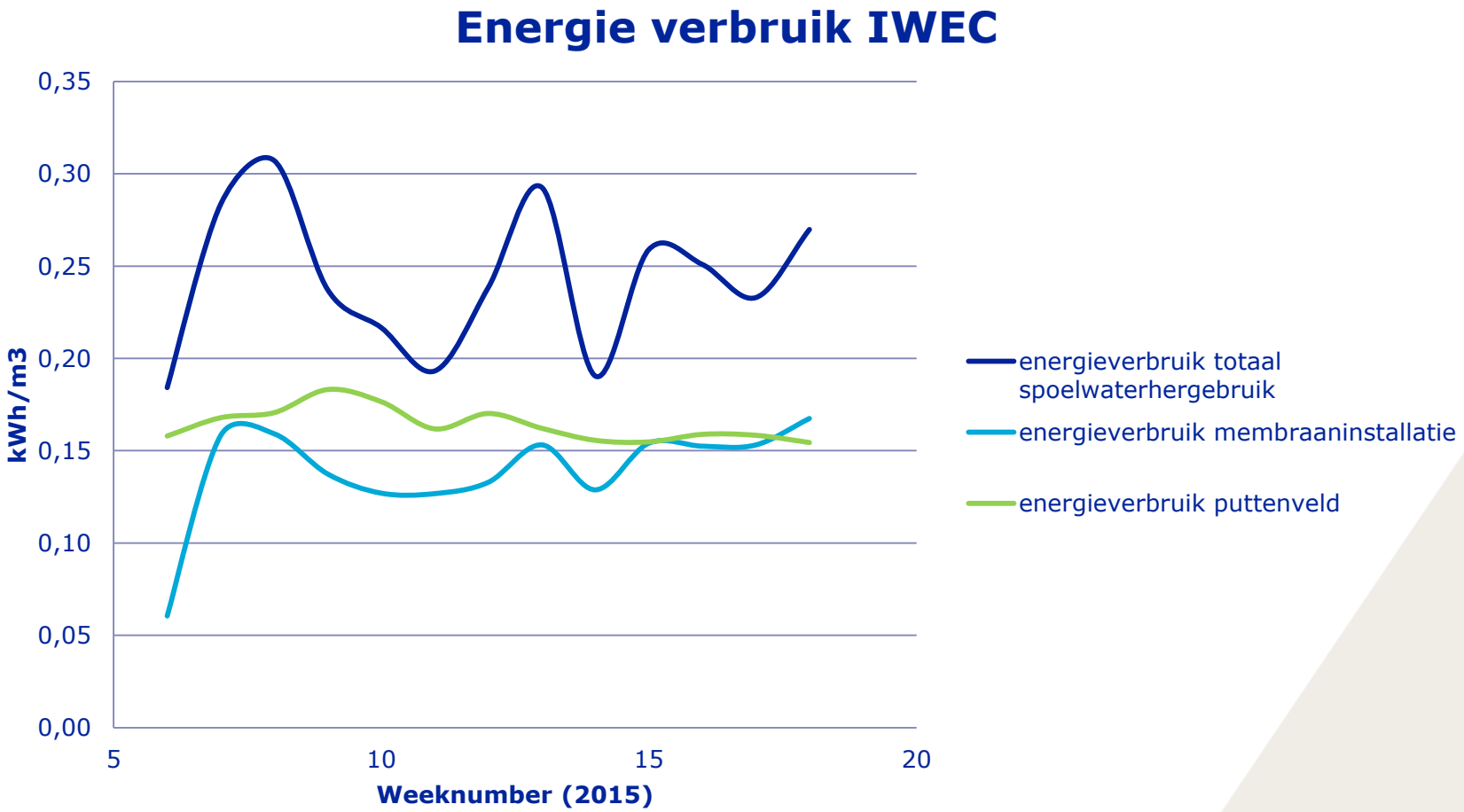
Water quality: reduction of metals

- 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

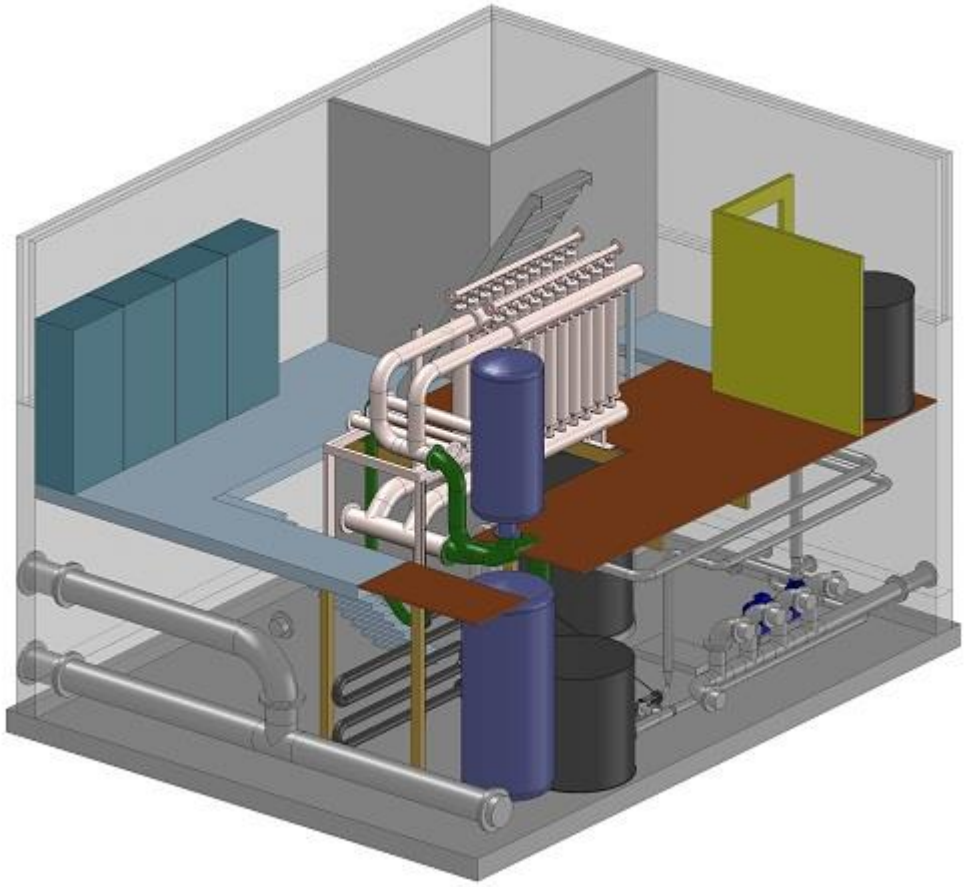


Energy consumption



Some remarks and observations

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



Conclusion

- 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%.

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