

Advancing sustainability through continues innovation: Raw water usage

Francois Ackerman

National Renal Care, Cape Town, South Africa

Abstract

Introduction: With the continues water supply requirements, and the urgent need to reduce water usage, and considering the looming day “zero” during the 2018 drought in the Western Cape and the rest of the country. Each person, business and company have an obligation to assure water is used sparingly and to account for each drop of this natural resource.

Methodology: Our study found that haemodialysis requires upward of 500 litres of raw water to produce the required 150 litres of permeate water, as needed during a standard 4 hour dialyses treatment session, contributing to 30% plant utilisation.

We believed that by rebuilding our existing “direct feed” RO plants by introducing a “post tank” system, capturing our return loop line, we estimated an increase in our utilisation of our plants to show an estimated 70% - 75% utilisation. With additional changes to our prefiltration we could potentially have an additional 5% - 10% utilisation increase.

Result: During 2022, we commissioned project Post Tanks on all our target centres. The success of the project is measured by reviewing a sample period prior to commissioning, during the sample period we used average raw water amounting to 18,800 kilo litres, this usage we successfully reduced to an average of 13,376 kilo litre or -28%, based on the same criteria as the sample period. With further adjustments to our prefiltration plants, we were able to reduce the usage following the conversion of 13,376 kilolitre further down to 11,630 kilo litres, -13%.

As part of this project, we also installed telemetry management system on all our plants, by doing so we are now able to remotely manage our plant utilisation, assuring all our plants are operating at the best possible utilisation value but also producing high quality of permeate water to our haemodialysis machines assuring the best possible patient care.

Conclusion: Water remains one of the most volatile natural resources available and the only main source of live sustainability for each living organism. By challenging each person, company or organisation to take part in water conservation, to challenge each other to find innovations to reduce water usage, we can conserve and sustain.