

Musgrove Park Hospital Install New RO System with Zero Downtime

Client

Musgrove Park Hospital, Taunton is part of Taunton and Somerset NHS Foundation Trust. It is the largest acute hospital in Somerset, serving a population of over 340,000 as well as providing some specialist and tertiary services for the whole of Somerset with a catchment population of 544,000. This equates to around 700,000 visits from patients each year.

The hospital is equipped with over 700 beds, 30 wards, 16 operating theatres, a fully equipped diagnostic imaging department and an enhanced cancer treatment centre. They've also an onsite purpose built Sterile Services Department (SSD) that provides sterilisation services across multiple healthcare specialties.

Challenge

Musgrove Park Hospital embarked on a site-wide improvement programme to streamline and modernise its processes. Under this initiative the SSD team launched a review of its department infrastructure and water treatment processes. As well as conducting its own analysis, the department asked Envirogen for efficiency improvement ideas.

An extensive risk assessment process identified the need to replace its ten-year old Reverse Osmosis (RO) plant. It would further enhance an earlier Envirogen project to upgrade its RO pre-treatment section; the combined result being to process cleaning of sterilisation equipment more quickly and efficiently.

The SSD has four washer/disinfectors for instrumentation sets with the addition of one flexible endoscope washer. The challenge was not only to keep the decontamination service running with no operational downtime; but also to install and commission equipment during a period of refurbishment of the designated plant room.



Solution

A proven pre-fabricated duplex RO 'Endotherm Duo' system was recommended as this would deliver the enhanced water quality and volume improvements. Envirogen consulted closely with the hospital's Capital Projects Estates and SSD teams to agree timings and best installation processes.

A multi-phased project plan was developed to enable full installation, with zero downtime, in just ten weeks:

Phase 1: Temporary RO unit is loaned to SSD:

- Continuous operation of decontamination area is secured through installation of loaned RO unit which is positioned in a 'temporary location'.
- Following successful water quality samples to ensure CfPP 01-01 standards and approval from the AE(D), this temporary equipment is connected to washer disinfectors.

Stage 2: Existing RO plant decommissioned:

- Minimal disruption to department as RO plant is decommissioned and removed.
- Musgrove Park Hospital took advantage of this recently vacated space to redecorate and relay the flooring.

Stage 3: New RO plant installed and commissioned and temporary RO unit removed:

- Envirogen installed, connected and certified the new EndoTherm Duo RO system and also made repairs to an existing stainless steel ring main.
- Recognising local processes, a steam heat exchanger is added, which is fed by the hospitals own steam supply to ensure purified water is maintained and delivered in excess of 70°C. This elevated temperature is required to minimise the washer cycle time and maintain good bacterial quality.
- Completing the plant, the EndoTherm Duo is connected to the pre-treatment system comprising duplex booster pumps and a duplex water softener.
- Successful water quality samples are then taken to validate CfPP 01-01 standards and assist AE(D) approval, resulting in switchover completion so that new RO supply feeds the four washer/disinfectant cabinets.
- Following the switch over process the temporary loan unit is removed and new RO plant becomes fully operational.

As a vital piece of equipment within the SSD, its performance and reliability is critical. Mark Morley, SSD Manager, explains:

“In every SSD, department managers want to optimise the speed and performance of their sterilisation equipment to ensure targets are met. Items for sterilisation therefore need to be processed more quickly and efficiently with effective water treatment being critical. Close collaboration with Envirogen at the early stages, meant a robust workable solution was put in place to guarantee continuous operation. I am pleased to say that during the installation the SSD did not miss a single wash cycle”.

Compact Endotherm Duo:
A complete water purification system with duplex RO units in a single frame.



Key Outcomes

The replacement of an outdated RO system with high quality modern equipment enabled Musgrove Park Hospital's SSD to achieve its primary goal of boosting the infrastructure of its water treatment process, whilst also improving efficiency and overall ability to provide sterilisation services across multiple healthcare specialties.

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- Zero cancellation of sterilisation services with no operational downtime.
- Modern and highly efficient RO system resulting in reduced operating costs and long term savings.
- Guarantees water quality to meet current specifications as identified by Department of Health.
- Duplex design for maximum resilience and protection against downtime.
- PureCare Priority Response level service level to ensure planned service and preventative maintenance – including onsite call out response time guaranteed within 24 hours, with 24/7 hour telephone support.
- Long term solution with Endotherm Duo capable of accommodating greater water volume capacity in the event future.

Mark Morley, SSD Manager, confirms:

“... From the word go our efficiency and capability within the department increased, and following installation, we can now handle over 250,000 items [running through our equipment] per year ... that's good news for our Trust, the NHS, and our patients”



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