



## EUWA Reverse osmosis – Plant Solution

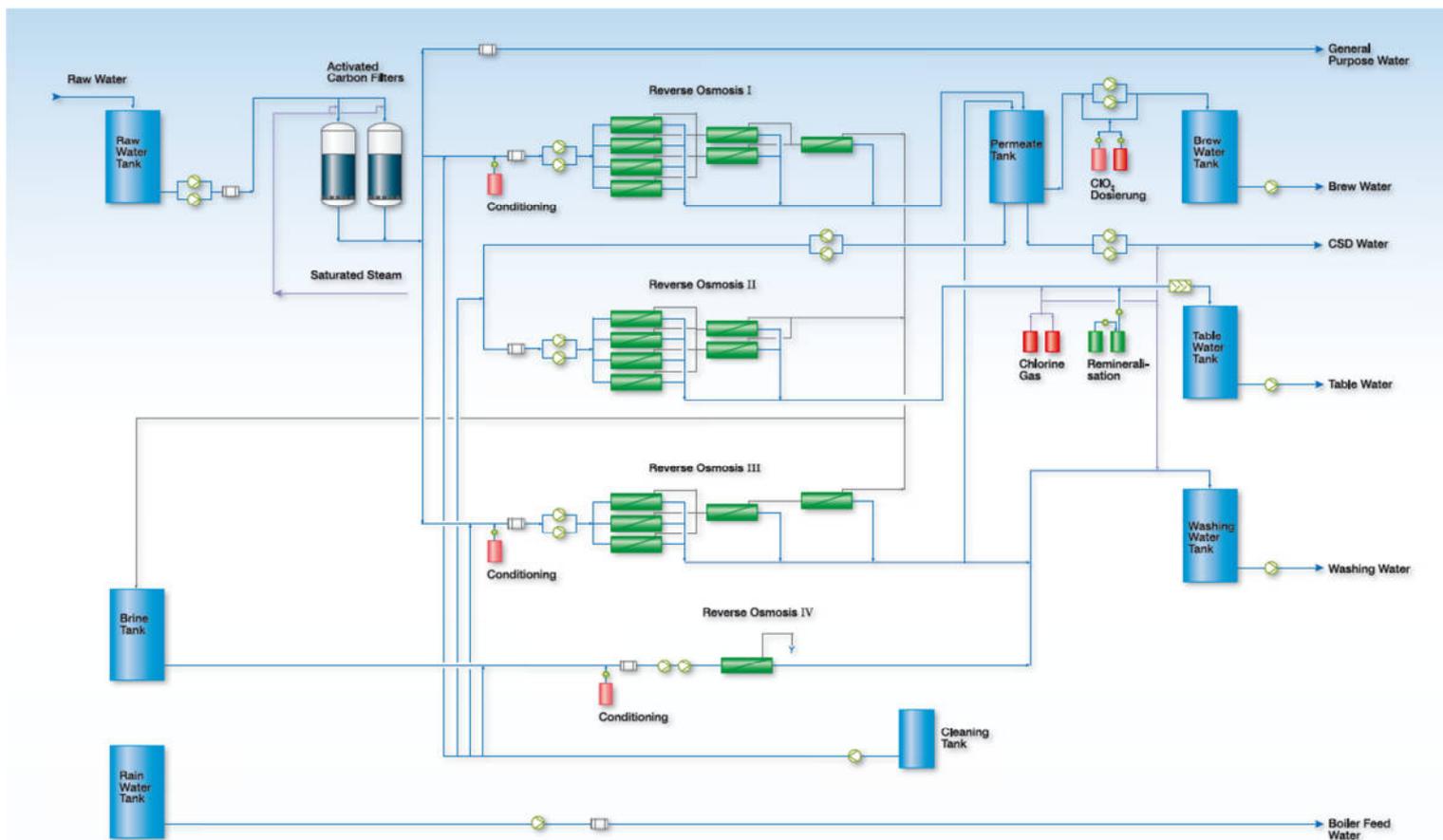
### Initial situation

The brewery in this case study replaced its outdated water treatment system during a general upgrade of the brewery. In addition to beer, the brewery produces various soft drinks and bottled water. It draws its water from own wells and supplements it, if necessary with municipal water. The well water varies in its composition and is strongly influenced by seawater with a correspondingly high salinity, primarily sodium and chloride. However, it also contains significant amounts of bromide, which had to be considered during the design stage of the new water treatment in order to avoid possible bromate formation. Being located in a drinking water scarce region, despite the high raw salt salinity the focus was on the highest possible yield with the lowest possible energy consumption.

### The EUWA solution

The concept developed by EUWA consists of activated carbon filtration for dechlorination and trihalomethane removal, four reverse osmosis systems, disinfection unit, a post treatment to adjust the desired treated water composition and a filtration for harvested rainwater. With this system configuration, all required water qualities such as brewing water, water for soft drinks, bottled drinking water, bottle washing water and boiler feed water are available.

Especially for bottled drinking water, the bromide had to be removed to such low level which prevents the formation of bromate during the post treatment of the water. This was achieved by a special configuration of reverse osmosis systems, which lower the bromide level well below that limit.



### Practical experience

Since commissioning the EUWA plant reliably supplies the beverage operation with treated water in the required amount and according to the stringent quality standards. The overall water treatment system operates at a total yield of 95% due to an optimised design and internal concentrate recycling.

The raw water quality is monitored in-line and any changes in feed water quality are automatically compensated by a flow and pressure controlled operation of the reverse osmosis. The operation of the reverse osmosis systems is also aligned with the fluctuating water demands from the different production

areas to allow an almost continuous operation of the water treatment plant. The use of variable-speed drives on high-efficiency motors reduced the energy demand of the plant to a minimum despite of the high osmotic pressure of the raw water.

Total capacity:	95 m <sup>3</sup> /h
Overall recovery:	95%
Brew water:	15 m <sup>3</sup> /h
Drinking water:	17 m <sup>3</sup> /h
Soft drinks:	15 m <sup>3</sup> /h
Bottle wash water:	30 m <sup>3</sup> /h
Boiler feed water:	7 m <sup>3</sup> /h
Service water:	11 m <sup>3</sup> /h

## THE WORLD OF WATER TREATMENT

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