# Unilever saves £32k and recovers 20,000m3 water annually

Pharmaceuticals | Case Study

## The Client

**Location --** Port Sunlight is the centre for Unilever's home care and personal care research and development. Scientists at Port Sunlight develop the next generation of oral, deodorant and household care products. There is also a large microbiology facility and a pilot plant for manufacturing prototype shampoos, fabric conditioners, toothpastes, deodorants and washing liquids. World famous brands such as Dove, Sunsilk, Rexona, Domestos, Comfort, Surf and Signal all use Port Sunlight technology.


## The Client's Needs

Under its Sustainable Living Plan that drives positive change and sustainable growth, Unilever aims to reduce water consumption and produce products in the most efficient way. Yet in one of the company's liquid plants where reverse osmosis (RO) was in operation, a high proportion of raw water (40,000m³ out of 170,000m³) was being sent to drain.

Only one of the primary RO units at Port Sunlight had been in operation and the reject water from this was being fed to the recovery RO. The resulting permeate was recycled back to the existing soft water tank.

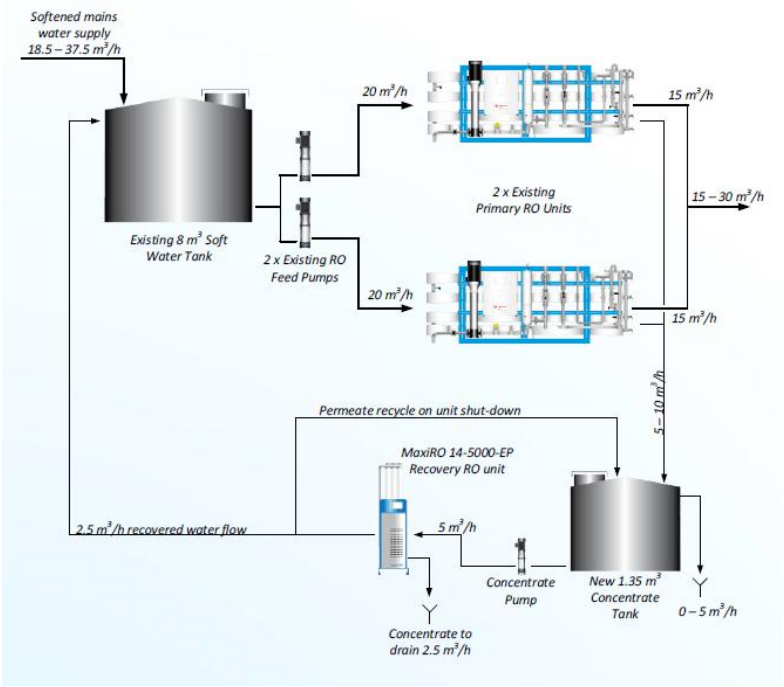
Project Manager, Katie O'Connor was tasked with improving the efficiency of this process and began to discuss the challenge with Veolia Water Technologies (Veolia). Expert engineers from Veolia showed Katie how total water consumption could be reduced by over 20,000m³ per year and wastewater usage could be halved using its RecoBLUE technology (recovery RO). This would not only assist Unilever Portsunlight in meeting in-house sustainability goals, but would also generate significant water cost savings of over £32,000 per annum.

## The Solution

After working with Katie to understand her objectives, Veolia's recommended solution was to install its RecoBLUE technology adjacent to the two existing primary RO units. This has the potential to recover 50% of RO wastewater and reduce running costs.

The pump is controlled by level switches in the buffer tank. When both primary RO units are in service, excess concentrate water (~5m3/h) overflows from the buffer tank to drain.

In the RecoBLUE technology (Maxi RO14-5000-EP concentrate recovery RO unit) that was installed, the concentrate water passes through an array of low energy, spiral wound, thin film composite membranes operating at a recovery of approximately 50%, with a permeate flow of 2.5 m³/h returning to the softened water tank and a reject flow of 2.5 m³/h going to drain. The skid mounted system is fully automatic under microprocessor control which interfaces with off skid tank level controls.




## Results

The new plant has increased the overall system recovery from 75% to approximately 85.7%. Unilever is very pleased with the result which saves the company £32k per year, recovers 20,000m³ water annually and is expected to see a return on investment within two and a half years.

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