

RecoBLUE's Sustainable Solution for Kent & Canterbury Hospital

Healthcare | Case Study

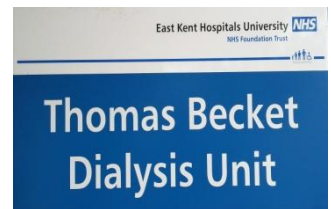
The Client

Kent Kidney Centre, part of the East Kent Hospitals University NHS Foundation Trust, provides dialysis services for East and West Kent and is centred at Kent and Canterbury Hospital. The Hospital was first established in 1793 and moved to its current site in 1937. The renal unit was built in 1971 and started to provide dialysis treatment in 1972. In patient care is provided on Marlowe Ward with 16 general and 14 acute nephrology beds and a six bed day case area. In addition the Unit has 30 out patient dialysis stations in Thomas Beckett Ward which operate two shifts a day for six days a week.



The Client's Needs

The central renal dialysis water system at Kent and Canterbury Hospital consists of a twin-pass, heat sanitisable reverse osmosis unit and operates for 18 hours per day generating some 3,400 litres per hour of high purity water.



The Trust has a sustainable development management plan to reduce water consumption by 25% by 2020. To help meet this target, the 1,100 litres per hour of reject water from the Renal Unit's reverse osmosis plant (RO) was being discharged to the Hospital's grey water recovery system. This reject water had been softened and filtered during the reverse osmosis pretreatment, and the Renal Technicians felt that it was too good to simply pass to the grey water system. Using the RecoBLUE on line calculator developed by Veolia Water Technologies, the technicians concluded that it should be possible to recover at least 550 litres per hour of the reject water and recycle it straight back into the holding tank of the renal unit's RO plant. This would reduce the consumption of both mains feedwater and salt for the pre-treatment softeners, with a significant operating cost benefit for the renal unit. It was time to talk to Veolia's Reco Solutions team.

Key Figures

- 50% of wastewater recovered
- 3½ years payback
- CO₂ footprint reduction
- Salt consumption reduced

The Solution

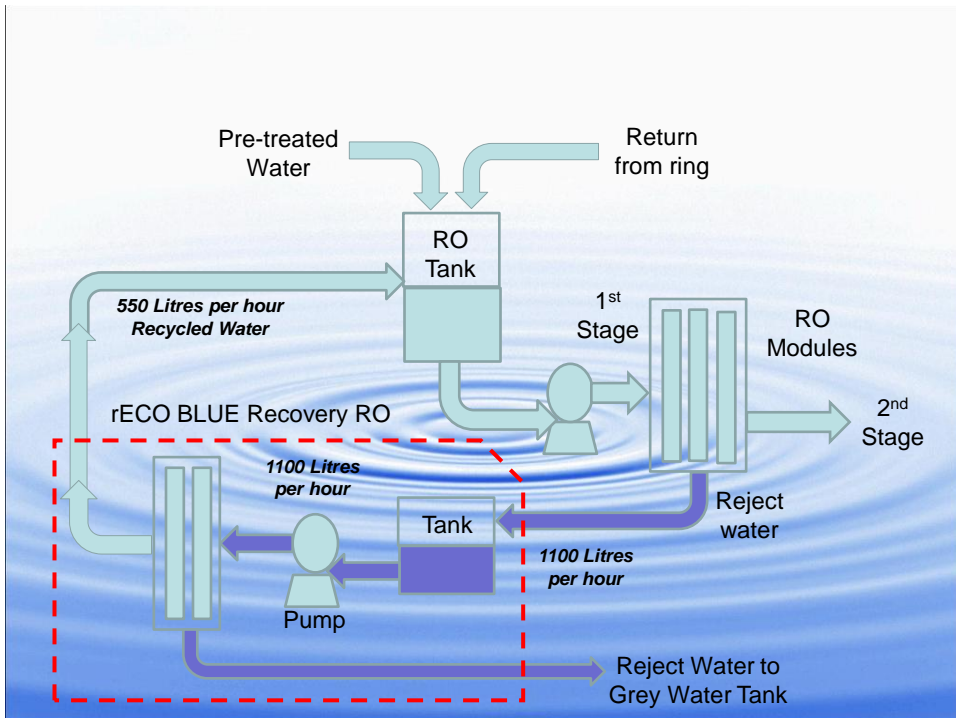
Veolia's solution was a RecoBLUE Recovery reverse osmosis unit designed to treat all of the 1,100 litres per hour of reject water and recycle at least 50% of it to a permeate quality significantly better than the mains water supplied to the Renal Unit.

Although RecoBLUE recovery solutions have been used in a number of industries this is the first time it has been implemented in a renal dialysis unit.



Process Description

The reject water from the main reverse osmosis unit was diverted from the grey water system into a break tank from which it was fed to the RecoBLUE Recovery RO unit. The permeate from the recovery RO unit was fed back directly into the main RO unit interstage break tank and the remaining reject discharged to the grey water recovery system. The Recovery RO system was commissioned in April 2014.



Results

The Kent and Canterbury Hospital Renal Unit was using about 14 million litres of mains water every year, which is about 3,500m³ per quarter. In the three months following commissioning of the RecoBLUE Recovery RO this has fallen to 2,700m³ per quarter giving a projected annual saving of more than 3,200m³. Fraser Campbell and the rest of the renal technicians are extremely pleased with the results. "The savings in mains water together with the reduced salt consumption is giving us a projected payback of 3½ years," he says, "and we estimate that the complete water recovery system will reduce our annual carbon footprint by 1.5 tonnes CO₂ equivalent."

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