

# Reducing regeneration's water footprint, UK

## Water Recovery | Case Study

### The Client

Veolia Water Technologies's resin regeneration station in Stoke-on-Trent is one of the largest in the UK. Built in 2004, it currently handles over a million litres of resin annually, supplying the needs of the company's SDI cylinder exchange and Aquamove mobile solution services.

Both services use ion exchange resin to produce high purity water and when those resins become exhausted they are returned to the Stoke-on-Trent facility where 98% is regenerated and recycled.

The remaining 2% is incinerated to produce electricity rather than going to landfill. The whole operation is controlled in accordance with Veolia Water Technologies's ISO14001 Environmental Management system.



### Key Figures

- 98 % of ION Exchange Resins are regenerated and recycled.
- Remaining 2% is incinerated to produce electricity.
- Handling over a million litres of resin annually.

### The Client's Needs

Resin regeneration uses about twenty million litres (20,000m<sup>3</sup>) of water annually, which is drawn from the Severn Trent mains supply and treated by reverse osmosis to consistently meet the high purity standard required by Veolia Water Technologies's ISO9001 quality system.



The reverse osmosis reject (concentrate) stream, typically 25% of the feedwater, is discharged to the effluent handling system, which equates to approximately 7,000m<sup>3</sup> per year.

As part of Veolia Water Technologies's Sustainability Commitment, a complete water audit of the regeneration station took place and identified that the reverse osmosis waste stream could be recycled, saving mains water and reducing the wastewater discharge.

### The Solution

MaxiRO™ has been successful in reducing the overall wastewater by at least 50% and recovering water of better quality than that of the mains supply. Veolia Water Technologies has installed a MaxiRO™ recovery reverse osmosis system at Stoke-on-Trent.



This is a second reverse osmosis plant which treats the reject stream from the main reverse osmosis system, reducing the overall wastewater by at least 50% and recovering water of better quality than that of the mains supply.

The recovery RO is designed specifically to treat the wastewater and, because this stream is under pressure, the MaxiRO feed pump has only to "top-up" the required pressure. The pump is fitted with a variable speed drive to control the delivery pressure so that the energy consumption is minimised.

## The Benefits

The MaxiRO™ system is recovering approximately 4500m<sup>3</sup> of water per year which is then recycled to the feed tank for the main reverse osmosis plant. With less mains usage and less wastewater discharge, Veolia Water Technologies has seen a significant reduction in their water footprint.



Furthermore, any cost savings are being re-invested into the business to further reduce the company's environmental impact and provide an improved service for customers.

For customers who operate their own reverse osmosis plants, a recovery reverse osmosis may offer significant savings, and Veolia Water Technologies's team of experts can guide you on the right system for your business process and the best way of reducing your water footprint.

## Results

- The MaxiRO™ system is recovering approximately 4500m<sup>3</sup> of water per year, which is then recycled to the feed tank for the main reverse osmosis plant.
- With less mains usage and less wastewater discharge, Veolia Water Technologies has seen a significant reduction in their water footprint.
- A recovery reverse osmosis system may offer significant savings to the customer.
- The MaxiRO™ pump is fitted with a variable speed drive to control the delivery pressure so that the energy consumption is minimised.

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