

# Waterworks Dresden Hosterwitz

AquaNES Site 2 (WP1-Bank Filtration)

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## Site Description



Fig. 1: Aerial view of Waterworks Dresden-Hosterwitz

### Water works:

- Constructed in 1908 with enlargements in 1928 – 32 and 1983
- Water abstraction:
  - 3 siphon pipes with 111 siphon wells
  - 36 separate single operated wells
- Water treatment (daily production: 72,000 m<sup>3</sup>/d):
  - 5 operational infiltration basins (Fig. 1)
  - 2 sedimentation basins

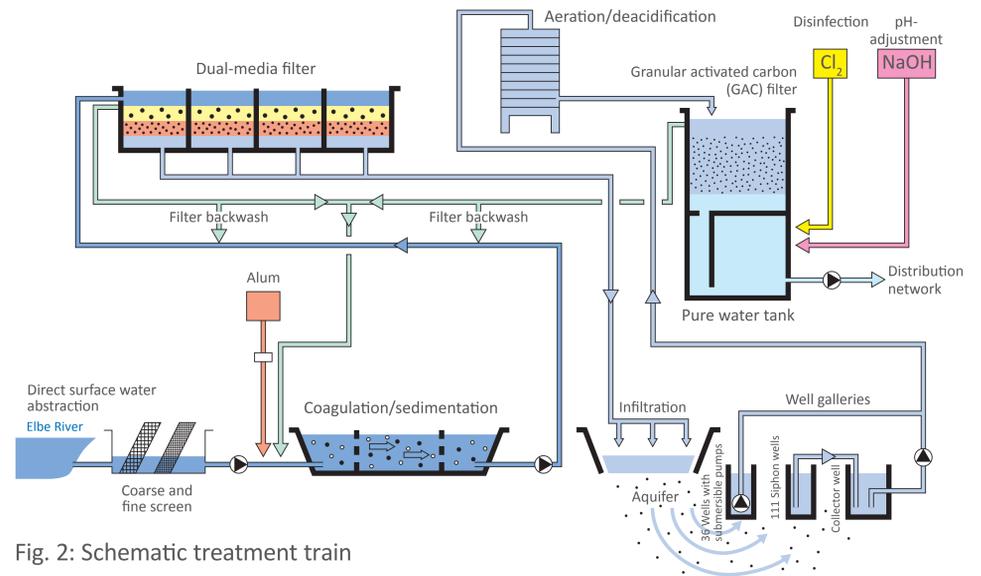


Fig. 2: Schematic treatment train

### Two separate treatment trains:

- Consists of 2 treatment trains (Fig. 2)
- RBF treatment train:
  - BF is main treatment step before aeration, GAC and Cl<sub>2</sub>
- MAR treatment train:
  - Direct surface water abstraction + pre-treatment
  - Infiltration and subsequent soil passage is main treatment step before aeration, GAC and Cl<sub>2</sub>

## Ultrafiltration Pilot Unit

Scenario	Description	Scenario drawing
S01	Existing BF treatment train	
S02	Existing MAR treatment train	
S1	Base scenario-solely technical solution	
S2	BF + UF	
S3	for comparison with 02	
S4	for comparison with 02	

Tab. 1: UF-pilot scenarios

### UF-pilot set-up:

- Flow rate Q= 0.5 – 1.5 m<sup>3</sup>/h
- Pilot design preferable as mobile unit
- BF supply from single operated wells (S2)
- Separate Mn<sup>2+</sup>/Fe<sup>2+</sup> -oxidation/removal

### Aim:

- Evaluate benefits of combined treatment
- Series of test with different feed water quality (Tab. 1)
- S1 & S2 are to investigate combined treatment benefits
- S3 & S4 are to evaluate effectiveness of S02

### Target parameters:

- Removal rates for pathogens and micropollutants
- Energy consumption
- Pressure loss across membrane
- Membrane fouling

## Siphon Well Studies & Evaluation of Energy Savings

### What will be done:

- Investigation of existing wells
- Pumping tests and evaluation of operational data
- Energy measurements using data loggers
- Mobile ultrasonic flow meter measurements
- Diver data logger for water level measurements

### Goals:

- Evaluation of energy saving through siphon wells (Fig. 3)
- Validation of SIPHON design tool
- Life cycle assessment

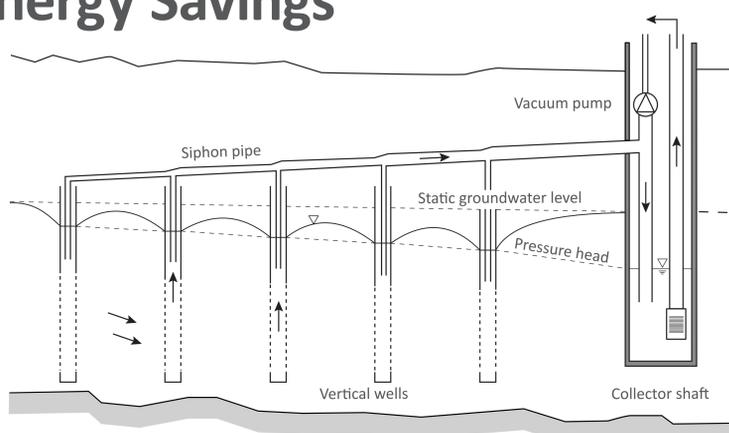


Fig. 3: Siphon well system