

# MAPPING GREENER HEALTHCARE

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[Home](#) > [East and North Hertfordshire NHS Trust](#) > Recycling reject water from the dialysis unit

## Recycling reject water from the dialysis unit

By: **East and North Hertfordshire NHS Trust**

### Positive outcome(s) of project:

Water saving: 3,145,000 litres / year

### Savings per year:

£6,300 (Actual)

### CO2 savings per year:

3.3 tonnes CO2e (Actual)

### Description:

Waste (concentrate) water from the reverse osmosis (RO) unit at the Renal department is now recycled into the main soft water storage break tanks - these are very large tanks and serve our hot water requirements for the main hospital site. The calculated water saving is 3,145 M3/Year or 3,145,000 L/Year - cash saving of £6,300 p.a. - this consumption has been closely monitored since the installation and it can be verified as achieving this reduction on the subsequent water bills.

The installation costs to recycle the RO water (break tank, pumps & pipe-work etc) was in the region of £6k so that the pay back for this scheme was less than 12 months.

### Carbon calculations

3.145 million litres diverted from sewerage annually and, through re-use, avoiding the need for supply of the same volume of mains water.

$3.145 \times 709 \text{ kg CO}_2\text{e} / \text{million litres (water treatment)}^* + 3.145 \times 344 \text{ kg CO}_2\text{e} / \text{million litres (water supply)}^* = \mathbf{3311 \text{ kg CO}_2\text{e per year}}$

*Conversion factors taken from 2012 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting (Annex 9, Table 9a)*

### Location:

Renal Unit, Lister Hospital

### Start date:

01/02/2011

### Status:

completed

### Reasons for project:

Cost savings, reduce water wastage

### Implementation costs:

£6,000

### Partner:

A meeting with Veolia water (now Affinity Water) in the summer of 2010 agreed to share the cost to get in consultants to look at a water efficiency review at Lister hospital. The Water Efficiency Review Report picked up on the opportunities for RO water recycling and identified the water savings/pay back and budget cost of installation which was carried out by the Trust shortly afterwards.

### Barriers in project implementation:

Infection risk

The water is recovered from the RO water purification system, upstream of the supply to dialysis machines. The system is supplied with mains water (drinking water quality), which it further purifies (softens) to produce ultra-pure water for haemodialysis. Although the waste water is uncontaminated, we considered any possible infection risk from diverting/storing it. We spoke in detail to our legionella water consultants - and we looked at the dilution rates and took a pragmatic view that it was safe to divert the water to the main hot water supply after considering the facts that:

Our mains cold water supplying our site is disinfected using CL02 (carried out by the Trust)

Our soft water is disinfected with CL02 (the Trusts secondary CL02 plant)

The hot water is distributed @ >65 deg C (thermal disinfection)

**Contact:** Robert Jones, Property Services Manager, [robert.jones@nhs.net](mailto:robert.jones@nhs.net)

Green nephrology

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